

customer manual

ORIGINAL INSTRUCTIONS

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SAFETY PRECAUTIONS — AVOID INJURY — READ THIS FIRST!

Safeguards are designed into this application equipment to protect operators and maintenance personnel from most hazards during equipment operation. However, certain safety precautions must be taken by the operator and repair personnel to avoid personal injury, as well as damage to the equipment. For best results, application equipment must be operated in a dry, dust-free environment. Do not operate equipment in a gaseous or hazardous environment.

Carefully observe the following safety precautions before and during operation of the equipment:



Always wear approved eye protection while operating equipment.



Always wear appropriate ear protection while using equipment.



Moving parts can crush and cut. Always keep guard(s) in place during normal operation.



Electrical shock hazard.



Always turn off the main power switch and disconnect the electrical cord from the power source when performing repair or maintenance on the equipment.



Never insert hands into installed equipment. Never wear loose clothing or jewelry that may catch in moving parts of the equipment.



Never alter, modify, or misuse the equipment.

SUPPORT CENTER

CALL TOLL FREE 1-800-522-6752 (CONTINENTAL UNITED STATES AND PUERTO RICO ONLY)

The **Support Center** offers a means of providing technical assistance when required. In addition, Field Service Specialists are available to provide assistance in the adjustment or repair of the application equipment when problems arise which your maintenance personnel are unable to correct.

INFORMATION REQUIRED WHEN CONTACTING THE SUPPORT CENTER

When calling the Support Center regarding service to equipment, it is suggested that a person familiar with the device be present with a copy of the manual (and drawings) to receive instructions. Many difficulties can be avoided in this manner.

When calling the Support Center, be ready with the following information:

1. Customer name
2. Customer address
3. Person to contact (name, title, telephone number, and extension)
4. Person calling
5. Equipment number (and serial number if applicable)
6. Product part number (and serial number if applicable)
7. Urgency of request
8. Nature of problem
9. Description of inoperative component(s)
10. Additional information/comments that may be helpful

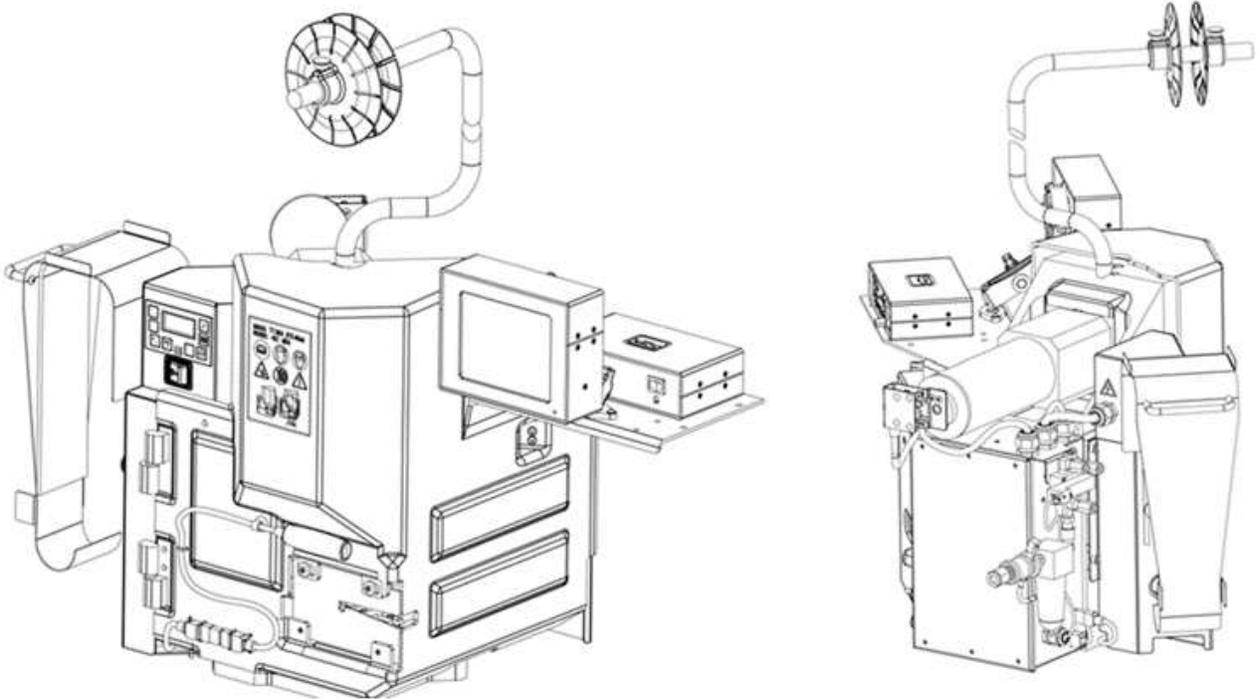


Figure 1

1. INTRODUCTION

This manual contains information on the operation, preventive maintenance, and adjustments of the AMP 3K/40 (PN 2161400- []) and AMP 5K/40, 5K/30 (PN 2161500- []) CE Terminating Machines. See Figure 1.

Descriptions in this manual pertain to the controls and adjustments on the AMP 3K/40, AMP 5K/40, and AMP 5K/30 machines only.

The various applicators that can be used in the machines are covered in applicator instruction sheets packaged with each applicator. Applicator instruction sheets provide information on applicator installation, care, and adjustment.

The specifications and requirements for the above-mentioned CE Terminating Machines are as listed below:

- **Deflection:** 0.13 mm [.0046 in.] Maximum per 4,448 Newtons [1,000 lb] Crimp Force
- **Noise:** Less than 82 dBa Typical at operator position with standard mechanical feed applicator
- **Weight:** 77.3 Kilograms [170.4 lb]
- **Height:** 585 mm [23 in.] without reel supports
- **Electrical:** 100-240 Vac, 50/60 Hz, Single-Phase Current. Operating current is 3 amp.
- **Air:** Refer to applicator instruction sheet for air pressure requirements
- **Physical Environment:**
 - Temperature:** 4.45-40 °C [40.5-104 °F]
 - Relative Humidity:** Less than 95% (non-condensing)
 - Transportation and Storage:** Store in a clean, dry environment after coating all surfaces lightly with a rust preventing oil

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

**DANGER**

Denotes an imminent 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.



Always wear approved eye protection while operating the equipment.



Always wear approved hearing protection while operating the equipment.



Use caution working with this equipment.



Main electric ON/OFF switch.



Do NOT operate the equipment if the guard is removed.



Lift point for the equipment.



Read and understand the entire manual before using the equipment.



Moving parts can crush and cut. Do not operate the equipment without guards in place.

2. DESCRIPTION

The AMP 3K/40, 5K/40, and 5K/30 CE terminating Machines were designed to be used as stand-alone semi-automatic bench units. They are assembled with metric hardware.



NOTE

Measurements are in metric units [followed by U.S. customary units in brackets] unless otherwise indicated. Some commercial items may contain non-metric hardware.

These machines accept a wide variety of miniature (mini) quick-change applicators, with minor adjustments, thus providing a great selection of terminals for many applications. Figure 2 lists changeover cams required to run 1 1/8-in. stroke cams (for AMP-O-LECTRIC* Model "K" terminating machines) and 1 5/8-in. stroke cams (for Model "T" and Model "G" Terminating machines) in the machines.

ORIGINAL APPLICATOR	FEED TYPE	CHANGEOVER CAMS (PN) FOR THE MACHINES	
		41.25 mm [1 5/8-in.] Stroke Machines	30 mm [1 1/8-in.] Stroke Machines
1 1/8-in. Stroke Applicator for Model "K" Terminating Machine	Pre-Feed	690602-6	---
	Post Feed	690501-4	---
1 5/8-in. Stroke Applicator for Model "T" and Model "G" Terminating Machines	Pre-Feed	---	690602-5
	Post Feed	---	690501-3
Heavy-Duty Industrial (HD-I) Applicator	Pre-Feed/Post Feed	Refer to the HD-I Applicator customer drawing for part numbers.	

Figure 2

2.1. Functional Description

These machines provide the force required to crimp terminals in the applicator. A terminal is attached to the wire by placing the wire in the crimp area and pressing the foot switch. The machine consists of four functional areas:

1. The **motor group** includes a dc motor which drives a crankshaft. See Figure 3 and Figure 4. The motor is activated each cycle and rotates the crankshaft one full revolution. A hex key is located on the end of the motor, which allows the motor to be cycled manually. The hex key is accessed by unplugging the power cord from the rear of the motor.

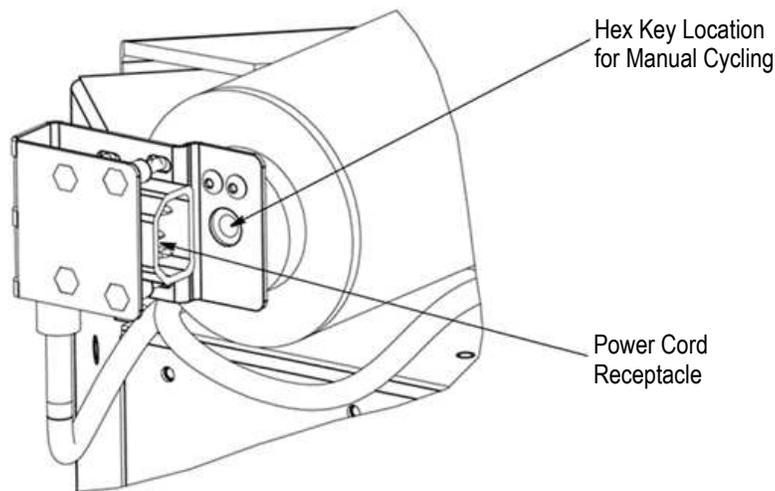


Figure 3

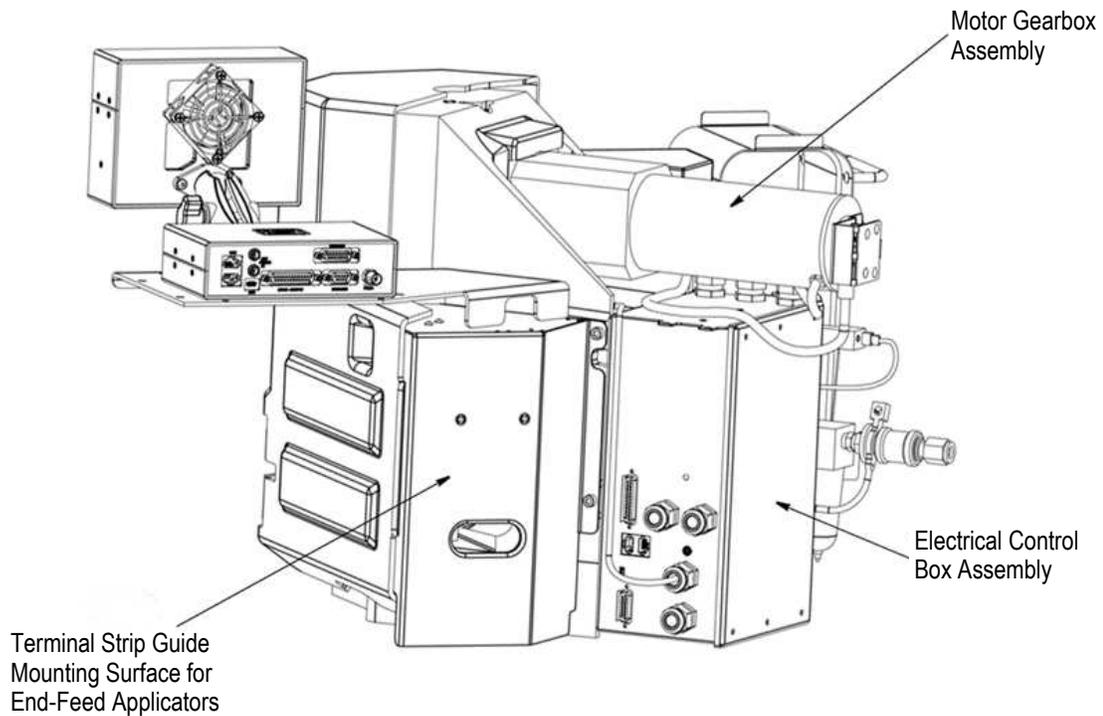


Figure 4

2. The **crankshaft-ram group** conveys the motor rotational force to the up-and-down action of the ram for driving the applicator during the crimping cycle.
3. The **base plate** provides the mounting surface on which the applicator is installed. The quick-release latching feature permits fast, easy installation and removal of the applicator. See Figure 5.
4. The **crimp height adjustment group** uses an eccentric located in the ram linkage, along with detented stops in the mechanism to adjust the crimp height. Indexing the mechanism in either direction will change the crimp height in increments of approximately 0.013 mm [.0005 in.] per step. Refer to Figure 5 for the Precision Crimp Height Adjustment Mechanism.


NOTE

The AMP 3K/40 is not equipped with the crimp height adjustment group.

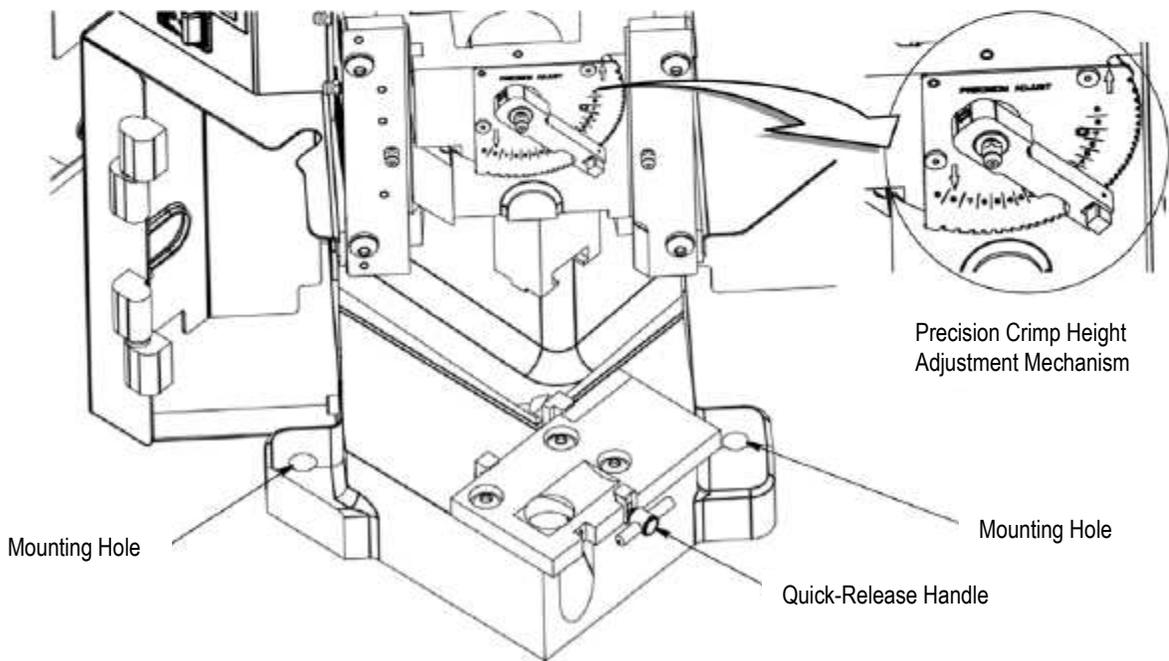
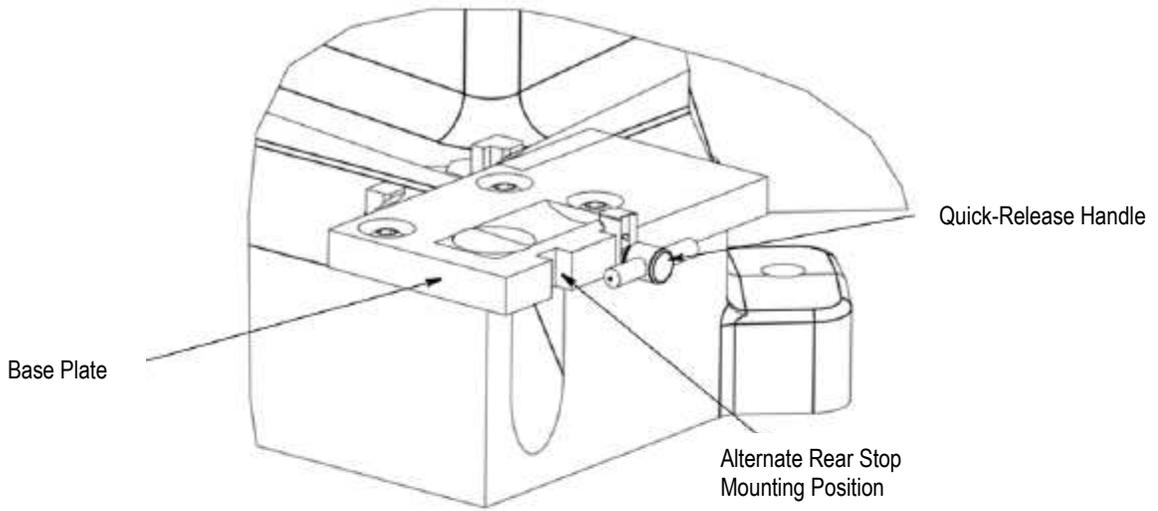


Figure 5



NOTE

The Precision Crimp Height Adjustment group is only available on 5K machines.

2.2. Electrical Description

The PN 2161400-[] and PN 2161500-[] machine electrical components consist of the operator control panel, the motor, and the CPU/motor controller and safety circuit package. The machine operates on 100/240 Vac, 50/60 Hz, single-phase current with ground. The machine will automatically detect the supply voltage and adjust the controller accordingly.

The operator control panel (Figure 6) is mounted on the left side of the machine frame. The control panel consists of five button membrane key pad and a two line by eight column display. The membrane key pad has icons representing the function of each button.



Figure 6

A main power switch/circuit breaker (Figure 6) is located on the front of the control panel. The main power switch/circuit breaker connects ac power to the control system. The CPU/motor controller and safety circuit are located in the electrical control box.

2.3. Machine Guard

A guard is installed to provide protection for the operator while maintaining proper visibility of the work area. The guard swings open to allow easy access for applicator installation and setup. A safety switch on the guard prevents machine operation if the guard door is open.

3. RECEIVING INSPECTION AND INSTALLATION

3.1. Receiving Inspection

These machines are thoroughly inspected during and after assembly. A final series of inspections is made to insure the proper machine functioning before packaging and shipping.

To protect against damage that may have occurred during shipment, remove the machine from the crate (paragraph 3.2.) and carefully inspect the machine for damage. If damage is evident, file a claim against the carrier and notify TE Connectivity immediately.

3.2. Installation

Remove all mounting bolts securing the machine to the shipping pallet. Install lift ring (see Figure 7) on top of the machine.



NOTE

Lift ring (M1220 eye bolt) is customer supplied.



Lift point for the equipment.



CAUTION

Install the lift ring carefully. A 19.05-mm [.75-in.] thread length engagement is required for the lift ring to support the machine.

Attach a suitable hoist to the lift ring, lift the machine, and place it in the selected operating location.

Insert the reel support post into the appropriate hole on top of the machine until the roll pin engages a groove in the machine frame.

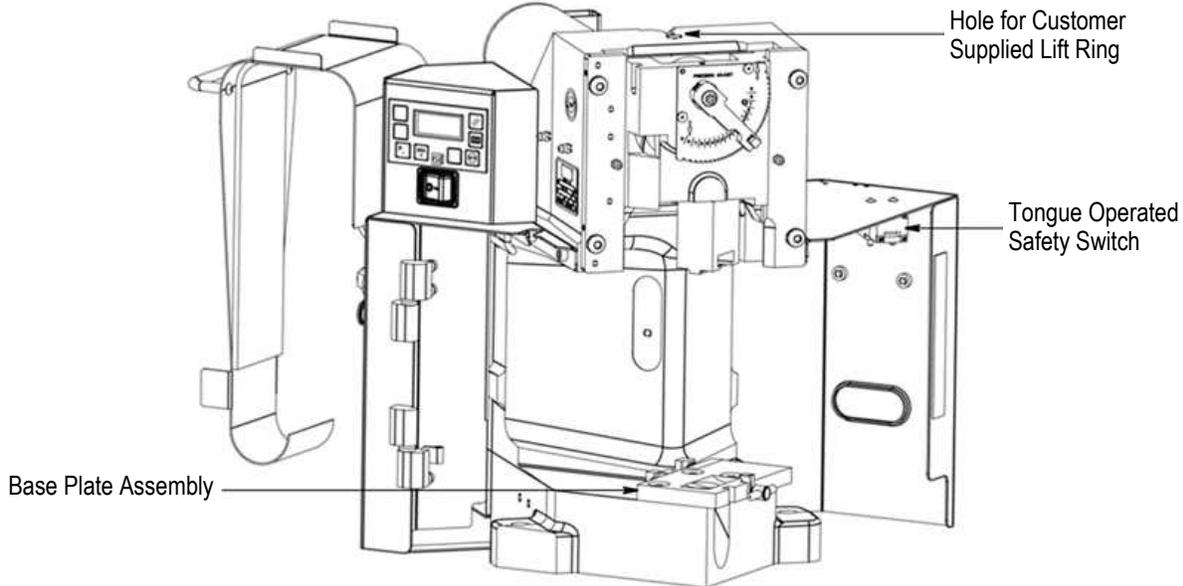


Figure 7

Attach the terminal strip guide included with the machine with the two thumbscrews supplied. Mount the guide on the left guard for side-feed applicators. Mount the guide on the right guard for end-feed applicators.

Connect the power cord to a suitable electrical supply.



NOTE

The machine will automatically detect the supply voltage and adjust the controller accordingly.

3.3. Considerations Affecting Placement of Bench Machines (Figure 8)

The location of the machine in relation to the operator's position is extremely important in terms of both safety and maximum efficiency. Studies have repeatedly shown that operator fatigue will be reduced, and greater efficiency achieved, if:

- the bench is of appropriate height, preferably with sound-deadening rubber mounts;
- the machine is properly located on the bench with ample work areas on both sides to facilitate work flow;
- the operator uses a swivel chair with padded seat and back rest which are independently adjustable; and
- the foot switch, on machines so equipped, is placed on a rubber mat to maintain its movability, while preventing it from sliding unintentionally.

Figure 8 illustrates proper machine location, operator position, and recommended foot switch position.

Machine Location and Operator Position



Materials Locations – Plan View

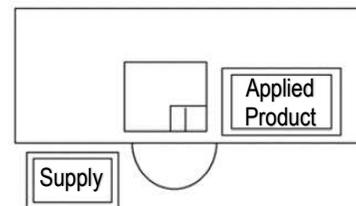


Figure 8

A. Bench

The bench to be used should be of sturdy construction, preferably with rubber mounts to minimize noise. A height of 762 to 812.8 mm [30 to 32 in.] is the most suitable for operator comfort and convenience. This height allows the operator to rest both feet on the floor, thereby providing for the shifting of weight and leg position.

B. Machine Mounting and Location on Bench

The machine should be located near the front of the bench with the "target area" (tooling area where the product is applied) not more than 152.4 to 203.2 mm [6 to 8 in.] -- minimum 50.8 mm [2 in.] from the front edge. This location will eliminate unnecessary operator motion and help to avoid back strain and fatigue.

Orientation of the machine should be such that the "target area" is facing the front of the bench and is parallel to the front edge (access to the back of the machine MUST also be provided).



DANGER

Machines should be securely bolted to the bench using the machine mounting holes shown in Figure 5. Hardware is customer supplied. Machines should not extend beyond the front of the bench.

C. Operator's Chair

The operator's chair should swivel, and should have independent seat height and back rest adjustments. The seat and back rest should be padded, and the back rest should be large enough to provide support both above and below the waist line.

In use, the chair should be far enough under the bench so that the operator's back is straight and is supported by the back rest.

D. Foot Switch

When the operator is correctly positioned in front of a machine equipped with a foot switch, the foot should rest on the switch comfortably. The foot switch should be movable, so that its location can be readily changed when the operator shifts position to minimize fatigue. Placing the switch on a rubber mat keeps it movable while preventing unintentional sliding.

The preferred foot switch location varies to some extent among operators. Some operators prefer the switch located so that their foot rests on the switch when their feet are in the natural sitting position (calf of leg perpendicular to the foot). Others prefer the leg to be slightly in front of the natural position. The important thing to remember is that the foot should be at approximately 90° (right angle) to the calf when resting on the switch. Those operators who prefer the foot switch slightly in front of the natural position may require a wedge-shaped block placed under it.

E. Scrap Removal

A suggested method of scrap removal: place a tray on the right side of the machine, under the cast slot in the frame, to capture the scrap chips.

4. OPERATION

4.1. Control Panel Operation

The basic control panel operation is as described in Figure 9. The control panel will be used to set up and operate the machine (see paragraph 4.3. and paragraph 4.4.).

4.2. Applicator Installation

Install the proper applicator in the quick-change mounting base as follows:



CAUTION

Make sure that the precision adjustment lever has been returned to the "0" position before installing the applicator. Be sure that the applicator has the proper feed cam prior to installation.



NOTE

Applicators from AMP-O-ELECTRIC Model "K" terminating machines and Model "T" terminating machines can be used in these machines by using a special replacement cam. Refer to Figure 2.

1. Loosen the quick-release T-handle (see Figure 5) and slide the applicator base clamp down.
2. Place the applicator on the quick-change base plate, then slide it back until the two notches in the applicator base engage the stops at the back of the quick-change base plate. At the same time, guide the ram post into the ram post adapter.
3. Slide the applicator base clamp UP and re-tighten the quick-release T-handle to secure the applicator in place.



NOTE

When using Applicator PN 567200-2 (originally intended for use with AMP-O-ELECTRIC Model "K" terminating machine), loosen the quick-release T-handle, slide down the applicator base clamp, and remove the rear stop located on the left side of the base plate. Install the rear stop (PN 354561-1), supplied with the air feed kit, at the alternate mounting position on the base plate. See Figure 5.



-  **Speed Decrease** – Decrease the motor speed for normal cycle operation and for jogging
-  **Speed Increase** – Increase the motor speed for normal cycle operation and for jogging
-  **Error Reset** – Clears the display error code
-  **Count Reset** – Clears the batch count to zero
-  **Jog** – Causes the DC motor to rotate at the jog speed set by the Increase / Decrease Speed

Speed Indication – Each “>” represents a portion of the full operation or jog speed setting. Minimum speed is denoted with a single “>”. Maximum speed is denoted by “>>>>>”.

Machine Status / Error Code – Displays “OK” if there is no error code being displayed or “ERRxxx” when an error has occurred. The “xxx” represents a number corresponding to an error described in the error code table (Figure 17).

Guard Status – A solid “■” indicates that the guard interlock is closed. An open icon in this display indicates that the guard interlock is open. The DC motor will not run when the guard interlock is open.

Figure 9

4. Set the crimp height and insulation crimp discs so the letters and numbers on the applicator pad align with the front pad on the ram post adapter.
5. If the applicator is an air-feed type, make sure the front door cover is closed, then connect the airlines to the valves located on the back of the machine.



NOTE

Quick Disconnect Coupling PN 23238-1 is required to run air-feed applicators.

6. Adjust the reel support for side-feed or end-feed product, depending on the applicator being used.
7. Mount the terminal strip guide on the left sheet metal guard for side-feed product, or on the right sheet metal guard for end-feed product, depending on the applicator being used.
8. Mount the terminal reel on the reel support. Thread the terminal strip through the guard and into the applicator according to the instruction sheet included with the applicator. If necessary, adjust the lubricator bowl.
9. Align the product reel to the applicator by adjusting the reel flanges.
10. Close the guard.



NOTE

The guard door must be closed in order to operate the machine. See paragraph 4.4.C.

4.3. Setup

Install a miniature applicator and terminals according to paragraph 4.2.

1. Turn on the main power using the switch located on the front of the control panel.
2. Be sure the guard is closed.
3. Jog the machine (as described in paragraph 4.3.B.) through a complete crimp cycle.



NOTE

Machine should be able to jog through the terminal and wire at maximum jog speed to determine crimp capacity.

4. Inspect the crimped terminal to verify that the terminal is being positioned properly within the applicator.
5. Correct for any positioning errors according to the applicator instruction sheet, and repeat Steps 2 and 3 until a terminal is properly positioned.
6. Place a prepared wire in the crimp area and press the foot switch.
7. Inspect the completed crimp and make adjustments as necessary.

4.4. Mode Selection and Operation

The two basic modes of operation for these machines include Full-Cycle and Jog.

A. Full-Cycle Mode (Figure 9)

Depressing the footswitch (with the guard closed) causes the crankshaft to be rotated (at a speed defined by the speed control buttons), through a complete revolution. This completes one full machine cycle.

B. Jog Mode (Figure 9)

Pressing the Jog button causes the crankshaft to be rotated at a reduced speed in the forward direction until the Jog button is released or the crankshaft completes the cycle. If the Jog button is released in mid-cycle and pressed again, the crankshaft will continue to rotate in the forward direction at the reduced speed. If the machine does not complete the cycle, either adjust the speed control buttons (as described below), or complete the cycle using the footswitch (at a speed determined by the speed control buttons) after the Jog button has been pressed and released.

Holding the Jog button down for an extended period without completing the cycle will cause an error. To clear the error, clear the problem area, and then press the Error Reset button. If the motor is stalled, it may be necessary to manually cycle the machine to the home position. Refer to the CAUTION and DANGER statements below for the proper manual cycling procedure.



CAUTION

While in the Jog mode, attempting to complete a crimp cycle with terminals and wire in the applicator may cause the motor to stall. Although the machine can terminate some smaller terminals and wire, it may be necessary to turn "off" the machine and manually cycle the machine to the home position. Manually cycle the machine by removing the power cord on the end of the motor, engaging the hex key with a 6-mm hex wrench, and rotating the key to manually rotate the motor.

Be sure to remove the hex wrench and re-install the power cord before operating the machine. The machine will not run until the power cord is in place. See Figure 3.

4.5. Adjusting the Motor Speed

The speed of the motor is adjusted using the Decrease Speed and Increase Speed buttons on the membrane keypad (see Figure 9). The Decrease and Increase buttons are used to adjust the motor speed for Full-Cycle mode and for Jog mode. The speed setting in Full-Cycle mode is independent from the speed setting used in the Jog mode. Both speed settings are retained in memory by the CPU / motor controller. During Full-Cycle mode the last set motor speed is on the display. When the Jog button is pressed, the display will change to show the last set Jog mode speed. The Jog mode speed will continue to be displayed until the footswitch is pressed to change to Full-Cycle mode.

In Full Cycle mode, a single ">" shown on the display indicates the motor speed is set for 60% of the maximum operating speed value. Each additional ">" on the display increases the motor speed by 8%. In Jog mode, a single ">," shown on the display indicates the motor speed is set for 10% of the maximum operating speed value: each additional ">" shown increases the motor speed by 10%.

4.6. Crimp Height Adjustment

Refer to the instructions provided with the applicator to perform this adjustment. Refer to paragraph 6.3. for procedures to adjust the crimp height using the machine precision adjustment feature.

4.7. End-Feed/Side-Feed Applicator Conversion

When changing from an end-feed applicator to a side-feed applicator (or from a side-feed applicator to an end-feed applicator), the reel support assembly must be moved to the opposite side of the machine. With the terminal reel removed, lift and rotate the reel support bar to the opposite side of the machine. Mount the terminal reel on the reel support and load the terminal strip into the applicator. Remove the metal terminal lead-in and thumbscrews and move to the opposite side of the machine. Move the machine lubricator bowl to the opposite side of the machine as required.

**NOTE**

Lubricator Bowl Assembly PN 354550-3 is an optional accessory. When using an Ocean Side-Feed or End-Feed applicator, the lubricator assembly art numbers are 2119955-1 and 2119955-2, respectively.

5. PREVENTIVE MAINTENANCE

Preventive maintenance will keep the machine in good working order and ensure maximum reliability and service from all of its components.

**DANGER**

To avoid personal injury, electrical and pneumatic power must be DISCONNECTED at the source prior to maintenance.

**DANGER**

The CPU/motor controller assembly contains a high voltage which remains for a short period of time, even after power has been removed. Disconnect the electrical power source and wait several minutes before removing the screws to access the CPU/motor controller assembly.

**NOTE**

A monthly mandatory safety check includes checking that opening the guard door during a cycle shuts down the machine and prevents the terminator from cycling until the guard door is closed.

5.1. Cleaning

Clean any debris from the applicator area daily.

**DANGER**

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

If an air-feed assembly is installed, check and replace the air filter element if necessary.

Wipe off the guards with a clean soft cloth.

**CAUTION**

DO NOT USE ANY SOLVENT TO CLEAN THE GUARDS. Solvent could damage the guards.

5.2. Lubrication

The moving parts of the machine require regular lubrication to ensure reliable service and long life. The preferred greases are Chevron Ultra-Duty EP NLGI 2, Chevron Ulti-Plex EP NLGI 2, and Caltex Ultra-Duty EP NLGI 2.



NOTE

Contact TE engineering for 2nd choice alternates.



CAUTION

It is important to only use Lithium-based grease with extreme pressure (EP) additives.



NOTE

For operation in temperatures below 10 °C [50 °F], it will be necessary to use a No. 1 grease.

Using a grease gun, apply grease every 250,000 cycles to the fittings at the following locations and as shown in Figure 10:

- the left side of the ram assembly;
- the right side of the ram assembly;
- the left side of the frame just behind the ram assembly at two places; and



NOTE

Give one pump of grease while the ram is near the top of its stroke and one pump of grease while the ram is near the bottom of its stroke for best distribution of grease around the bearing.

- the crimp height adjuster pivot pin.

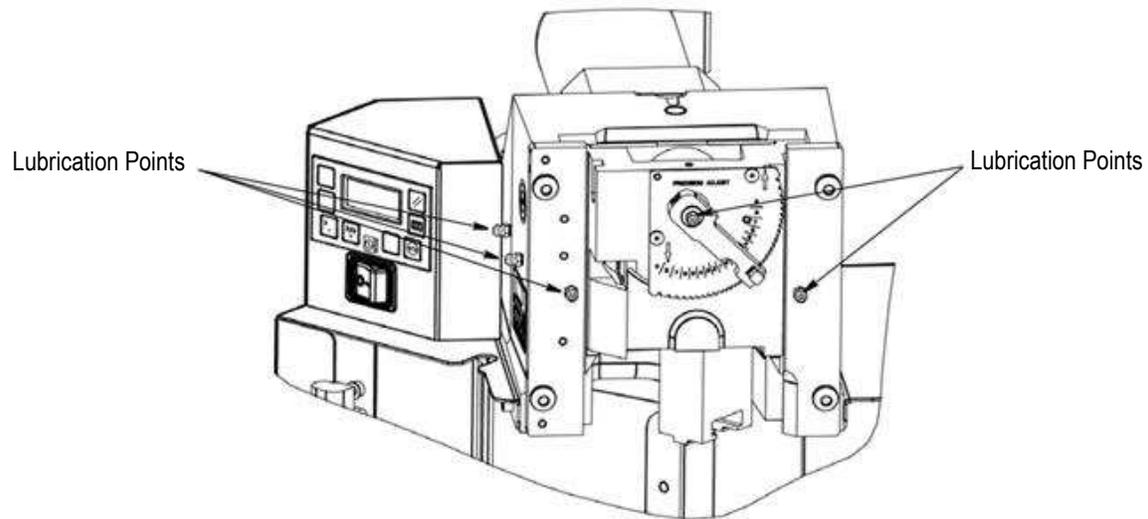


Figure 10

6. ADJUSTMENTS

The following adjustments are necessary to maintain the machine in operating condition, and to set up the machine after replacing parts.

Chevron, Caltex, and Lithium are trademarks of their respective owners. NLGI is the National Lubrication and Grease Institute.



DANGER

To avoid personal injury, ALWAYS disconnect electrical and air supplies before performing adjustments.

6.1. Measuring the Shut Height

The shut height is the distance between the bottom surface of the ram post adaptor and the top surface of the machine base plate as shown in Figure 11.



NOTE

Shut Height Gages 679655-2 and -3 (as applicable) are recommended for measuring shut height (see the table in Figure 11). Refer to Instruction Sheet 408-8535 for instructions on use of the gage.

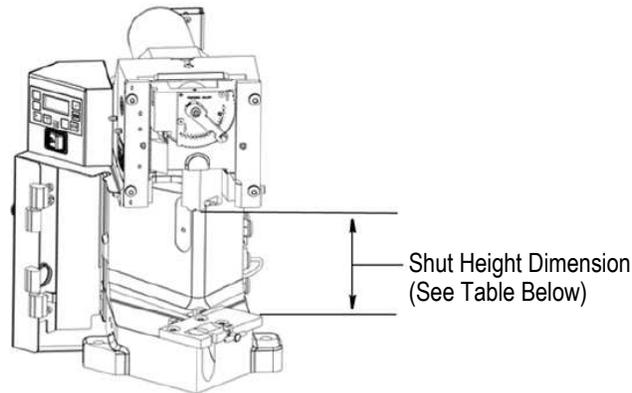
1. If installed, adjust the manual precision adjustment lever to the “0” setting.
2. Remove the power cord on the end of the motor.
3. Insert a 6-mm hex wrench into the end of the motor until it completely engages the hex key in the end of the motor. Use the hex wrench to manually rotate the motor.



NOTE

Be sure to remove the hex wrench and re-install the power cord before operating the machine. The machine will not run until the power cord is in place.

4. Follow the procedure for measuring the shut height as described in Instruction Sheet 408-8535.
5. Replace the switch actuator onto the end of the motor.



SHUT HEIGHT GAGE (PN)	MACHINE PART NUMBERS	SHUT HEIGHT DIMENSIONS	APPLICATOR TYPE
679655-2	2161400-[5] 2161500-[1, 2, 3, 31, 32, 40]	135.79 mm ±0.025 [5.346 ±.0010 in.]	TE-Type
679655-3	2161500-[21, 22]	119.50 mm ±0.025 [4.7047 ±.0010 in.]	JAM-Type

Figure 11

6.2. Shut-Height Adjustment

The shut height is pre-set at the factory and should not require further adjustment unless it is necessary to replace parts. Before you make any changes to the machine, contact your local Field Service Representative, or call the Support Center at 1-800-522-6752.



CAUTION

NEVER attempt to adjust the shut height without FIRST trying an applicator that is known to produce terminations of the correct crimp height. If this applicator produces correct terminations, the trouble is in the original applicator and the shut height MUST NOT BE CHANGED.

If it is determined that the shut height must be adjusted, use the following procedure:



DANGER

To avoid personal injury, ALWAYS turn “off” the machine and disconnect the power supply to the machine before making any adjustments. If applicator is an air-feed type, DISCONNECT air lines to valve located on the right side of the machine.

1. Check shut height as described in paragraph 6.1.

2. If the shut height is incorrect, proceed as follows:
 - a. Remove the two socket head cap screws which secure the ram post adaptor. Remove the ram post adaptor and shims. Change the shim thickness as required to adjust the shut height. Shims contain .051- mm [.002-in.] peel-type laminations.



NOTE

If additional shims are required, they can be ordered using the numbers PN 1338618-1.

- b. Re-install ram post adaptor. Insert both screws in the ram post adaptor and place the shims over the screws and onto the adaptor post.
 - c. Re-install the socket head cap screws into the ram assembly to secure the ram post adaptor. Re-tighten the screws.
3. Repeat Steps 1 and 2 as necessary until the proper shut height is attained.



NOTE

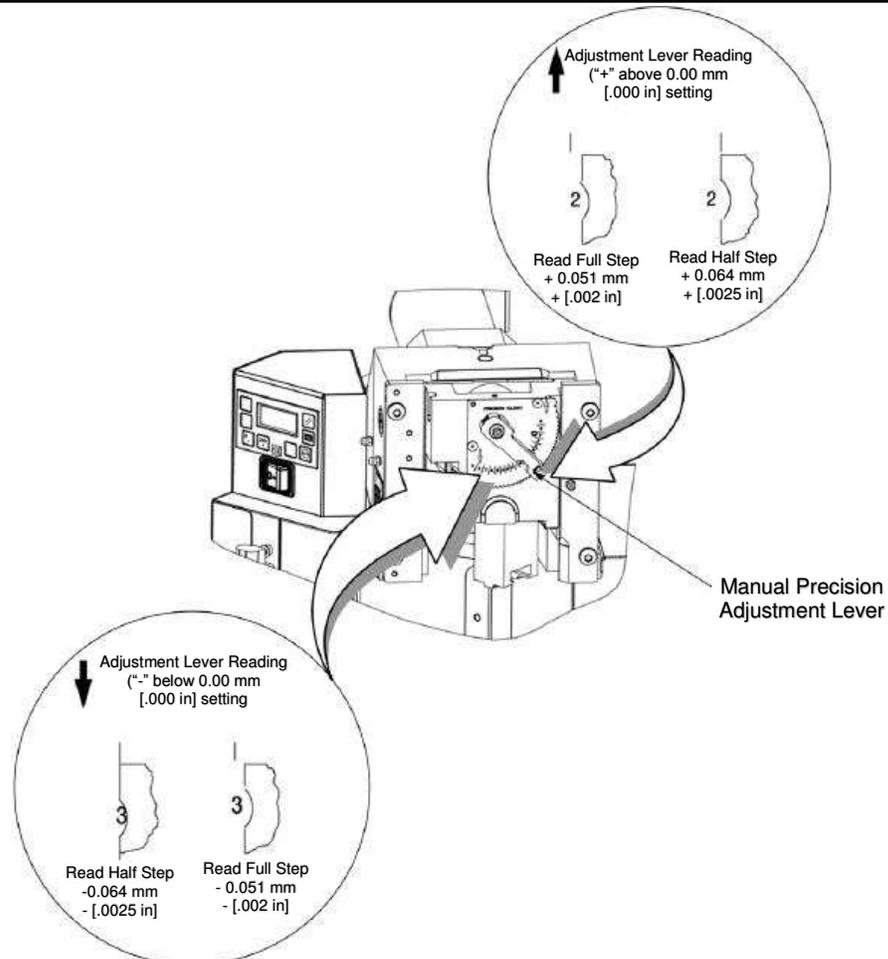
The miniature applicator is an integrated assembly consisting of upper tooling, lower tooling, and adjustment capability. The applicator requires a fixed shut height; that is, the distance between the bottom of the ram and the base mount when the ram is FULLY bottomed. The required adjustments for crimp height are made by using the wire and insulation discs within the applicator. Refer to the instruction sheet supplied with the applicator for adjustment procedures.

6.3. Crimp Height Adjustment Using Precision Adjustment Mechanism



CAUTION

To avoid damaging applicator, ALWAYS return precision adjustment lever to the "0" position when finished using applicator.



NOTE: The Precision Crimp Height Adjustment group is only available on 5K machines.

Figure 12

1. Adjust the manual precision adjustment lever to "0" by pulling the lever away from the pivot pin. Lock the lever in place by releasing it.
2. Install the applicator into the machine as described in paragraph 4.2.
3. Cycle the machine to crimp three sample terminations. Check the crimp height of the samples. If the crimp heights are not correct, adjust the crimp height according to Step 4.
4. Adjust the crimp height by moving the precision adjustment lever (see Figure 12):
 - a. to the right to increase the crimp height; or
 - b. to the left to decrease the crimp height.



NOTE

Moving the precision adjustment lever in either direction will change the crimp height by approximately 0.013 mm [.0005 in.] per step.

5. Repeat Steps 3 and 4 until the appropriate crimp height is obtained.

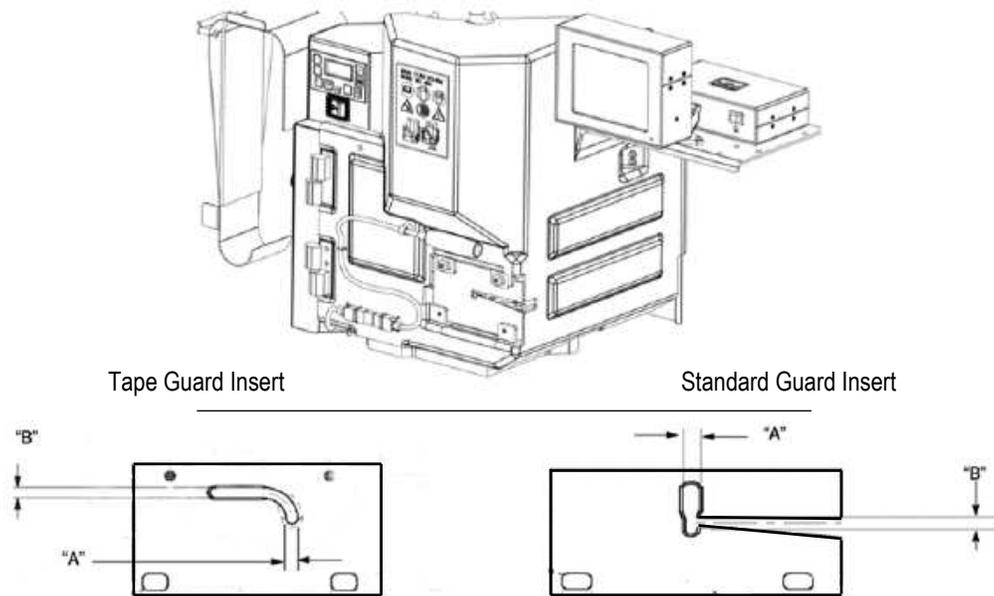


CAUTION

To avoid damaging the applicator, ALWAYS return the manual precision adjustment lever to the "0" position when finished using the applicator.

6.4. Guard Insert Adjustment

A guard insert is supplied with the machine. Some applications may require a special insert. See Figure 13 for available guard inserts.



GUARD INSERT		DIMENSION	
PART NUMBER	DESCRIPTION	A	B
354529-2	Standard (Away from the Applicator)	7.80 [.307]	6.35 [.250]
1-679532-0	Standard (Close to the Applicator) – Shipped with the Machine	6.22 [.245]	5.08 [.200]
679994-2	Near Tape	6.35 [.250]	6.35 [.250]
679995-2	Away from the Tape	8.74 [.344]	6.35 [.250]

Figure 13

The guard contains two slots into which the inserts can be placed: the rear slot places the insert close to the applicator; the front slot places the insert farther away from the applicator. The type of insert used determines which slot is to be used. An insert placed into the wrong slot cannot be secured in place.



NOTE

Some special inserts are designed to mount in the standard insert slot. These inserts have the threaded holes at the top corners and should be installed according to the instructions for the standard insert.

A. Standard Guard Insert PN 1-679532-0 and Guard Insert PN 679994-2

1. Slide the insert into the rear slot of the guard door. Secure the insert to the door with two screws placed through the large square holes in the left guard door and into the threaded holes in the top of the insert. Do not tighten the screws.
2. Move the insert horizontally and vertically as needed to align the slot with the crimp area of applicator.
3. Tighten the screws.

B. Guard Insert PN 354529-2 and Guard Insert PN 679995-2

1. Slide the insert into the front slot of the guard door. Secure the insert to the door with two screws placed through the large square holes of the insert and into the threaded holes in the bottom of the left guard door. Do not tighten the screws.
2. Move the insert horizontally and vertically as needed to align slot with crimp area of the applicator.
3. Tighten the screws.

7. MACHINE OPTIONS AND INSTALLATION OF THE AIR FEED VALVE ASSEMBLY

The following machine options are available for the AMP-3K and AMP-5K machines:

PART NUMBER	DESCRIPTION	PURPOSE
2161209-1	Air Feed Valve Kit	Required to run certain air-feed type applicators
2161209-4	Air Feed Valve Kit	Required to run JAM air-feed type applicators
354550-3	Lubricator Bowl Assembly	Pre-lubricates the strip
1428156-1	Shoulder Eye Bolt	Provides a lift point for machine installation

Figure 14

To install Air Feed Kits 2161209-1 and -4, proceed as follows:



DANGER

To avoid personal injury, be sure to turn “off” the machine, and disconnect it from the power source.



NOTE

Some applications require the installation of an Oversized Guard Kit PN 1976900-1. These applications are primarily ones that use two inch stroke air-feed cylinders.

Follow Step 2 “Installation Procedure for Customer Use” on the air feed kit print PN 2161209 included with Air Feed Kits 2161209-1 and -4 (see Figure 15).

1. Disconnect power.
2. Mount the air valve to the flange on the side of the electrical box as shown.
3. Remove the six M4 bolts securing the cover to the electrical control box.
4. On the electrical box, punch out the gland nut knockout located below the air valve.
5. Install the gland nut (Item 25) and locknut (Item 26) in the knockout hole, with the locknut on the inside of the electrical control box.
6. Attach the air feed (Item 21) cable to the air valve (Item 13) then route the air feed cable through the gland nut shown.

7. Insert small end of Item 21 into socket "J17" on circuit board in area shown.
8. Tighten gland nut "snugly" around wire.
9. Secure cover to the electrical control box with six M4 bolts.
10. For metric airline fittings, remove Item 1. For English airline fittings, Item 1 remains.
11. If the air feed applicator requires the optional base plate clamp:
 - a. Install the optional base clamp (Item 11) onto the base plate.
 - b. Remove the back, left, base plate clamp.
12. Install the air feed applicator onto the baseplate and connect to applicable ports (see Figure 15).
13. Make sure slide valve is off (pulled away from filter).
14. Attach air supply hose to air valve assembly.
15. To turn air on, slide valve towards filter to turn air off; slide valve away from filter; make sure valve lockout is away from slide valve.
16. To lock air in off position, turn air off and clamp lockout in location shown in Figure 15. Secure lockout with a lock (customer supplied).
17. Reconnect power.



NOTE

The air can be turned "off" by moving the slide valve away from the filter.

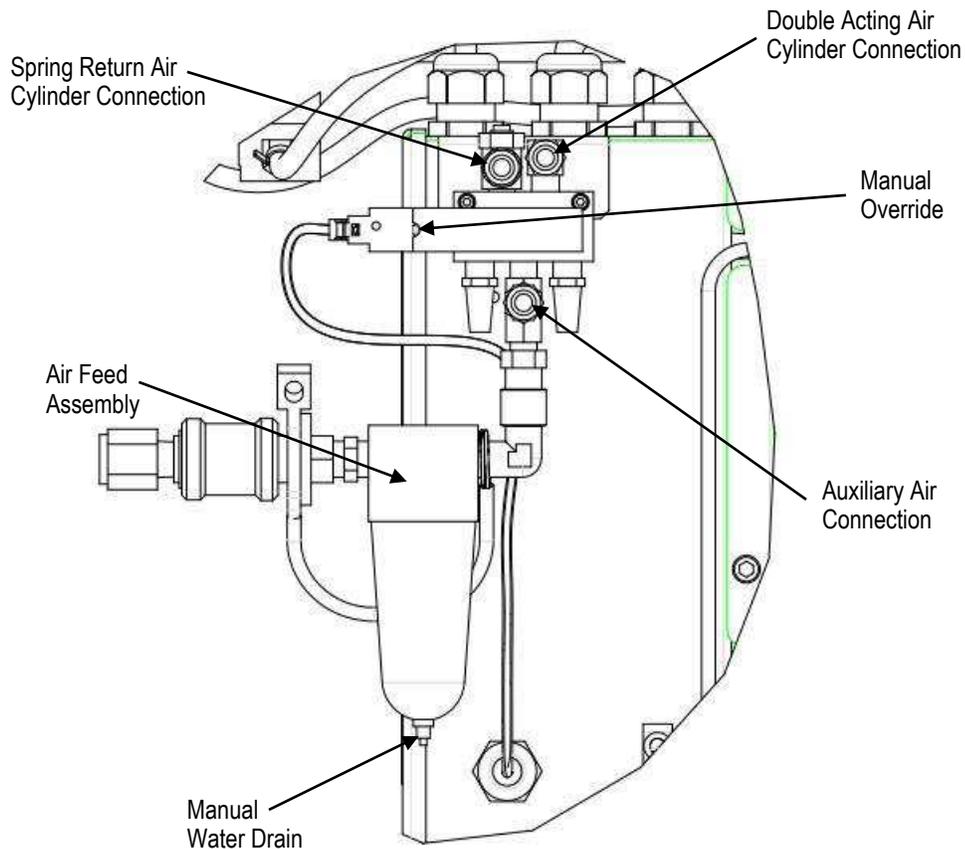


Figure 15

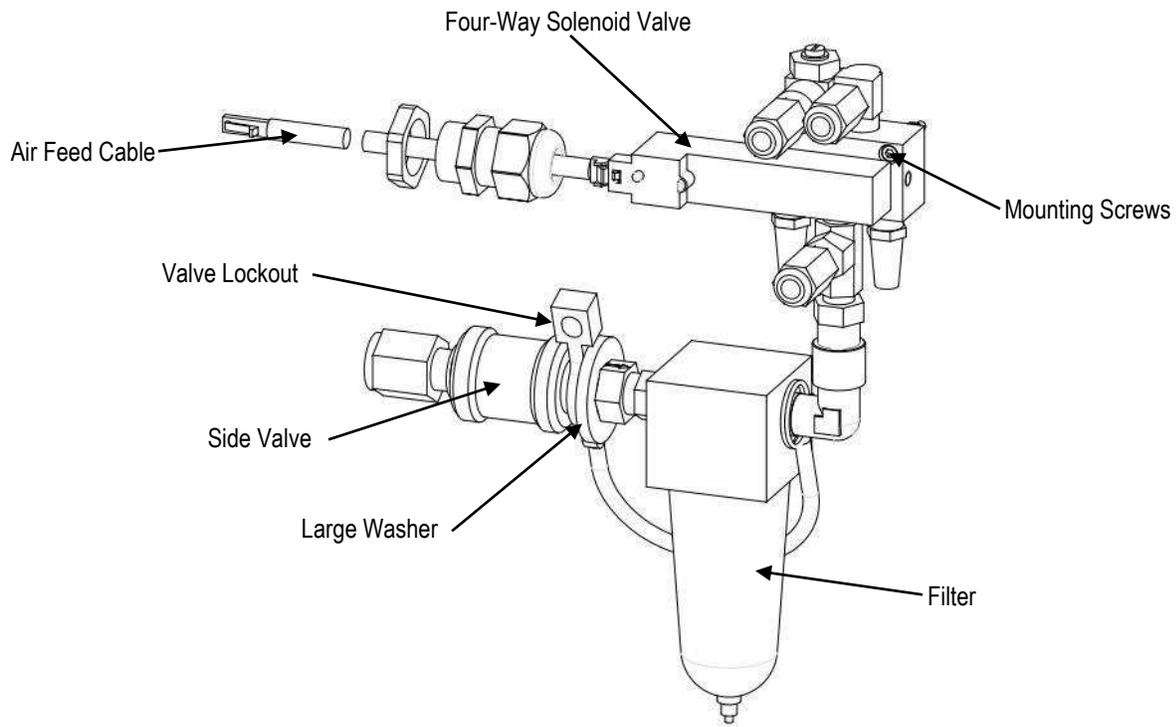


Figure 16

8. TROUBLESHOOTING

Contact the Support Center at 1-800-522-6752.

8.1. Error Codes

See the table in Figure 17 for a listing of error codes.

ERROR CODE	ERROR DESCRIPTION
E001	The host is inhibiting operation.
E002	The guard interlock is open.
E003	The insert interlock is open
E004	The safety circuit is not operational.
E005	Control panel is not communicating with the CPU board.
E020	Movement of the TDC switch was not detected.
E021	The TDC switch was not made.
E099	Host Module not detected
E100	Stuck keypad button
E101	Footswitch input stuck on

Figure 17

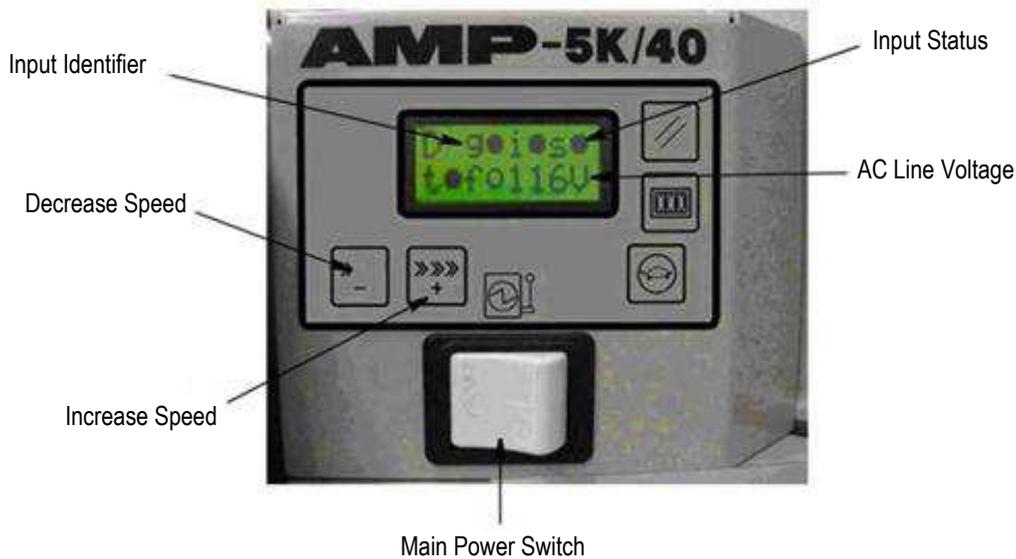
8.2. Diagnostics

The control panel can be placed in a Diagnostics Mode to check operation of the machine inputs and to check the detected AC line voltage. To place the control panel in the Diagnostics Mode.

1. Press and release Error Reset to clear any error.
2. Press and hold Error Reset for five seconds, until the control panel software version is displayed.
3. Release the Error Reset.

A screen similar to the one in Figure 18 will be presented. Each of the inputs is shown with an input identifier, followed by an input status symbol. The input identifiers are listed in Figure 18 along with corresponding input description. A solid dot indicates the input is “on.” A hollow dot indicates the input is “off.”

Press Error Reset to exit the diagnostic mode.



Input Identifier	Input Description
g	Guard Interlock Input
i	Insert Interlock Input
s	Safety +24V Input
t	TDC Switch Input
f	Footswitch Input

Figure 18

9. SOFTWARE VERSION IDENTIFICATION

1. Be sure the machine is turned off.
2. Turn the power to the machine on.

When the display on the control panel turns on, the control panel software version will be displayed briefly, followed by the CPU motor controller software version. Both versions follow the format “X.XX.XX.”

10. DISPOSAL

Contact TE for disposal.

11. REPLACEMENT AND REPAIR

Replacement parts and recommended spares are identified and listed in drawings and documentation packages. To order replacement parts, call 1-800-522-6752, send a facsimile of your purchase order to 717-986-7605, or write to:

CUSTOMER SERVICE (038-035)
TE CONNECTIVITY CORPORATION
PO BOX 3608
HARRISBURG PA 17105-3608

Call 1-800-522-6752 for customer repair service.

12. RoHS INFORMATION

Information on the presence and location of any substances subject to RoHS (Restriction on Hazardous Substances) can be found at the following website:

<http://www.tycoelectronics.com/customersupport/rohssupportcenter/>

Click on "Find Compliance Status" and enter equipment part number.

13. REVISION SUMMARY

- Section 1, changed AIR specification to: Refer to applicator instruction sheet for air pressure requirements
- Added 5K/30* where applicable
- Provided NOTE: Precision Crimp Height Adjustment is only available on 5K Machines; Sections 2.1.4. and 6.3.
- Provided NOTE: The AMP 3K/40* is not equipped with the crimp height adjustment group; Section 2.1.4
- Added PN 2161209-4 and applicable references, Air Feed Valve Kit (required to run JAM air-feed type applicators); Section 7.