

1. INTRODUCTION

The OCEAN 2.0 side-feed applicators are available with either a mechanical terminal feeder or a pneumatic terminal feeder assembly. Each style of applicator accepts side-feed strip terminals and applies pre-stripped wires.



NOTE

Dimensions in this instruction sheet are in metric units [with U.S. customary units in brackets]. Figures are not drawn to scale.



NOTE

This instruction sheet, the exploded-view drawing with the associated parts list packaged with the applicator, along with the applicable customer manual provide all the information required to operate and maintain the applicator and machine.

Following is a list of the terminating machine customer manuals that apply:

Manual	Machine
409-5128	Basic AMP-O-ELECTRIC* Machine
409-5207 or 409-5289	Model "T" Terminating Unit
409-5842	Model "G" Machine
409-10047	AMP 3K* Machines 1725950- [] and AMP 5K* Machines 1725900- []
409-10099	AMP 3K/40* Machines 2119683- [] and AMP 5K/40* Machines 2119684- []



NOTE

Refer to Instruction Sheet 408-35005¹ for translations of the Safety Warnings specified herein.

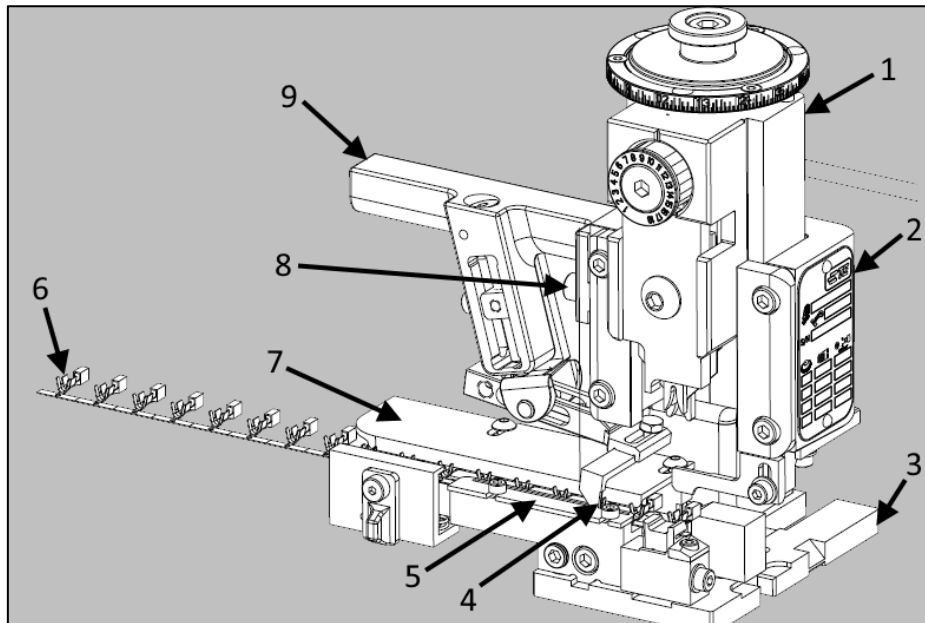
2. DESCRIPTION

2.1. Overview

1. Main components of the mechanical and air feed applicators are identified in Figure 1 and Figure 2, respectively.

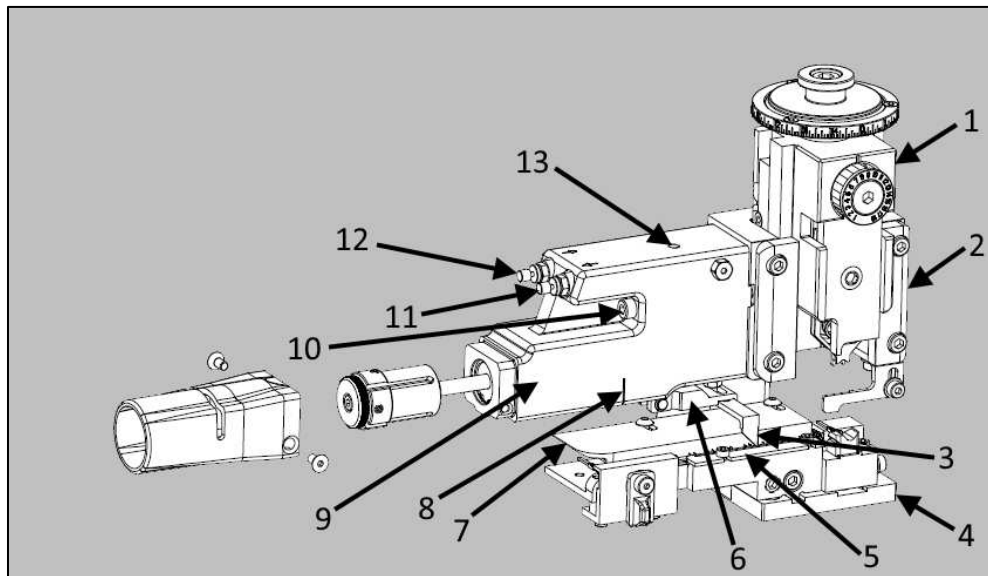
¹ Future Release

Figure 1: Mechanical Feed Applicator



- | | |
|----------------------------------|--|
| 1 Ram Assembly | 6 Side-Feed Strip-Form Terminals |
| 2 Applicator Housing | 7 Rear Strip Guide Plate |
| 3 Base Plate | 8 Mounting Screw (2 Places) |
| 4 Feed Pawl | 9 Mechanical Terminal Feeder Assembly |
| 5 Front Strip Guide Plate | |

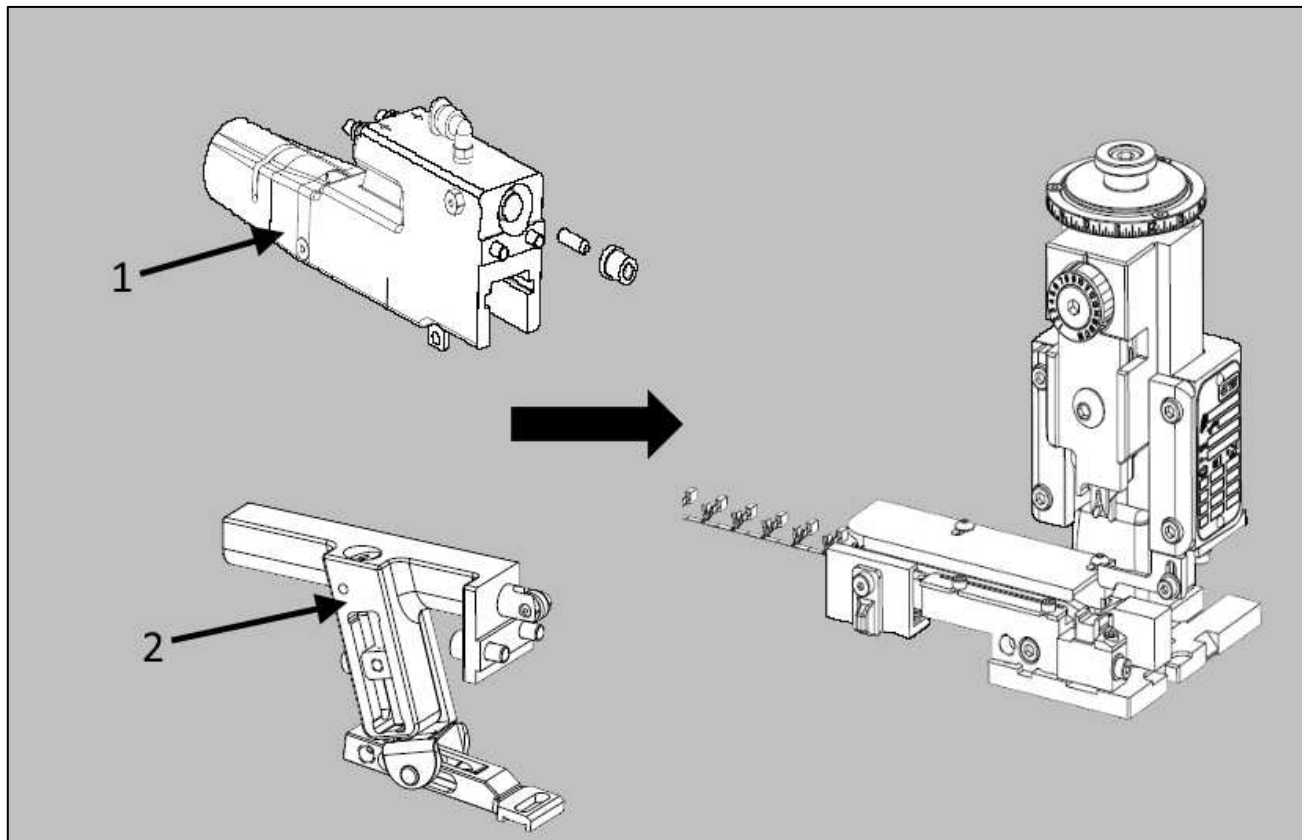
Figure 2: Air Feed Applicator



- | | | |
|----------------------------------|---|---------------------------------|
| 1 Ram Assembly | 6 Feed Arm | 11 Retract Speed Control |
| 2 Applicator Housing | 7 Rear Strip Guide Plate | 12 Forward Speed Control |
| 3 Feed Pawl | 8 Vertical Etched Line | 13 Air Supply Connection |
| 4 Base Plate | 9 Pneumatic Terminal Feeder Assembly | |
| 5 Front Strip Guide Plate | 10 Mounting Screw (2 Places) | |

- Each applicator is individually designed for specific terminals. The wire crimp height and insulation crimp height can be adjusted to accommodate different wire sizes and insulation ranges. The applicator is also designed to accept modular-feed packages.

Figure 3: Feeder Assembly

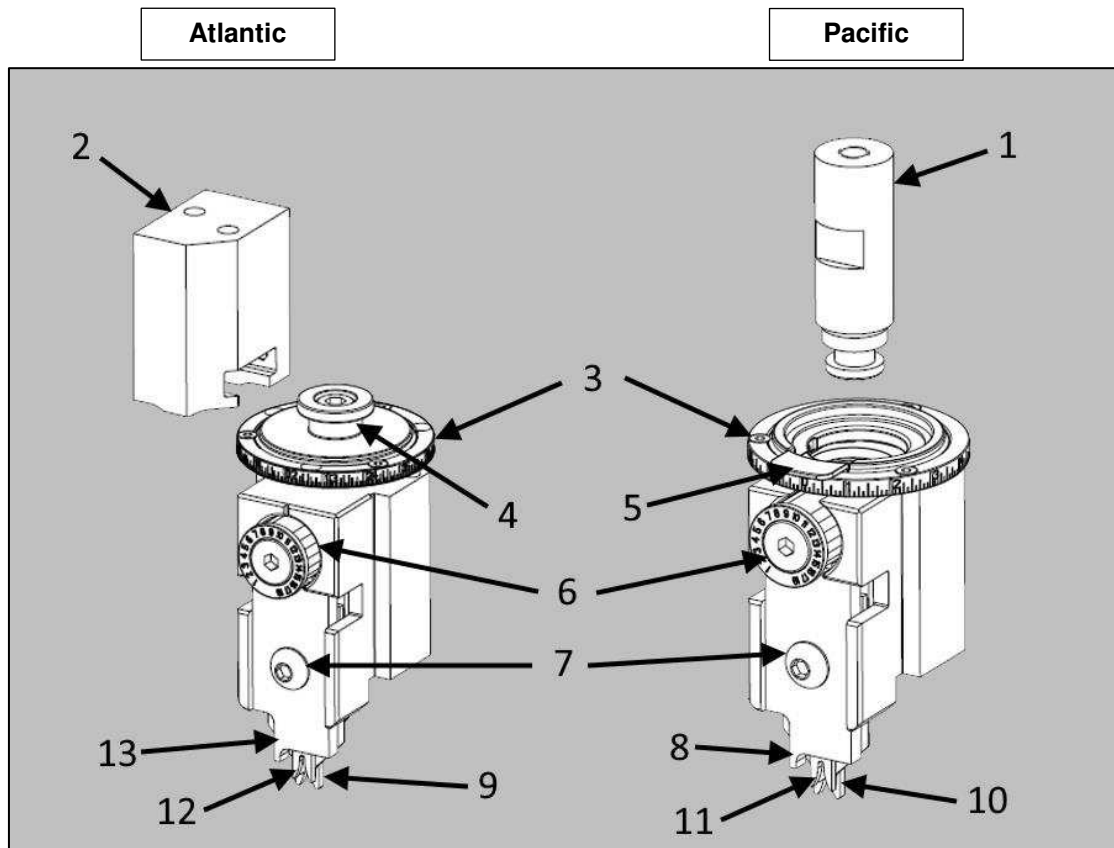


- 1** Pneumatic Terminal Feeder Assembly
- 2** Mechanical Terminal Feeder Assembly

- The OCEAN applicator can be used in various machines; provided the machine has the proper stroke length and all the necessary equipment.

There are two basic applicator design styles; Atlantic and Pacific, to meet the many terminator and lead maker configurations worldwide (see Figure 4).

Figure 4: Basic Applicator Design Styles

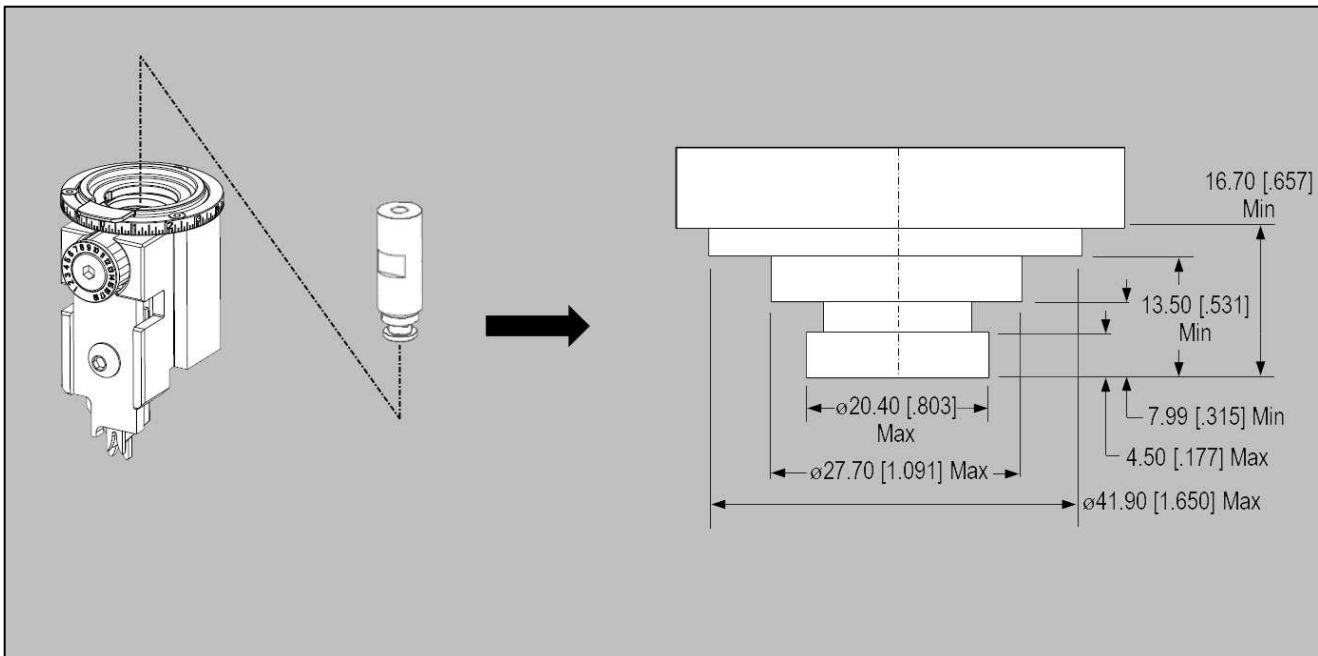


- | | | | | | |
|----------|----------------------------------|-----------|-----------------------|-----------|-----------------------|
| 1 | Machine Ram for Ram Post Adapter | 6 | Insulation Crimp Dial | 11 | Insulation Crimper |
| 2 | Machine Ram for Ram Post Adapter | 7 | Crimper Bolt | 12 | Insulation Crimper |
| 3 | Wire Crimp Disc | 8 | Front Shear Depressor | 13 | Front Shear Depressor |
| 4 | Ram Post | 9 | Wire Crimper | | |
| 5 | Ram Clamp | 10 | Wire Crimper | | |


NOTE

The Pacific applicator will work only when used with a machine having a ram that falls within the dimensional envelope shown in Figure 5.

Figure 5: Pacific Applicator Requirements


NOTE

Dimensions are in millimeters with inches in brackets.

- Though the Atlantic and Pacific applicator ram and base plate interfaces are different, most of the OCEAN 2.0 features and adjustments are the same.

The terminal strip must be fed into the applicator with the wire barrels facing out; between the Front (outer) and Rear (inner) Strip Guides. The terminal strip passes the Stock Drag, and the lead terminal is positioned 1) over the Anvil for pre-feed applicators, or 2) one terminal length from the Anvil for post-feed applicators. The Feed Pawl will feed one terminal during each cycle of the machine. The Ram Post (also referred to as the Ram Mounting Post) will engage the Post Adapter of the machine ram, and the machine ram will actuate the applicator.

The Wire Crimp Disc is located just below the ram post interface, which is designed with a spring-loaded adjustment mechanism for precise crimp height adjustment in increments of 0.01 mm [.0004 in.]; with a total adjustment range of 1.45 mm [0.057 in.]. By rotating the Wire Crimp Disc, the ram interface raises and lowers relative to the applicator housing. The indicator notch of the ram points to the numbers on the outer diameter of the Wire Crimp Disc, indicating a relative crimp height.

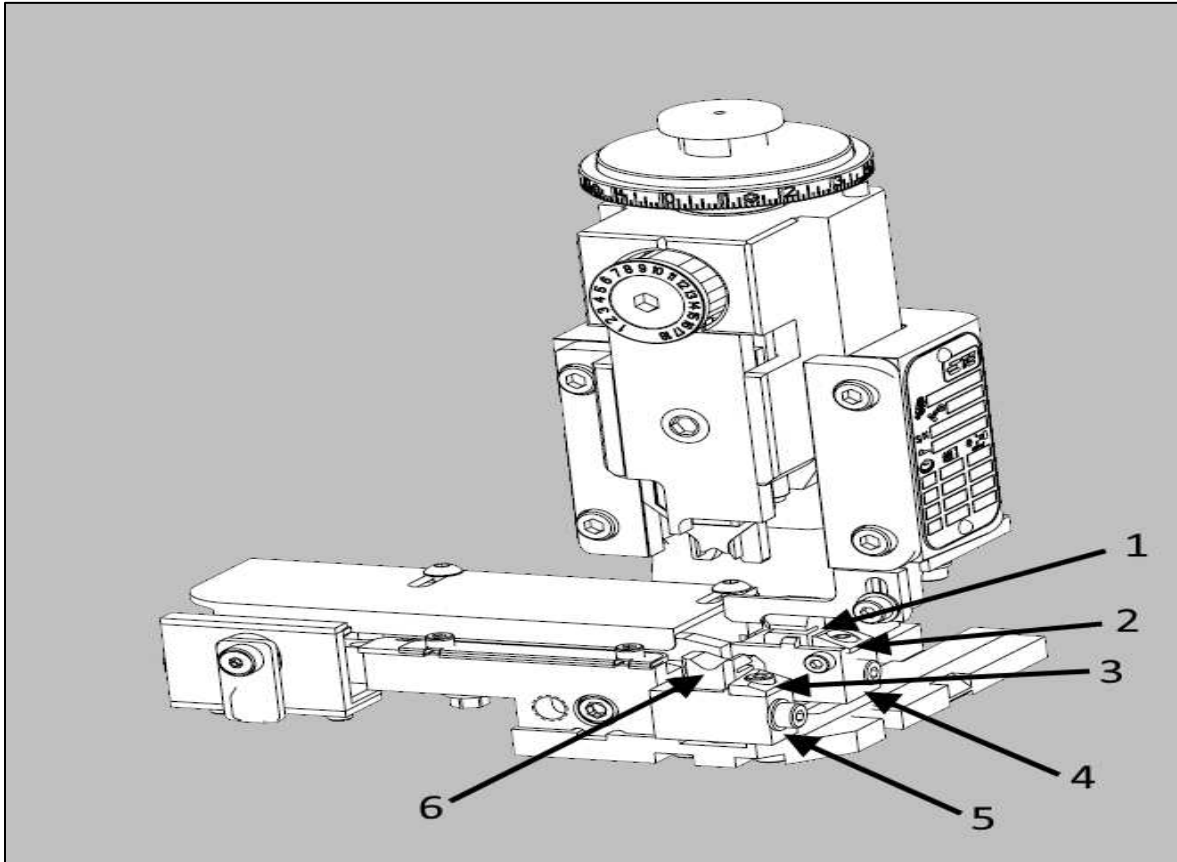
The Wire Crimper is held in a pre-set position by the Ram and the Crimper Bolt. The Insulation Crimper and the Front Shear Depressor are also held by the Crimper Bolt. The Insulation Crimper is free to move up and down so the insulation crimp height can be adjusted via the Insulation Crimp Dial by pulling the spring-loaded dial outward slightly and rotating to a different number.

The applicator mounting surface is the base plate. The Anvil, Front Shear Holder, Terminal Support, Strip Guide Plate, and applicator housing are mounted on the base plate. The Stock Drag, and Front and Rear Strip Guides are mounted on the Strip Guide Plate.

a. Terminals with dual-carrier strips

When terminals with dual-carrier strips are to be processed, an additional Shear Depressor, Rear Shear Holder, and Rear Floating Shear are required. The Rear Shear Depressor will push the Rear Floating Shear down to cut the terminal from the rear carrier strip and the Terminal Hold-Down will keep the terminal from raising during the crimping and shearing process. The Rear Floating Shear and Rear Shear Holder are mounted on the base plate.

Figure 6



- | | | | |
|----------|---------------------|----------|----------------------|
| 1 | Rear Floating Shear | 4 | Rear Shear Holder |
| 2 | Rear Shear Insert | 5 | Front Shear Holder |
| 3 | Front Shear Insert | 6 | Front Floating Shear |

5. Lubrication

Some terminal strips require the use of a terminal lubricant. Wick-type lubricators apply lubricant to the terminal strip as it feeds into the applicator. Terminal lubricants reduce tooling wear and help reduce damage to the plating on some terminals.

- OCEAN applicator, Side-Feed Lubricator Assembly PN 2119955-1 is available.
- For rear-carrier style terminals, Lubricator Assembly PN 2119955-5 is available.



CAUTION

Depending on the final use of the crimped terminal, terminal lubrication is not always recommended. To determine if your applications warrant the use of a terminal lubricator, contact your Field Representative.



NOTE

If your application warrants the use of a terminal lubricator, the recommended lubricant is Stoner Mechanical Lubricant E807 available from Stoner, Inc. Call 1-800-227-5538 or visit www.stonersolutions.com.

2.2. Applicator with Mechanical Feed System

With a Mechanical Feed applicator, the terminals are fed by the action of the Feed Cam and a series of rods and levers, which move the Feed Pawl. Two feed cams are available (Pre-Feed and Post Feed) and can be mounted in two different mounting holes depending on machine stroke length and feed type (see Figure 7).

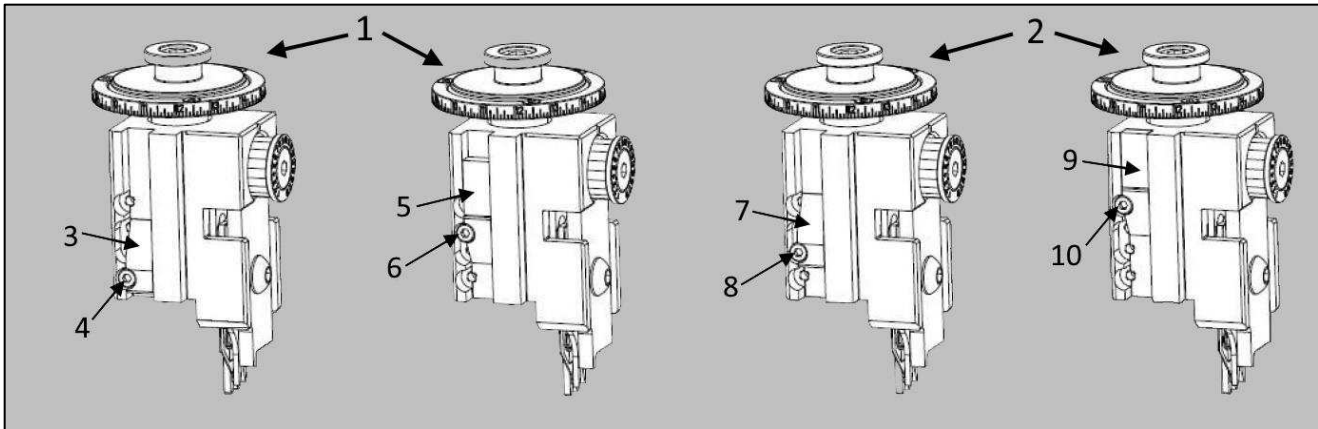
The Post-Feed feed cam advances the lead terminal over the Anvil on the downward stroke of the ram assembly; leaving the Anvil clear when the machine is at rest.

The Pre-Feed feed cam advances the lead terminal over the Anvil on the upward stroke of the ram assembly; leaving a terminal over the Anvil when the machine is at rest.

i **NOTE**
When not in use, the spare Feed Cam can be mounted to the applicator housing in the spare feed cam storage location (see Figure 8).

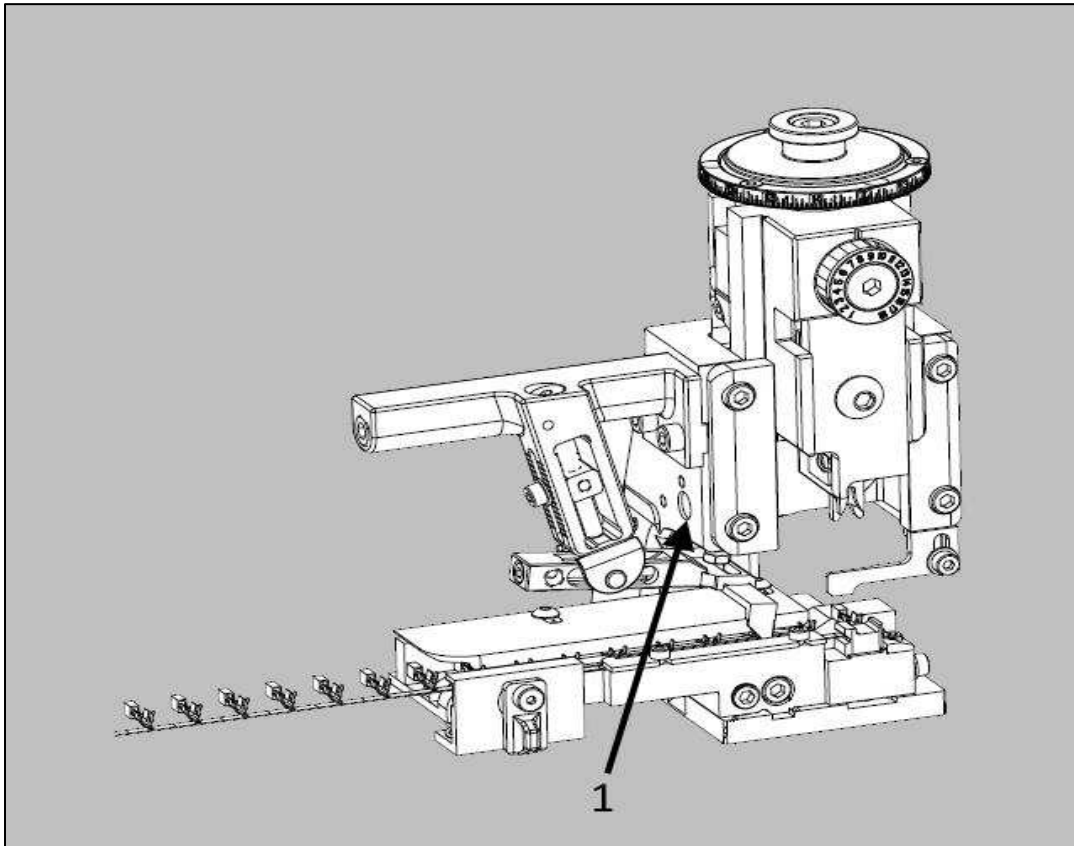
i **NOTE**
Pacific applicators can only be used with 30-mm stroke machines and, therefore, only have the 30-mm feed cam mounting positions on the applicator ram.

Figure 7: Mounting Feed Cam (Atlantic Applicator w/Mechanical Feed shown)



- | | | | |
|----------|----------------------------------|-----------|----------------------|
| 1 | 40-mm [15/8-in.] Stroke Machine | 6 | Mounting Screw (typ) |
| 2 | 30-mm [1 1/8-in.] Stroke Machine | 7 | Pre-Feed |
| 3 | Pre-Feed | 8 | Mounting Screw (typ) |
| 4 | Mounting Screw (typ) | 9 | Post-Feed |
| 5 | Post-Feed | 10 | Mounting Screw (typ) |

Figure 8: Spare Feed Cam Storage Location



1 Spare Feed Cam Storage Location

2.3. Applicator with Air Feed System


NOTE

The air supply connection (shown in Figure 2) must be connected to an air supply line providing continuous pressure of 5.00 to 6.00 bars [72 to 87 psi] at the applicator.


NOTE

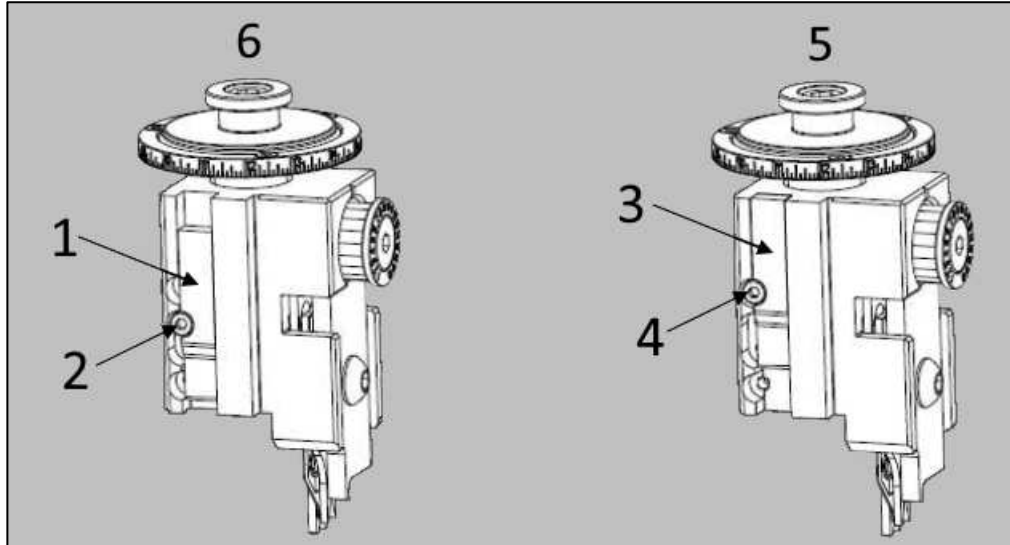
NO oil lubrication of air for the OCEAN Air Feed module is required after receiving and use within a production environment.

The ram continues downward, completes the crimping action, and starts back up. As it approaches the fully raised position, the push rod drops off the high portion of the ram mounted cam, shifting the air feed valve. The *extend* side of the cylinder is then filled, moving the feed pawl and terminal strip over the anvil for the next cycle. The exhaust control valves control the speed of the feed stroke and retract stroke.

Though all air feeds are pre-feed type, the feed cam position can be changed for use in different stroke machines: 40-mm [$1\frac{5}{8}$ -in.] stroke or 30-mm [$1\frac{1}{8}$ -in.] stroke (refer to Figure 7 and Figure 9).

Note that the air feed requires a different cam than the mechanical pre-feed or post-feed.

Figure 9: Mounting Feed Cam (Atlantic Applicator w/Pneumatic Feed shown)



- | | | | |
|----------|---------------------------------|----------|----------------------------------|
| 1 | Air Feed Cam Installed Pre-Feed | 4 | Mounting Screw |
| 2 | Mounting Screw | 5 | 30-mm [1 1/8-in.] Stroke Machine |
| 3 | Air Feed Cam Installed Pre-Feed | 6 | 40-mm [1 5/8-in.] Stroke Machine |

3. APPLICATOR INSTALLATION AND REMOVAL



DANGER

To avoid personal injury, make sure the power and air source to the machine is turned OFF and power cord/air supply are disconnected before installing or removing the applicator.



NOTE

Always remove the Ram Transportation Collar after installing the applicator on a machine and be sure to install the Ram Transportation Collar back onto the applicator ram just prior to removing the applicator from the machine.



NOTE

With the applicator in the machine, never attempt to cycle machine under power without terminals properly loaded, as described in Section 4; otherwise, the tooling may be damaged.



DANGER

To avoid personal injury, the applicator should be used only in an appropriate terminating machine. The pressurized air supply should only be connected after the applicator is properly installed in the terminating machine.

3.1. AMP-O-ELECTRIC Machine and Model “K” Machine (with Mini-Applicator Conversion)

A. Installation

This machine must be equipped with Machine Conversion Kit PN 690675-2 to adapt it for use with the OCEAN 2.0 applicators. The kit includes applicator Instruction Sheet [408-8022](#), which explains how an applicator with mechanical feed is installed and removed from the machine.

B. Removal

1. Turn off, and disconnect, the power to the machine.
2. Unload the applicator as described in Section 4.
3. Remove the Hold-Down Bracket and Movable Stop, then slide the applicator away from the stop on the base mount until the Ram Post is clear of the machine ram.

3.2. Model “T” Terminating Unit


NOTE

For the Atlantic Applicator only.

A. Installation

1. Turn off and disconnect the power to the machine.
2. Push in the Release Bar on the quick-change base plate. The Locking Latch will pivot *downward*.
3. Place the applicator on the quick-change base plate, then slide it back until two notches engage the stops at the back of the plate. At the same time, guide the Ram Post into the Ram Post Adapter.
4. Flip the Locking Latch up to secure the applicator in place.

B. Removal

1. Disconnect the power cord.
2. Cut the terminal strip one or two terminals from the end of the applicator.
3. Push in the release bar on the quick-change base plate. The Locking Latch will pivot *downward*.
4. Slide the applicator forward until it is clear of the Ram Post Adapter.

3.3. Other Terminating Machines

For installation and removal procedures for the basic AMP-O-LECTRIC machine, Model “G” machine, AMP 3K and AMP 5K machines, and AMP 3K/40 and AMP 5K/40 machines, refer to the appropriate 409 Series Customer Manual specified in Section 1.

For installation and removal procedures for terminating machines not listed, refer to the customer documentation supplied with the machine.


NOTE

Adjustment of the Stripper may be required when moving the applicator between bench and lead maker applications.

4. APPLICATOR LOADING AND UNLOADING

4.1. Terminal Strip Loading


NOTE

Before loading the terminal strip in applicator, make sure the installed applicator is the right one for the terminal to be applied. Compare the terminal part number on the reel with the numbers listed on the applicator print.

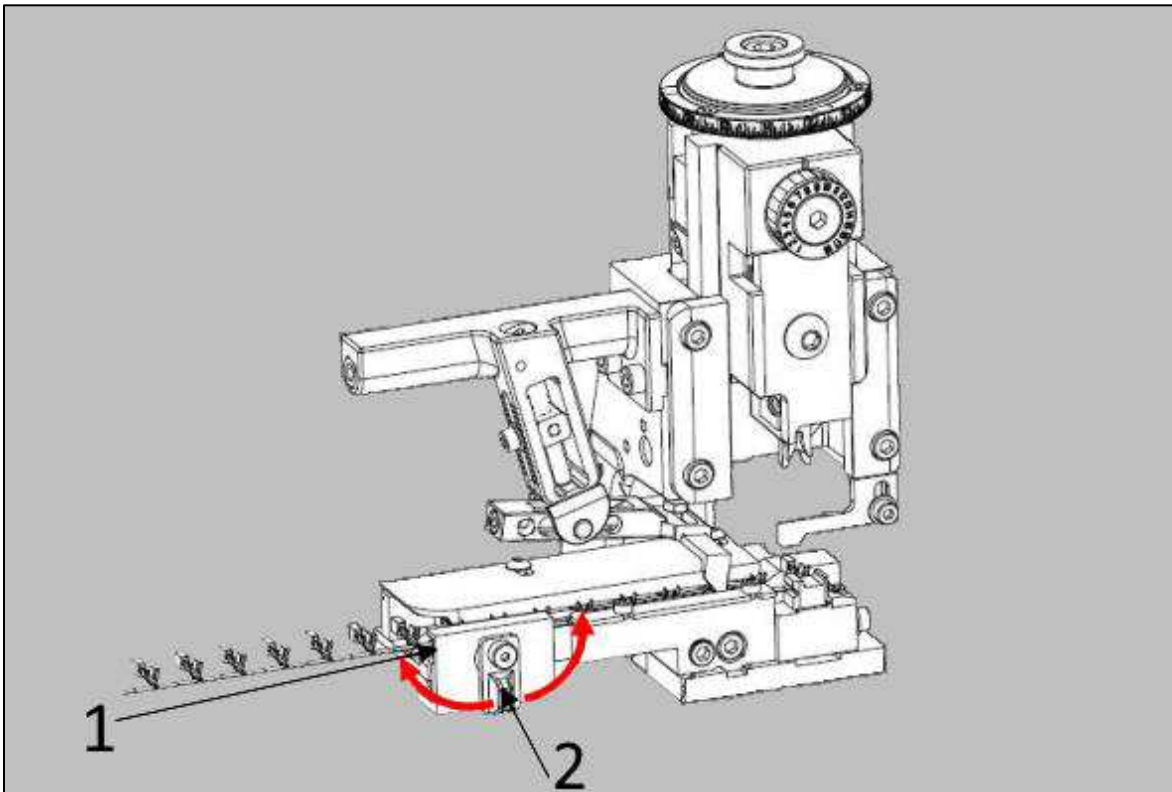
1. Turn off and disconnect the power to the machine.
2. Make sure the ram assembly is all the way up. If necessary, hand-cycle the machine to raise the Ram. Refer to the applicable 409 Series Customer Manual.
3. Remove the applicator guard assembly.
4. Raise the Stock Drag by turning the Drag Release Lever *upward*. Remove a length of the terminal strip left in the applicator by grasping the terminals at the strip guide entry, raising the Feed Pawl, and pulling the strip straight out of the applicator (see Figure 10).
5. With the reel of terminals installed on the Reel Support, feed the terminal strip into the applicator between the Strip Guides.


NOTE

Make sure the terminal strip enters the Strip Guides with the terminal open-side up and the wire barrel end toward the Stock drag.

6. Raise the Feed Pawl and continue to feed the terminal strip until the lead terminal is over the Anvil and the Feed Pawl engages the hole in the carrier strip.

Figure 10



- 1** Stock Drag
- 2** Drag Release Lever

7. If terminals are post-feed, lift the Feed Pawl and pull the strip back one terminal length (the lead terminal will then be moved over the Anvil on the downward stroke of the ram assembly).
8. Turn the Drag Release Lever *downward* to lower the Stock Drag.
9. Make sure the tip of the Feed Pawl is in the feed hole in the carrier strip.


NOTE

Some carrier strips have additional holes which are not used for feed purposes.

10. Hand-cycle the machine several times to make sure the applicator is properly adjusted as described in Section 5.
11. Re-install the applicator guard assembly.

4.2. Terminal Strip Unloading

1. Cut the terminal strip one or two terminals from the end of the 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 the strip section for cleaning, lubrication, or repair, it should only be removed as a part of the loading procedure.

2. If terminals are post-feed, turn the Drag Release Lever *upward* to raise the Stock Drag, lift the Feed Pawl, and move the lead terminal over the Anvil.

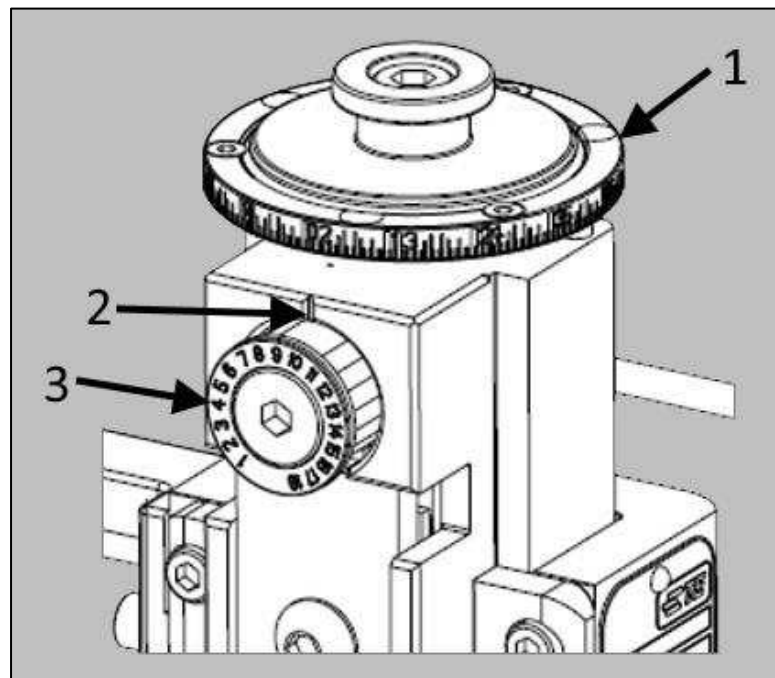
5. ADJUSTMENTS

5.1. Wire Crimp

A. Crimp Height

1. The wire crimp is adjustable by rotating the Wire Crimp Disc from 0 (largest crimp height) to 14.5 (smallest crimp height) in increments of .01 mm [.0004 in.].
2. Select a crimp height reference setting number from 0 (largest crimp height) to 14.5 (smallest crimp height) from the applicator print for the wire size to be used.
3. Turn the Wire Crimp Disc to line up with the specified crimp height reference setting number with the indicator notch/cut out on the front of the Ram (see Figure 11).
4. Turn the Wire Crimp Disc *clockwise* to decrease the crimp height and turn the Wire Crimp Disc *counterclockwise* to increase the crimp height. Each increment represents a change in crimp height of 0.01 mm [.0004 in.].

Figure 11



- 1** Wire Crimp Disc
- 2** Indicator Notch/Cut Out
- 3** Insulation Crimp Dial

5. Make the insulation crimp adjustment described in Paragraph 5.2, then make several test cycles and inspect the terminations closely. Look for rough or sharp edges around the 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.
 - If the terminations appear normal, measure the crimp height of each termination as described in Instruction Sheet [408-7424](#), packaged with the applicator. The crimp height must agree with the measurement specified on the applicator print for the wire size being used. Record crimp height dimensions for reference.
 - If the crimp height is incorrect, remove the applicator, and install one that is known to produce terminations of correct crimp height. Make several test cycles and repeat the inspection. If the crimp height is incorrect for this applicator, the problem is the machine shut height, and corrective information can be found in the applicable 409 Series Customer Manual. If the crimp height is correct, the problem is in the original applicator, and refer to Paragraph 6.7; Adjustable Crimp Height Repair, for corrective measures.

6. During extensive operation, periodically inspect the terminals as described in Step 4 to make sure the applicator is producing correct terminations.

B. Wire Crimp Adjust Lock Position

1. The wire crimp height adjusts can be locked in position by changing the Detent Pin orientation (see Figure 12).
 - a. Verify the setup dimension (distance from Crimper Seating Feature on the Ram) to the top of the Crimp Height Adjust Head (see Figure 13).



NOTE

This distance is also provided on the Applicator Print.

- b. Hold down the spring-loaded Detent Pin and turn the Adjust Head out of the Ram until the Detent Pin can be removed.



DANGER

The spring-loaded pin can injure if released unexpectedly.

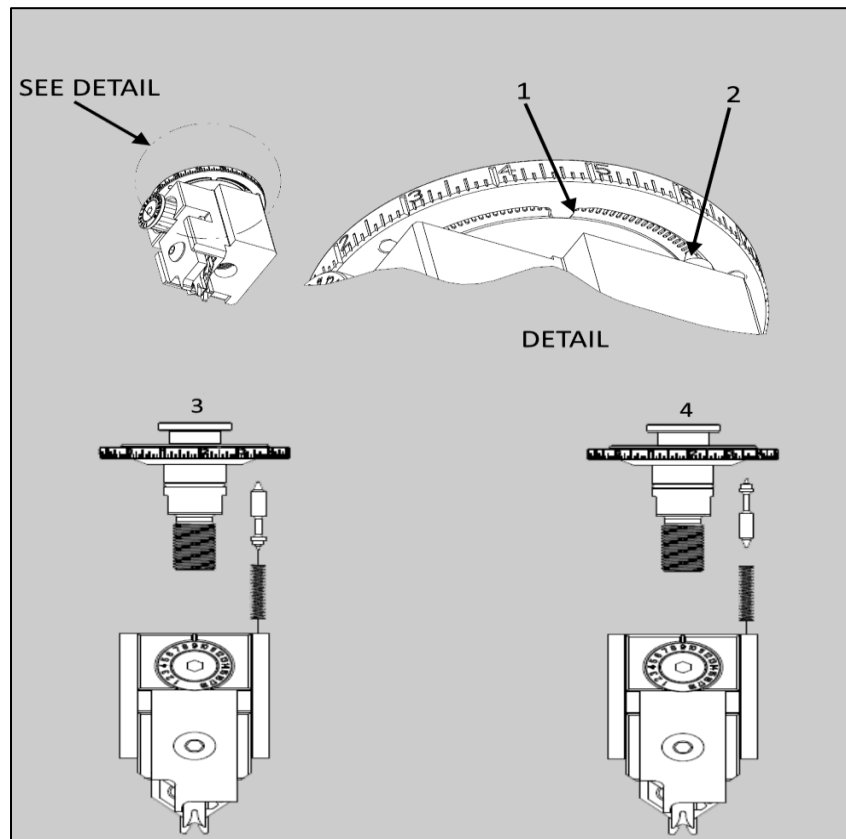
- c. Invert the pin so the locking end will contact the Detent Plate and re-install the pin and spring.
- d. While holding the pin down, turn the Adjust Head until the proper set-up dimension is reached.
- e. Verify the crimp height as shown in Paragraph A.



CAUTION

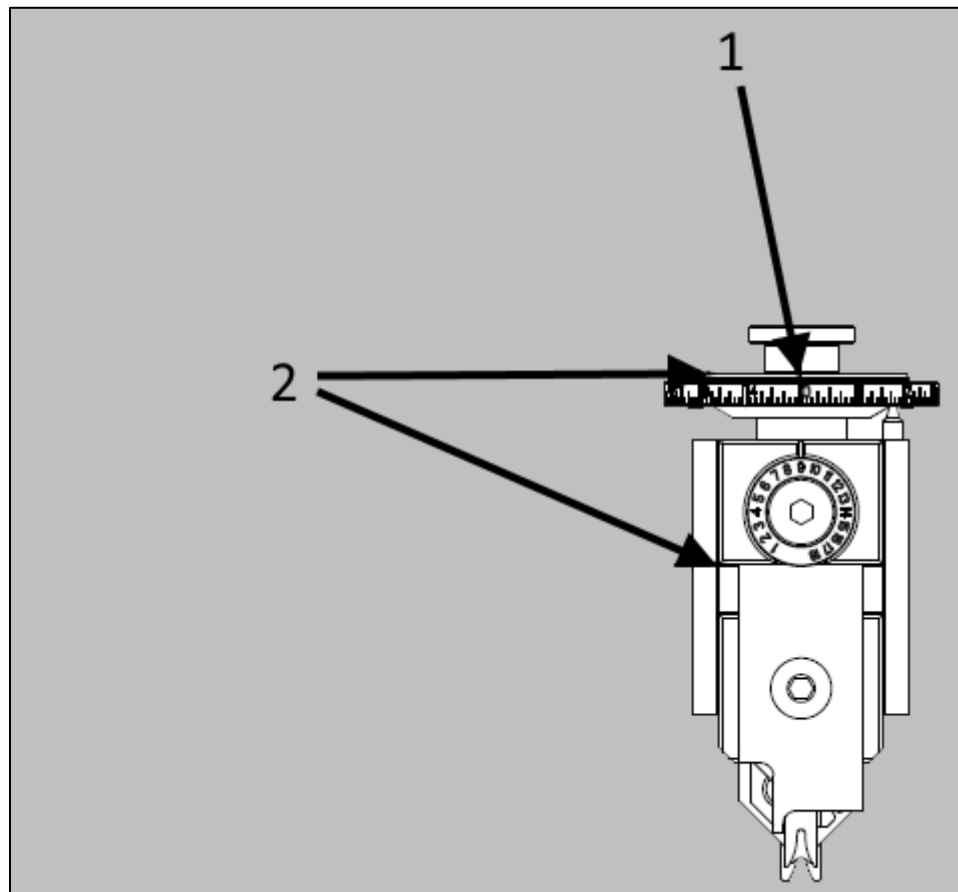
When changing crimp height while in the locked orientation, the spring-loaded Detent Pin must be depressed to rotate the number ring, or damage will occur.

Figure 12



- 1** Ring Stop
- 2** Detent Pin
- 3** Pin in DETENT Orientation
- 4** Pin in LOCK orientation

Figure 13



- 1** Adjust Set to 0 (Zero)
- 2** Fine Adjust Head Setup Distance

5.2. Insulation Crimp

The insulation crimp is adjustable in increments of 0.19 mm [.0075 in.] by pulling the Insulation Crimp Dial out (see Figure 11) and turning it to line up with the number (1 through 18) that it is shown at the indicator notch on the ram; No. 1 makes the loosest crimp and No. 18 makes the tightest crimp. The maximum range of adjustment is approximately 3.30 mm [.130 in.]. To find the desired insulation crimp, start with No. 1, make test crimps, then increase the setting one number at a time until the proper insulation crimp height is achieved.



NOTE

Some applicators may have a special Insulation Crimp Dial that differs in range and increments than described. Refer to the marking on the front of the Insulation Crimp Dial for correct increments.

5.3. Terminal Strip Feed – Mechanical Feed Applicator



NOTE

When adjusting a mechanical feed applicator, always start by properly adjusting the stroke length. Then adjust the fine feed adjustment to locate the terminal over the anvil.

1. With the terminal strip properly loaded, check the position of the lead terminal over the Anvil. Locate the Feed Pawl in the desired feed pilot hole of the carrier strip. Actuate the applicator to move the Feed Pawl forward. The lead terminal must be centered over the Anvil.
2. Watch the Feed Pawl as the machine is hand-cycled (or slowly cycled) several times. It should have enough over-travel on the backstroke to pick up the next terminal, but not so much over-travel that the Feed Pawl passes completely over the feed hole.



NOTE

At the end of its backstroke, the Feed Pawl should be at the back edge of the feed hole to be used. The backstroke must not be longer than this; otherwise, the Feed Pawl might not drop into the feed hole.

If the forward limit and backstroke setting are correct, the feed adjustments are complete. If not, continue with the next step.



NOTE

There are two adjustments that work in combination to properly position the lead terminal over the Anvil and give the proper backstroke position to pick up the next terminal feed hole. Use one or both adjustment types to properly adjust the applicator.

- If the lead terminal is not centered on the Anvil, make note of the position and continue to cycle the applicator to check the backstroke position.



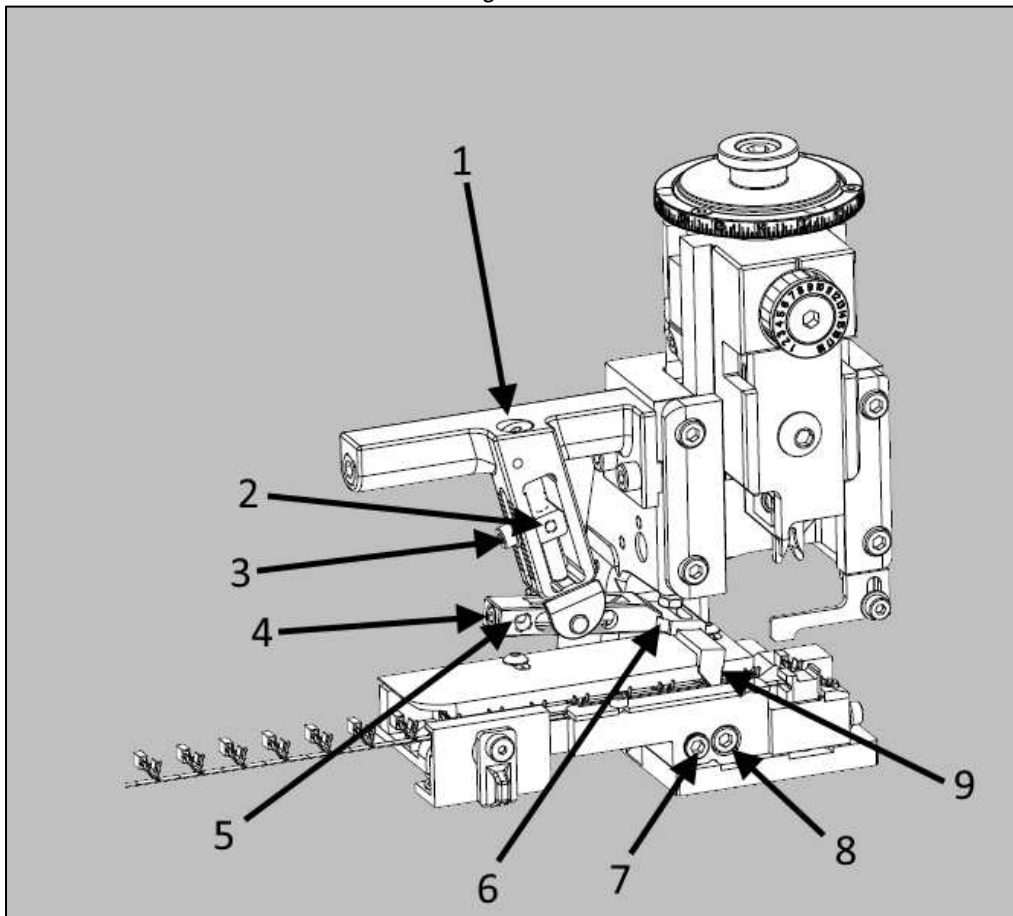
NOTE

At the end of its backstroke, the Feed Pawl should be at the back edge of the feed hole to be used. The back-stroke must not be longer than this; otherwise, the Feed Pawl might not drop into the feed hole.

If the lead terminal is not centered over the Anvil and the backstroke position is incorrect, both the stroke length and the fine feed position must be adjusted. Stroke length (backstroke position) must be adjusted before final centering of the terminal over the Anvil. Continue with the next step.

- Loosen the Stroke Length Adjustment Lock Screw (see Figure 14).

Figure 14



- | | | | |
|----------|-------------------------------------|----------|-----------------------------|
| 1 | Stroke Length Adjustment Screw | 6 | Feed Pawl Holder |
| 2 | Stroke Pivot | 7 | Strip Guide Locking Screw |
| 3 | Stroke Length Adjustment Lock Screw | 8 | Strip Guide Adjusting Screw |
| 4 | Fine Feed Adjustment Screw | 9 | Feed Pawl |
| 5 | Fine Feed Adjust Lock Screw | | |

5. Turn the Stroke Length Adjustment Screw *counterclockwise* to reduce the stroke length or *clockwise* to increase the stroke length.
6. Tighten the Stroke Length Adjustment Lock Screw.
7. Repeat steps 1 through 6 as required until the proper stroke length is achieved. **Note:** The terminal might not be centered over the Anvil; this will be adjusted at a later step.

If the feed pawl stroke length is satisfactory, and the backstroke position is correct, but the lead terminal is not centered over the Anvil, the stroke is correct; however, the Feed Pawl position is incorrect. In this case, an adjustment to the fine feed screw is required.

8. Adjust the Feed Pawl position as follows:
 - a. Loosen the Fine Feed Adjust Lock Screw on the side of the Feed Finger Holder to allow the Fine Feed Adjustment Screw to turn (see Figure 14).


NOTE

Do not remove the Fine Feed Adjust Lock Screw. A nylon plug is captured behind the lock screw. Loss of this plug will cause damage to the fine feed adjustment screw threads when the lock screw is tightened.

9. Adjust the Feed Pawl position by turning the adjustment screw *counterclockwise* to move the Feed Pawl away from the Anvil and *clockwise* to move the Feed Pawl toward the Anvil. Center the terminal over the Anvil.
10. Re-check the adjustment for the proper position and stroke as described in Step 1. Repeat the adjustment procedure as necessary and tighten the Fine feed Adjust Lock Screw.

5.4. Terminal Strip Feed – Air Feed Applicator

- OCEAN applicators equipped with Air Feed Module PN 2063440-1, -2 or -3: Refer to Section 5.4.A.
- OCEAN applicators equipped with Air Feed Module PN 2844940-1 or -2: Refer to Section 5.4.B.

A. Air Feed Modules PN 2063440-1, -2, or -3

The feed mechanism is actuated by compressed air (see *Figure 2*).


DANGER

To avoid personal injury, this applicator should be used only in an appropriate terminating machine. The pressurized air supply should only be connected after the applicator is properly installed in the terminating machine.


DANGER

Take extra precautions during adjustments. When the machine is manually cycled, the mechanism will move forward and backward once during each machine stroke, unless the air is disconnected.


NOTE

*There is a marking (vertical etched line) on the air feed housing (shown in *Figure 2*) to use as a visual aid to ensure that the piston assembly is located within the limits of the air cylinder position. The feed pawl holder must be positioned to the right of the marking. Incorrect feed pawl positioning relative to the marking may contribute to premature failure of the air feed module.*

The feed stroke is adjustable in a range from 0 to 49.8 mm, depending on the air feed part number, in stepped increments of 0.04 mm [.0016 in.] for the feed forward position and in 0.08-mm [.0031-in.] increments for the rear feed pawl position (backstroke).


NOTE

For ease of adjustment, the end cap can be removed with a 3mm wrench, exposing the “tool-less” adjustment knobs (recommended procedure). However, air feed module 2063440 can be adjusted with the end cap in place using a 3mm wrench or small screwdriver.

1. Mount the applicator onto the machine.
2. Insert the terminal strip until the lead terminal is located over the anvil.
3. Connect the air supply to the applicator.
4. Cycle the machine manually. The next terminal must now be located exactly above the anvil. If that is *not* the case, proceed with the following:

- a. Release the strip guide drag, and manually move the strip to the proper position - a rough-position only (the fine adjustment will come in a later step).
- b. Jog the machine down to the lower-dead-center position. The feed cylinder and pawl will be retracted away from the anvil.
- c. Using the Retract Speed Control knob (see Figure 2), position the feed pawl to the proper back position. Back the edge of the feed pawl to the back of the terminal strip feed hole. If the end cap is in place, use a 3-mm hex wrench or small screwdriver to reach through the end cap to rotate the feed adjustment knob. The adjustments are in 0.08-mm [.003-in.] increments or 30 degrees and can be felt as “clicks”.


NOTE

To facilitate adjustments with certain machines or applications, the feed adjustments can also be made with the air pressure removed. This allows more tactile feel of the detents. This requires manually moving the feed forward and back to check feed positions. Make sure that the feed forward and back positions are verified after restoring air pressure.


NOTE

At the end of the backstroke, the feed pawl should be at the back edge of the feed hole to be used. The backstroke must not be longer than this; otherwise, the feed pawl might not drop into the feed hole.

- d. Jog the machine to top-dead-center. The feed will move the next terminal over the anvil.
- e. Check position of the terminal over the anvil, noting if the terminal feed-forward position should be moved.
- f. Cycle the machine manually until the feed pawl shifts back. This releases the air pressure on the feed adjustment, making the adjustment detent positions easier to feel.
- g. Using the feed-forward adjustment knob, change the feed-forward position based on the direction and amount noted in step 4.d. The adjustments are in 0.04 mm [.0016-in.] increments or 15 degrees and can be felt as clicks during the feed-stroke adjustment knob rotation. Turning the feed forward adjustment knob *clockwise* moves the feed pawl away from the anvil and turning it *counter-clockwise* moves the feed pawl toward the anvil.


NOTE

When adjusting, make sure that only the feed adjustment knob turns, not the entire shaft. The backstroke adjustment knob may have to be held stationary to prevent unintended backstroke adjustments (use a 3-mm wrench when the end cap is in place).

- h. Cycle the machine back to top-dead-center, causing the feed to shift forward and feeding the terminal over the anvil. Repeat steps 4.d. through 4.h. until the terminal is centered over the anvil.

5. To adjust the air feed speed, proceed as follows:


NOTE

The air feed speed has been set at the factory and should therefore require re-adjustment only in exceptional circumstances.


NOTE

Take extra precautions during adjustments. When the machine is manually cycled, the mechanism will move forward and backwards once during each press stroke unless the air is disconnected.


CAUTION

Do not tamper with the detent screws on feed adjustments (see Figure 2), which were set up properly by the factory; otherwise, damage will occur.

- a. The feed mechanism was adjusted at the factory to ensure the terminal is advanced at the lowest possible speed. On rare occasions, the feed speed may not be fast enough if the applicator is used on a fully automatic machine. The feed speed can be increased by adjusting the two exhaust restrictors.
 - (1) Open the exhaust restrictors or Forward Speed Control and Retract Speed Control (shown in Figure 2) to increase the feed speed.

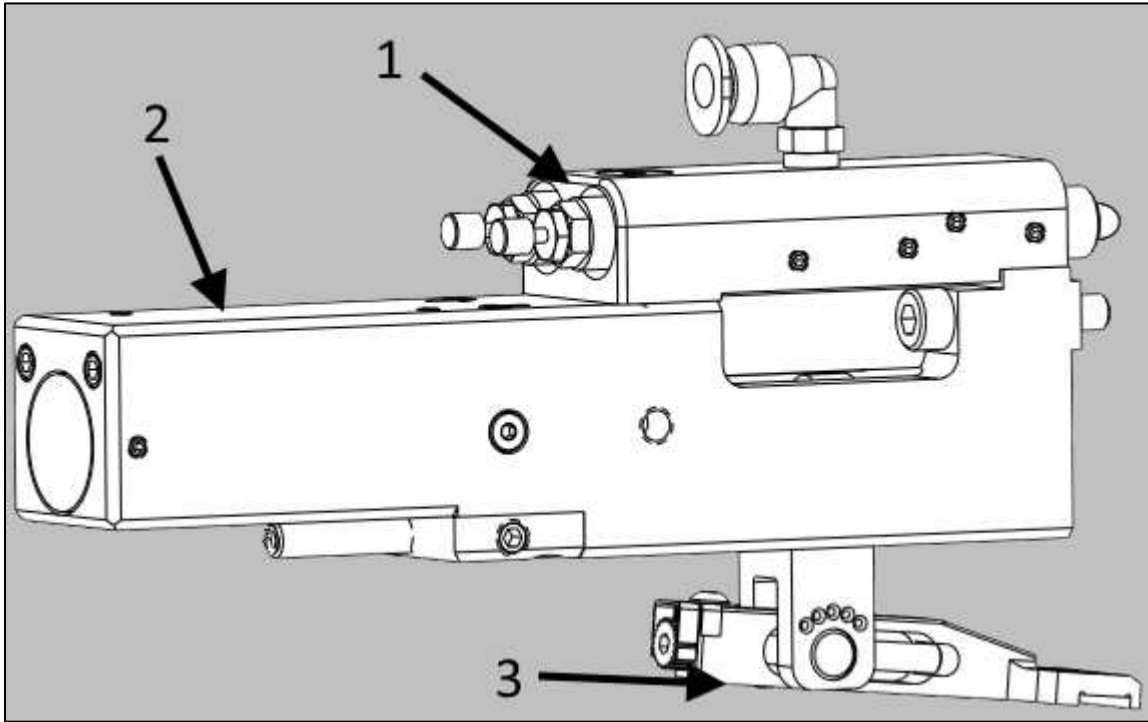

NOTE

The speed controls should not be fully opened to maximize feed speed. Excessive feed and/or retract speeds can cause inconsistent feeds and/or air feed module damage. It is recommended to only open the flow control valves two complete revolutions.

- (2) Loosen the locking ring and turn the adjustment screw *clockwise* to decrease the speed and *counter-clockwise* to increase the speed. When complete, tighten the locking ring.

B. Air Feed Modules PN 2844940-1 or -2

Figure 15



- 1** Valve Assembly
- 2** Air Cylinder
- 3** Slide Assembly

The feed mechanism is actuated by a constant supply of compressed air (see Figure 2).

- DANGER**
To avoid personal injury, this applicator should be used only in an appropriate terminating machine. The pressurized air supply should only be connected after the applicator is properly installed in the terminating machine.
- DANGER**
Take extra precautions during adjustments. When the machine is manually cycled, the mechanism will move forward and backward once during each machine stroke, unless the air is disconnected.
- DANGER**
When air pressure is supplied to the air feed module, if the ram of the applicator is moved up and down, either by hand when removed from the terminator or by the terminator ram moving, the feed may cycle.
- CAUTION**
Use caution when operating a machine with the guard open and air supplied to the air feed.
- NOTE**
Opening the machine guard will not remove air pressure from the air feed module.
- DANGER**
It is recommended to remove the air to the air feed module if any adjustments are to be performed.
- CAUTION**
Do not tamper with the set screws located in the air feed valve assembly.



NOTE

The life of the piston seal can be extended by applying either MAGNALUBE-G or Parker Super O-Lube to the outer diameter of the air cylinder piston shaft.

1. Feed Adjustment

The feed stroke (terminal pitch), terminal position, and feed speed are set from the factory. If adjustment is necessary, follow the instructions below:

a. Feed Stroke (terminal pitch)



NOTE

Feed stroke and feed positions adjustments are made using a 2.5mm ball end hex key wrench.



NOTE

At the end of the backstroke, the feed pawl should be at the back edge of the feed hole to be used. The backstroke must not be longer than this; otherwise the feed pawl might not drop into the feed hole.

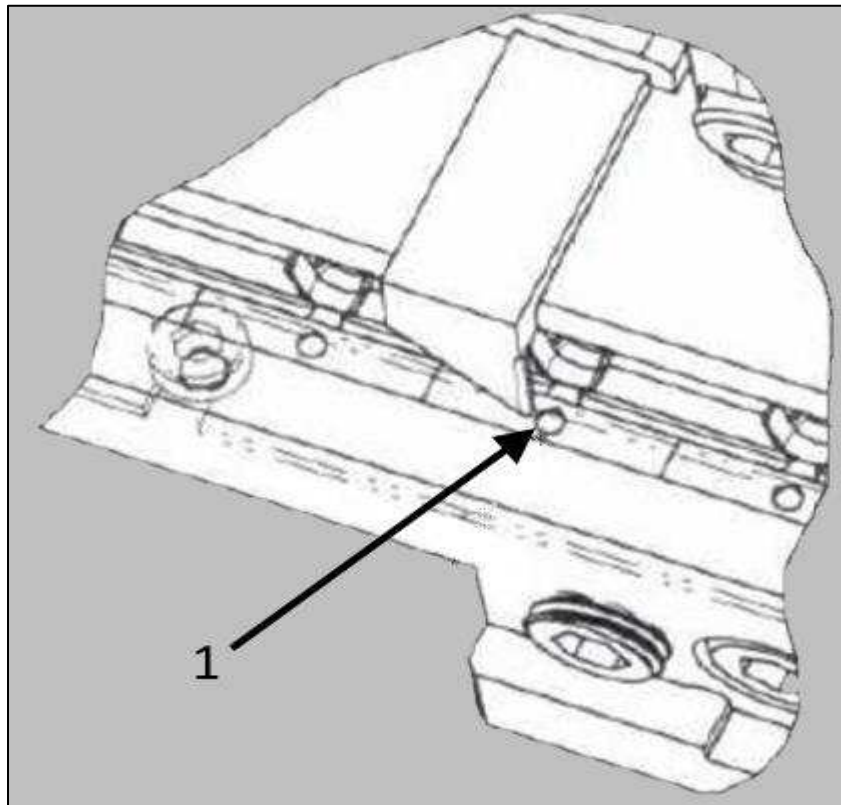


NOTE

One-quarter (1/4) turn of the backstroke adjustment screw adjusts the back stroke 0.20mm (0.008 inch).

- (1) Remove air pressure from the air feed module.
- (2) Release terminal drag.
- (3) Install the terminal strip in the applicator until the feed pawl drops into the first feed hole.
- (4) Pull the terminal strip back until the feed finger hole stops on the feed pawl.
- (5) Engage the terminal drag.
- (6) Manually extend the feed arm.
- (7) Manually retract the slide until the feed pawl is at the rear edge of feed hole for the next terminal (feed pitch) (reference Figure 16).

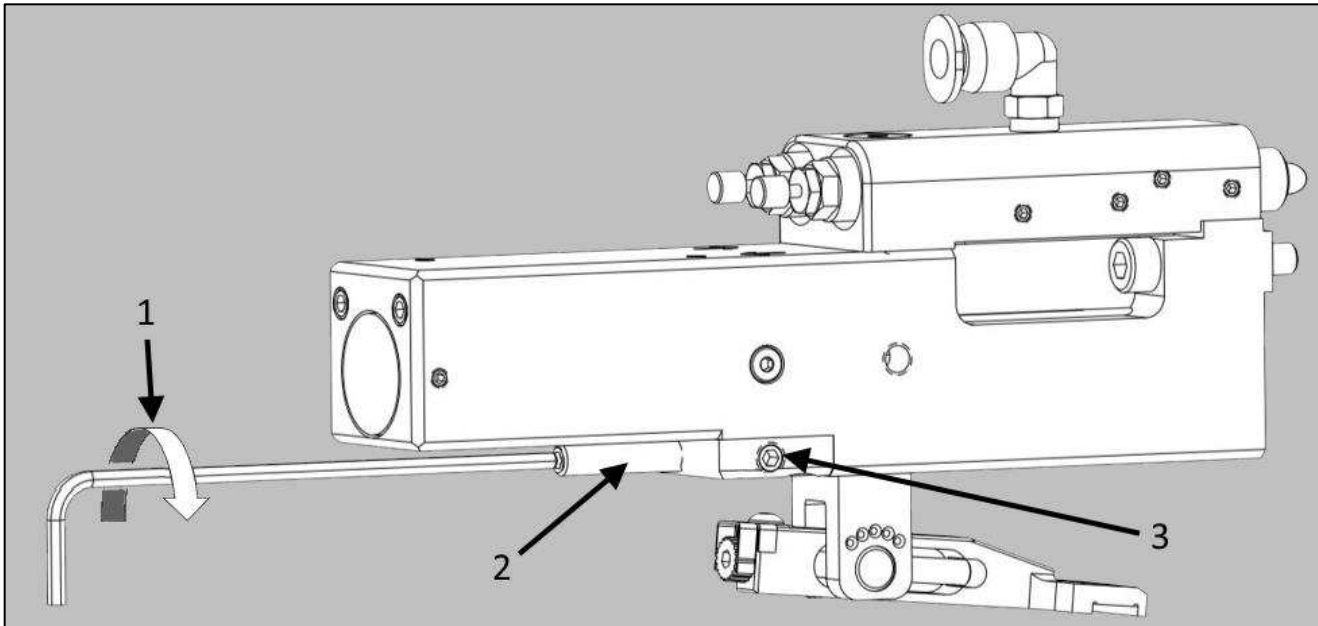
Figure 16



1 Feed Pawl to Rear of Terminal Feed Hole

- (8) If the feed pawl is at the rear edge of the feed hole before the slide hits the rear stop adjust screw, turn the rear stop adjust screw clockwise until the screw meets the slide, as follows:

Figure 17



- 1** Clockwise
2 Rear Stop Adjust Screw
3 Rear Stop Locking Screw

- (a) Loosen the Rear Stop Locking Screw.
 (b) Turn the Rear Stop Adjust Screw clockwise until it meets the slide.
 (c) The Feed Pawl must be positioned to the rear edge of the feed hole.
 (d) After verifying positions, tighten the locking screw.
- (9) If the slide hits the rear stop adjust screw before the feed pawl is at the rear edge of the next hole, the rear stop adjust screw needs to be adjusted. Adjust the rear stop adjust screw counter-clockwise until the feed pawl is at the rear edge of the feed hole.
- (a) Loosen the Rear Stop Locking Screw.
 (b) Turn the Rear Stop Adjust Screw counter-clockwise.
 (c) Push the slide against the rear stop adjust screw.
 (d) The Feed Pawl must be positioned to the rear edge of the feed hole. Repeat steps (b) and (c) until the feed pawl is at the rear edge of the feed hole.
 (e) After verifying positions, tighten the locking screw.
- (10) Extend the slide manually, then retract the slide. Check to ensure the feed finger is in the middle of the feed hole. If it is not, repeat steps (7) and (8) to adjust the rear stop position of the feed finger.
- (11) Apply pressurized air to the air feed module.
 (12) Cycle the terminator in jog mode or manually until the feed pawl retracts.
 (13) Verify the pawl is in the correct location. If it is not in the correct position, repeat steps (7) thru (12).

b. Feed Position (terminal position over the anvil)

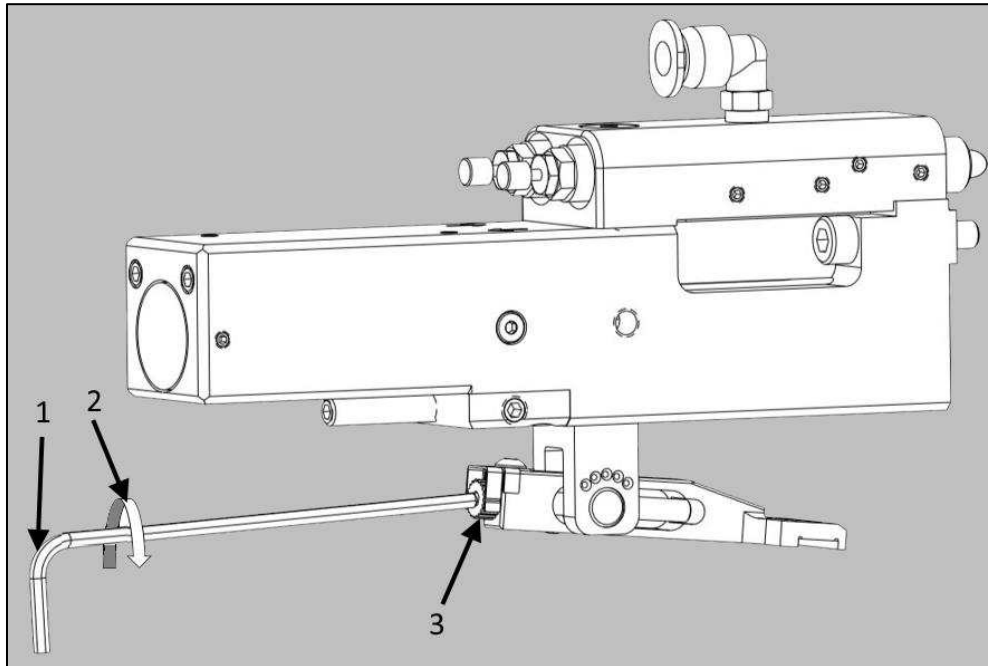
- (1) Remove the air supply from the module.
- (2) Manually feed the terminal by fully extending the feed and then fully retracting the feed until a terminal is over the anvil.
- (3) If the terminal position is left of the anvil (under-fed), turn the Fine Feed Adjust Screw clockwise to move the terminal to the right of the anvil (see Figure 18).



NOTE

One (1) “click” of the Fine Feed Adjust Screw equals 0.025mm (0.001 inch) of adjustment.

Figure 18



- 1** 2.5mm Ball End Hex Key Wrench
- 2** Clockwise
- 3** Fine Feed Adjust Screw

- (4) If the terminal position is right of the anvil (over-fed), turn the Fine Feed Adjust Screw counter-clockwise to move the terminal to the left of the anvil.
- (5) After making an adjustment, retract and extend the feed slide to feed a terminal.
- (6) If the terminal is not centered over the anvil, repeat steps (3) thru (5).

c. Feed Speed

The feed mechanism has been adjusted at the factory to ensure that the terminal is advanced at the lowest possible speed. In rare occasions, it is possible that the feed speed is not fast enough if the applicator is used on a fully automatic machine. The feed speed can be adjusted by means of the two exhaust restrictors.



NOTE

The air feed speed has been set at the factory and should therefore require re-adjustment **ONLY** in exceptional circumstances.



NOTE

The speed controls should not be fully opened to maximize feed speed. Excessive feed and/or retract speeds can cause inconsistent feeds and/or air feed module damage.



NOTE

TE recommends adjusting the Retract Flow Control first to try to speed up the feed cycle.

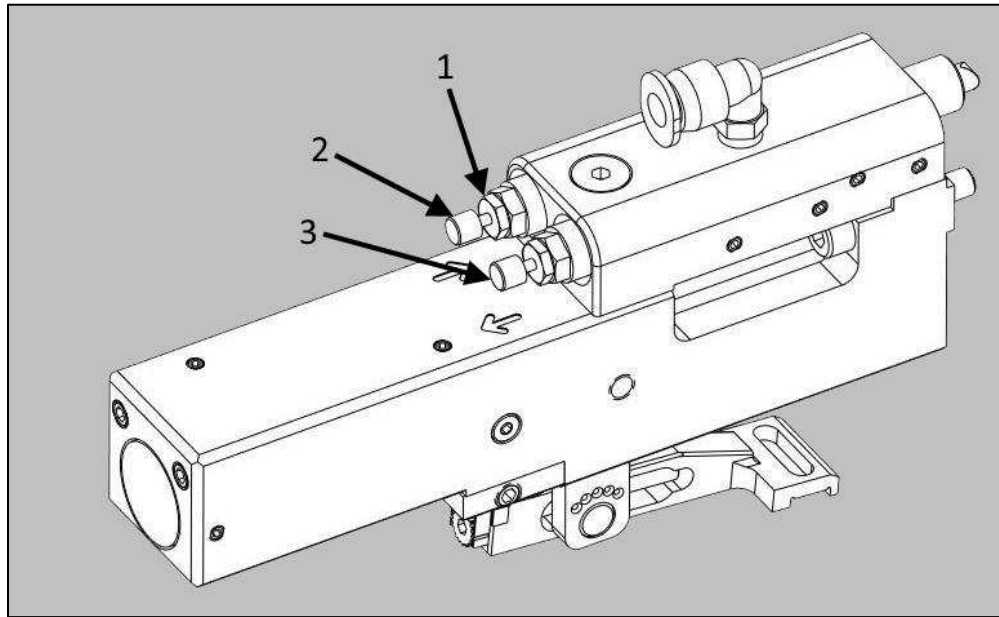
- (1) Hold the control knob while loosening the locking nut with a hex wrench.
- (2) Turn the knob clockwise (in) to decrease the speed. Turn the knob counter-clockwise (out) to increase the speed.
- (3) Hold the control knob while tightening the locking nut.



NOTE

TE recommends adjusting the flow controls only ½ turn before testing the feed cycle.

Figure 19



- 1** Lock Nut
- 2** Extend Control
- 3** Retract Control

5.5. Strip Guide Plate and Feed Pawl

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.

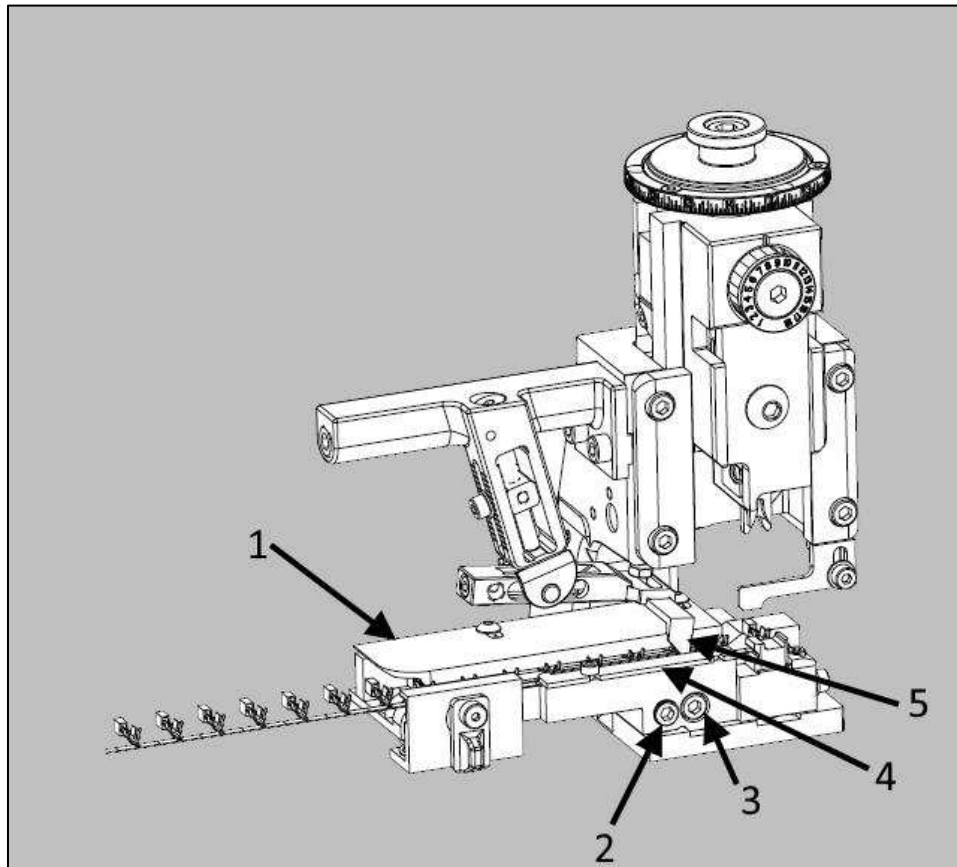


NOTE

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

1. From the front of the strip guide plate, loosen the Strip Guide Plate Locking Screw (see Figure 20).
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 locking 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 and the Shear Holder(s).

Figure 20



- | | | | |
|----------|------------------------------------|----------|-------------------|
| 1 | Rear Strip Guide | 4 | Front Strip Guide |
| 2 | Strip Guide Plate Locking Screw | 5 | Feed Pawl |
| 3 | Strip Guide Plate Adjustment Screw | | |

5.6. Strip Guide

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

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

i **NOTE**
Do not use this procedure for front-to-rear positioning of the strip—refer to Paragraph 5.5, Strip Guide Plate and Feed Pawl.

1. Lift and hold (or block) the Feed Pawl up to clear the Front Strip Guide, then loosen the screws holding the Rear Strip Guide to the Strip Guide Plate.
2. Move the Rear 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 the Front and Rear Strip Guides are parallel, and that the terminal strip can move freely with a minimum of side clearance. Re-tighten the screws.

i **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.

5.7. Shear(s) and Shear Holder(s)

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

Remove the applicator ram before proceeding.



NOTE

The applicator must be removed from the machine for this procedure. See the removal procedure in Section 3.

A. Front Shear

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.



NOTE

Some center carrier terminals are fed using the terminal body, not the carrier strip.

B. Rear Shear

The rear shear is more likely to need adjustment because it is affected by differences in terminal strip widths and Strip Guide Plate adjustments.

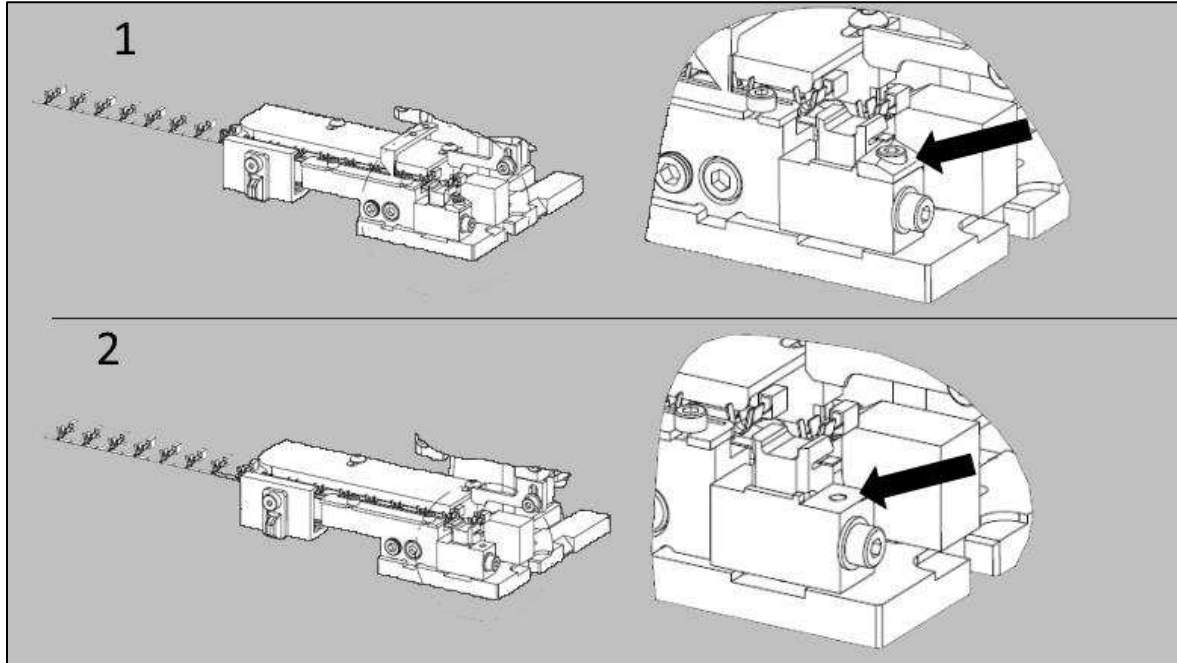
1. From the bottom of the base plate, loosen the two screws that hold the Rear Shear Holder to the base plate.
2. With the terminal strip inserted into the applicator, and the lead terminal centered over the Anvil, move the Rear Shear Holder in the direction required to obtain the proper cutoff tab.
3. Check that the shear is square to the end of the terminal and then tighten the holding screws.
4. Depress the Floating Shear, and check for proper shearing action and proper cutoff tab.
5. If necessary, repeat Steps 1 through 4, or check for worn or damaged tooling.

5.8. Carrier Strip Cut or No-Cut Setup

The Shear Holder can be set for the carrier strip to be cut or not. If it is set for the cut orientation (Figure 21; Top Detail), check that the cutting blade is present and in the proper orientation on the Shear Holder.

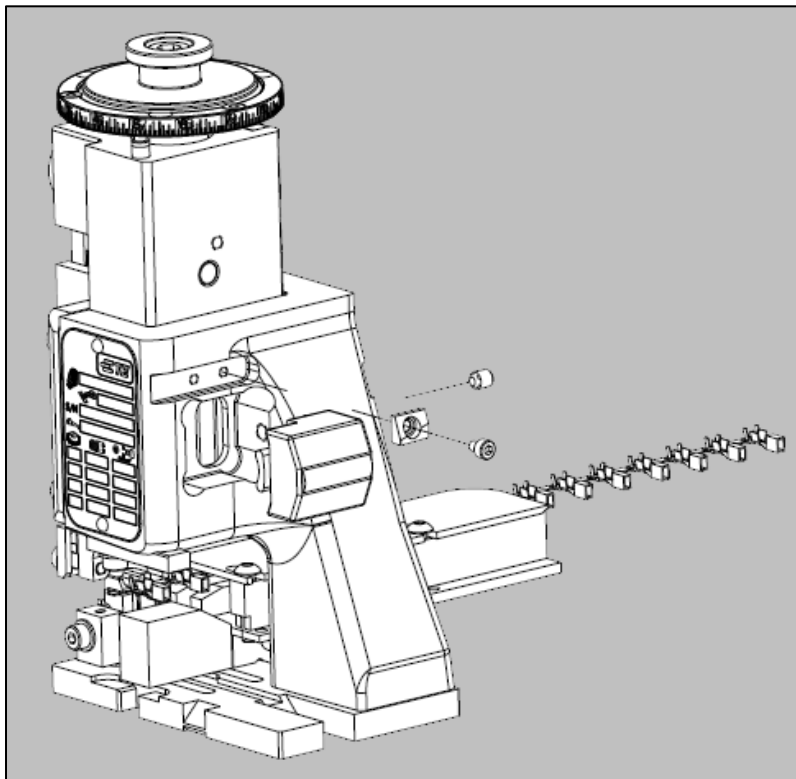
For the no-cut orientation (Figure 21; Bottom Detail), remove the Carrier Strip Cutting Blade, and mount it to the storage location on the side of the applicator housing (reference Figure 22).

Figure 21



- 1** Setup for Cut Orientation
- 2** Setup for No-Cut Orientation

Figure 22



5.9. Applicator Hold-Down Setup

For proper terminal hold-down setup, refer to Instruction Sheet [408-35001](#).

6. REPLACEMENT AND REPAIR

These procedures cover the applicator parts which most often need replacement or repair because of wear. Proceed with the following:



NOTE

Make sure to order replacements for parts used from the spare parts stock so more will be available when needed.

6.1. Preparation

1. Remove the applicator from the machine before performing any maintenance work.



DANGER

Before taking the applicator out of the machine, make sure the machine power is turned OFF and the power cord is disconnected. The machine ram should be in the raised position.

2. For proper identification of parts, refer to the exploded view drawing and parts list on the applicator print packaged with the applicator.
3. Wipe the parts with a clean, dry cloth as they are removed from the applicator. When reinstalling into the applicator, wipe the mating surfaces with your fingers to make sure that all lint and other foreign matter has been removed.

6.2. Anvil Replacement

1. From the bottom of the base plate, remove the screw that holds the Anvil to the base plate.
2. Remove the Anvil from the groove in the top of the base plate.
3. Install the Anvil using the reverse procedure. **Note:** If a new Anvil is needed, verify the part number of the new Anvil agrees with the number on the applicator parts list.



NOTE

When the Anvil is replaced, the Front Shear and Shear Holder must be re-aligned. See Paragraph 5.7.

4. Re-align the Crimpers as described in Paragraph 6.5, Crimper Replacement.

6.3. Floating Shear Replacement

It is not necessary to remove the Shear Holder(s) to replace the Floating Shear(s). Before removing the Floating Shear(s), note the orientation for re-installation. **Note:** Since the Floating Shears are spring-loaded, exercise caution during removal.

Turn the Drag Release Lever upward, raise the Feed Pawl, and pull the strip back so that the lead terminal is between the Strip Guides.

1. Push down on the Floating Shear, then remove the Shear Retaining Screw from the side of the Shear Holder.
2. Slowly release pressure on the Floating Shear. The compression spring will push it out of the Shear Holder.
3. After removing the Floating Shear, lift the compression spring out of the Shear Holder.
4. Inspect the spring for damage, and replace it if necessary. Refer to the applicator parts list for the part number.
5. Re-install the Floating Shear(s) using the reverse procedure. **Note:** If installing a new shear, verify the part number agrees with the number on the applicator parts list.
6. Raise the Feed Pawl and move the lead terminal over the Anvil. Turn the Drag Release Lever down to lower the Stock Drag.
7. Check the Shear Holder adjustment as described in Paragraph 5.7, Shear(s) and Shear Holder(s).

6.4. Feed Pawl Replacement

1. Remove the hex head cap screw that holds the Feed Pawl to the Feed Pawl Holder.
2. Replace the Feed Pawl using the reverse procedure. **Note:** If a new Feed Pawl is installed, verify the part number agrees with the number on the applicator parts list.
3. Adjust the Feed Pawl as described in Paragraph 5.3 or 5.4, as applicable.

6.5. Crimper Replacement

1. Loosen the Crimper Bolt slightly and remove the ram assembly from the applicator by pulling upward. It may be necessary to move the Feed Pawl forward to release the ram assembly.
2. Remove the Crimper Bolt and the Front Shear Depressor, Front Shear Depressor Spacer, Tubular Spacer, Insulation Crimper, Crimper Spacer, and Wire Crimper. Note order/position of parts for re-installation.
3. Re-install the parts using the reverse procedure. **Note:** The upper end of the Wire Crimper must be up against the shoulder of the ram assembly. Tighten the crimper bolt only finger-tight.



NOTE

Crimpers must be positioned with the part number facing up. If new parts are used, verify the part numbers agree with the numbers on the applicator parts list.

4. Put the ram assembly back into the applicator and install the applicator in machine.
5. Lift the Feed Pawl and pull the terminal strip back until the lead terminal is between the Strip Guides.
6. Form a piece of heavy paper over the Anvil and slowly hand-cycle the machine while watching alignment of the crimpers with the Anvil. When the ram assembly has reached the bottom of the stroke, carefully torque the Crimper Bolt to 8-10 lbf-ft [10.8-13.6 Nm]. **Note:** The Crimpers must move without interference over the Anvil after the heavy paper is removed.
7. Before using applicator, set wire disc crimp height reference setting to zero, and then, incrementally adjust toward desired crimp height. **A crimp height reference setting larger than needed may cause damage to the crimp tooling.**

6.6. Air Feed Bushings, Piston Rods, and O-Rings Replacement

Air Feed Module Rebuild Kits; PN 2325995- [] are available to replace worn Air Feed Bushings, Piston Rods, and O-Rings. Call PRODUCT INFORMATION (1-800-522-6752) for the applicable kit part number. For installation procedure, refer to Instruction Sheet 408-35039.

6.7. Adjustable Crimp Height Repair [Reference Figure 23]

A. Replacement of Detent Plate

Under severe, long-term use, the Detent Plate may become worn and make it difficult to feel the increments of adjustment. To replace the Detent Plate:

1. Note the number indicated on the Wire Crimp Disc.
2. Turn the disc to 0 (zero), against the stop.
3. Measure the set-up dimension from the Crimp Height Adjust Head to the Crimper Seating Feature on the Ram (see Figure 13). **Note:** The factory setting is listed on the Applicator print.
4. While depressing the Detent Pin, rotate the disc and head assembly out of the Ram.
5. Remove all (3) M3 flat-head screws from the disc.
6. Separate the disc from the head.
7. Inspect the Detent Plate for wear in the areas the Detent Pin contacts. Replace the plate if webs of ring are broken.

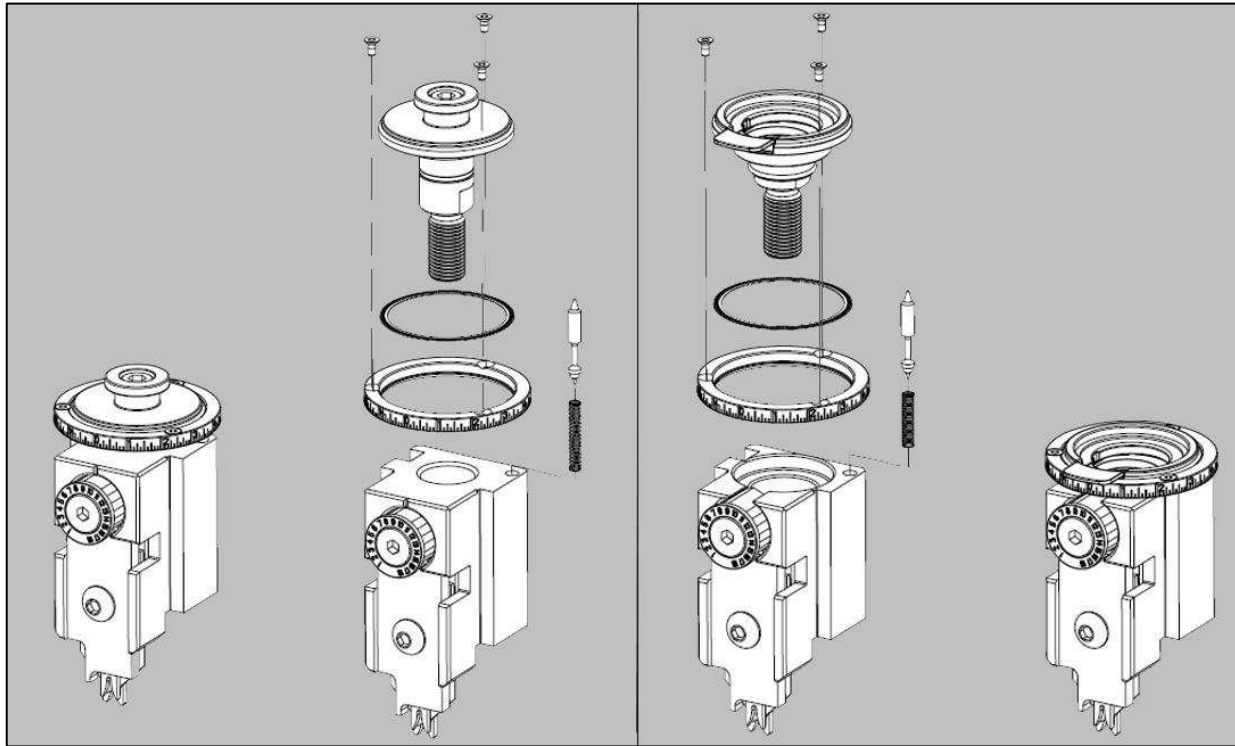


NOTE

In some cases, the plate can be rotated or flipped over so the Detent Pin contacts a new (unused) section.

8. Re-assemble, keeping the (3) M3 screws loose to allow the disc to rotate on the head.

Figure 23



9. Apply grease to the Detent Plate to lubricate the Detent Pin contact surface.
10. After re-installing the Crimp Head assembly and Detent Pin, rotate the head assembly until the proper set-up dimension is re-established.
11. Turn the Wire Crimp Disc to the stop. 0 (zero) should be indicated on the Number Ring.
12. Torque the (3) M3 flat-head screw to 6-8 lbf-in [0.7-0.9 Nm].
13. Verify proper crimp height as in Paragraph 5.1.A.

B. Recalibration of Crimp Height Adjustment Mechanism

If the crimp height adjust mechanism has been removed for any reason, it **MUST** be re-calibrated. The Applicator print lists the proper setup dimension for the applicator. To perform a Ram Fine Adjust Calibration:

1. Loosen (3) M3 flat-head screws on the Wire Crimp Disc.
The disc must freely rotate on the head.
2. Using calipers, measure the distance between the Crimp Height Adjust Head and the Crimper Seating Feature on the Ram (see Figure 13).
3. Rotate the Head Assembly up or down to achieve the measurement listed on the Applicator print.



4. **NOTE**

As the head rotates, the Wire Crimp Disc should remain free to rotate relative to the Head Assembly (the Detent/Locking Pin prevents continued disc rotation).

5. Turn the Wire Crimp Disc against the Detent/Lock Pin, to the 0 (zero) position.
6. Torque the (3) M3 flat-head screws to 6-8 lbf-in [0.7-0.9 Nm].



CAUTION

An applicator cycled under power that HAS NOT been calibrated to the proper setup dimension is highly likely to be damaged at startup and imperil nearby personnel.

6.8. Counter Magnet Orientation

The applicator counter magnet will properly actuate the applicator counter only if it is installed with the correct side facing out from the ram. If for any reason the magnet is removed, it will need to be determined before re-installing the magnet in the ram which side of the magnet actuates the counter. Running the magnet behind the counter by hand will reveal the side that actuates the counter properly.

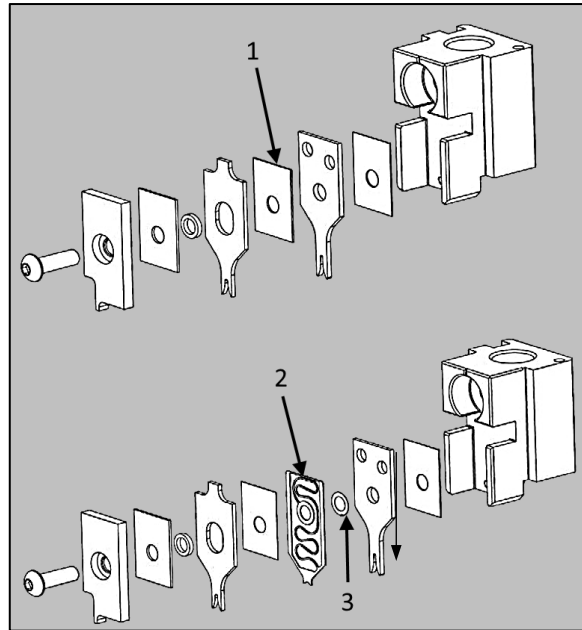
6.9. Wire Depressor Accessory

Refer to Figure 24 to determine the parts required to add this accessory if it is not installed originally.

Figure 24

Part Number-to-Crimper Spacer Thickness Cross-Reference

PART NUMBER	THICKNESS mm [in.]
455888-1	0.25 [.010]
455888-2	0.30 [.012]
455888-3	0.38 [.015]
455888-4	0.51 [.020]
455888-5	0.66 [.026]
455888-6	0.79 [.031]
455888-7	0.89 [.035]
455888-8	1.02 [.040]
455888-9	1.14 [.045]
1-455888-0	1.27 [.050]
1-455888-1	1.40 [.055]
1-455888-2	1.52 [.060]
1-455888-3	1.57 [.062]
1-455888-4	1.65 [.065]
1-455888-5	1.78 [.070]
1-455888-6	1.91 [.075]
1-455888-7	2.03 [.080]
1-455888-8	2.16 [.085]
1-455888-9	2.29 [.090]
2-455888-0	2.36 [.093]
2-455888-1	2.41 [.095]
2-455888-2	2.54 [.100]
2-455888-3	2.67 [.105]
2-455888-3	2.67 [.105]
2-455888-4	2.79 [.110]
2-455888-5	2.92 [.115]
2-455888-7	3.18 [.125]
2-455888-8	4.37 [.172]
2-455888-9	5.08 [.200]
3-455888-2	3.63 [.143]
3-455888-7	3.56 [.140]
7-455888-2	4.83 [.190]



Step 1: Determine replacement crimper spacer thickness

Where **Se** = thickness of existing crimper spacer and **Sr** = thickness of replacement
 $Sr = Se - 0.64 \text{ mm } [.025 \text{ in.}]$

Note: Use the table to determine which crimper spacer or combination of crimper spacers is required to achieve proper replacement crimper spacer thickness.

Note: The existing crimper spacer must be at least 0.64 mm [.025 in.] thick in order to add a wire depressor to an existing applicator.

Step 2: Choose a wire depressor based on the wire size range

2119791-5 0.008-1.305 mm² [38-16 AWG]

2119791-9 0.150-5.270 mm² [20-10 AWG]

Step 3: Order replacement components

Washer spacer 2119943-1 (Required)

Wire depressor (chosen in Step 2)

Crimper spacer/spacers (chosen in Step 1)

Note: When crimper spacer PN 455888-5 or 455888-6 are fitted to the applicator, ONLY the wire depressor and corresponding spacer need to be used.

7. CLEANING, LUBRICATION, AND STORAGE

For best performance and minimum downtime, the applicator should be cleaned daily and monthly, and inspected, lubricated, and stored as indicated in Instruction Sheet [408-8059](#).

8. REVISION SUMMARY

- Reformatting