

Figure 1

1. INTRODUCTION

This instruction sheet applies to the L-Station 1 only, on the AMPOMATOR System III-L machine.

NOTE *Dimensions in this instruction sheet are in metric units.*

NOTE *Side 1, Station 3 and Side 2, Station 5 of the System III machine are covered in 408-10097.*

2. INSTALLATION AND ADJUSTMENT OF THE TERMINAL REEL HANDLING ASSEMBLY

2.1. Installation

- Using a 6mm hex wrench, mount the reel support brackets or power terminal dereeler assembly with the fasteners provided as shown in Figure 2 and Figure 3.



Figure 2 (End-Feed Applications)

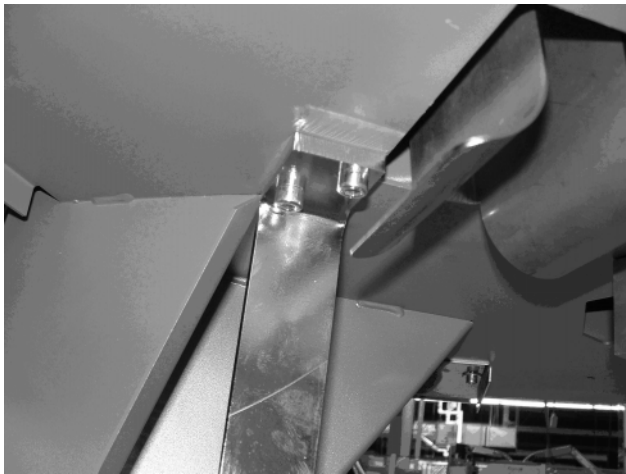


Figure 3 (Side-Feed Applications)

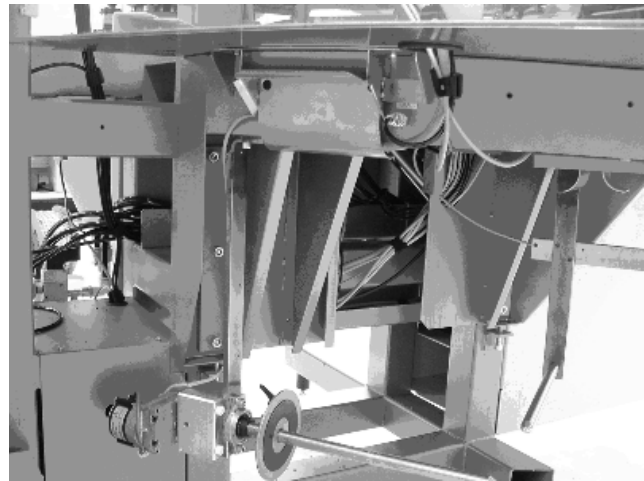
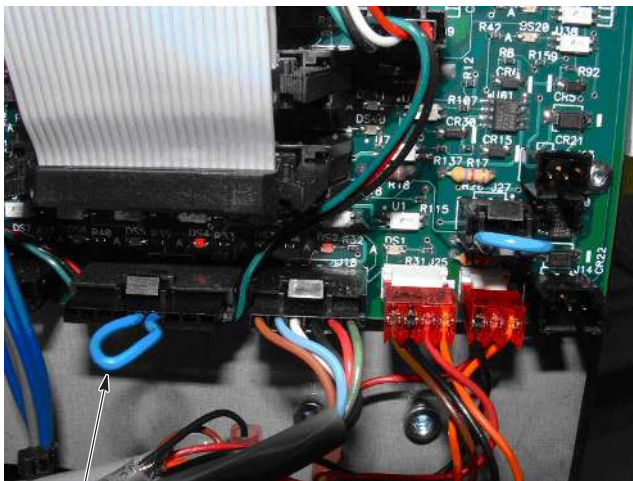


Figure 5

2. Route the cable as shown in Figures 4 and 5. Refer to schematic drawing 1901676 for connection information.



Jumper

Figure 4



NOTE Do not forget to plug in the provided jumper as shown in Figure 4 or the dereeler will not stop until it times out with an overspool error.



NOTE The Power Terminal Dereeler Assembly is intended for end feed terminals only.

2.2. Terminal Reel Adjustments

Adjust the terminal reel position as follows:

Use the plain inner reel flange to position terminal reels under the terminal inlet guide. The plain outer flange (used with passive reel supports) can be used to apply slight drag to the reel to prevent over spooling when using a paper winder.

Otherwise, the flange should not be adjusted tightly against the terminal reel. The spring-loaded outer flange (used with the power terminal dereelers) should be fully compressed against the terminal reel.

Handle Note

If a handle position is not oriented in a desirable location, it may be altered by the following:

1. Fully snug the handle.
2. Press on the handle cap screw with your thumb while pulling up on the handle.
3. Rotate the handle to the desired snug position and then release the handle.
4. Loosen and snug the handle to verify unobstructed operation.

If it is not possible to snug the handle to make the adjustment outlined above, follow these instructions instead:

- a. Rotate the handle to the desired full snug position.
- b. Pull up on the handle, and using a 3mm (or 4mm) hex wrench, tighten the handle cap screw.

- c. Release the handle to allow it to engage with the cap screw.
- d. Loosen and snug the handle to verify unobstructed operation.

3. INSTALLATION, ADJUSTMENT, AND MAINTENANCE OF THE PAPER WINDER ASSEMBLY

3.1. Installation

1. Orient the paper winder assembly on the side feed reel support bracket with the paper winder spool on the same side as the reel support shaft.
2. Using a 6mm hex wrench, mount the Paper Winder assembly with the fasteners provided as shown in Figure 6. Route the cable as shown in Figures 4 & 6.

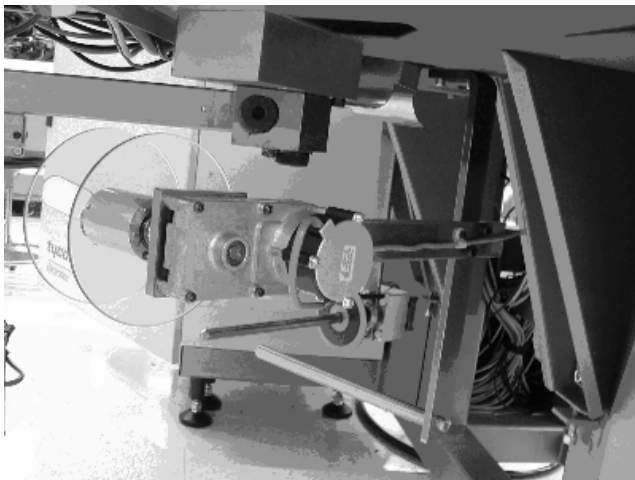


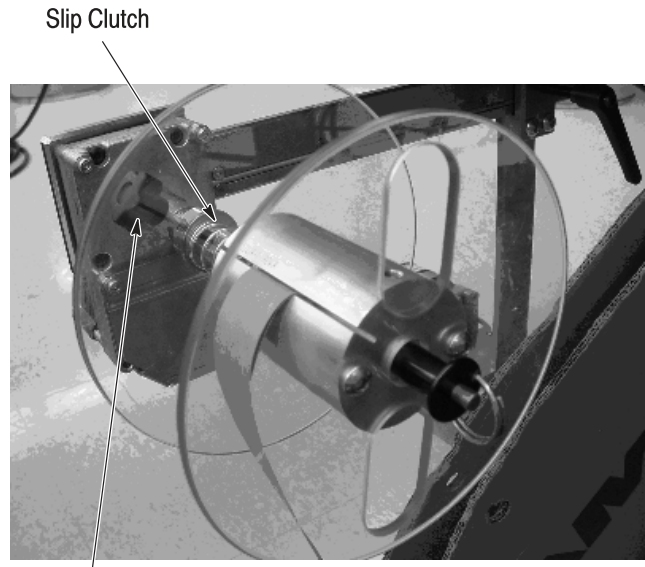
Figure 6

3. Refer to schematic drawing 1901676 for connection information.

3.2. Slip Clutch Adjustment

If interliner paper fails to wind onto the spool due to insufficient torque, this may be improved by increasing the spring load on the slip clutch. This is accomplished by loosening the shaft collar, increasing the spring compression, and re-locking the collar.

Refer to Figure 7.



Adjustment Knob

Figure 7

Conversely, if the paper winder causes the reel to overspool, less preload on the slip clutch or more reel drag may be necessary. Refer to the terminal reel position adjustments (Paragraph 2.2).

3.3. Station 2 Reel Handling Assembly Adjustment

Station 2 Reel Handling Assembly. Be careful to adjust the Station 2 reel handling assembly to clear the Station 1 paper winder flanges when swinging between the side- and end-feed positions. The Station 2: paper winder, vertical arm, and adjustment handles can interfere if improperly adjusted. See Figure 8.



Possible Interference Area
Figure 8

3.4. Paper Winder Maintenance

NOTE

Do NOT lubricate the slip clutch.



Lubricating the slip clutch will reduce the ability of the paper winder to effectively spool interliner paper from terminal reels.

If lubrication is applied to the slip clutch remove it completely. If not able to remove it, the inner flange and thrust washers will need to be replaced.

It is permissible to lightly lubricate the quick pin inside the removable spool (see Figure 9) occasionally as required. Lightweight spindle oil is recommended.

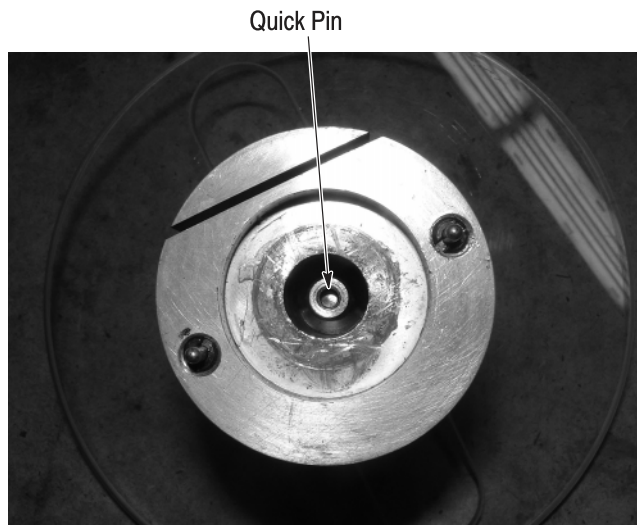


Figure 9

3.5. Paper Winder Operation

1. When the spool is full, press the release button and remove the spool. See Figure 10.



Figure 10

2. To rapidly unload the paper, hold the outer edge of the reel flange and push the paper off the core with both thumbs as shown in Figure 11.



Figure 11

3. The release button must be pressed while re-installing the spool onto the drive shaft.

4. Hold the outer spool flange while rotating the inner spool flange until the drive detents engage.

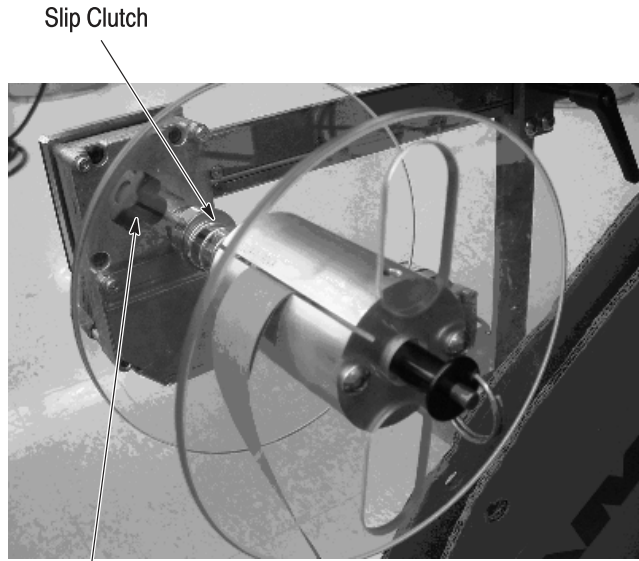
5. Fold the paper interliner and insert into the slot in the spool core as shown in Figure 12.

6. Spin the paper winder counter clockwise (facing the release button side) by hand until all of the slack paper is wound onto the spool.

4. INSTALLATION AND ADJUSTMENT OF PASSIVE TERMINAL INLET GUIDE

4.1. Side Feed Installation

Using a 5mm hex wrench, install the side feed terminal inlet guide as shown in Figure 13.



Adjustment Knob

Figure 12



Figure 13

4.2. Side Feed Adjustment

Loosen the locking handle to adjust the terminal strip angle into the applicator. A downward angle into an applicator induces a slight upward curl to the incoming terminal strip. This may lessen any tendency for the terminal strip carrier to snag on any lower tooling in an applicator.

4.3. End Feed Installation

1. Using a 2.5mm hex wrench, install the end feed terminal inlet guide onto the terminator as shown in Figure 14.



Figure 14

2. Terminals should be threaded over the guide into an applicator.

5. INSTALLATION, APPLICATION AND MAINTENANCE OF THE ACTIVE END-FEED TERMINAL INLET GUIDE

5.1. Installation

1. Using a 3mm hex wrench, mount the end feed terminal inlet guide assembly as shown in Figure 15.

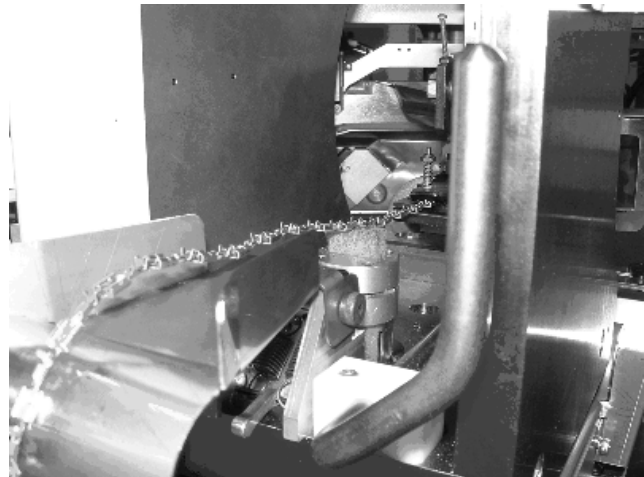


Figure 15

2. Route the switch input cable through the wire way on the rear of the terminator up to the circuit board as shown in Figure 4. Install the included jumper on the J26 connection. Refer to schematic drawing 1901676 for connection information.

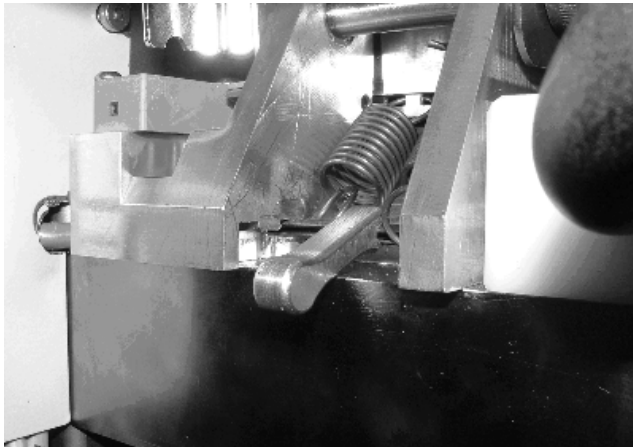
NOTE

PCB LED DS1 will light when start switch is made. DS2 will light when stop switch is made.

5.2. Application of Spring Tension

Incoming terminal strip tension increases with increased dancer return spring tension. Excessive terminal strip tension can cause terminal misfeeding. Therefore, it is best to limit the dancer return spring tension to the minimum amount necessary to return the dancer to its rest position. Terminals with thick, stiff carriers that cause an overspool error will require additional dancer return spring tension.

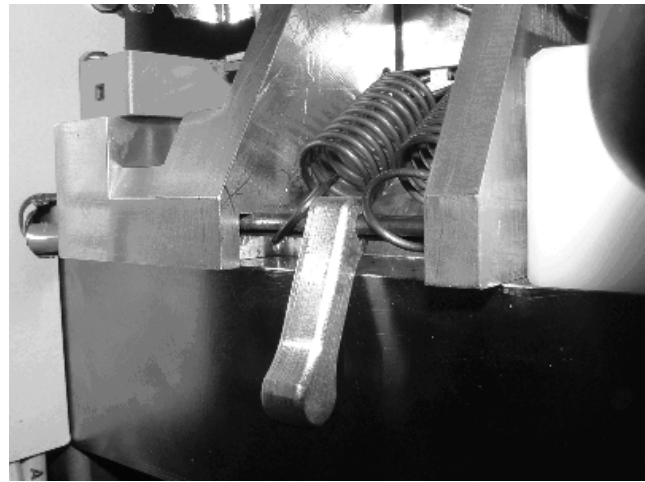
The dancer return spring has two tension settings. Use the tension adjust arm shown in Figure 16 and Figure 17 to change the spring tension. When finished, aim the arm down so the dancer does not interfere with it.



*Low Dancer Return Spring Tension
Figure 16*

Although the end feed dancer return spring tension is adjustable, there may be some terminals that would not benefit from using a power terminal dereeler. In these cases, the terminal strip tension due to the dancer actuating force is enough to cause terminal misfeeds and the terminal strip tension from the terminal reel inertia is less than the terminal strip tension from the dancer actuating force.

To determine if a power terminal dereeler would be beneficial:



*High Dancer Return Spring Tension
Figure 17*

1. Loosen the reel flanges so that the reel is still positioned side-to-side, but free to rotate about the reel support shaft.
2. Begin production and observe the start switch light. If the start switch light turns on at any point during production, then terminal strip tension from reel inertia is greater than from the dancer actuating force.

If the start switch lights or a "Snag Detected" error is observed, then using the power terminal dereeler would be beneficial.

3. The reel flanges should then be adjusted back to squeezing the reel. If no light is observed, then the flanges may remain in the loose test position.

NOTE

Bear in mind that the inertia of a reel changes as terminals are used and the working diameter and weight of the reel decreases. It may be necessary to run an entire reel to ensure that a power terminal dereeler would not be beneficial at any point on a specific reel of terminals.

5.3. Maintenance

Occasionally spray oil into the pivot bushings as required. It will be necessary to use a small tube to direct the oil past the extension springs into the bushings.

6. SOFTWARE

6.1. User Defined Settings

Direction of Unwind — The power terminal dereeler default direction of rotation is set for terminals that unwind from the top of the reel. This parameter is stored with the terminal set up parameters. To change the direction of rotation, check the appropriate icon and save the terminal. It is not necessary to set this parameter again for that specific terminal.

Terminal Inlet Guide Switch Mode — In the default mode, the dereeler motor runs after the start switch is made until the stop switch is made. Unless it is necessary, it is recommended to keep the machine in this mode to extend the life of the gearmotors and retain snag detection capability.

The switch mode can be changed to “low tension mode.” When set to this mode, the state of the start switch is ignored and the dereeler motor runs whenever the stop switch is not made. Snag detection is disabled in this mode. Low tension mode is necessary whenever there is insufficient dancer overtravel available. It can also be used to decrease maximum terminal strip tension. Although this is usually caused by long pitch terminals (in excess of 25mm [1.0 In.]), there are other combinations which may necessitate using low tension mode.

Paper Winder Enable — The default setting is for the paper winder to be enabled. However, to reduce wear and tear on the paper winder gearmotor it can be disabled on a terminal by terminal basis. If a terminal is endfeed or sidefeed without a paper interliner, it is recommended to uncheck the “Paper Winder Enable” box in the terminal settings. This reduces unnecessary wear and tear on the paper winder gearmotor. Also, for sidefeed with paper, it will be necessary to switch the winder from triggering on the endfeed inlet guide inputs over to the terminator cycles. To do this, uncheck the power terminal dereeler. It is not necessary to set these parameters again for that specific terminal.

6.2. Standard Operation

Power Terminal Dereeler and Paper Winder Motors — To aid in loading terminals, both motors will function with the main machine guard raised. Eventually, the motors will time out to prevent accidentally unspooling an entire reel of product. If this happens, allow the inlet guide to rest on the stop switch to reset, then dereeling may resume.

NOTE



Pressing an “E”-stop will disable both motors independent of main guard position.

Paper Winder — The paper winder runs when the terminator cycles and will continue to run an additional 1.5 (default) seconds after the terminator ceases. The power terminal dereeler checkbox must be unchecked for the paper winder to function.

NOTE



The software does not assume that a power terminal dereeler or paper winder assembly are installed. They must be installed in the software.

Snag Detected Error — If the start switch is made for more than a one-half second (default), production will halt and a “Snag Detected” error will appear on the operator interface. After the terminal reels are corrected as necessary, the error can be cleared by selecting “Ignore” and production will resume.

Overspool Detected Error — If the stop switch is not made within 1.5 seconds (default) after the start switch is made, production will halt and the error “Overspool Detected” will appear on the display. The power terminal dereeler will resume unwinding terminals when the start switch is made again. Only after making any changes necessary to assure the dancer returns to its rest position and repeatably makes the stop switch, should the error be cleared. Production will resume after clearing the error message by selecting “Ignore.”

Switch Misadjust Detected Error — If the stop and start switches are both made simultaneously, the warning “Switch Misadjust Detected” appears on the operator interface. Once the cause for this has been determined and remedied, the warning can then be cleared.

7. CONVERSION KITS

Please refer to the 1752555 conversion kit assembly drawing for AMPOMATOR System II-L (or III) Station 1.

8. TROUBLESHOOTING

PROBLEM	PROBABLE CAUSE	SOLUTION
Terminal strip tracks to one side or scuffs on inlet sides.	Reel flanges not positioning terminal reel properly.	Refer to Paragraph 2.2 and adjust the reel flanges.
Terminal inlet guide stop switch fails to sense flag.	Dancer not returning fully to rest position.	Manually swing dancer through entire travel to check for obstructions. Clear obstructions as necessary.
	Dancer not returning fully to rest position.	Manually swing dancer through entire travel to check for binding. Refer to the lubrication section and lubricate as necessary.
	Heavy or rigid terminal strips may require additional spring tension.	Increase spring tension as necessary.
	J26 Jumper not installed.	Install jumper in J26 connection. Refer to Paragraph 2.1.
	End feed flag deformed.	Bend flag to reduce gap between flag and switch. Make sure flag does not contact switch at rest position.
	Bad switch.	Switch should light when a metal strip (such as a feeler gage) is placed over the switch target area. Switches can be exchanged between side and end feed as well as stop and start switches to help determine a defective switch from a defective cable. Be sure the flag is adjusted so that it never contacts the switch.
	Bad input cable.	Disconnect both ends of the cable and check for continuity. Replace as necessary.
Bad input board.	Contact the Tooling Assistance Center at 1-800-722-1111.	

Figure 18 (1 of 5)

PROBLEM	PROBABLE CAUSE	SOLUTION
Terminal inlet guide start switch fails to sense flag.	Dancer not reaching trigger point.	Dancer tension may be unwinding product without assistance from the power terminal dereeler. Refer to Paragraph 5.2 to reduce dancer return spring tension. Manually swing dancer through entire travel to check for obstructions. Clear obstructions as necessary.
	Flag deformed.	Bend flag to reduce gap between flag and switch. Make sure flag does not contact switch at any point of travel.
	Bad switch.	Switch should light when a metal strip (such as a feeler gage) is placed over the switch target area. Also, switches can be exchanged between side and end feed as well as stop and start switches to help determine a defective switch from a defective cable. Be sure the flag is adjusted such that it never contacts the switch.
	Bad input cable.	Disconnect both ends of the cable and check for continuity. Replace as necessary.
	Bad input board.	Contact the Tooling Assistance Center at 1-800-722-1111.
Dancer bottoms causing misfeeding or deformed terminals.	Start switch fails to sense flag.	Refer to "Terminal inlet guide switch fails to sense flag." problem listed above.
	Insufficient overtravel	Refer to Terminal Inlet Guide Switch Mode in Paragraph 6.1.
Incoming terminals misfeed or terminal features deformed. (Dancer does not bottom.)	Excessive terminal strip tension.	Refer to Paragraph 2.2 (Terminal Reel Position), Paragraph 5.2, and the Terminal Inlet Guide section (Paragraph 6.1). Make adjustments as necessary. Also, refer to the direction of unwind (Paragraph 6.1) and verify proper terminal dereel direction.
	Excessive terminal strip tension.	If the solutions listed above do not completely solve this problem, there are two other possible solutions: 1) Slow down the entire machine. 2) Contact Tyco Electronics GATD Electrical Engineering for an alternate PTD jumper to increase the dereeler speed.

Figure 18 (2 of 5)

PROBLEM	PROBABLE CAUSE	SOLUTION
Power Terminal Dereeler rotates in the wrong direction.	Incorrect unwind direction chosen.	Refer to Direction of unwind (Paragraph 6.1).
Power Terminal Dereeler motor fails to rotate	E-stop pressed.	Reset E-stop.
	Snag detected.	Refer to Snag Detected Error (Paragraph 6.2). Also see the "Terminal Inlet Guide Start Switch Fails to Sense Flag." above.
	Incorrect unwind direction chosen.	Refer to Direction of Unwind (Paragraph 6.1).
	Start switch fails to sense flag.	Refer to "Terminal Inlet Guide Start Switch Fails To Sense Flag." above.
	Terminal reel catching on subframe.	Use terminal reels not exceeding 432mm [17 In.] diameter with 19 mm [3/4 In.] mounting holes.
	Bad bearing.	Remove terminal reel and gearmotor. Reel shaft should spin freely. If not able to spin with fingertips, one or both bearings need replaced.
	Bad gearmotor.	Swap gearmotors between side one and two. Also, the paperwinder gearmotor is interchangeable. This may help distinguish between a bad gearmotor and a bad cable or output board. Replace as necessary.
	Bad power cable.	Disconnect both ends of the cable and check for continuity. Replace as necessary.
	Bad output board	Contact the Tooling Assistance Center at 1-800-722-1111.
	Set screws that couple gearmotor to reel shaft loose.	Using a 3mm hex wrench, tighten both set screws. An entry to these screws is provided through an access hole in the back of the aluminum bearing block.
Overspool detected.	Refer to Overspool Detected Error (Paragraph 6.2) as well as "Terminal inlet guide stop switch fails to sense flag." above.	

Figure 18 (3 of 5)

PROBLEM	PROBABLE CAUSE	SOLUTION
Snag detected or Power Terminal Dereeler rotates shaft but fails to rotate terminal reel.	Snag detected.	Refer to Snag Detected Error (Paragraph 6.2). Also, see “Terminal inlet guide start switch fails to sense flag.” above.
	Incorrect unwind direction chosen.	Refer to Direction of Unwind (Paragraph 6.1).
	Terminal reel catching on subframe.	Use terminal reels not exceeding 432mm [17 In.] diameter with 19mm [3/4 In. [19mm] mounting holes.
	Reel flanges need adjustment.	Refer to Paragraph 2.2. Adjust reel flanges to increase clamping pressure on terminal reel.
	Cable not connected correctly.	Swap stop switch plug with start switch plug.
Paper Winder fails to rotate	E-stop pressed.	Reset E-stop.
	Power terminal dereeler enabled.	Refer to Section 6, SOFTWARE. Uncheck the Power Terminal Dereeler checkbox.
	Bad gearmotor..	Can swap gearmotors between Side one and Side two. Also, the Power Terminal Dereeler gearmotor is interchangeable. This may help distinguish between a bad gearmotor and a bad cable or output board. Replace as necessary.
	Bad power cable.	Disconnect both ends of the cable and check for continuity. Replace as necessary.
	Bad output board.	Contact the Tooling Assistance Center at 1-800-722-1111.
	Paper winder not enabled.	Refer to Paragraph 6.1. Enable the winder if appropriate.
Paper winder rotates but fails to wind inter-liner paper.	Slip clutch out of adjustment.	Refer to Paragraph 3.2.. Adjust to increase transmitted torque.
	Slip clutch has been lubricated.	Refer to Paragraph 3.4. Clean or replace parts as necessary.
“Overspool Detected” warning displayed.	Stop switch not made.	Refer to Overspool Detected Error (Paragraph 6.2) as well as the “Terminal inlet guide stop switch fails to sense flag.” above.
	J26 Jumper not installed.	Install jumper in J26 connection. Refer to Paragraph 2.1.

Figure 18 (4 of 5)

PROBLEM	PROBABLE CAUSE	SOLUTION
Paper winder causes terminals to overspool.	Insufficient drag on terminal reel.	Refer to Paragraph 2.2. Adjust reel flanges to slightly increase drag on terminal reel.
	Slip clutch out of adjustment.	Refer to Paragraph 3.2. Adjust to decrease transmitted torque.
	Quick pin needs lubrication.	Refer to Paragraph 3.4. Lubricate as necessary.
“Switch Misadjust Detected” Error displayed.	Start switch misadjusted.	Refer to Switch Misadjust Detected Error (Paragraph 6.2).
Power Terminal Dereeler motor seems to shutter.	Software set to “low tension mode”	Refer to Paragraph 6.1. Change selection back to “normal mode” if appropriate.
Machine fails to detect snagged terminals.	Software set to “low tension mode”.	Refer to Terminal Inlet Guide Switch Mode (Paragraph 6.1). Change selection back to “normal mode” if appropriate.
	Side Feed terminals installed.	Snag detect is not valid for Side Feed terminals on Side one since passive inlet guides do not have dancer switches.
	Main machine guards are open.	To aid in loading terminals, snag detection is disabled when the main machine guards are open.
Side feed terminal strip carrier snagging on lower tooling in applicator.	No downward angle to incoming terminal strip	Refer to Paragraph 4.2.

Figure 18 (5 of 5)

9. REVISION SUMMARY

Since the previous release of this document, the logo and format were updated, and the wiring in Figure 4 was updated.