

customer manual

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SAFETY PRECAUTIONS AVOID INJURY

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 appropriate ear protection.
- ALWAYS wear approved eye protection when operating powered equipment.
- ALWAYS keep guard(s) in place during normal operation.
- ALWAYS insert power plug into a properly grounded receptacle to avoid electrical shock.
- ALWAYS turn off the main power switch and disconnect electrical cord from the power source when performing maintenance on the equipment.
- NEVER wear loose clothing or jewelry that may catch in moving parts of the application equipment.
- NEVER insert hands into installed application equipment.
- NEVER alter, modify, or misuse the application equipment.

TOOLING ASSISTANCE CENTER

CALL TOLL FREE 1-800-722-1111 (CONTINENTAL UNITED STATES AND PUERTO RICO ONLY)

The **Tooling Assistance 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 TOOLING ASSISTANCE CENTER

When calling the Tooling Assistance 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 Tooling Assistance 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

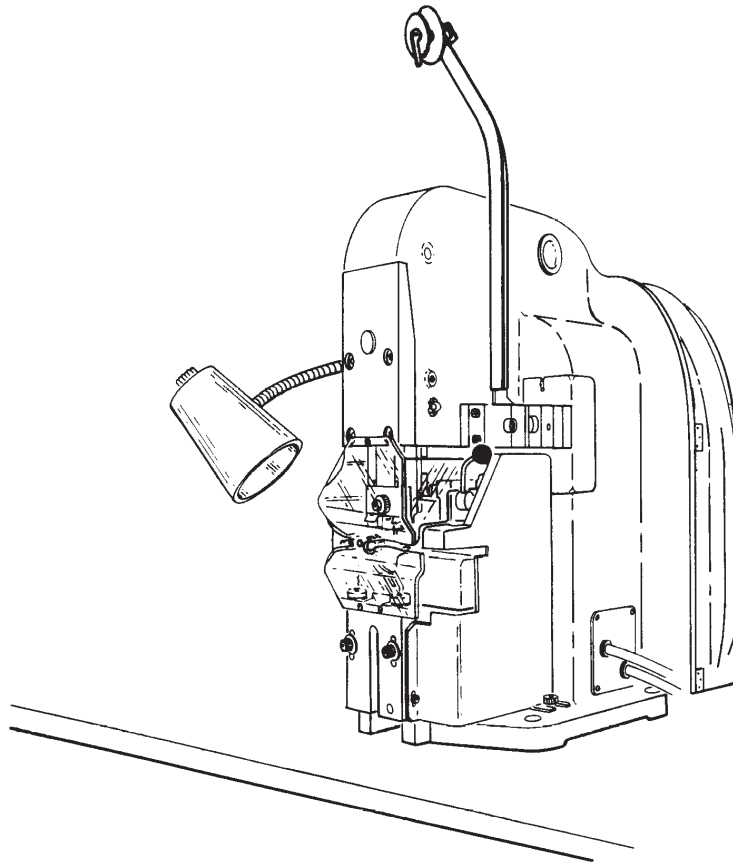


Figure 1

1. INTRODUCTION

AMP-TAPETRONIC Machines No. 69875 and 69875-1 (see Figure 1) were designed to crimp a variety of tape-mounted products onto solid and stranded wires from No. 26 through No. 8 AWG by using replaceable die sets.

The AMP-TAPETRONIC machines consist of a basic AMP-O-ELECTRIC* Model "K" Terminating Machine and the application tooling required to crimp PIDG* and PLASTI-GRIP* Terminals and Splices, AMPLI-BOND* Terminals, DIAMOND GRIP* Terminals, STRATO-THERM* Terminals and Closed End Splices. See Figure 2.

This manual pertains to the applicator portion of the AMP-TAPETRONIC machine. For information about the Model "K" AMP-O-ELECTRIC machine, refer to Customer Manual 409-5128. For information beyond the scope of these manuals, contact the Tooling Assistance Center at 1-800-722-1111.

Read this manual thoroughly before operating the machine. The performance of this machine will depend largely upon the intelligent use of the information contained in this manual.

When reading this manual, pay particular attention to **DANGER**, **CAUTION**, and **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.



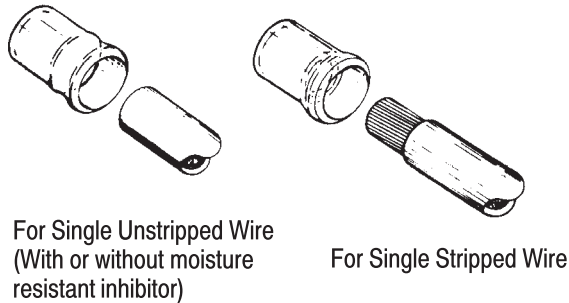
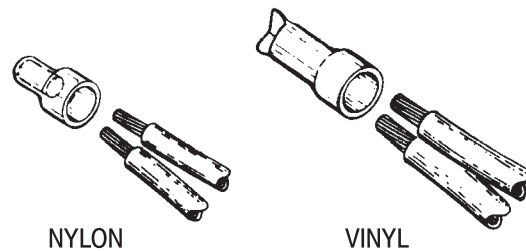
Crimped PIDG Terminal and Splice**Spare Wire Caps****Closed End Splices**

Figure 2

NOTE*Highlights special or important information.***1.1. Dimensions and Specifications**

Dimensions in this manual are in metric units [with U.S. customary equivalents in brackets.] unless otherwise specified. Refer to Figure 3 for dimensions and specifications.

Reasons for revision to this manual are provided in Section 10, REVISION SUMMARY.

1.2. Machine Accessories**A. Crimping Dies**

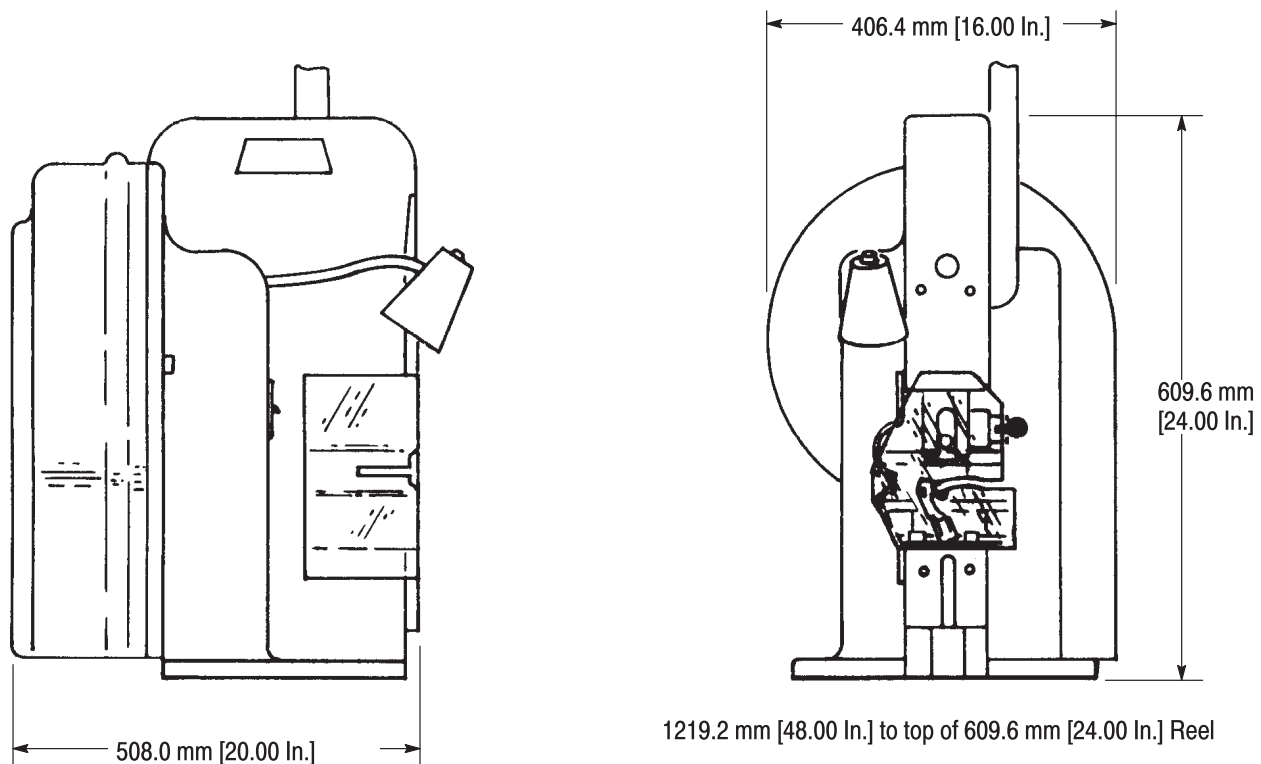
Interchangeable crimping dies are available for crimping terminals and butt splices on solid and stranded wires ranging from No. 26 through No. 8 AWG. Dies, terminals, and splices are color-coded for a given wire range. Products must be crimped in dies that carry the same color code dot. Refer to the instructions packaged with the dies for terminal and splice crimp inspection procedures, maintenance/inspection procedures, and parts replacement information.

CAUTION

*Make sure the **CORRECT** type and size terminals or splices are used in dies, or damage may occur to dies. Contact your service representative to verify die selection.*

When crimping Closed-End Splices and Spare Wire Caps, the foot switch must be depressed and released for each cycle of machine operation. Dies for closed end splices are supplied with a lower tool holder, a wire stop, and an extractor to replace the wire funnel. Dies for spare wire caps are supplied with a lower tool holder and stop.

Refer to Section 8 for die replacement procedures for terminal and butt splice dies, and for machine conversion procedure when converting to run closed end splices and spare wire caps. Refer to Section 7 for any adjustments that may be necessary.



Power Requirements: 3	Machine No. 69875 — 115 Vac, Single phase with ground, 60 Hz
	Machine No. 69875-1 — 230 Vac, Single phase with ground, 50 Hz
Production Rate:	Up to 2,500 – 3,000 terminations per hour, depending on operator experience and general working conditions.
Wire Range:	No. 26 through No. 8 AWG, solid or stranded.
609.6-mm [24-in.] Dia. Reel Capacity:	1,500 to 5,000 terminals or splices, depending on wire size.
431.8-mm [17-in.] Dia. Reel Capacity:	1,500 to 5,000 terminals or splices, depending on wire size.
Magazine Capacity:	500 to 1,000 terminals or splices, depending on the wire size.
Weight:	Approximately 113.40 kg [250 lb.]

Figure 3

B. Wire Funnels

The wire funnel permits easier and faster wire entry into product wire barrels prior to the crimping operation, and it acts as an extractor by sweeping the crimped product out of the die closure after crimping. Wire Funnel No. 68299-1, for wire range 22 through 14 AWG, is installed on the machine at the factory. Wire Funnel No. 68306-1, for wire range 12 and 10 AWG, must be ordered separately. Refer to Section 8 for replacement procedure.

C. Electric Counter

An electric counter may be connected to the machine electrical system as shown in the wiring diagram in Section 2. The counter must be supplied by the customer. The customer must ensure that the counter voltage is of the correct rating.

2. DESCRIPTION

NOTE



Machines 69875 and 69875-1 are identical except for the electrical systems required to power the machines. Machine 69875 operates on 115 Vac, 60 Hz; Machine 69875-1 operates on 230 Vac, 50 Hz power.

2.1. Physical Description (Figure 4)

Added to a basic AMP-O-ELECTRIC Model "K" Terminating Machine is a linkage which actuates the indexing mechanism from front to back during each cycle of operation. This action pulls the tape from the product and raises the wire stop assembly to allow for removal of the crimped product by the wire funnel (or extractor).

Linkage attached to the mechanical feed on the machine operates a ratchet which advances the tape feed belt one increment during each cycle of operation. This positions the product in the crimping dies. In the standby condition, the machine ram is lowered to the holding position to retain the product during wire insertion and crimping.

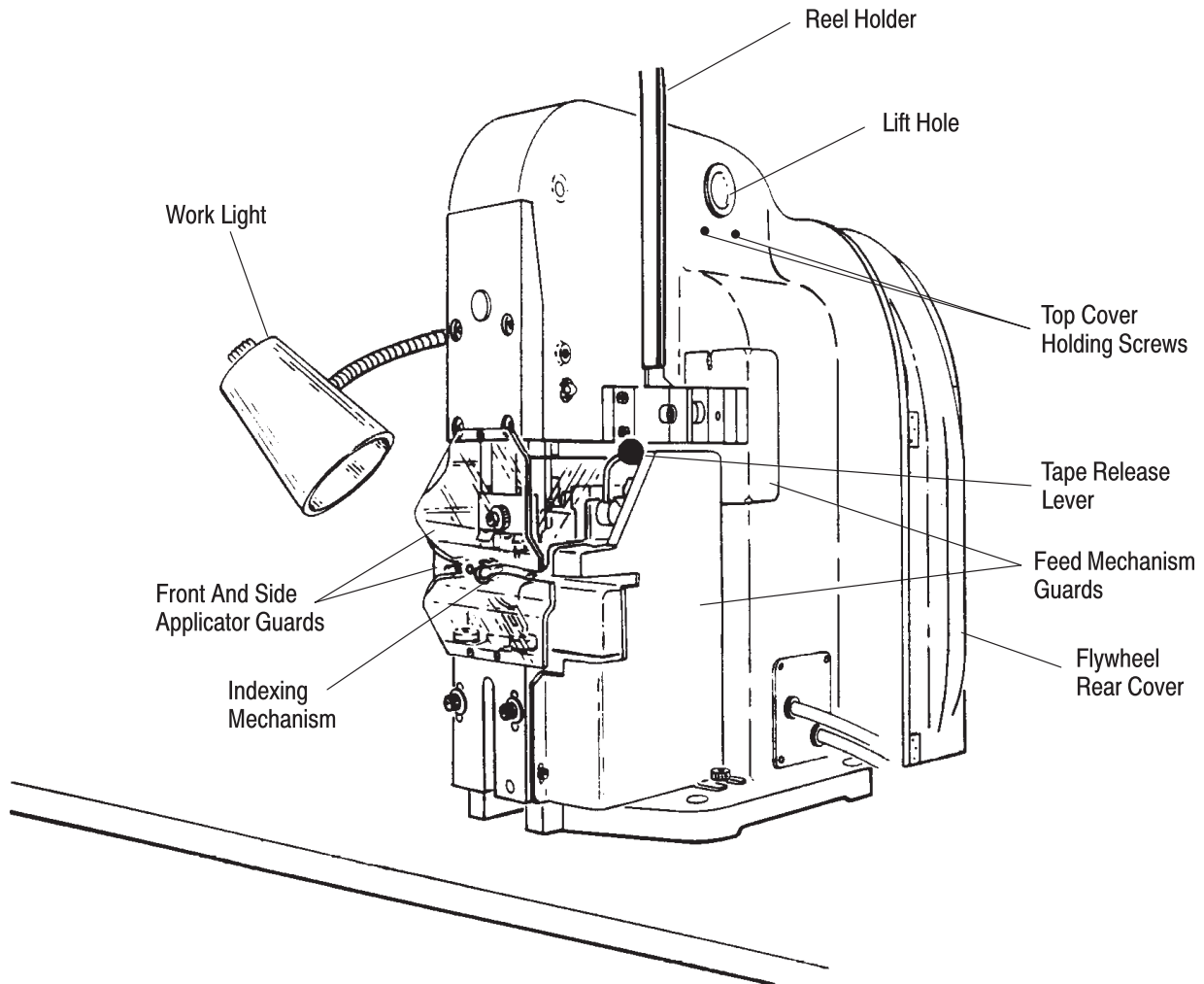


Figure 4

The applicator is enclosed in guards for personnel protection.

2.2. Functional Description

A. Basic Machine

Refer to Customer Manual 409-5128 for the functional description of the basic AMP-O-ELECTRIC machine.

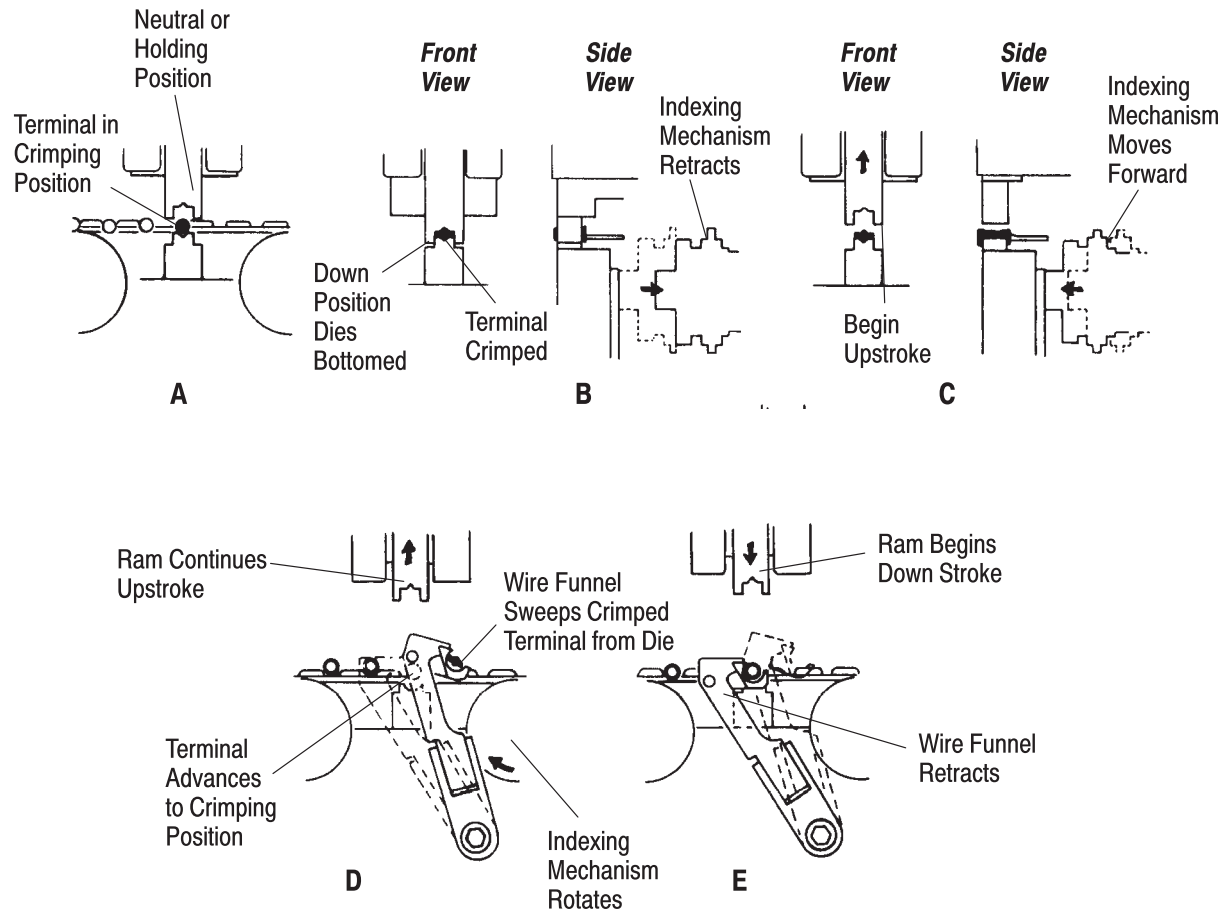
B. Applicator (Figure 5)

At the beginning of a machine cycle, the flywheel is rotating, the ram is in the neutral or holding position, and a product is in the crimping position. When the foot switch is depressed, the machine solenoid is

energized, cycling the machine one revolution. The upper die will bottom to crimp the product. At the same time, the indexing mechanism is retracted and the wire stop assembly is raised by the mechanical linkage to the machine transmission.

After the product is crimped, the machine ram begins to raise the upper tooling and the indexing mechanism moves forward. As the ram continues the upward stroke, linkage to the machine mechanical feed is actuated to ratchet the tape feed belt forward one increment to position the next product in the crimping area. In addition, the wire funnel is actuated to eject the crimped product from the lower die.

As the machine ram reaches the end of the upward stroke and begins the downward stroke to return to the neutral or holding position, the wire funnel retracts to align with the product wire barrel for the next cycle of operation.



Applicator Crimping Cycle

Figure 5

C. Electrical System

The machine is operated by a foot switch. The foot switch must be depressed and released to perform each cycle of operation. For further information, refer to the wiring diagram in Figure 6 and the electrical schematic in Figure 7.

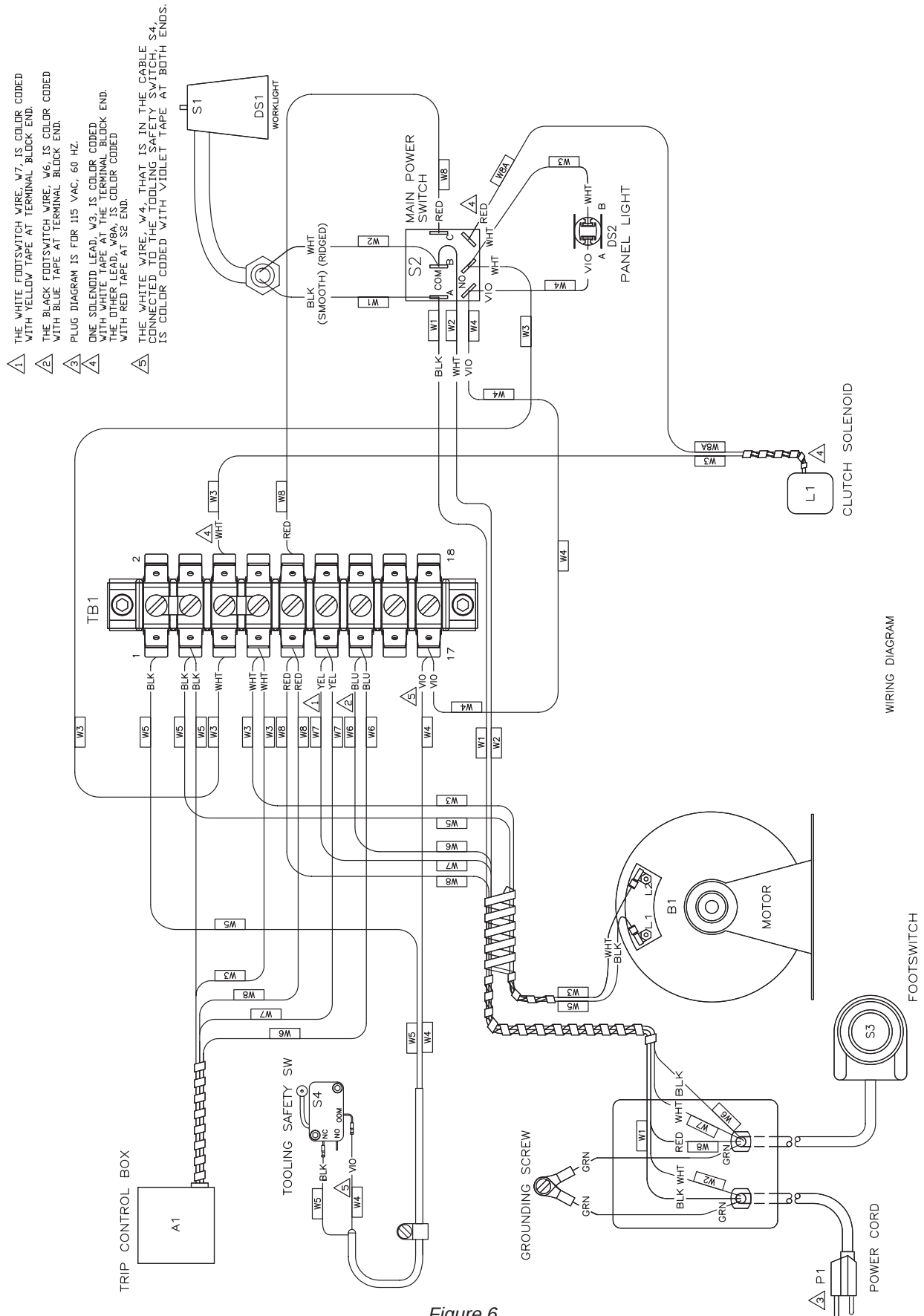


Figure 6

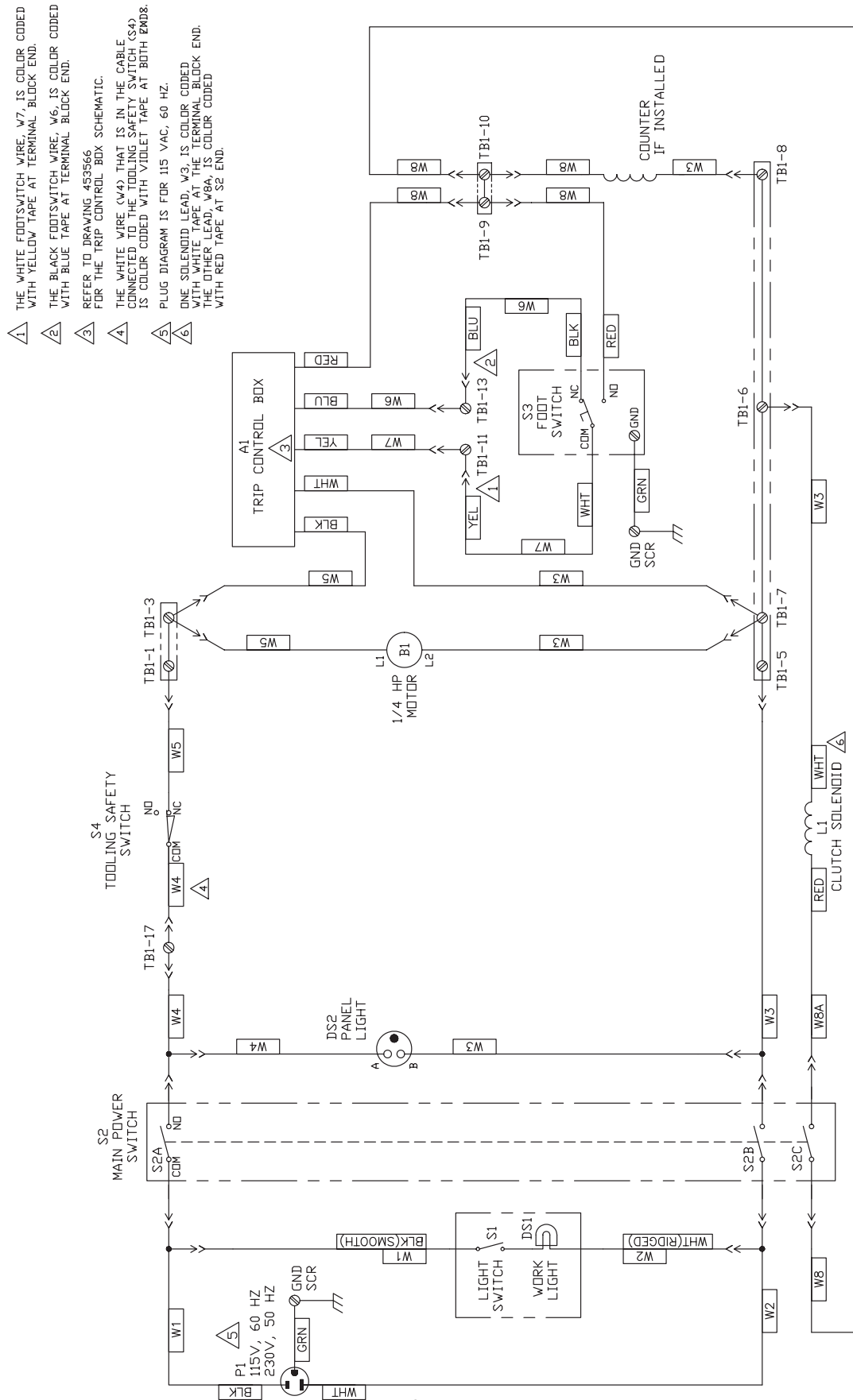


Figure 7

3. RECEIVING INSPECTION AND INSTALLATION

3.1. Receiving Inspection

The machine is thoroughly inspected during and after assembly. Before it is shipped, final tests and inspections are made to ensure proper functioning. Still, the following inspection should be performed as a safeguard against problems generated during shipment.

1. Carefully uncrate the machine and place it on a sturdy bench where there is enough light to permit a careful examination.
2. Thoroughly inspect the entire machine for evidence of damage that may have occurred during transit. If the machine is damaged, file a claim against the carrier and notify Tyco Electronics immediately.
3. Check all components and parts to be certain they are secure.
4. Check all wiring for loose connections and for frayed or broken wire and insulation.
5. If applicable, check all air lines for evidence of loose connections or leaks.

NOTE

It is IMPORTANT that this manual, other documents shipped with the machine (e.g., drawings, parts lists, etc.), and any enclosed product samples remain with the machine for the benefit of personnel responsible for installation, operation, and maintenance.

3.2. Considerations Affecting Machine Placement

The location of the machine in relation to the operator is essential to both safety and efficiency. Studies have repeatedly shown that fatigue will be reduced and efficiency increased if particular attention is paid to the bench, the operator's chair, and the placement of the foot switch if one is used.

A. Bench

A sturdy bench, 711 to 762 mm [28 to 30 in.] high, aids comfort by allowing the operator's feet to rest on the floor. The operator's weight and leg position can be easily shifted. The bench should have rubber mounts to reduce noise. The open area under the bench should allow the chair to slide far enough in for the operator's back to be straight and supported by the back rest.

B. Machine Location on Bench

The machine should be located near the front of the bench and the tooling area (the area where product is applied) should be 152 to 203 mm [6 to 8 in.] from the front edge. Access to the back of the machine must be provided.

C. Operator's Chair

The operator's chair should swivel, and the seat and back rest should be padded and independently adjustable. The back rest should be large enough to support the back both above and below the waist.

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

D. Foot Switch

When the operator is correctly positioned in front of the machine, the foot should rest on the switch comfortably and easily. The switch should be placed on a rubber mat. This allows the switch to be movable and permits the operator to shift positions to minimize fatigue. At the same time the mat prevents the switch from sliding unintentionally.

The preference for locating the switch varies among operators. Some like the switch located so that their foot rests on the switch when their legs are in the natural sitting position (calf perpendicular to the floor). Others prefer it slightly in front of the natural position. The important thing is that the foot be about 90° to the calf when resting on the switch. Those who prefer the switch slightly forward may require a wedge-shaped block placed under it.



Figure 8

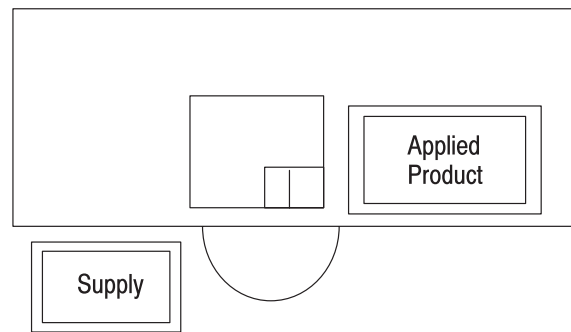
Materials Locations — Plan View

Figure 9

Figure 8 shows proper location and position for foot and switch.

Figure 9 shows a typical layout for the efficient handling of materials.

3.3. Machine Installation

This machine is installed in the same manner as described in Customer Manual 409-5128. If the reel holder is to be used, attach it with the same two screws that secure the guard to the right side of the machine frame as shown in Figure 10,A. If a magazine holder is required, it must be ordered separately, then installed on the bench with bolts or screws approximately 101 mm [4 in.] from the left side of the machine as shown in Figure 10,B.

4. OPERATION**4.1. Hand-Cycling Machine** (Figure 11)

During normal operation, the machine stops with the ram down (in “holding” position). The machine must be hand-cycled on occasion for various adjustments. Hand-cycle the machine as follows:



The upper and lower tooling of the machine is aligned at the factory and will not normally require further adjustment. If, however, the lower tooling holding screws or base-mount adjustment screws are disturbed, the dies will not align or bottom properly, causing damage to the dies. Tooling alignment should be checked and adjusted by your local field service engineer.

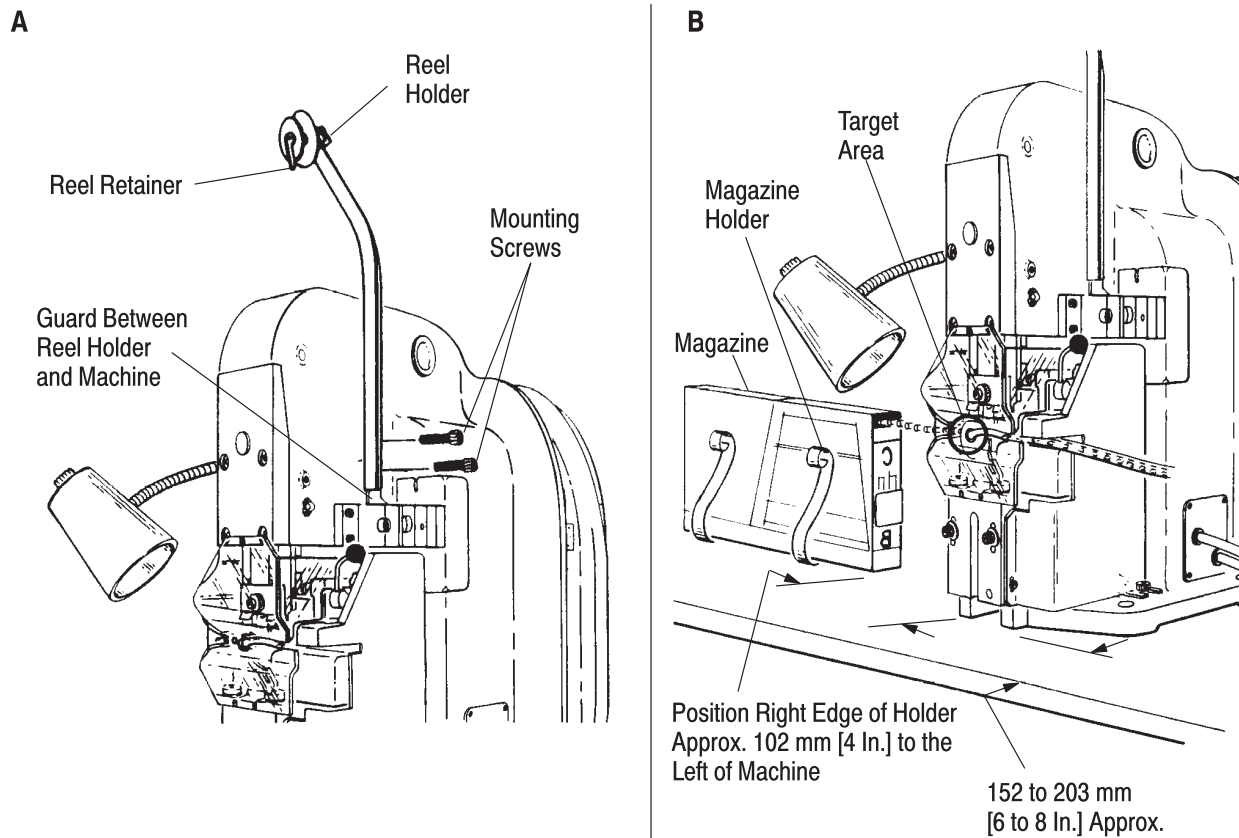


Figure 10

DANGER

To avoid personal injury, be sure to turn off the machine and disconnect the machine from the power supplies.



1. Unlatch and open flywheel cover on rear of machine.
2. Make sure the tape release lever is in the "down" position. See Figure 11.

CAUTION

If machine is hand-cycled with the tape release lever in the "up" position, the shear pin on the ram will be broken, preventing further damage to the machine. Refer to Section 8 for shear pin replacement.

3. Raise the stop bar, located below the solenoid, and turn the flywheel in the direction of arrow to cycle the machine. The clutch will release at the end of the cycle.

CAUTION

Turning the flywheel in the direction opposite of the arrow may cause damage to the machine.

4. Repeat Step 3 as necessary to complete the operation being performed.

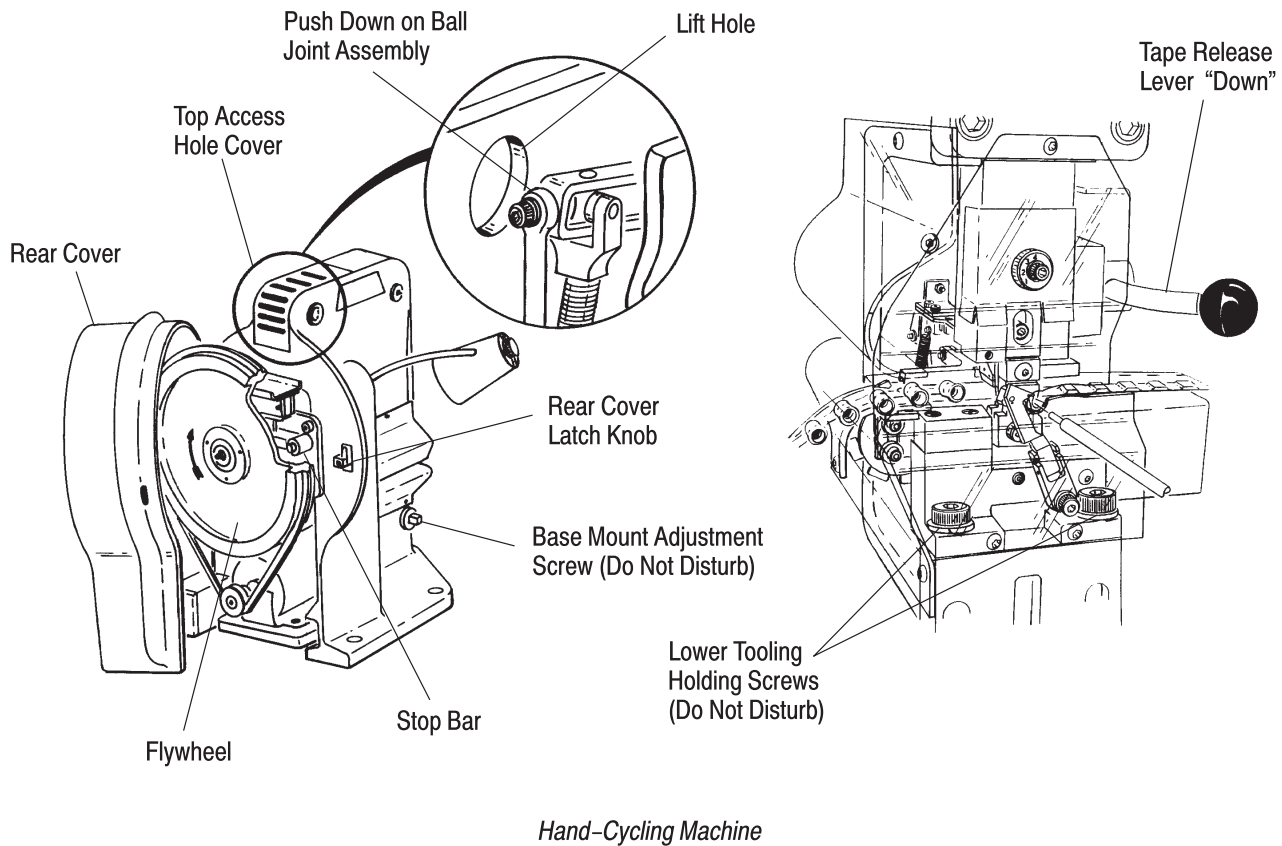


Figure 11

4.2. Product Loading and Unloading

A. Loading

DANGER



To avoid personal injury, be sure the machine is turned off and disconnected from the power supplies.

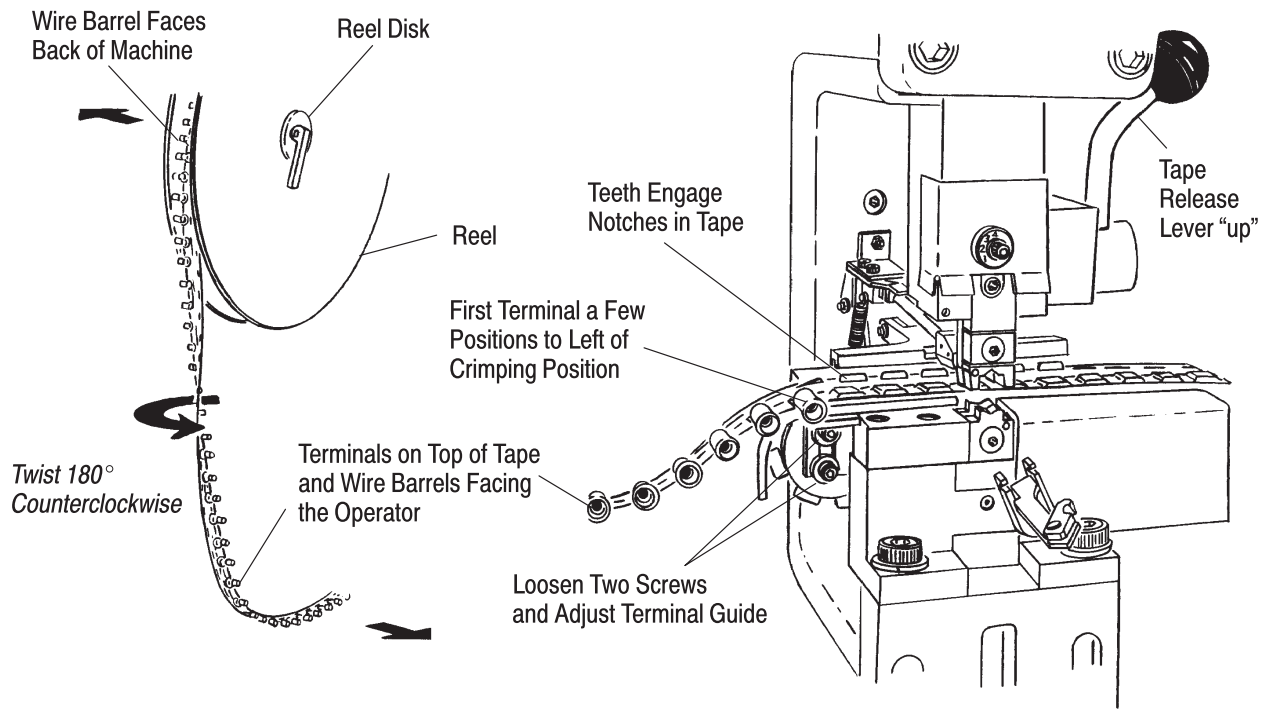
1. Loosen the reel disk thumbscrew and remove the disk. See Figure 12.
2. Position reel so that terminal wire barrels face the rear of machine, then slide reel onto reel support pin.
3. Replace reel disk and lock by tightening the thumbscrew.
4. Facing the front of the machine, twist the tape counterclockwise 180° so terminals are on top of tape and wire barrels face the operator's position. Feed tape through side guard and into indexing mechanism.

NOTE



No. 8 PLASTI-GRIP terminals will be upside down on tape and must be crimped using the foot switch.

5. Position first product in tape a few positions to the left of the crimping area. **MAKE SURE** feed notches in tape engage with teeth on feed belt.
6. Adjust terminal guide to feed product straight into the crimping dies as shown in Figure 12.



*Applicator Guard Removed for Clarity. **Always** Keep Guards in Place When Operating Machine.*

Figure 12

7. Lower tape release lever to secure tape in position.
8. Connect the machine power supply and place the main power switch in the "ON" position.
9. Depress and release the foot switch as many times as necessary to index the first product into the crimping area.
10. **Replace the front guard** before beginning production operation of the machine.

B. Unloading

DANGER



To avoid personal injury, be sure to turn off the machine and disconnect the machine from the power supplies.

1. Remove front guard and raise tape release lever.
2. Remove tape from indexing mechanism.
3. Cut excess lead from tape and discard.
4. Secure end of tape to reel with masking tape.
5. Remove reel from reel support.

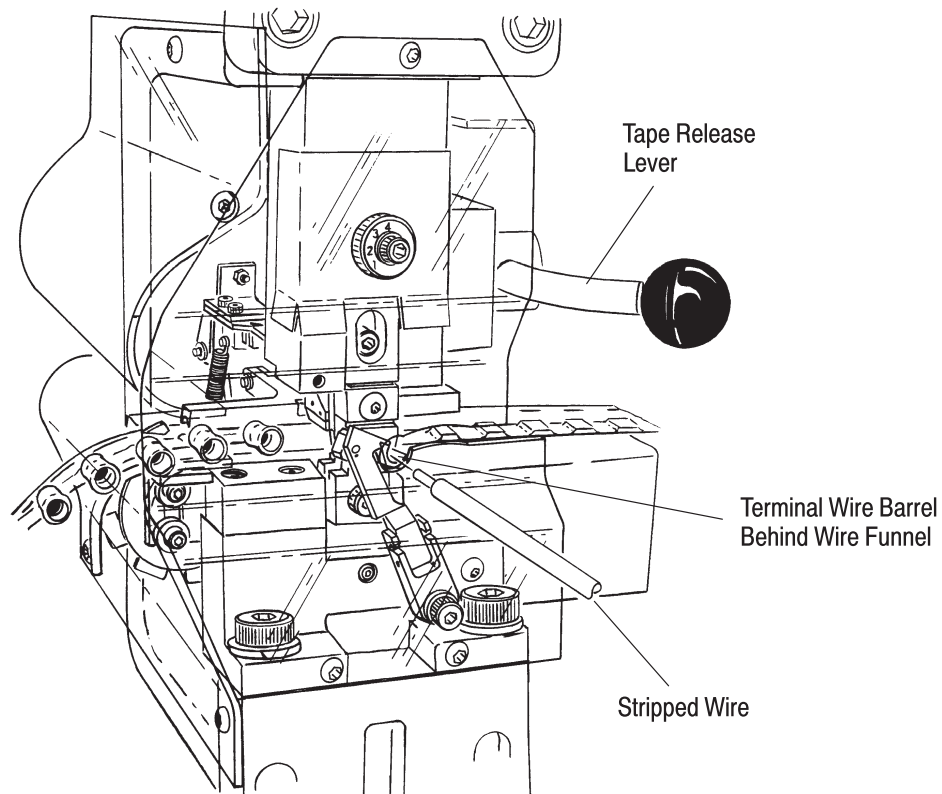


Figure 13

4.3. Production Operation



To avoid personal injury, **always** keep guards in place while operating the machine under power. The guards cover moving parts that could cause personal injury.

1. Check the machine to ensure that correct dies are installed. If necessary, refer to Section 8 for die replacement procedure. To convert the machine to run closed-end splices or spare wire caps, refer to the conversion procedure in Section 8.
2. Strip wire ends to length specified in the instruction material packaged with the dies.
3. With the machine connected to the power supply, place the main power switch in the ON position.
4. Insert the pre-stripped wire into the product wire barrel until the wire end contacts the internal wire stop. See Figure 13. Depress and release the foot switch to cycle the machine.
5. Remove the crimped product and inspect for proper crimping. Refer to the crimp inspection procedure packaged with the dies.
6. Repeat Steps 4 and 5 until the desired number of terminations has been made.
7. Upon completion, place the main power switch in the OFF position. If it is not to be used in the near future, DISCONNECT MACHINE FROM THE POWER SUPPLY.

4.4. Clearing Jammed Product

Products not crimped onto wire are difficult to remove from crimping dies. To prevent terminal jams during setup and maintenance procedures, **always** insert a wire into the product wire barrel when crimping.

Product may also jam or pile up in the moving die if vertical movement of the wire stop is out of adjustment. Refer to Section 7 for any adjustments that may be necessary.

Remove a jammed product as follows:

DANGER

DO NOT cycle the machine with product jammed in dies, or personal injury, as well as damage to the dies, may occur.

DANGER

To avoid personal injury, be sure to turn off the machine and disconnect the machine from the power supplies.

1. Remove front guard and raise the tape release lever.
2. Remove jammed product from crimping dies.
3. Visually inspect the die crimping surfaces for flattened, broken, or chipped conditions. Worn or damaged crimping surfaces are objectionable and can affect the quality of the crimp. Refer to Figure 14 for examples of possible damage.

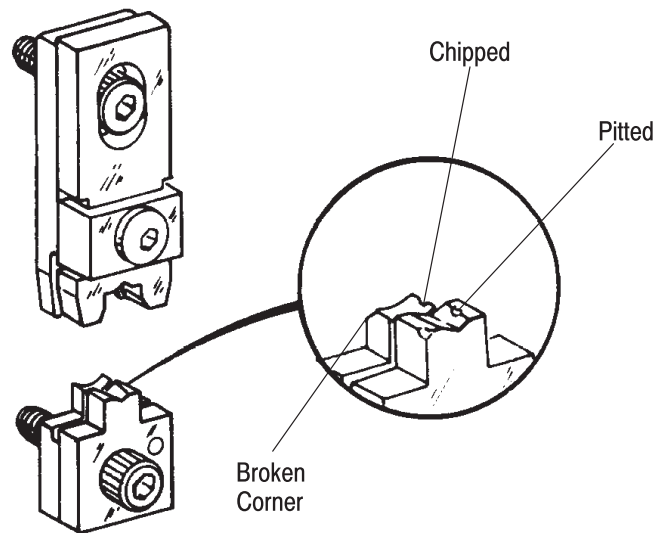


Figure 14

4. If necessary, replace dies as described in Paragraph 8.1.
5. After problem is corrected, replace the front guard and lower the tape release lever before continuing operation.

5. PREVENTIVE MAINTENANCE

It is important that a preventive maintenance program be performed at regular intervals to ensure efficient, dependable performance of the machine. The preventive maintenance program consists of cleaning, visual inspection, and lubrication.

DANGER

To avoid personal injury, always turn off main power switch and disconnect machine from power source when performing lubrication, cleaning, or parts replacement.

5.1. Cleaning

Clean the dies daily. Do not allow deposits of dirt to build up on bottoming surfaces and die closure surfaces.

Except in abnormally dusty and dirty conditions, it will be necessary to clean the machine only when it is disassembled for repairs. Wash the parts in solvent and dry thoroughly. Lubricate machine as instructed in Paragraph 5.3 before placing it back in service.

5.2. Visual Inspection (Monthly)

Perform an *overall* visual inspection of the machine at least once a month, prior to performing the monthly lubrication program (Paragraph 5.3).

1. Starting at the front and moving clockwise around the machine, check tightness of all mounting screws and electrical connections. Check tightness of crimping die mounting screws at least twice daily.
2. Inspect all moving parts for excessive wear. The presence of metal particles indicates a need for lubrication or a need to align parts.
3. Inspect the motor mounting screws, the connecting rod retainer nuts, and the flywheel and main-shaft retaining ring.
4. Check for loose or missing cowlings pins and retaining rings on transmission.

5.3. Lubrication

NOTE



Apply all lubricants sparingly, avoiding a "build-up" of lubricants and dirt. Be sure to wipe off excess lubricant.

The moving components in the machine require regular lubrication to ensure reliable service. Use the lubrication chart in Figure 16 as a guide to establish a lubrication schedule suited to your operating conditions and for identification of lubrication points.

Refer to the lubricant specification chart, in Figure 15, for specific lubricant requirements.

If the machine has not been used for several days, it is a good policy to lubricate it before starting operation.

IDENTIFYING LETTER	LUBRICANT
A	TEXACO (Texas Company) MARFAX Multipurpose No. 2 Grease, NLGI● No. 2
	Base Lithium Soap, 5.2% average
	Oil Viscosity 80 Sec at 99°C [210°F]
	Additive Oxidation Inhibitor
	Consistency No. 2. NLGI
	Dropping Point Over 185°C [365°F]
	Steady Usable Temperature 121°C [250°F]
B	1 Part SAE 20 Motor Oil and 1 Part STP■
C	VALVOLINE◆ X-5 Light

- National Lubrication Grease Institute
- STP Lubricant, STP Corporation
- ◆ VALVOLINE Oil Company, Division of Ashland Oil and Refining Company

Figure 15

LUBRICATION POINT	LOCATION	ACCESS	INTERVAL	RECOMMENDED LUBRICANT
1. Grease Fittings  (a) Ram	Right side of machine in front of feed mounting bracket (Figure 16,B).	—	Daily	A
(b) Toggle lever pin	Left side of machine (Figure 16,B).	—	Daily	A
(c) Upper end of ball joint assembly	Inside machine (Figure 16,B).	Cycle machine by hand to raise ram. Gain access through lift hole.	Daily	A
(d) Drive shaft mounting plate	Fitting on plate beside eccentric (Figure 16,B).	Remove top access cover.	Daily	A
(e) Lower end of ball joint assembly	Inside machine (Figure 16,B).	Cycle machine by hand to lower ram. Then remove side access cover.	Daily	A
(f) Toggle link	Front of machine (Figure 16,B).	Cycle machine by hand to lower ram. Then remove dust cap.	Daily	A
(g) Transmission	Inside machine (Figure 16,B).	Through hole in flywheel guard.	Daily	A
2. Grease (Applied by hand) Ram Guide	Side of machine (Figure 16,A).	—	Monthly	A
3. Oil Points (Machine)  (a) Toggle lever clevis pin	Inside machine at top of connecting rod (Figure 16,B).	Remove top access cover.	Monthly	B
(b) Connecting rod	Inside machine (Figure 16,B) behind flywheel.	Open flywheel guard.	Monthly	B
(c) Stud	On feed actuating block (Figure 16,B).	Open flywheel guard.	Monthly	B
(d) Feed mounting block	Right side of machine (Figure 16,B).	—	Monthly	B
(e) Back-up latch pivot pin	Inside machine behind flywheel (Figure 16,B).	Open flywheel guard.	Monthly	B
(f) "O" rings	In stop bar (Figure 16,B).	Open flywheel guard and remove flywheel.	Monthly	C
4. Oil Points (Indexing Mechanism)  (a) Ball joint assembly fittings and pivot points	Feed linkage on right side of machine (Figure 16,A).	—	Monthly	B
(b) Slide bar●	Indexing mechanism	—	Monthly	B

Figure 16 (cont'd)

NOTE: Be sure to replace all guards after lubricating machine.

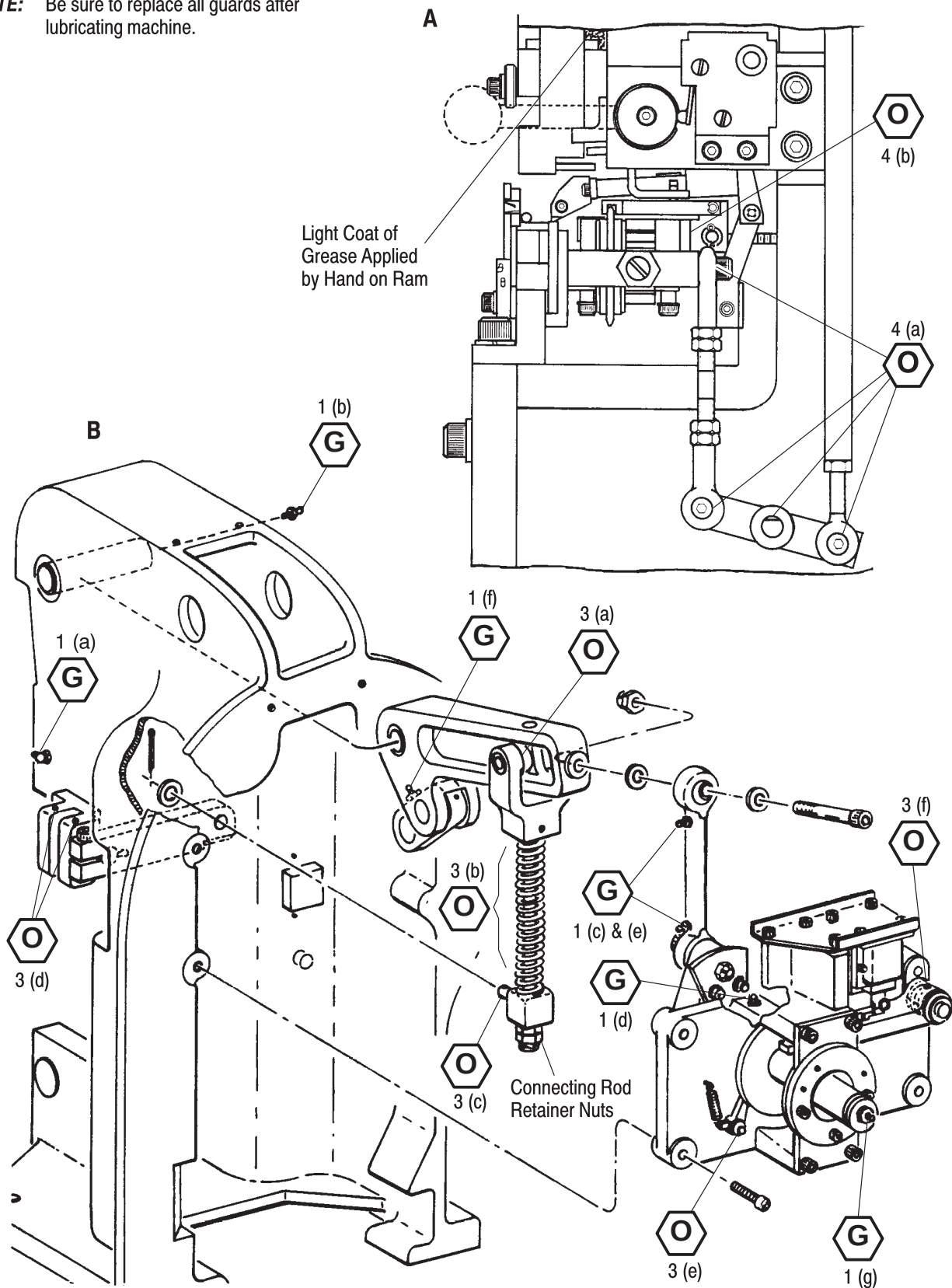


Figure 16 (end)

6. TROUBLESHOOTING

Careful observance of the preventive maintenance program will reduce the possibility of machine malfunctions. Refer to the electrical schematic, wiring diagram, and exploded views and parts lists for parts identification.



When guards are opened or covers removed for troubleshooting, avoid contact with moving parts and exposed electrical terminals. When making repairs or replacing a part, MAKE SURE THE MAIN POWER SWITCH IS "OFF" AND THE MACHINE IS DISCONNECTED FROM THE POWER SUPPLY.

6.1. Visual Inspection

In the event of a machine malfunction, perform the following six-point visual inspection before attempting a detailed troubleshooting procedure. If the visual inspection does not reveal the cause of the malfunction, then refer to the troubleshooting chart.

1. Make sure the tape release lever is all the way down.
2. Be sure that the machine is connected to a properly grounded power supply (appropriate to the machine, 115 Vac for 69875; and 230 Vac for 69875-1).
3. Inspect for burnt or loose electrical connections.
4. Inspect the machine for worn or damaged mechanical components.
5. Inspect all lubrication points for excessive build-up of lubricants or dirt.
6. Inspect for insufficient lubrication.

6.2. Troubleshooting Table

A troubleshooting table can be found in Figure 17.

MALFUNCTION AND/OR SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
Drive motor does not operate when power switch is set to the "ON" position.	- If power indicator is lit: - tape release lever is raised. - drive motor is defective - If power indicator is not lit and the work light lights when the work light switch is set to the "ON" position, the power switch is defective. - If power indicator is not lit and work light does not light when work light switch is set to the "ON" position, the line cord is defective.	Lower tape release lever. Replace drive motor. Replace power switch. Replace line cord.
Machine does not cycle with main power switch in "ON" position — (drive motor not operating).	One of the following components is defective: - drive motor. - power switch. - line cord.	Repair or replace as necessary.
Machine does not cycle (drive motor operating and flywheel not rotating).	- Broken belt - Loose motor pulley	Replace belt as described in 409-5128. Tighten setscrew.
Machine does not cycle (drive motor operating and flywheel is rotating).	- One of the following conditions exists in the transmission: - broken or missing solenoid link pins. - broken, missing, or weak back-up latch return spring. - broken, missing or weak clutch dog spring. - worn or broken clutch dog. - worn or broken stop bar. - excessive accumulation of lubricant. - excessive accumulation of dirt or other foreign residue.	Refer to 409-5128 and perform the following corrective action. Check for broken or missing solenoid link pins. Replace pins, as required. Check for broken, missing, or weak back-up latch return spring, causing back-up latch not to engage stop collar. Replace spring if required. Check for broken, missing, or weak clutch dog spring, causing clutch dog not to engage drive plate. Replace spring, if required. Check for worn clutch dog and/or stop bar by raising stop bar and observing clutch dog for motion. Replace clutch dog and/or stop bar as required. Hand cycle the machine (Section 4) and observe whether or not excessive accumulation of lubricant, dirt or other foreign matter prevents clutch dog from moving when released by stop bar. Clean transmission, if required.
	- One of the following electrical components may be defective: - solenoid. - foot switch. - trip control box.	Refer to Figure 6 and Figure 7 (the wiring diagram and schematic, respectively) for troubleshooting electrical components.
	Machine may have been hand-cycled, resulting in the stop collar not contacting the stop bar. This will produce a "clicking" noise.	Turn "OFF" main power switch and disconnect machine from power supply. Gain access through either of the lift holes of machine and push down on top of ball joint assembly until assembly bottoms. Connect power cord, place power switch in the "ON" position and operate machine.

Figure 17 (cont'd)

MALFUNCTION AND/OR SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
Machine does not complete a cycle or cycles too slowly.	1. Loose motor pulley. 2. Machine and/or drive motor needs to be cleaned or lubricated.	Tighten setscrew. Clean and lubricate machine and/or drive motor, as required. Refer to Section 5.
Machine cycles more than once when foot switch is depressed only one time.	One of the following conditions exists in the transmission: (a) worn or broken clutch dog (b) worn or broken stop bar and/or stop collar.	Refer to 409-5128 and perform the following corrective action. Cycle machine by hand to observe transmission operation. Replace defective components as required.
Transmission chatters.	One of the following conditions exists in the transmission: (a) worn or broken back-up latch. (b) loose, missing or weak back-up latch return spring.	Refer to 409-5128 and perform the following corrective action. Cycle machine by hand, and observe operation of back-up latch at the completion of the operating cycle. Back-up latch must snap into position behind curved boss on stop collar. Replace defective spring or latch, as required.
Machine cycles but indexing unit does not move terminal into crimping position.	Feed yoke (ratchet) adjustment screw needs adjusting.	Refer to Section 7.
Terminals are positioned too far to the left or right of center of dies.	Indexing mechanism is not properly adjusted.	Adjust indexing mechanism. Refer to Section 7.
Terminals are positioned too far front or back of dies.	Varying positions of terminals on tape from one reel to another.	Perform Crimp Location Adjustment. Refer to Section 7.
Terminals jam (pile up) in moving die. (See Section 4 for clearing jammed terminals or splices from dies.)	1. Pin (No. 16, Figure 32) is broken. 2. Wire stop assembly needs vertical travel adjustment. 3. Stripped wire conductor was not inserted in terminal or splice wire barrel before crimping.	Replace pin. (Before starting machine, check probe vertical travel adjustment, Section 7.) Refer to Section 7 for vertical travel adjustment. Always insert stripped wire conductor in wire barrel of terminal or splice before crimping.

Figure 17 (end)

7. ADJUSTMENTS

The adjustment procedures contained in this section may be required to maintain continuous operation, when performing troubleshooting, and/or following the replacement of parts.



To avoid personal injury, MAKE SURE the machine is turned "off" and disconnected from the power supply BEFORE attempting to make any adjustment, unless otherwise specified.

7.1. Basic Machine Adjustments to the Model "K" AMP-O-LECTRIC Machine

For adjustments to the basic machine, refer to Customer Manual 409-5128.

7.2. Insulation Crimp Adjustment (Figure 18)

The machine contains a four-position insulation crimp adjustment, located on the front of the ram, that ranges from No. 1 (tight) to No. 4 (loose).

1. Remove the front guard to gain access to the tooling.

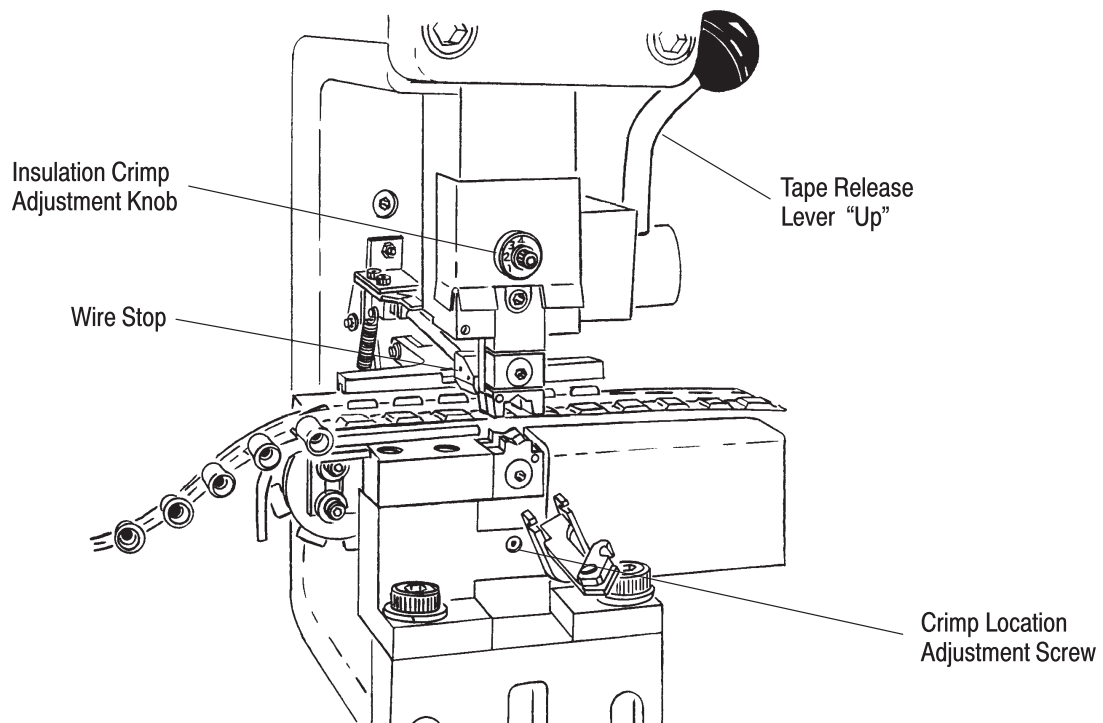


Figure 18

2. Raise the tape release lever to prevent machine operation.
3. Turn the insulation crimp adjustment knob to No. 4 (loose) position.
4. Lower the tape release lever.
5. For PIDG terminals and splices, insert an unstripped wire into only the insulation "grip" portion of the product.

NOTE

PIDG terminals and splices provide a "grip" on the wire insulation. PLASTI-GRIP terminals and splices provide a support for the wire.

6. For PLASTI-GRIP terminals and splices, insert a *stripped* wire into the product.
7. Hand-cycle the machine to crimp the wire into the product.
8. For PIDG products, bend the wire back and forth once. The product sleeve should retain grip on wire insulation. If not, raise the tape release lever and turn the insulation crimp adjustment knob to the next lower number; then repeat Steps 4 through 8.
9. For PLASTI-GRIP products, visually inspect the crimped product. The insulation crimp should support (be in contact with) wire insulation. If not, raise release lever and turn the insulation adjustment knob to the next lower number; then repeat Steps 4 through 7 and Step 9.
10. After obtaining the proper crimp, **replace the front guard.**

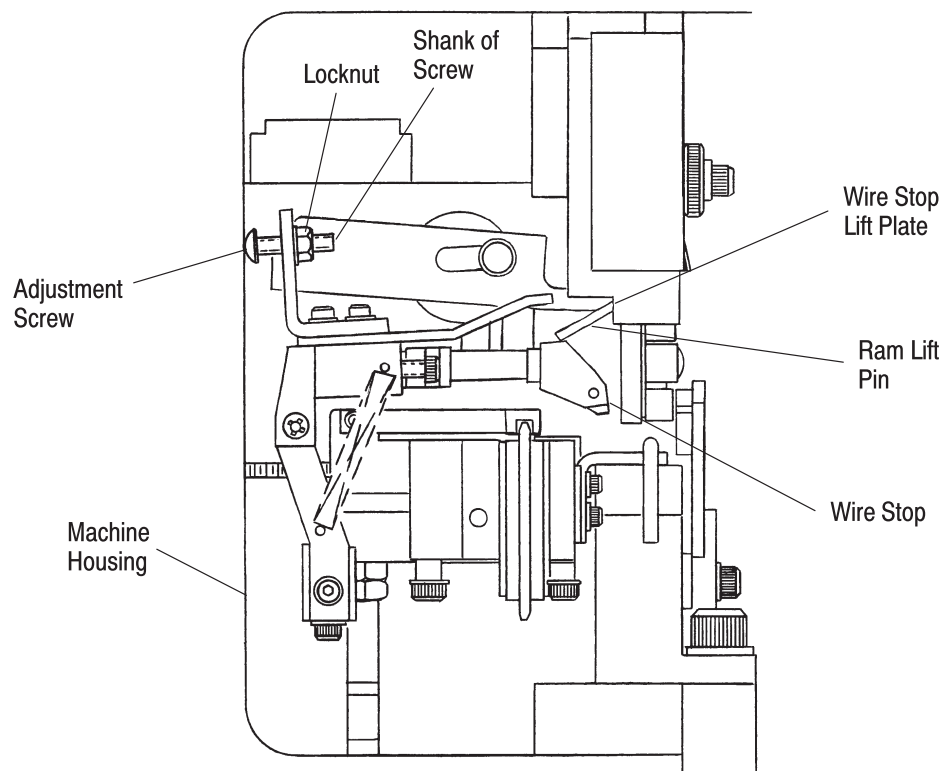


Figure 19

7.3. Wire Stop Vertical Lift Adjustment (Figure 19)

As the ram rises after crimping the product, the wire stop clears the crimped product from the moving (upper) die before the next product is advanced into the crimping position. If the wire stop does not clear the product from the upper die, products will jam in the die and may cause damage to the dies.



Should a jam occur, IMMEDIATELY shut down the machine until the jam has been cleared. Remove the dies, as described in Section 8, and inspect them for possible damage after a jam has occurred.



To avoid personal injury, be sure to turn off the machine and disconnect the machine from the power supplies.

1. Remove guards from front and left side of the machine.



The ram lift pin will bend after the first cycle of operation. Replace the pin only if it is broken.

2. Lower the tape release lever, then hand-cycle machine as described in Section 4 until ram is fully raised.

3. Loosen the locknut on the adjustment screw, then turn adjustment screw until the screw head touches the machine frame and wire stop lift plate touches the ram lift pin. Tighten the locknut to secure the adjustment screw.

4. **Replace the guards** removed in Step 1 and connect machine to power supply.
5. Crimp a few products, being sure to insert a stripped wire into the wire barrel of each. If wire stop does not clear product from upper die, additional adjustment may be made as described in Steps 5 through 7.
6. Disconnect power and repeat Step 1.
7. With the ram down, loosen the locknut on the adjustment screw, then turn the screw clockwise (toward frame) approximately one full turn. Tighten locknut to secure screw.
8. Repeat Steps 4 and 5.

NOTE

The ram lift pin may bend slightly when the adjusting screw is moved closer to the machine frame.



9. If necessary, repeat Steps 6 through 8 until the wire stop clears product from upper die.

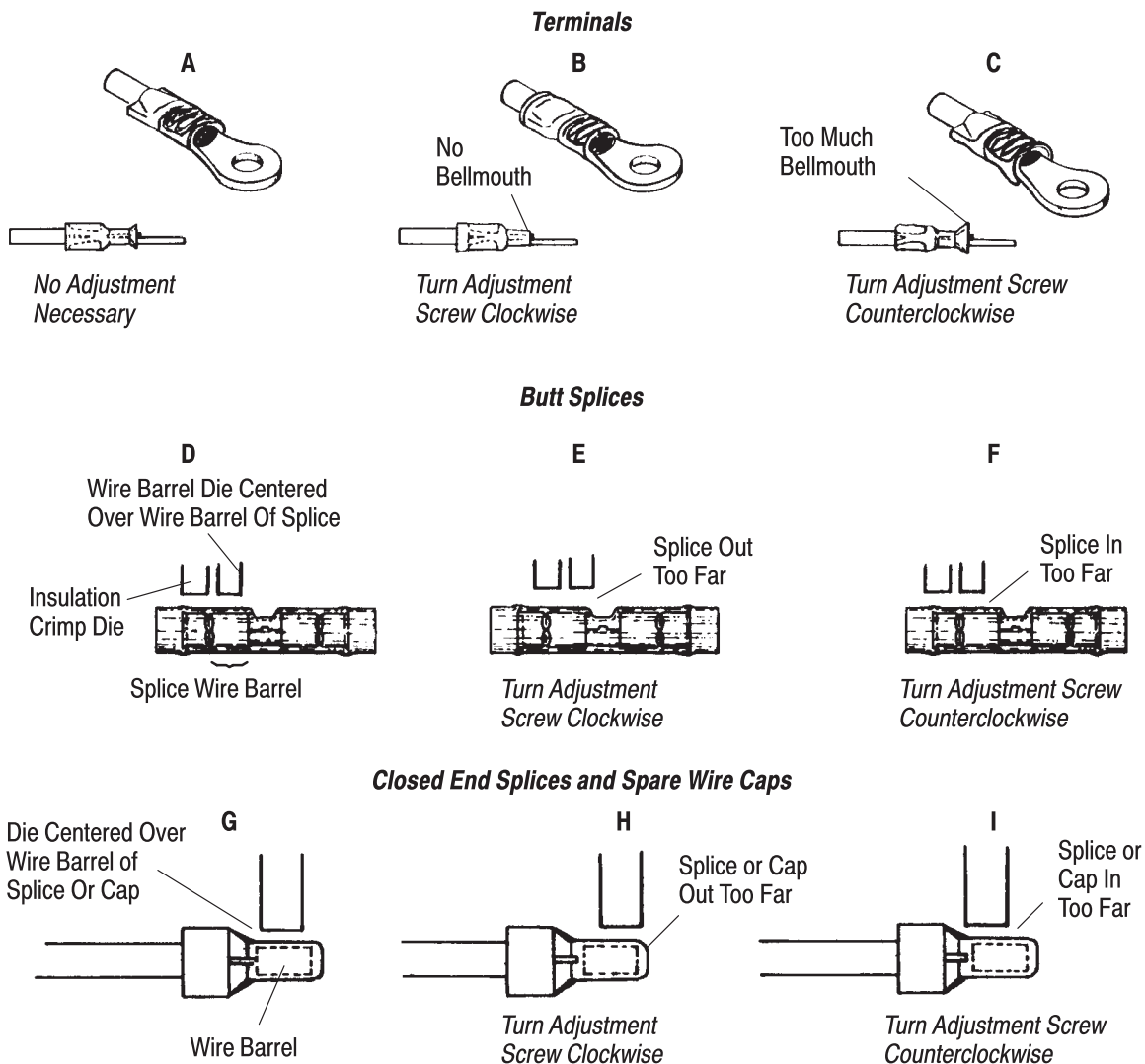


Figure 20

7.4. Crimp Location Adjustment (Figure 20)

DANGER


Keep fingers *CLEAR* of dies while performing adjustments and test crimps with guards removed.

The machine contains an adjustment to compensate for any variations in the front-to-back placement of the product being crimped in relation to the crimping dies. Adjustment of the tape position properly locates the crimp, and controls the amount of bellmouth (when applicable) at the front of the product.

Periodically, and after each change of dies, inspect the product for correct crimp location. Correct and incorrect crimp locations are illustrated in Figure 20. If adjustment is necessary, perform the following adjustment.

1. Cycle a few products through the dies and inspect to determine the direction of adjustment required.
2. Raise the tape release lever and remove the front guard.
3. Insert a hex wrench in the crimp-location adjustment screw (Figure 18).

NOTE


While performing Step 4 or 5, refer to the instruction material packaged with the dies for crimp inspection procedures.

4. If the crimp location is to the back of the product, turn the adjustment screw counterclockwise a few degrees at a time between test crimps until the proper location is obtained.
5. If the crimp location is to the front of the product, turn the adjustment screw clockwise a few degrees at a time between test crimps until the proper location is obtained.
6. **Replace the front guard** and lower the tape release handle before continuing operation.

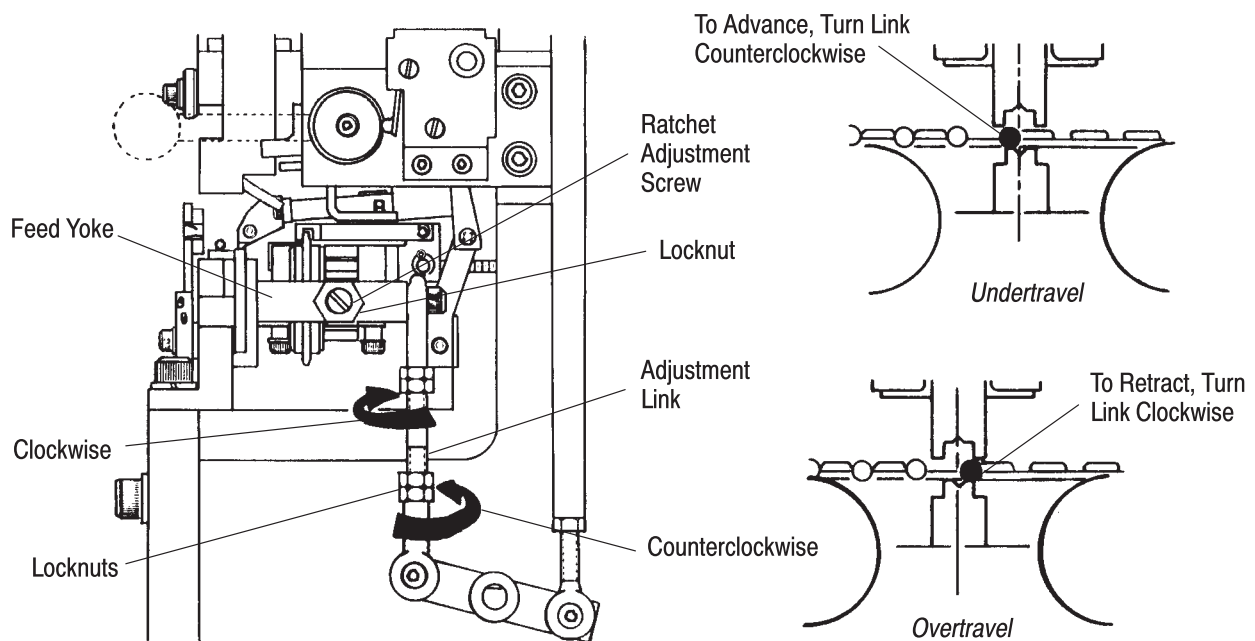


Figure 21

7.5. Tape Belt Feed Adjustments (Figure 21)

Product must be indexed into the **CENTER** of the die closure. In the event of machine wear or variations in the feed holes within the tape, it may be necessary to advance or retract the tape feed (belt travel) or feed ratchet as follows:

DANGER

KEEP FINGERS CLEAR of moving parts when performing adjustments.

**DANGER**

To avoid personal injury, be sure to turn off the machine and disconnect the machine from the power supplies.



1. Remove front and right-side guards.
2. Loosen adjustment link locknuts.
3. If undertravel exists, turn adjustment link 1/4 to 1/2 turn counterclockwise to advance feed belt approximately half the product width.
4. If overtravel exists, turn adjustment link 1/4 to 1/2 turn clockwise to retract feed belt approximately half the product width.
5. While holding adjustment link stationary, tighten both locknuts.
6. If “play” exists in feed ratchet, loosen locknut on ratchet adjustment screw and turn screw clockwise until all clearance between spring-loaded pin and feed wheel is removed, and spring is applying slight pressure on the pin. Tighten locknut to secure ratchet adjustment screw after making adjustment.
7. Hand-cycle the machine, as described in Section 4, while checking feed belt travel. Repeat Steps 1 through 4 as necessary until product is centered in die closure.

NOTE

Belt travel may vary slightly between hand-cycling and operating under power.



8. Crimp a few products under power using foot switch and observe feed belt travel. Repeat this procedure if necessary.
9. **Replace guards.**

8. REPAIR AND REPLACEMENT

The following repair and replacement procedures pertain to tooling and other items that may frequently require replacement. For repair and replacement of the basic machine, refer to Customer Manual 409-5128. Refer to the exploded views in Section 9 when replacing parts not covered in this section.

DANGER

To avoid personal injury, MAKE SURE THE MAIN POWER SWITCH IS “OFF” AND THE MACHINE IS DISCONNECTED FROM THE POWER SUPPLY when making repairs or replacing parts.



8.1. Die Replacement

NOTE

If converting the machine to run closed end splices or spare wire caps or converting back to run terminals or butt splices, refer to the conversion procedures in Paragraph 8.3.



A. Removal (Figure 22)**DANGER**

To avoid personal injury, be sure to turn off the machine and disconnect the machine from the power supplies.

1. Remove the front guard.
2. Raise the tape release lever.
3. Depress the wire funnel and pivot it away from the die holder. It may be necessary to replace the wire funnel or extractor, as described in Paragraph 8.2, if changing wire size or product.
4. Remove the moving and stationary dies by removing the holding screws.

B. Installation (Figure 22)**DANGER**

To avoid personal injury, turn "off" the machine and disconnect the machine from the power supplies.

1. Choose the correct dies for the product to be run.
2. If the wire funnel is installed, depress the wire funnel and pivot it away from die holder. If it is necessary to replace the wire funnel, refer to Paragraph 8.2.
3. Insert moving (upper) die into die holder and tighten the screw by hand.
4. Insert stationary (lower) die into die holder and start the screw, but do not tighten.
5. Hand-cycle until pullback begins and dies have bottomed.
6. Tighten the holding screws on both dies.

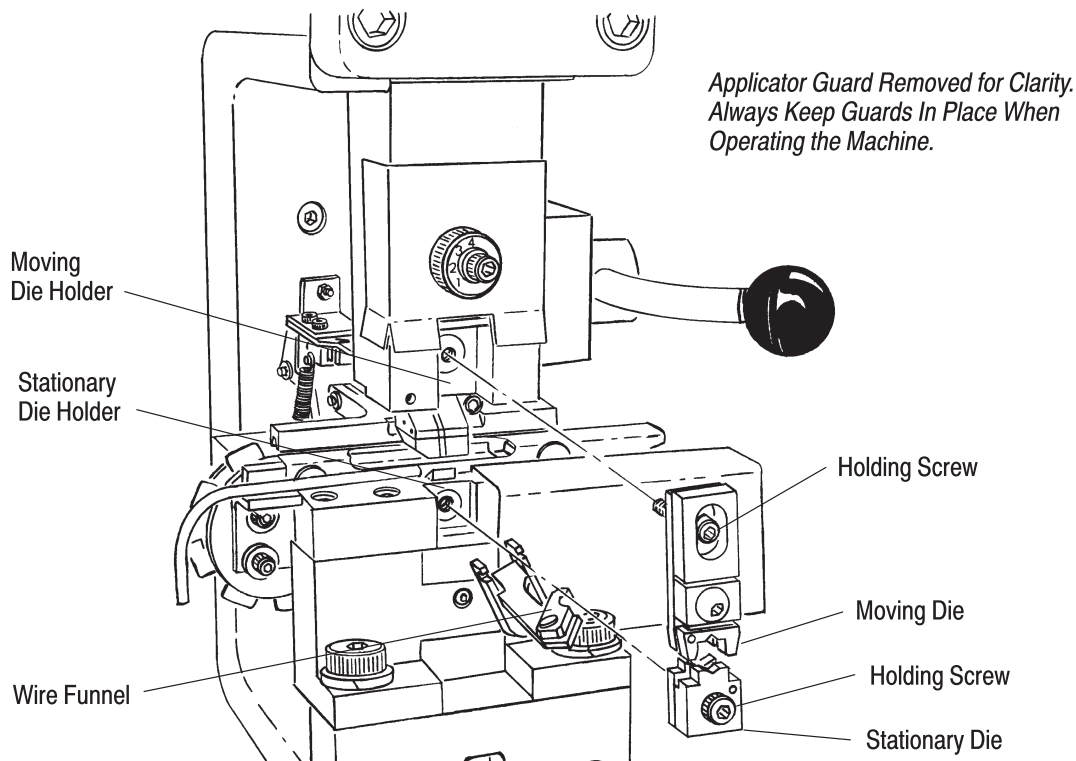


Figure 22

7. Pivot the wire funnel to the vertical position.
8. **Replace the front guard**, and lower the tape release lever.
9. Refer to instructions packaged with dies for any specific die installation and crimping information that may be applicable.
10. Refer to Section 7 for adjustment procedures before operating the machine under power.

8.2. Wire Funnel Replacement (Figure 23)

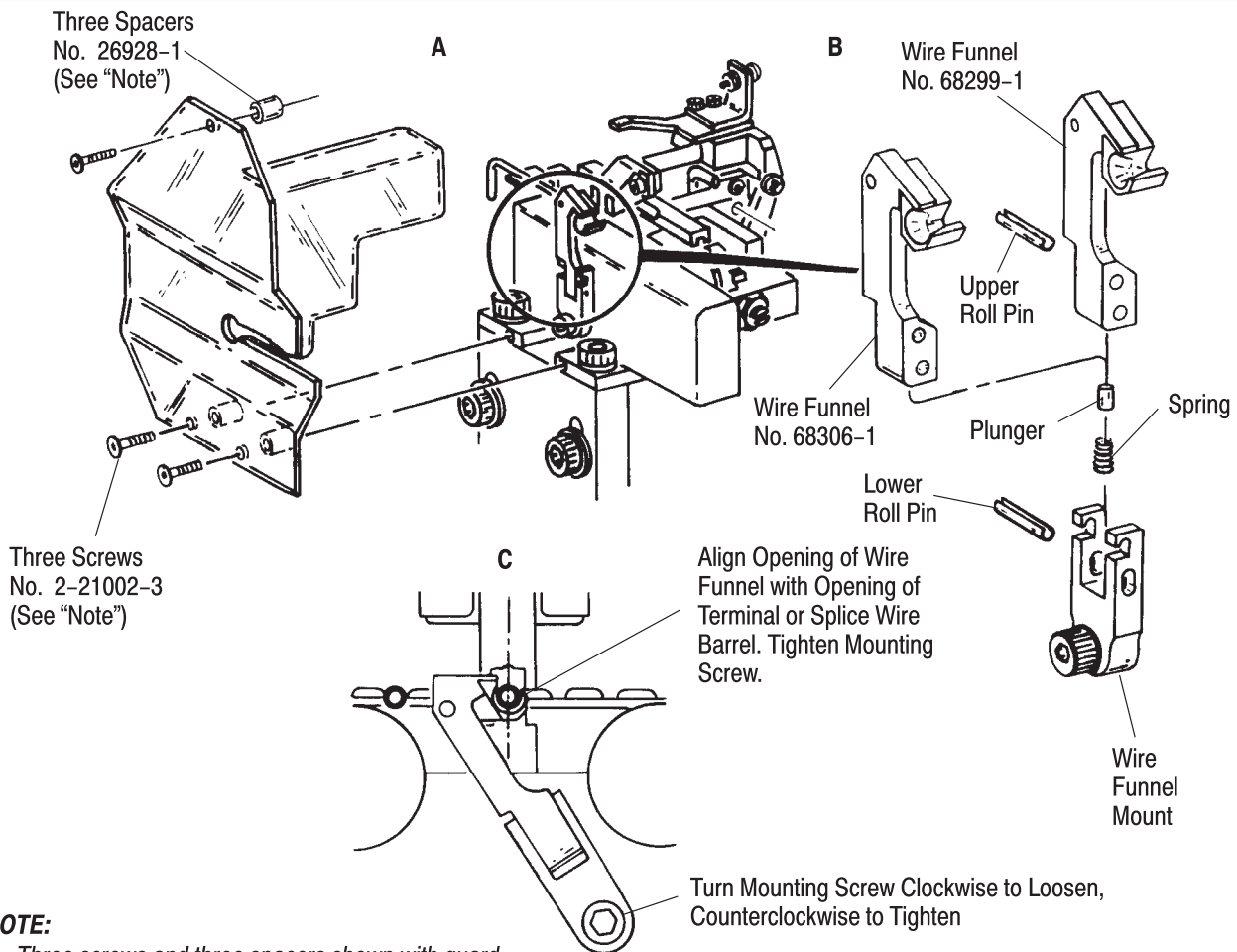
Wire Funnel Assembly, Part No. 68299-1, must be installed on the machine when running 22 to 14 AWG wire sizes, and Wire Funnel Assembly, Part No. 68306-1, is required when running 12 and 10 AWG wire sizes to run terminals and butt splices. When converting the machine to run closed-end splices, the wire funnel is replaced with an extractor, as described in Paragraph 8.3. Replace the wire funnel as follows:

DANGER



To avoid personal injury, turn "off" the machine and disconnect the machine from the power supplies.

1. Remove the front guard to gain access, if it is not already removed.
2. If a product is not in the crimping area, hand-cycle the machine, as described in Section 4, to advance a product and lower the moving die.



NOTE:

1. Three screws and three spacers shown with guard are packaged and installed with wire funnel 68306-1 only.
2. Use existing mounting screws and washers with guard when installing wire funnel Part No. 68299-1.

Figure 23

3. Remove the lower roll pin from the wire funnel mount, BEING CAREFUL not to lose plunger and spring under the wire funnel.
4. Remove upper roll pin from the wire funnel being removed and install it in the replacement wire funnel.
5. Install new wire funnel on mount and install lower roll pin. Make sure spring and plunger are in place.
6. Make sure the opening of the wire funnel is aligned with the opening in the wire barrel of the terminal or butt splice, as shown. If not, loosen the mounting screw by turning screw CLOCKWISE (left-hand thread), then align the opening of funnel with the wire barrel. Tighten mounting screw by turning screw COUNTERCLOCKWISE while holding wire funnel.
7. **Replace the front guard** before operating the machine. If wire funnel 68306-1 is replacing 68299-1, use the three screws and spacers packaged with the wire funnel to install the front guard as shown.

8.3. Machine Conversion

It is necessary to convert the machine to run closed-end splices and spare wire caps because they are crimped through the tape. The pull-back feature of the indexing mechanism must be de-activated. The dies for the closed end splice are accompanied by a lower tooling holder, an extractor, and two sizes of stops. Dies for the spare wire cap are accompanied by a lower tooling holder and one wire stop. See Figure 24.

NOTE



Retain all parts removed for future use in converting the machine back to the original configuration.

DANGER



To avoid personal injury, turn "off" the machine and disconnect the machine from the power supplies.

1. Raise the tape release lever.
2. Remove front and side guards from the machine.
3. Remove the tie rod. Refer to Figure 25,A.
 - a. Disconnect the front tie-rod end bearing.
 - b. Open the flywheel cover and disconnect the rear tie-rod end bearing.
 - c. Remove the tie rod.
4. Remove the screw and metal guard from the front of the indexing mechanism. Refer to Figure 25,B.

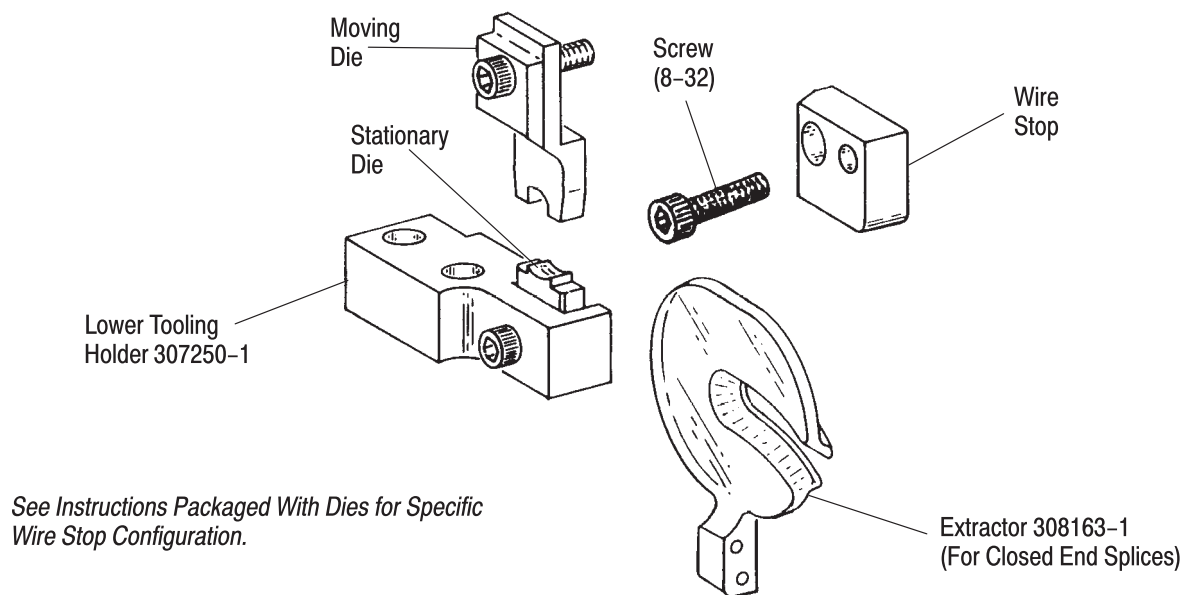
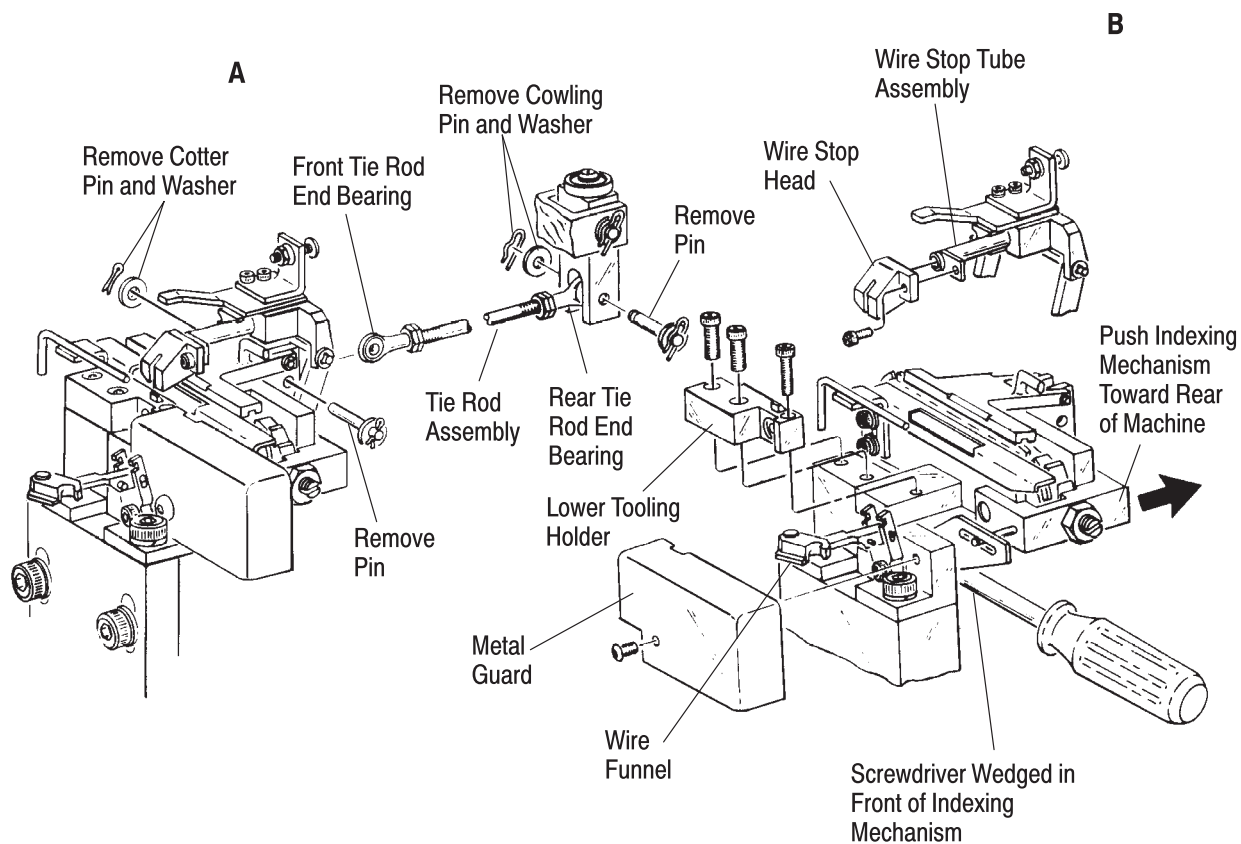


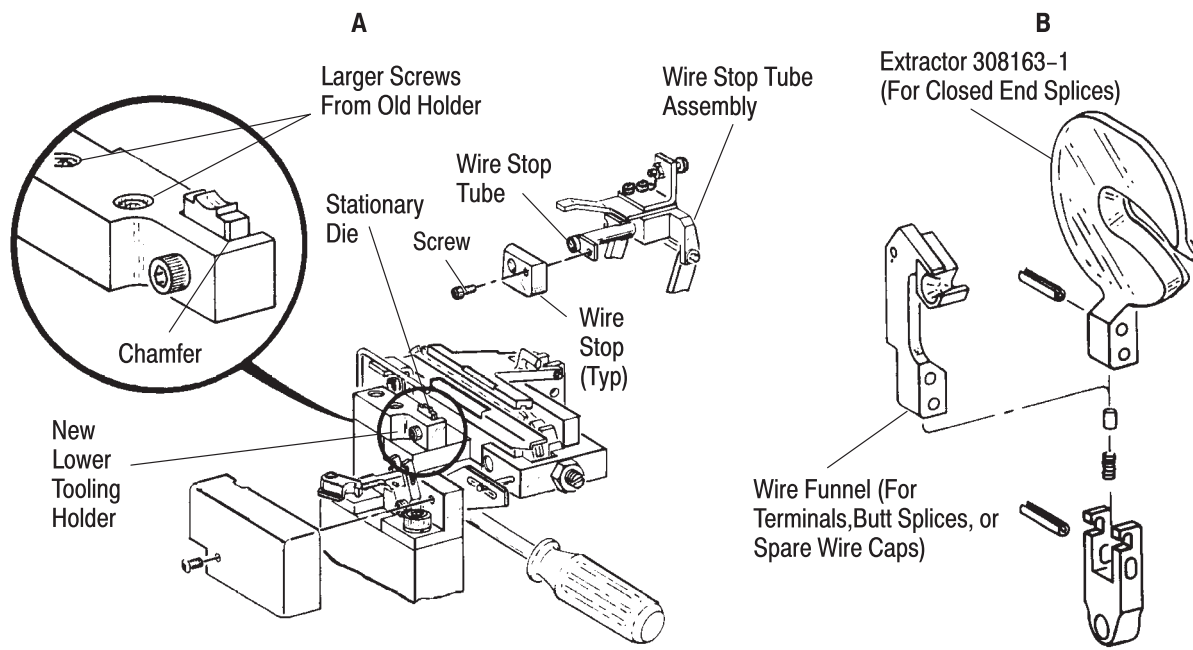
Figure 24



Indexing Mechanism Conversion, Part 1

Figure 25

5. Depress and pivot the wire funnel away from the lower tooling.
6. Remove the screw and wire stop head from the wire stop tube assembly. Refer to Figure 25,B.
7. Gain access to lower tooling holder screws by pushing the indexing mechanism toward the rear of machine and then wedging a screwdriver in front of indexing mechanism.
8. Remove the lower tooling holder by removing screws.
9. Install the new lower tooling holder using the two larger screws used for the old lower tooling holder. Do not tighten screws. See Figure 26,A.
10. Install the stationary die in the lower tooling holder with supplied screw. The chamfered side of the die butts against the holder, as shown.
11. Install the desired stop on the wire-stop tube assembly with the screw that was removed from wire stop head in Step 7.
12. If converting to run closed-end splices, replace the wire funnel with the extractor in the same manner as described for the wire stop funnel in Paragraph 8.2. If converting to run spare wire caps, it may be necessary to replace the wire funnel.
13. Remove the ram retaining plate by removing four screws. See Figure 27.
14. Remove the upper die by removing screw. Swing upper tooling mount forward to a convenient angle. File a chamfer on the lower edge of the mount, as shown in Figure 28, if one does not already exist. (The chamfer is necessary so that the offset of the upper die will seat tightly in the mount.)
15. Swing mount back to vertical position and re-install ram retaining plate with four screws.

*Indexing Mechanism Conversion, Part 2**Figure 26*

16. Install the upper die and tighten screw. Be sure the offset on rear of die is seated tightly against the bottom edge of mount.
17. Remove the screwdriver from the indexing mechanism. The mechanism will return to its normal position.
18. Lower the tape release lever.
19. Hand-cycle the machine, as described in Section 4, until the dies begin to mate, then shift the lower tooling holder as needed to align dies as shown in Figure 28.

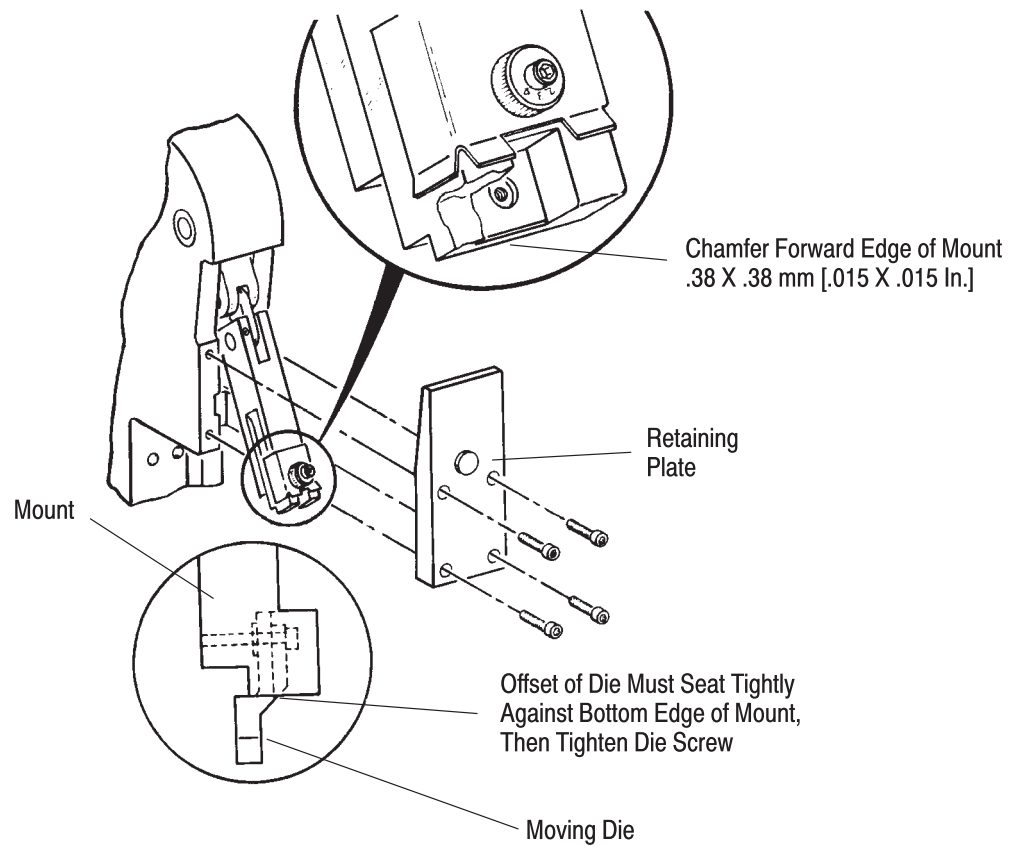


Figure 27

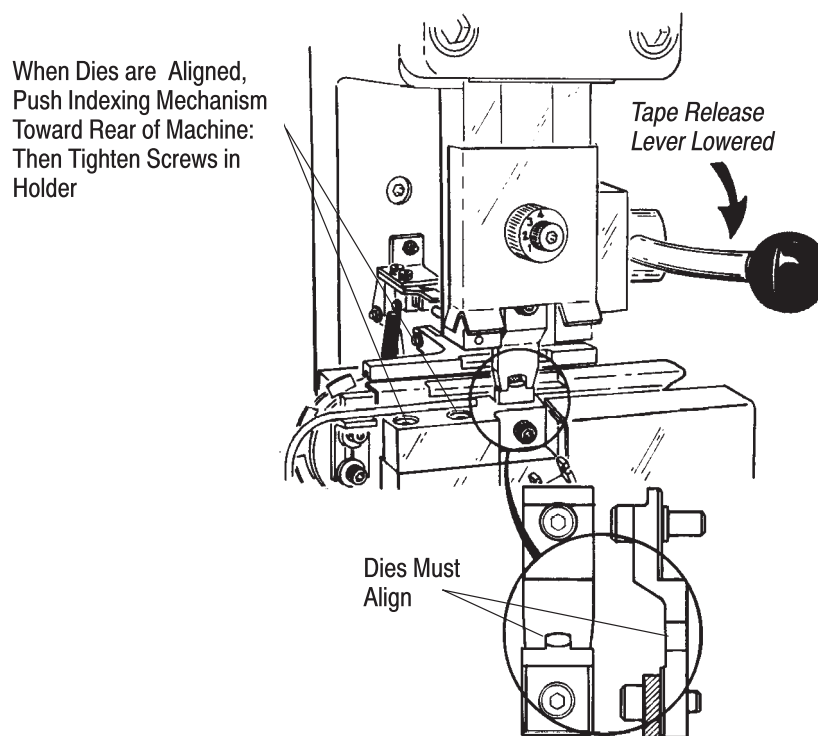


Figure 28

20. Continue hand-cycling machine until the machine ram is bottomed.
21. Push the indexing mechanism toward the rear of the machine, then tighten the two screws to secure the lower tooling holder. Release the indexing mechanism.
22. **Re-install the metal guard on the front of the indexing mechanism** with screw. Refer to Figure 25.
23. Load machine with product, as described in Section 4, and then **replace the front and side guards. Close the flywheel cover.**

8.4. Shear Pin Replacement (Figure 29)

The tape release lever should remain in the down position at all times, except when loading or unloading tape or replacing dies. If the machine is hand-cycled with the tape-release lever in the up position, the shear pin will be broken to prevent more extensive damage to the machine. The operation of the machine is not affected by a broken shear pin, except that the moving (upper) die will not move up when the tape release lever is raised. Replace the shear pin as follows:

DANGER

To avoid personal injury, turn "off" the machine and disconnect the machine from the power supplies.



1. Remove the front guard, and lower the tape release lever.
2. Drive the remaining portion of the shear pin from the die holder.

CAUTION

BE SURE broken portion of shear pin does not drop into the indexing mechanism.



3. Insert a new shear pin into the upper die holder, tapered end first. The undercut portion of the shear pin should be flush with the side of the upper die holder, as shown.

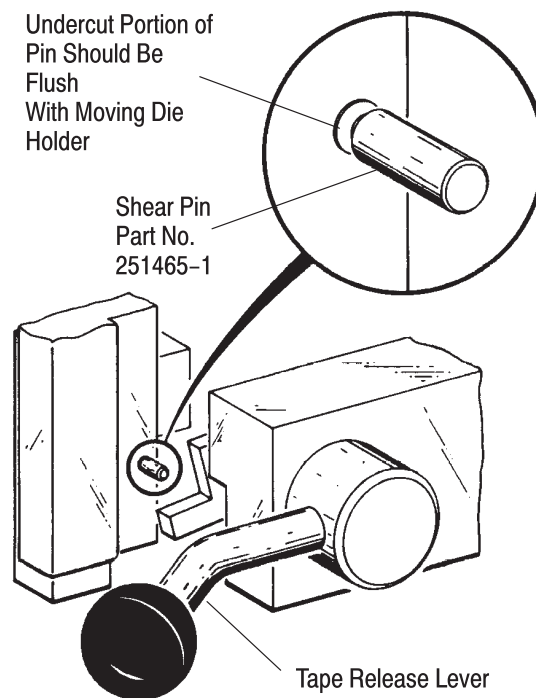


Figure 29

CAUTION

DO NOT drive the shear pin beyond the undercut portion or it will interfere with ram movement.



4. Replace the front guard on the machine before operating the machine.

8.5. Trip Control Replacement

Refer to Customer Manual 409-5128 for trip control replacement.

8.6. Tape Feed Belt Replacement

The tape feed belt teeth become worn. It is necessary to disassemble the lower portion of the tooling to replace the belt.

NOTE

Clean and lubricate the lower tooling, as described in Section 5, when the machine is disassembled for feed belt replacement.

DANGER

To avoid personal injury, turn "off" the machine and disconnect the machine from the power supplies.

1. Remove the front and side guards from the machine.
2. Depress the wire funnel and pivot it away from the crimping dies.
3. Remove the dies as described in Paragraph 8.1.
4. Remove the wire stop head assembly.
5. Remove one cotter pin and washer, then remove pin assembly from the tie-rod end bearing. Refer to Figure 30,B.

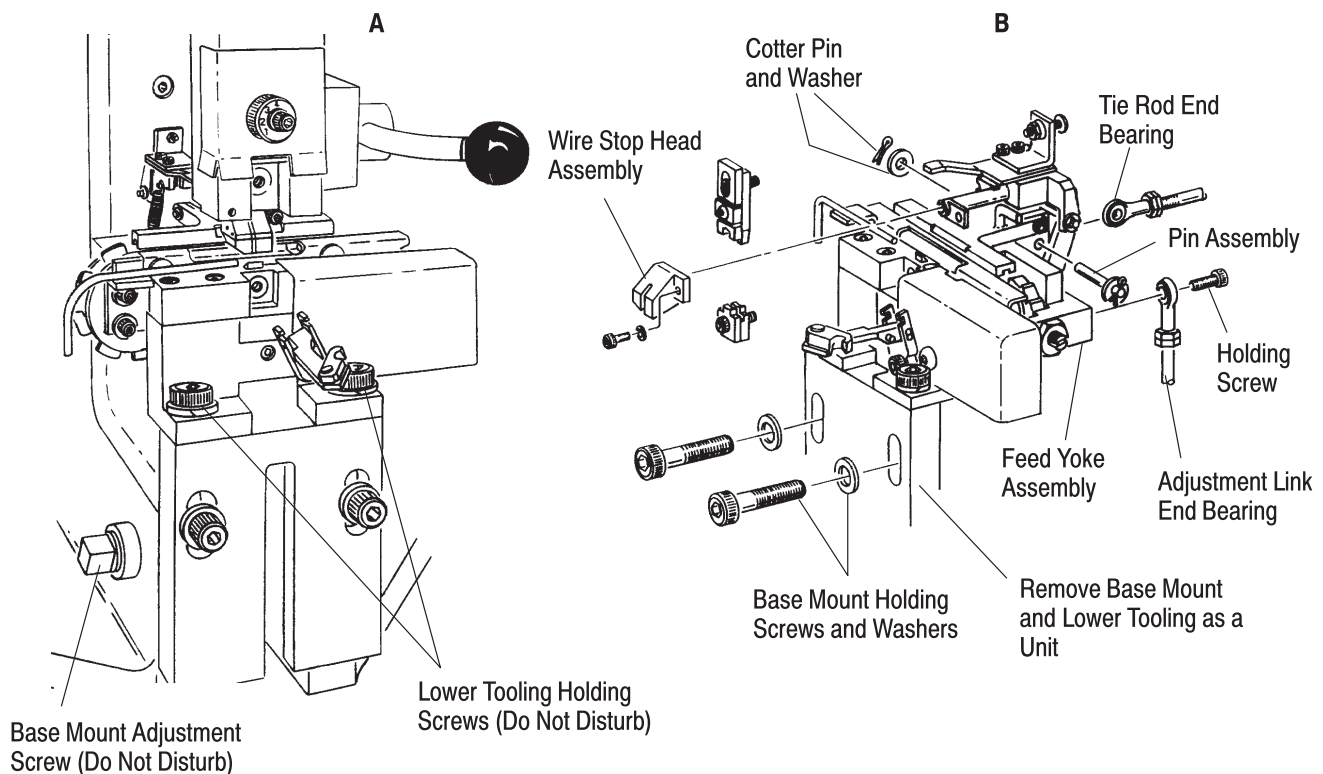


Figure 30

6. Remove holding screw that secures the adjustment link end bearing to feed the mechanism.



CAUTION *DO NOT disturb the lower tooling holding screws or the base mount adjustment screw, or damage to dies may occur. Refer to Figure 30,A. These screws are factory adjusted, and they control the die alignment and bottoming. If the screws are disturbed, contact your local field service engineer, or call the Tooling Assistance Center for alignment and adjustment.*

7. Remove base mount holding screws and washers as shown in Figure 30,B, then remove the lower tooling as a unit, as shown.



NOTE *Refer to Figure 32 for parts identification.*

8. Loosen screws (104) and remove the terminal guide (20).
9. Remove screw (103) and remove metal guard (31).
10. Remove screw (53) and washer (47), then remove wire stop support assembly (11) as a unit.
11. Remove front clamp plate (9) containing pin (117) by removing two screws (46) and washers (47), then remove spring (99) while sliding index unit subassembly off of slide mount (23).
12. Remove the belt holddown (34) by removing two screws (63) and washers (64).
13. Pivot the feed yoke assembly (42) downward to gain access to setscrew (72), then loosen the setscrew. See Figure 31, B
14. Remove special pin (33), washer (54), and feed wheel (32) from the bottom of of the subassembly.
15. Lift the tape retainer (18) and remove old tape feed belt (30).
16. Install new tape feed belt by lifting tape retainer on indexing unit, being sure that angled portion of the belt teeth are to the left of the indexing subassembly assembly as shown in Figure 31,A.
17. Slide the feed wheel, washer, and belt up into the slot of subassembly, then align pin holes and insert special pin. Align flat on pin with setscrew, then tighten the setscrew. The ends of the pin must be flush the sides of yoke, as shown in Figure 31,B.
18. Install belt holddown (34) with two screws (63) and washers (64).
19. Slide the indexing unit subassembly all the way onto slide mount (23): pin inside of yoke (42) must enter slot in connecting link (28).
20. Lay spring (99) in bottom recess in slide mount (23), then compress spring with screwdriver while installing front clamp plate (9) with two screws (46) and washers (47). Release spring to butt against pin (117) in clamp plate.
21. Slide the wire stop support assembly (11) onto slide mount (23) and install screw (53) with washer (47).
22. Install terminal guide (20) and tighten screws (104).
23. Install metal guard (31) with screw (103).
24. Install assembled base mount and lower tooling against machine base and secure with two screws and washers as shown in Figure 30,B. Refer to CAUTION after Step 6.
25. Re-install pin assembly through tie rod end bearing and secure with washer and cotter pin.
26. Insert screw through adjustment link end bearing and into feed yoke assembly.
27. Re-install stop tube as described in Paragraph 8.5.
28. Install dies as described in Paragraph 8.1.
29. Load product into machine as described in Section 4, then check tape feed belt adjustments as described in Section 7.

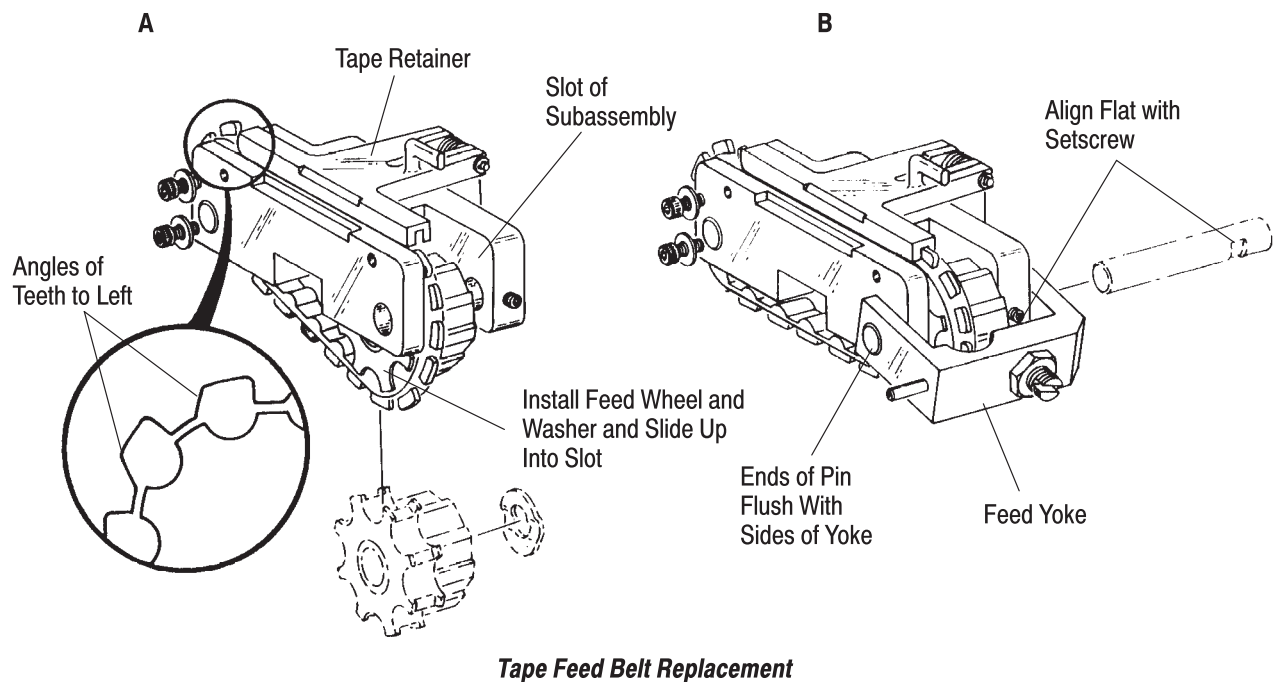


Figure 31

30. Adjust terminal guide to feed product straight into the crimping dies.

31. **Replace the front and side guards** before operating the machine.

9. PARTS LISTS AND DRAWINGS

This section contains parts lists and drawings which fully cover machine 69875 when used with Customer Manual 409-5128. Figure 32 lists all parts for the applicator, and Figure 33 lists all parts added to the basic AMP-O-ELECTRIC Model "K" Terminating Machine. No die sets are listed in this section.

Refer also to the drawings shipped with the applicator and the machine.

10. REVISION SUMMARY

Since the previous release of this manual, the current TE logo was added.

Prior to this release, the following changes were made:

- Reel Support Assembly in Figure 33 was revised
- Wiring Diagram and Schematic were redrawn
- Updated format to current corporate requirements

PARTS LIST

ITEM NO.	PART NUMBER	DESCRIPTION	QTY
--	251496	APPLICATOR, Tape	--
1	693186-3	. MACHINE ASSY, AMP-O-LECTRIC Model "K" Terminating (Refer to Figure 33)	1
3	237029	. PIN	1
5	237023	. PIN	1
7	251538-1	. PULLEY, Idler	1
8	308298-1	. PIN, Sprocket	1
9	251439-1	. CLAMP	2
10	308297-1	. FRAME	1
11	237031	. SUPPORT ASSY, Wire Stop (See 11A through 11T for detail Parts)	1
11A	2-21000-7	. . SCREW, Skt Hd Cap, No. 6-32 x .500" L	2
11B	237001-1	. . ARM	2
11C	22903-2	. . RING, External Retaining	2
11D	2-21000-0	. . SCREW, Skt Hd Cap, No. 6-32 x .500" L	2
11E	237005-1	. . PLATE	1
11F	237009-1	. . TUBE ASSY	1
11G	856185-1	. . PIN, .Flt Hd, .124 Dia x .62 In. L	2
11H	237002-1	. . BRACKET	1
11J	1-23030-2	. . SCREW, Skt Hd Cap, No. 8-32 x .750" L	1
11K	1-22183-7	. . PIN, Grooved, .125" Dia x .625" L	2
11L	237000-1	. . BLOCK	1
11M	21024-3	. . WASHER, Lock, No. 6	2
11N	2-21002-9	. . SCREW, Btn Hd Cap, No. 10-32 x .750" L	1
11P	21018-7	. . NUT, Hex, No. 10-32	1
11Q	21025-5	. . WASHER, Internal Tooth Lock, No. 10	1
11R	237035-1	. . BRACKET, Probe Stop	1
11S	See Note	. . SHIM	A/R
11T	21024-4	. . WASHER, Lock, No. 8	1
12	251492-1	. ARM, Lift	1
13	251477-1	. PLATE, Lift	1
14	237003-1	. RAM, Cover (See Figure 32, Detail A)	1
15	251440-1	. RAM	1
16	251465-1	. PIN, Shear	1
17	251438-1	. MOUNT, Ram Tool	1
18	251493-1	. RETAINER, Tape	1
19	251443-1	. HOLDER, Tooling	1
20	251451-1	. GUIDE, Terminal	1

Figure 32 (Sheet 1 of 6) cont'd

PARTS LIST

ITEM NO.	PART NUMBER	DESCRIPTION	QTY
22	251513-1	. PLUG	1
23	308240-1	. MOUNT, Slide	1
25	251483-1	. PIVOT	1
26	25064-2	. SCREW, Skt Hd Cap, LH, No. 10-32 x 1.250" L	1
27	251494-1	. BUSHING, Pivot	1
28	251482-2	. LINK, Connecting	1
29	251497-1	. PLUNGER	1
30	251542-1	. BELT, Molded	1
31	251544-1	. GUARD	1
32	237025	. WHEEL ASSY, Feed	1
33	251445-1	. PIN, Special	1
34	251488-2	. HOLDDOWN	1
35		. WIRE STOP ASSEMBLY	1
35A	307251-1	. . STOP (Used with Nylon Closed End Splices)	1
35B	307252-1	. . STOP (Used with Vinyl Closed End Splices)	1
35C	307251-2	. . STOP (Used with Spare Wire Caps)	1
36	251485-1	. HANDLE, Lift	1
37	251478-1	. BODY, Lift Handle	1
38	251559-1	. PLATE, Backup	1
39	251461-1	. MOUNT, Base	1
40	237024	. SCREW, Special	1
41	237032	. SPRING, Special	1
42	251460-1	. YOKE ASSY, Feed	1
43	68299-1	. FUNNEL ASSY, Wire (22-14 AWG) (Supplied with Machine)	1
43A	68306-1	. FUNNEL ASSY, Wire (12-10 AWG)	1
43B	308163-1	. EXTRACTOR (For Closed End Splices and Spare Wire Caps)	1
44	251436-1	. WHEEL, Adjustment	1
45	237022-1	. SPACER, Adjustment Wheel	1
46	2-21000-8	. SCREW, Skt Hd Cap, No. 8-32 x .625" L	6
47	21024-4	. WASHER, Lock, No. 8	8
48	5-21005-7	. SCREW, Sflkg Shldr, .248" Dia x .250" L	1
49	21046-7	. RING, External Retaining	2
50	21023-7	. WASHER, Flat, No. 10	2
51	22170-3	. PIN, Cotter	2
53	3-21000-1	. SCREW, Skt Hd Cap, No. 8-32 x 1.00" L	1

Figure 32 (Sheet 2 of 6) cont'd

PARTS LIST

ITEM NO.	PART NUMBER	DESCRIPTION	QTY
54	2-24088-0	. WASHER, Curved	4
55	3-22713-8	. SPRING, Torsion	1
56	21025-5	. WASHER, Internal Tooth Lock, No. 10	2
58	3-21006-9	. SETSCREW, No. 8-32 x .18" L	1
60	5-21008-8	. SETSCREW, No. 10-32 x 1.00" L	1
61	21055-5	. WASHER, Flat, No. 6	2
63	1-21000-3	. SCREW, Skt Hd Cap, No. 4-40 x .25" L	2
64	21023-4	. WASHER, Flat, No. 4	2
65	1-21029-1	. PIN, Slotted Spring, .18" Dia x 1.25" L	1
66	21009-6	. SETSCREW, Sflkg, 1/4-20 x .50" L	1
67	2-21000-2	. SCREW, Skt Hd Cap, No. 6-32 x .750" L	1
69	1-21030-1	. PIN, Dowel, .18" Dia x .50" L	1
70	22278-1	. SPRING, Compression	1
71	28772-1	. BEARING, Rod End, RH, 1/4-28	1
72	4-21008-9	. SETSCREW, Sflkg, No. 10-32 x .18" L	2
73	1-21000-8	. SCREW, Skt Hd Cap, No. 6-32 x .250" L	1
74	21024-3	. WASHER, Lock, No. 6	1
75	23673-6	. BALL, Handle	1
76	1-22971-1	. BALL, Plunger	1
78	1-22202-9	. NUT, Hex, 3/8-24	1
79	21024-8	. WASHER, Lock, 3/8	2
80	3-21001-5	. SCREW, Skt Hd Cap, 3/8-16 x 1.00" L	2
81	4-21041-3	. PIN, Spiral	2
82	3-21033-9	. PIN, Grooved, .125" dia x 1.500" L	1
83	22140-3	. SCREW, Sflkg Skt Hd Cap, 1/4-20 x .625" L	1
84	9-22140-9	. SCREW, Sflkg Skt Hd Cap, No. 4-40 x .500" L	2
85	9-22140-3	. SCREW, Sflkg Skt Hd Cap, No. 10-32 x 1.00" L	1
86	21029-3	. PIN, Slotted Spring, .18" Dia x .625" L	1
87	4-22281-1	. SPRING, Compression	1
89	2-21000-6	. SCREW, Skt Hd Cap, No. 8-32 x .375" L	2
91	21001-6	. SCREW, Skt Hd Cap, 1/4-20 x 1.00" L	2
92	21024-6	. WASHER, Lock, 1/4"	2
93	22140-4	. SCREW, Sflkg Skt Hd Cap, 1/4-20 x .75" L	1
94	28772-2	. BEARING, Rod End, LH, 1/4-28	1
95	23044-1	. NUT, Hex, LH, 1/4-28	1
96	387911-1	. ROD, Connecting	1
97	1-22202-5	. NUT, Hex, 1/4-28	1

Figure 32 (Sheet 3 of 6) cont'd

PARTS LIST

ITEM NO.	PART NUMBER	DESCRIPTION	QTY
99	5-22282-6	. SPRING, Compression	1
100	21005-2	. SCREW, Slfkg Shldr, .248" Dia x .500" L	1
101	21007-2	. SCREW, Set, 1/4-20 x .250" L	1
103	2-21002-1	. SCREW, Btn Hd Cap, No. 8-32 x .375" L	6
104	1-21000-9	. SCREW, Skt Hd Cap, No. 6-32 x .375" L	2
105	5-21028-1	. PIN, Slotted Spring, .12" Dia x .500" L	1
106	237036	. SPACER	1
108	307891-1	. GUARD, Top	1
109	307890-1	. GUARD, Right Side	1
111	308160-1	. GUARD, Front	1
112	2-21000-6	. SCREW, Skt Hd Cap, No. 8-32 x .375" L	2
113	21055-6	. WASHER, Flat, No. 8	7
114	22287-4	. SPRING, Extension	1
115	308161-1	. GUARD, Left Side	1
117	5-21028-3	. PIN, Spring, .125" Dia x .625" L	1
118	21899-3	. WASHER, Flat, 1/4"	1
119	21001-4	. SCREW, Btn Hd Cap, 1/4-20 x .750" L	1

Figure 32 (Sheet 4 of 6) cont'd

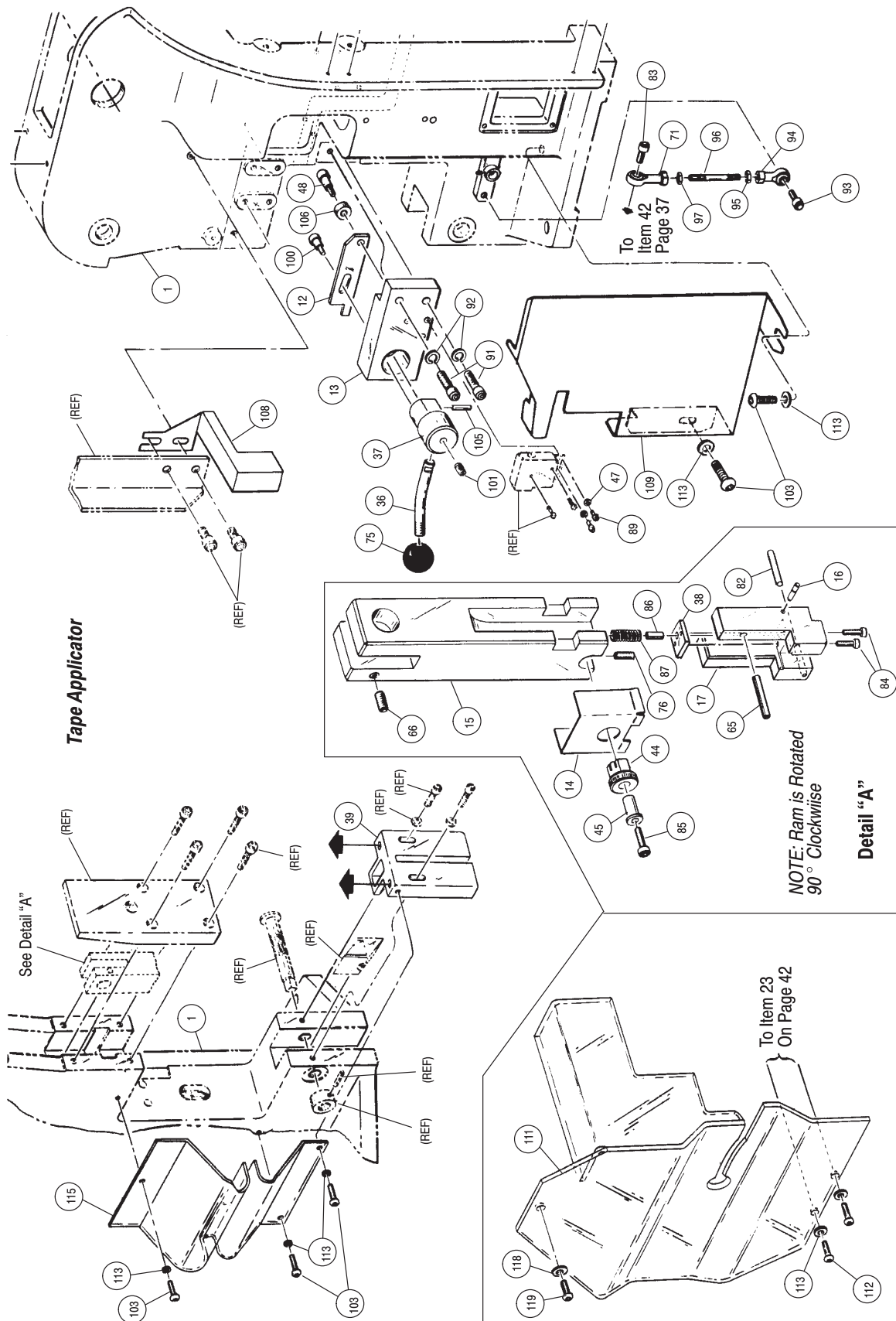


Figure 32 (Sheet 5 of 6) cont'd

† The slot in the probe head assembly (Item 35) must be centrally aligned with the stationary die. If alignment of probe head assembly is necessary, relocate shims between surfaces of bracket (Item 11H) and arms (Item 11B) as required. If replacement or additional shims are required, order by the following part numbers:

- .025-mm [.001-in.]-thk shim, P/N 1-301185-4.
.127-mm [.005-in.]-thk shim, P/N 1-301185-5.
.254-mm [.010-in.]-thk shim, P/N 1-301185-6.

-
- Tape Applicator**
- † The slot in the probe head assembly (Item 35) must be centrally aligned with the stationary die. If alignment of probe head assembly is necessary, relocate shims between surfaces of bracket (Item 11H) and arms (Item 11B) as required. If replacement or additional shims are required, order by the following part numbers:
- .025-mm [.001-in.]-thk shim, P/N 1-301185-4.
.127 mm [.005 in.] thk shim, P/N 1-301185-5.
- To Item 111
Page 41
- To Item 39
- To Item 71
On Page 36

Figure 32 (Sheet 6 of 6) end

PARTS LIST

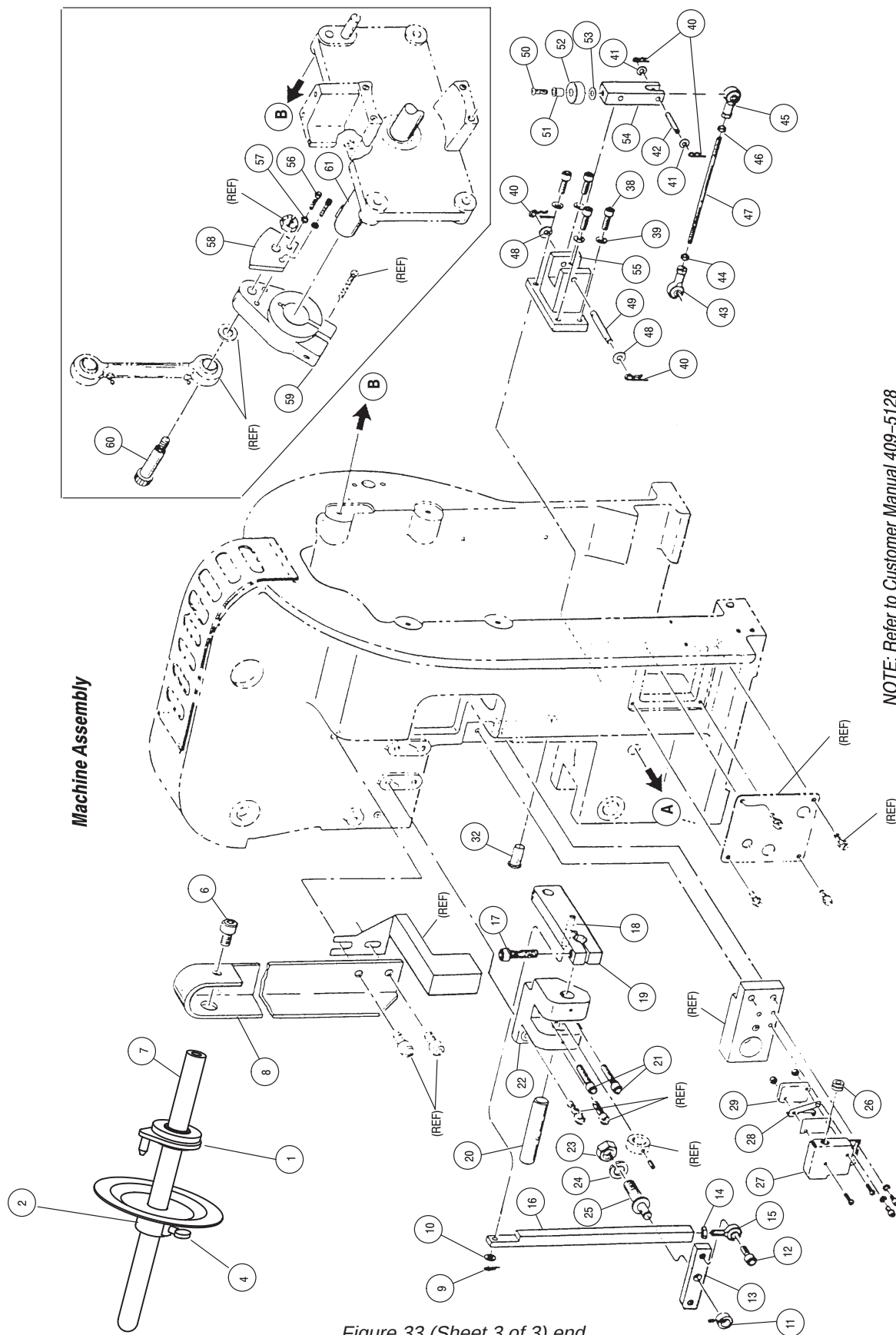
ITEM NO.	PART NUMBER	DESCRIPTION	QTY
--	693186-3, -4	MACHINE ASSY, Basic AMP-TAPETRONIC Terminating	--
--	693661	. REEL SUPPORT SUBASSEMBLY	1
1	689693-3	. . BRAKE, Adjustable Reel	1
2	465520-1	. . FLANGE	1
4	2-22789-6	. . SCREW, Thumb, Wing 1/4 X 20 X .500	1
6	3-21001-3	. . SCREW, Skt Hd Cap, 3/8-16 x 3750" L	1
7	465586-3	. . SHAFT, Reel Support	1
8	240268-1	. . BRACKET, Reel	1
9	23138-2	. PIN, Cowling	1
10	21899-3	. WASHER, Flat, 1/4"	1
11	22292-5	. COLLAR	1
12	22140-4	. SCREW, Skt Hd Cap, 1/4-20 x .750" L	1
13	251457-1	. PIVOT	1
14	22202-2	. NUT, Jam, 1/4-28	1
15	22291-7	. BEARING, Rod End	1
16	251459-2	. LEVER, Feed	1
17	3-21001-6	. SCREW, Skt Hd Cap, 3/8-16 x 1.250" L	1
18	251471-1	. PIN, Retaining	1
19	373346-1	. ARM, Feed Actuating	1
20	373503-1	. SHAFT, Feed Arm Drive	1
21	21001-8	. SCREW, Skt Hd Cap, 1/4-20 x 1.500" L	2
22	251466-1	. BRACKET, Feed Mounting	1
23	21019-4	. NUT, Hex, 1/2-13	1
24	21024-9	. WASHER, Lock, 1/2"	1
25	251458-1	. STUD, Feed Pivot	1
26	22547-4	. GROMMET	1
27	251537-2	. BRACKET, Switch	1
28	24134-1	. ACTUATOR, Switch	1
29	24132-2	. SWITCH	1
32	22538-7	. BUSHING, Snap	1
38	21001-4	. SCREW, Skt Hd Cap, 1/4-20 x .750" L	1
39	21024-6	. WASHER, Lock, 1/4"	4

Figure 33 (Sheet 1 of 3) cont'd

PARTS LIST

ITEM NO.	PART NUMBER	DESCRIPTION	QTY
--		. BLOCK SUBASSY, Retracting Link	1
40	23138-2	. . PIN, Cowling	4
41	21899-2	. . WASHER, Flat, No. 10	2
42	251469-1	. . PIN	1
43	28772-6	. . BEARING, Rod End, LH	1
44	23522-6	. . NUT, Hex Mach, LH, No. 10-32	1
45	28772-5	. . BEARING, Rod End, RH	1
46	21018-7	. . NUT, Hex Mach, RH, No. 10-32	1
47	251472-1	. . ROD, Tie	1
48	21899-3	. . WASHER, Flat	2
49	251469-2	. . PIN	1
50	7-21002-2	. . SCREW, Btn Hd Cap, 1/4-28 x .875" L	1
51	856168-1	. . BUSHING	1
52	856671-1	. . FOLLOWER, Cam	1
53	21899-3	. . WASHER, Flat	1
54	251454-2	. . ARM, Pivot	1
55	251473-2	. . SUPPORT, Pivot Block	1
56	3-21000-6	. SCREW, Skt Hd Cap, No. 10-32 x .625" L	2
57	21024-5	. WASHER, Lock, No. 10	2
58	856670-1	. CAM, Pull	1
59	251433-1	. ARM, Eccentric	1
60	251512-1	. BOLT, Special Shoulder	1
61	551336-2	. SHAFT, Main (Stop Position 70)	1

Figure 33 (Sheet 2 of 3) cont'd



NOTE: Refer to Customer Manual 409-5128
For Machine Parts Not Listed In This Manual