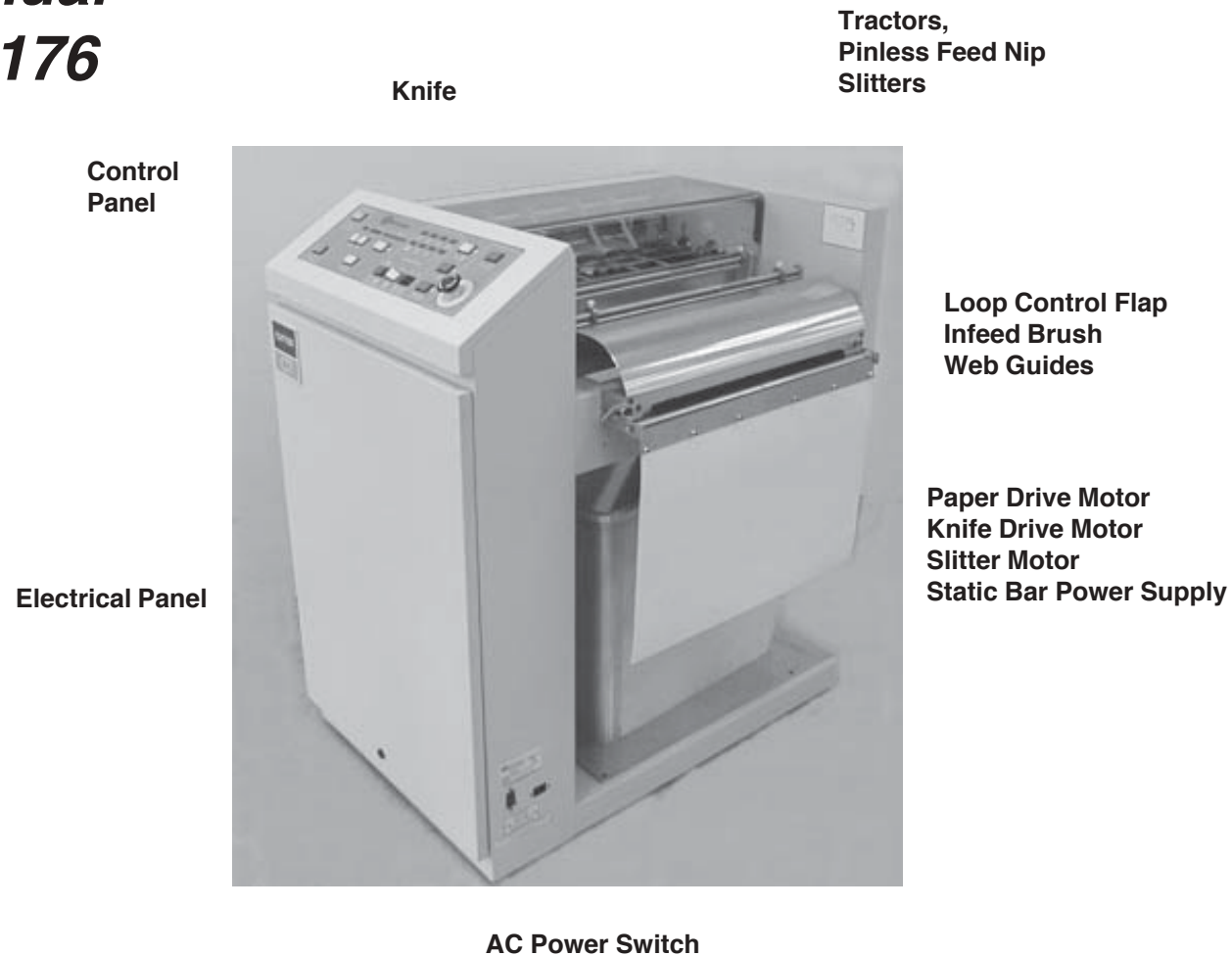


Continuous Cutter *Service Manual* **Model: 503176**



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Prepared by:

Roll Systems
53 Third Ave.
Burlington, MA 01803
(781) 229-2266

Intellectual Property

PATENTS

Roll Systems has many patents issued and pending. Some apply to the product described in this document. Such patents entitle Roll Systems to exclusive sale, manufacture, and use of such patented material for the life of the patent.

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Safety Notice

FAILURE TO USE THIS MACHINE PROPERLY MAY CAUSE SERIOUS PERSONAL INJURY, OR DAMAGE TO THIS OR OTHER EQUIPMENT.

ATENCION: SI NO ENTIENDE ESTA INFORMACION EN INGLES. POR FAVOR CONSULTE CON ALOGIEN QUE LEA INGLES. PARA EVITAR ALGUN ACCIDENTE O DAÑO AL EQUIPO.

Long hair, loose clothing or jewelry must be kept away from moving parts on this machine. The motors and belts are powered and can be dangerous.

Following the instructions and safety precautions in this manual will allow you to service this equipment. **Safety Notes appear in BOLD** in this manual to highlight instructions which must be carefully followed to service the equipment.

Equipment Modification

Changes or modifications to this unit not expressly approved by the party responsible for compliance will void the user's authority to operate the equipment.

Communication Interference

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area can cause harmful interference in which case the user will be required to correct the interference at his own expense.

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Introduction

About This Manual

Documentation Design and Purpose

This Service Manual is part of a multinational documentation system developed by Roll Systems , 53 Third Ave, Burlington, MA 01803.

The manual contains diagnostic, repair, and maintenance information that has been designed to assist the service representative in the isolation and repair of faults as well as maintenance of this machine. Roll Systems assumes that the user is familiar with electrical and mechanical standards that are commonly used throughout the industry, as well as certain Roll Systems' design and documentation conventions. It is also assumed that the user has successfully completed any required training and is familiar with the use of any special tools that are required to service this product.

Applicability

Information herein may apply to units built for domestic and international use. Normally, the diagnostic, repair, and adjustment procedures found in this manual apply equally to 50 Hz and 60 Hz machine versions. Where applicable, procedures will be specifically identified to a given machine version or configuration.

Limitations

This manual does not support specific electrical, mechanical, or operational considerations of any accessory device or machine modification not authorized by Roll Systems for this product.

Revisions

Periodic revisions may occur reflecting changes in electrical or mechanical hardware, and additions or corrections ensuring the technical accuracy of the manual.

Field Service Bulletins

Field service information specifically applicable to the machine may occasionally be issued in the form of electronic or critical bulletins. These bulletins contain important information, and should always be retained within the manual for quick reference.

Publication Comment Sheet (PCS)

A Publication Comment Sheet (PCS) is provided at the end of the manual. The PCS is used to communicate pertinent information to the Technical Services department at Roll Systems regarding the effectiveness and technical accuracy of this manual.

Organization

This manual contains the **Introduction**, plus the following sections:

- Section 1 Service Call Procedures
 - Section 2 Repair Analysis Procedures (RAPs)
 - Section 3 Not used
 - Section 4 Repairs/Adjustments Procedures (REPs/ADJs)
 - Section 5 Parts Lists
 - Section 6 General Procedures/Information
 - Section 7 Wiring Data
 - Section 8 Accessories/Options
- Publication Comment Sheet
Interconnect Schematic

A detailed description of the information contained within each section follows.

How to Use This Manual

Introduction

This section provides the service representative with information pertaining to the organization and use of this service manual. It includes the following supportive reference data:

- Reference Symbolology
- Signal Nomenclature
- DC Voltage Range Specifications
- AC Voltage Range Specifications

Section 1: Service Call Procedures (SCPs)

This section contains a structured process for determining the type and sequence of actions that are performed during a service call. It is designed to assist in the effective recognition of machine symptoms and problems, as well as to provide instructions for maintenance and corrective actions required to return the machine to full operating condition.

Section 1 is the starting point for all service calls. The service representative should begin each service call with the initial actions found in Section 1.

The Service Call Procedures section is composed of four elements: Initial Actions, System Checks, Preventive Maintenance and Final Actions. Maintenance and diagnostic activities in this section may direct the service representative to perform additional service activities found elsewhere in this manual such as: RAPs, REPs and ADJs.

Initial Actions identify certain required actions necessary to obtain a basic appraisal of machine operation at the start of the service call.

System Checks test the machine to confirm and define problem areas. This subsection is used to assist the service representative in diagnosing the not readily apparent machine problems or when there are conflicting or ambiguous symptoms present. It is important that system checks be used to ensure the correct symptom is diagnosed.

Preventive Maintenance contains a list of cleaning and lubrication activities designed to extend and enhance reliability and performance of the machine.

Final Actions identify the actions necessary to clear the call with the customer and fulfill any administrative tasks that are associated with completing the service activity.

Section 2: Repair Analysis Procedures (RAPs)

Section 2 contains a Baseline Checklist, a System Fault Analysis (SFA) diagram, Repair Analysis Procedures (RAPs), and Circuit Diagrams (CDs) to identify faults. The service representative will be referred to Section 2 from another section of the manual during the service call. This will normally be the Service Call Procedure diagram or, when there is more than one fault, the System Fault Analysis diagram.

The Baseline Checklist should be used to verify system setup. Completion of the Baseline Checklist may resolve the problem without extensive troubleshooting. Not all items in the checklist may be applicable to the specific system configuration being repaired.

After completion of the Baseline Checklist, the service representative should use the System Fault Analysis (SFA) diagram to determine the first RAP to use. It may be necessary to return to the SFA if the first RAP does not resolve multiple problems.

There are two types of RAPs in Section 2. The first type of RAP is associated with the display of a status or fault code. This type will have the status or fault code in the RAP title. The second type, other Fault RAPs, are diagnostic procedures designed to address symptoms or problems not identified by, or associated with a displayed status or fault code.

Some RAPs will only be applicable to specific machine configurations. When this occurs, the product name(s) will be found in parentheses in the procedure title. When a machine defect or fault has been resolved by using a RAP, the service representative should immediately return to the point in the service manual from which Section 2 was entered.

Section 3: Not Used

Section 4: Repairs/Adjustment Procedures (REPs/ADJs)

This section contains all repair and adjustment procedures for the machine. Some repair or adjustment procedures will only be applicable to specific machine configurations. When this occurs, the product code(s) will be found in parentheses in the procedure title.

Section 5: Parts Lists

This section contains a list of spare parts for the machine. Parts are identified through the use of illustrations and associated tables. Part numbers and descriptions are provided for each field replaceable part or assembly.

Section 6: General Procedures/Information

This section contains procedures and information of a general nature that apply to the machine. The machine's theory of operation and operator's actions are described in this section. Appropriate illustrations of the machine are provided. Frequently used procedures relating to set up, operation, or fault diagnoses may also be found here.

This section also contains product specification information pertinent to operation of the machine but that will not be found in any other part of the manual. This information may include product codes, environmental operating data, installation space requirements, and paper and electrical specifications.

Section 7: Wiring Data

Section 8: Accessories/Options

This section contains service information that supports the maintenance and diagnosis of accessories and options that can be used with this product.

Publication Comment Sheet

The Publication Comment Sheet is provided to give the reader a means to communicate with Roll Systems Technical Services Department regarding the effectiveness and technical accuracy of this manual.

Interconnect Diagram

An interconnect diagram is provided in the back of the manual to support diagnostic and maintenance procedures found in other parts of the manual.

Other Information

The Use of Warning, Caution and Note statements:

Important information relative to the completion of a task in a safe or thorough manner is supplied by a Warning, Caution or a Note statement.

Warnings, Cautions and Notes appear before the steps to which they apply. These statements must be read before continuing to the next step in a procedure. The definitions of Warnings, Cautions and Notes are as follows:

Warning - Warning indicates an operating or maintenance procedure, practice or condition that, if not strictly observed, could result in injury or loss of life.

Caution - Caution indicates an operating or maintenance procedure, practice, or condition that, if not strictly observed, could result in damage to or destruction of equipment.

Note - Note indicates an operating or maintenance procedure, practice or condition that is necessary to accomplish a task efficiently.

The Use of Abbreviations, Specific or Unique Terms and Conventions:

Abbreviations

A list of abbreviations used in this service manual will be found in the Reference Symbology subsection, contained elsewhere in this section.

Conventions

Not applicable

Reference Symbology

This section describes and defines abbreviations, reference symbols, signal nomenclature and AC and DC power specifications. The following is a description of some of the items found in this section:

Reference Symbols

Reference symbols are icons denoting supportive data that can be found in other sections of this manual. These symbols inform the service representative of additional procedures, adjustments, or other information important for successful diagnosis or repair.

Schematic Symbols

Schematic symbols represent various mechanical and electrical components or devices commonly found in Roll Systems equipment. These symbols are included as an aid to understanding the Circuit Diagrams (CDs) and Block Schematic Diagrams (BSDs).

AC and DC Voltage References

Specifications for the AC and DC voltage levels found in this machine are defined in this section. These specifications are the expected ranges for AC (customer power source) and DC (module internal power supplies) voltages encountered during normal operation.

Abbreviations

Table 1 lists the abbreviations found in this service manual. These are commonly accepted abbreviations used throughout Roll Systems service documentation.

Table 2 lists the electrical wire colors that are identified in this service manual.

Table 1 - General Abbreviations

Abbreviation	Definition
AC	alternating current
ADJ	adjustment procedure
AMP	ampere
BTU	British thermal unit
CPU	central processing unit
DC	direct current
F	fuse
GND	ground
I/O	input/output
J	receptacle connector
LED	light emitting diode
P	plug connector
PL	parts list
PCB	printed circuit board
R	potentiometer
RAP	repair analysis procedure
REP	repair procedure
TB	terminal block
TP	test point
VAC	volts alternating current
VDC	volts direct current

Table 2 - Wire Color Abbreviations

Abbreviation	Wire Color
BLK	black
BLU	blue
BRN	brown
GRAY	gray
GRN	green
*GRN/YEL	green/yellow
ORN	orange
PINK	pink
RED	red
VIO	violet
WHT	white
YEL	yellow
G/Y	green/yellow
* Wire Color	
GRN	Solid color
YEL	Stripe color

DC Voltage Range Specifications

The table below lists the tolerance ranges for the internal DC power supplies within the machine.

DC Voltage Range

Voltage	Tolerance
DC Com	+ 0.0 to + 0.8 VDC
+5VDC	+4.8 to +5.2 VDC
+15VDC	+ 14.8 to + 15.2VDC
-15VDC	-14.8 to -15.2 VDC

DC Logic Level Range

Logic Voltage	Tolerance
+5VDC	H = +2.5 to +5.2 VDC L = 0.0 to + 0.50 VDC
+15VDC	H = + 6.60 to + 12.0 VDC L= 0.0 to +4.5 VDC
-15VDC	H = 0.0 to -4.5 VDC L= -6.60 to -12.0 VDC

AC Voltage Range Specifications

The AC voltages that are listed below reflect the normal range of AC voltages that are encountered worldwide. The AC voltage range may vary from the listed specifications in some areas of the world.

For further electrical data, refer to the Product Specifications information in Section 6, General Procedures/Information.

AC Voltage Range Specifications




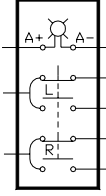

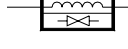




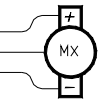
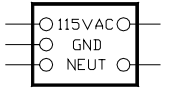
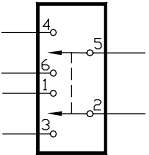






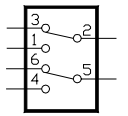
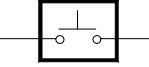
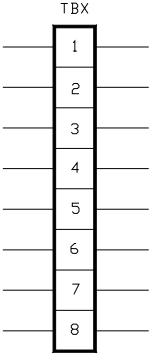
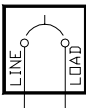


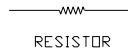
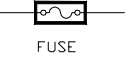
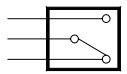

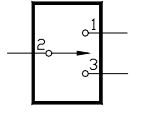
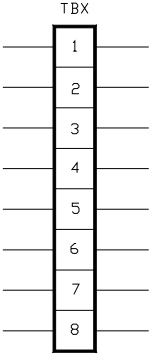
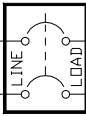
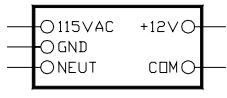
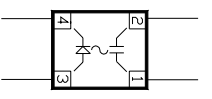
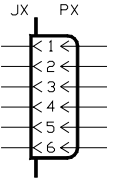
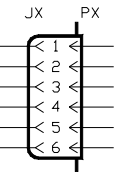
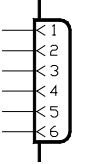
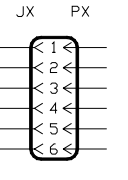
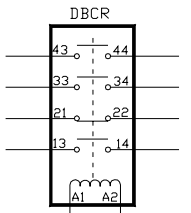
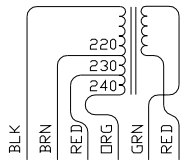
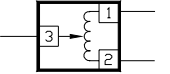
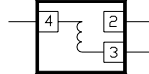

60 Hz	50 Hz
100 to 120 VAC (single phase) or 220 to 240 VAC (single phase) ± 10%	100 to 120VAC (single phase) or 220 to 240 VAC (single phase) ± 10%




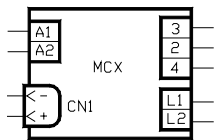
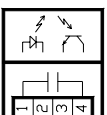

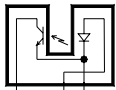



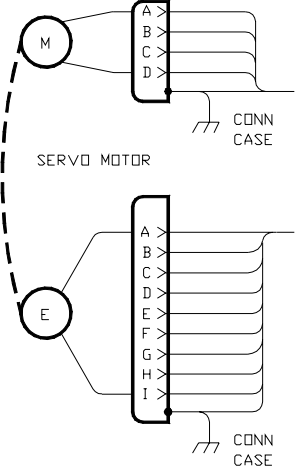
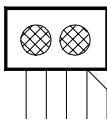
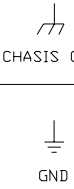
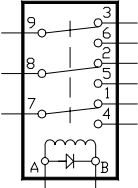
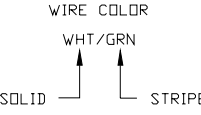
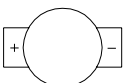

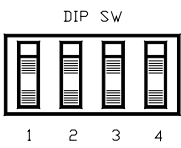
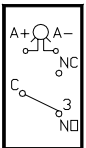
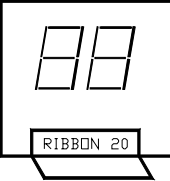
AC Voltage Measurements

All 50 Hz AC measurements listed in this service manual are with respect to AC Neutral (ACN). Measurements of AC voltage should be with respect to the AC neutral (ACN) terminal of the customer power source unless another reference point is specified in a diagnostic procedure.

All 60 Hz AC measurements listed in this service manual are with respect to AC Neutral (ACN). Measurements of AC voltage may be made to the frame of the machine unless another reference point is specified in a diagnostic procedure or BSD. This assumes, however, that there is ground circuit integrity between the customer power source and the machine frame.

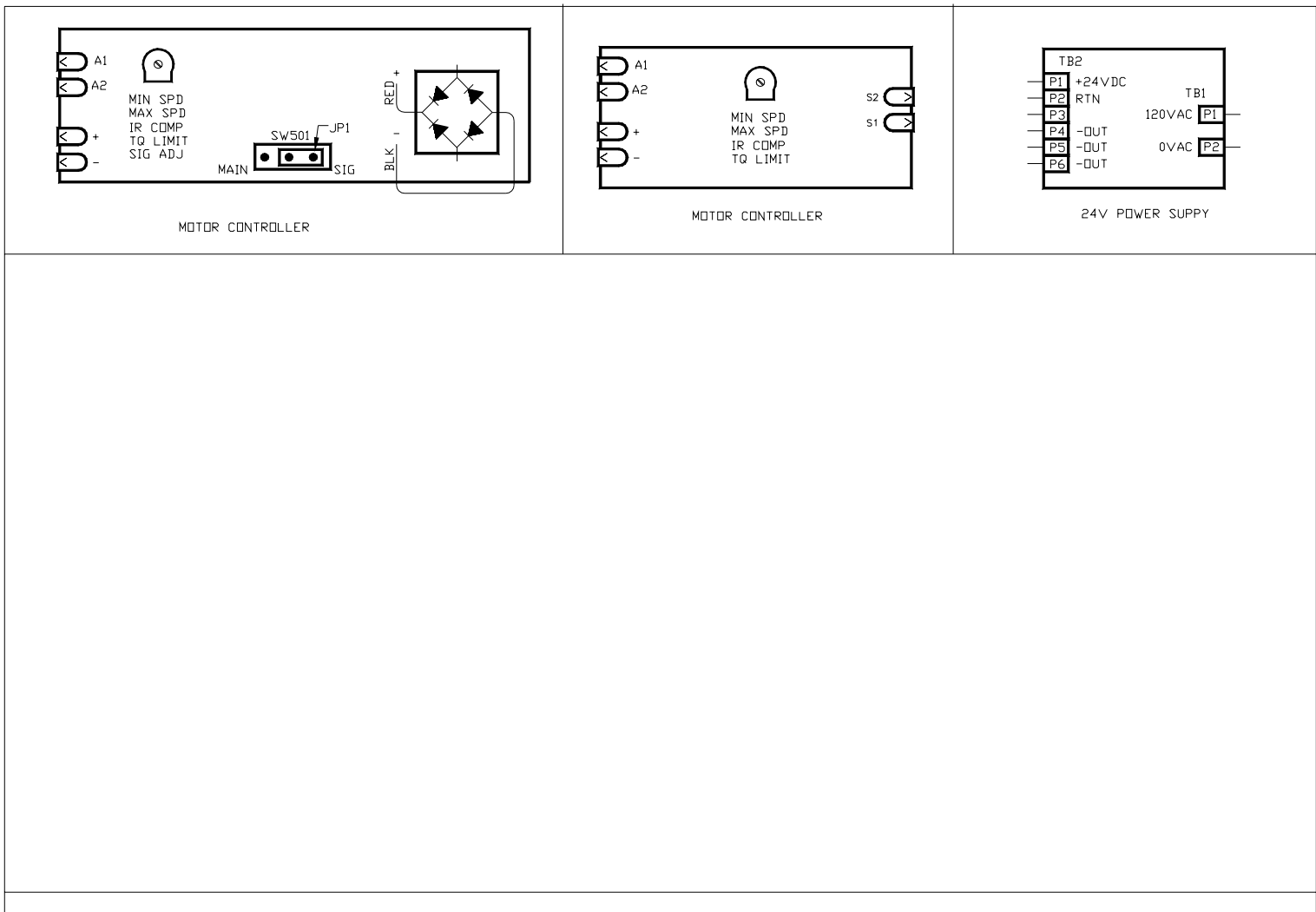
NOTE: Ground circuit integrity should always be verified at the beginning of any diagnostic procedure that requires the measurement of AC voltages in the 208 to 242 VAC range.

 AC PLUG	 AC RECEPTACLE	 AC MOTOR	 DPDT PUSHBUTTON SWITCH W/ LAMP	 LED (LIGHT EMITTING DIODE)	 PNEUMATIC/HYDRAULIC SOLENOID	 SNUBBER (RC SUPPRESSOR)	 VARISTOR		
 PIN CONTACT	 SOCKET CONTACT	 DC MOTOR	 LINE FILTER	 DPDT 3POS CENTER OFF ROCKER SWITCH	 SOLENOID	 CLUTCH			
 POT FIGURE	 POT FIGURE	 CHASSIS GROUND	 RIBBON CONNECTOR	 DPDT 2POS ROCKER SWITCH	 SPST PUSHBUTTON SWITCH	 TBX	 1 POLE CIRCUIT BREAKER	 PW BOARD TERMINAL STRIP	
 SENSOR	 RESISTOR	 FUSE	 SPDT LIMIT SWITCH	 PUSH BUTTON PWB	 SPDT 3POS CENTER OFF ROCKER SWITCH	 LARGE TERMINAL BLOCK	 2 POLE CIRCUIT BREAKER		
 POWER SUPPLY	 SSR1	 PLUGGABLE MALE BULKHEAD CONNECTOR	 PLUGGABLE FEMALE BULKHEAD CONNECTOR	 PLUGGABLE PW BOARD CONNECTOR	 PLUGGABLE FREE HANGING CONNECTOR	 DBCR	 TOROIDAL TRANSFORMER		
 VARIABLE AUTOTRANSFORMER	 MOTOR STARTING RELAY	<p>SCHEMATIC SYMBOLS LEGEND</p> <p>REV C</p>							 <p>Roll Systems</p> <p>Copyright © 1997 Roll Systems Inc.</p>

 <p>EUROPEAN PLUG</p>	 <p>IEC PLUG</p>	 <p>SINGLE TERMINAL BLOCK OR WIRENUT</p>	 <p>MOTOR CONTROLLER</p>	 <p>DIFFUSE SENSOR</p>	 <p>RETROREFLECTIVE SENSOR</p>	 <p>THROUGH BEAM SWITCH</p>
 <p>POTENTIOMETER</p>	 <p>IEC RECEPTACLE</p>	 <p>LAMP</p>				
 <p>SERVO MOTOR</p> <p>CONN CASE</p>		 <p>ULTRA SONIC SENSOR</p>	 <p>CHASIS GND</p> <p>GND</p>	 <p>3PDT RELAY</p>	 <p>WIRE COLOR</p> <p>WHT/GRN</p> <p>SOLID STRIPE</p>	 <p>FAN</p>
		 <p>RETROREFLECTIVE SENSOR</p>	 <p>DIP SW</p> <p>1 2 3 4</p>	 <p>SPDT</p>	 <p>RIBBON 20</p> <p>DISPLAY BOARD</p>	

SCHEMATIC SYMBOLS LEGEND

REV C

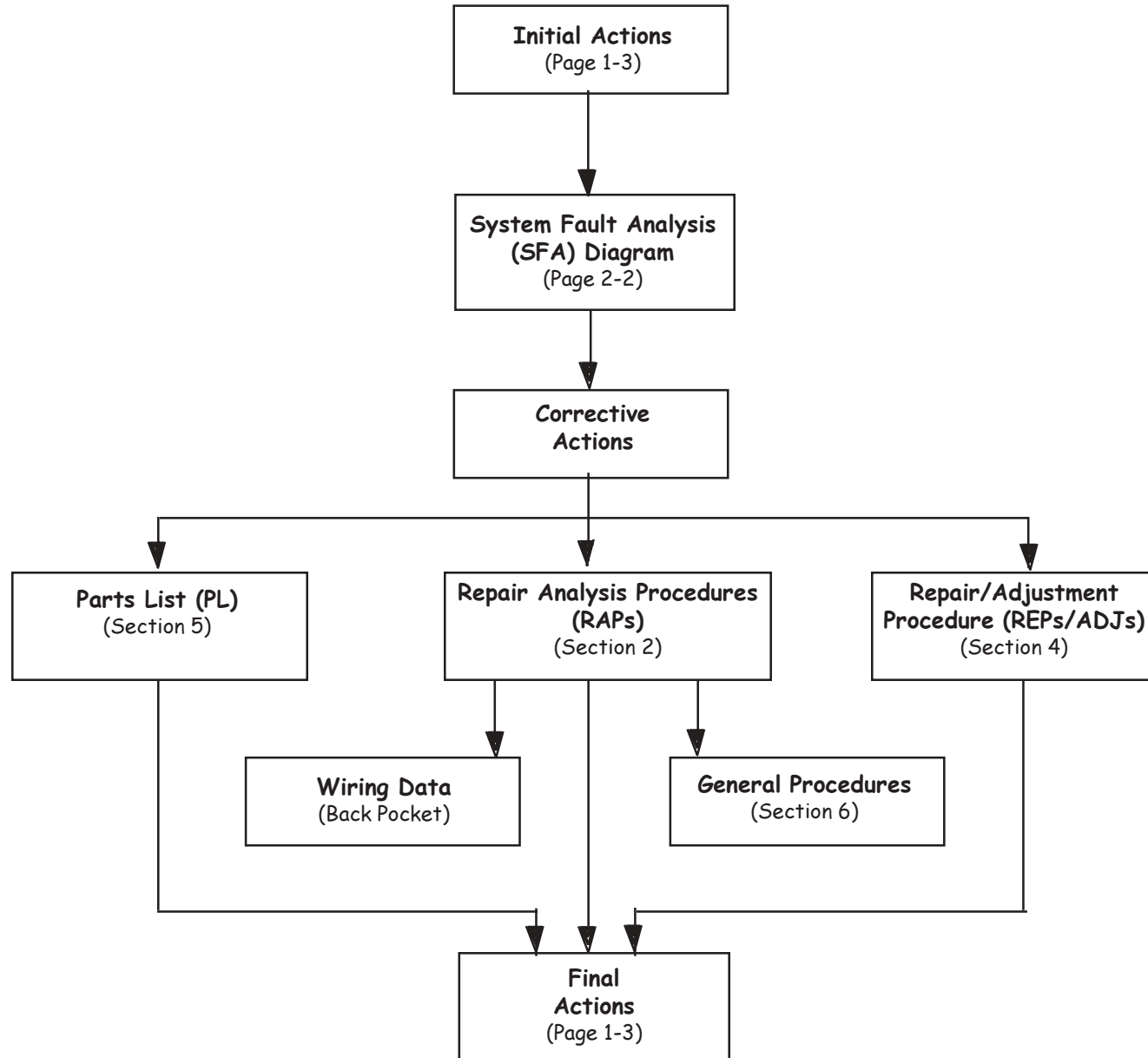


Contents**Page****Introduction**

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Preventive Maintenance	1-3
System Checkout	1-3
Final Actions	1-3

The **Service Call Procedures** section is used to identify a suspected problem and provide routine maintenance procedures and outline proper service procedures for obtaining support and ordering parts. This section contains the call flow, initial actions, the monthly preventive maintenance, system checkout, and final actions.

- The **Call Flow Diagram** shows the relationship of actions during a typical service call.
- **Initial Actions** are used to gather information regarding the performance of the machine and prepare it for servicing.
- The **Preventive Maintenance** subsection details the appropriate steps for routine cleaning and inspection.
- The **System Checkout** procedures are used to evaluate the total operation of the system after service has been performed.
- **Final Actions** complete the service call and identify actions required to clear the call with the customer.



Initial Actions

Initial actions are used to gather information from the operator concerning problems in the local machine.

Procedure

1. Ask the operator to describe or demonstrate the problem, if possible. Request all information on the failure. Some features of the machine may not be tested during the system checks and therefore, operator input will be a valuable asset to help diagnose the total system.
2. If the problem is the result of improper operator action, refer the operator to the operation section of this manual or to other customer support functions.
3. Establish basic machine setup by following the System Fault Analysis Diagram (Page 2-2).

Preventive Maintenance

System Inspection (Power Off)

- Knife Lubrication
- Trimmer Lubrication
- Bin Full sensor
- Clean the paper path of any dust.
- Sensor Tower Sensors

System Checkout

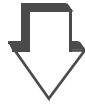
1. Replace and secure any covers or guards previously removed.
2. Perform general system cleaning.
 - Wipe down the paper path.
 - Clean the sensors.
3. Power up and ready the printer.
4. Run a test job. Carefully observe the paper handling as the system processes the sheets. Make any further adjustments required.
5. Run the customer's application.
6. Record the nature of the problem corrected.
7. Go to final actions.

Final Actions

1. Discuss problem(s) and corrective action(s) with the operator/customer.
2. Provide a copy of any service call report to the customer.

NOTE: The service call report should show the Roll Systems part number for any parts replaced.

3. Request reordering of any parts used from the customer spare parts kit.



2.0 Repair Analysis Procedures (RAPs)

Contents	Page	
Baseline Checklist	2-2	RAP 2.7 - Error Code 06 - Run Time Home Sensor Position Error
RAP Legend	2-2	RAP
System Fault Analysis (SFA) Diagram	2-2	RAP Diagram
RAP 1.0 - Power Up (120 VAC)		RAP 2.8 - Error Code 07 - Cutter Internal Jam
RAP	2-4	RAP
RAP Diagram	2-5	RAP Diagram
RAP 2.0 - Cutter Diagnostics		RAP 2.9 - Error Code 08 - Page Size Error
RAP	2-8	RAP
RAP Diagram	2-9	RAP Diagram
RAP 2.1 - Error Code 00 - Knife Drive Servo Error		RAP 3.0 - Paper Path
RAP	2-12	RAP
RAP Diagram	2-13	RAP Diagram
RAP 2.2 - Error Code 01 - Knife Drive Servo Motor Position Error		RAP 4.0 - Other Faults
RAP	2-16	RAP
RAP Diagram	2-17	RAP Diagram
RAP 2.3 - Error Code 02 - Paper Drive Servo Error		RAP 5.0 - Power Up (non-120 VAC)
RAP	2-20	RAP
RAP Diagram	2-21	RAP Diagram
RAP 2.4 - Error Code 03 - Paper Drive Servo Motor Position Error		RAP 6.0 - Servo Amplifier/Servo Motor Fault Isolation
RAP	2-24	RAP
RAP Diagram	2-25	RAP Diagram
RAP 2.5 - Error Code 04 - Knife Home Position Error		
RAP	2-28	
RAP Diagram	2-29	
RAP 2.6 - Error Code 05 - Servo Motor Power Error		
RAP	2-32	
RAP Diagram	2-33	

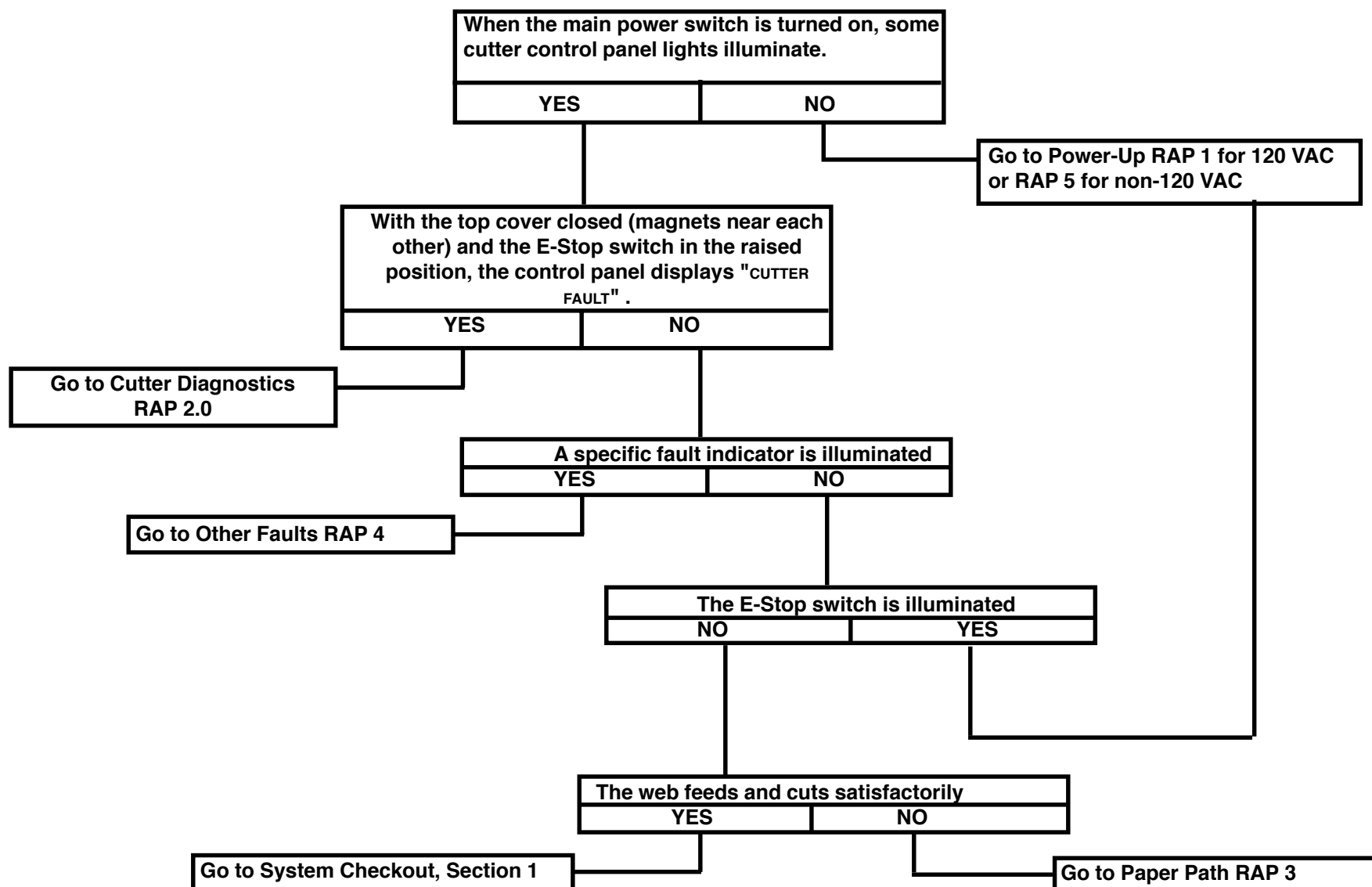
Baseline Checklist

- Measure the AC input voltage and record on a separate sheet.
- Verify proper bonding (grounding) of system to printer and output devices.
- Verify all electrical connections are tight.
- Set the cutter sensor tower in the marked/pinned location.
- Verify the sensors are set to the proper focal point (8").
- Power up system with the on/off switch.
- Check the operation of the tractors with the ALIGN switch. Advance and retard the paper.
- Adjust the infeed guides to the paper width.
- Set the proper page length.
- Verify the cutter will run properly offline.
- Verify the condition and lubrication of the margin trimmers. Adjust to trim at least 1/2 inch.
- Verify the web brush tension to be set for light drag for the customers paper.
- Run system to verify proper paper tracking through unit.
- Verify system speed and loop control while running system. (Adjust web speed if necessary.)
- Verify the quality and evenness of trim operation.
- Verify the quality and squareness of pages.
- Verify the sheet length is correct and consistent from page to page.
- Verify the DIP switch settings are set to the proper positions on the CPU and I/O PCB's.
- Verify the firmware is set to the factory default.
- Verify that the servo amplifiers are adjusted properly. Adjustments **ADJ16** and **ADJ17**.
- Verify that you have the proper voltages from the DC power supplies. **ADJ 15**
- Verify that the jam sensor on the sensor tower, when covered with white paper for more than 3 seconds, takes the system out of ready. **ADJ 18**
- Verify that the bin full sensor is functioning properly and is set to LO (Light Operated). **ADJ 13**
- Verify that the table full switches on the stacker table are functioning properly.
- Verify that the knife home position sensor operates properly (knife at home position). **ADJ 14**
- Verify that the cutter will run three different form lengths.
- Manually rotate the knife and feed drives and verify that they are free of mechanical drag.
- Verify that the height of the cutter to the stacker is correct.
- Verify that in pinless mode that the paper web moves straight through the cutter. Adjustment **ADJ11**, pressure roller skew adjustment.
- Verify that the print registration amplifier is set to DO (Dark Operated).
- Verify that the print registration sensor is adjusted properly.

RAP Legend

1. Numbers in parenthesis () [e.g. (35)] refer to the item number identifier in the RAP diagram and interconnect diagram.
2. The abbreviation **REP** (e.g. **REP 5**) refers the service representative to replacement procedure 5 in Section 4 that needs to be made to replace a part.
3. The abbreviation **ADJ** (e.g. **ADJ 2**) refers the service representative to a adjustment procedure 2 in Section 4 that needs to be made to adjust a part.
4. The abbreviation **PL** (e.g. **PL 7**) refers the service representative to a parts list in Section 5 that identifies the part by part number.

System Fault Analysis (SFA) Diagram





RAP 1.0 - Power Up (120 VAC)

Theory of Operation

The cutter operates directly from the customer's 115 VAC power source. Refer to **RAP 5.0** for all non-domestic sources using the optional transformer to convert the input power to 115 VAC.

The main power switch/circuit breaker (49) turns on the power and provides the initial circuit protection. Secondary device specific protection is provided by a series of fuses at terminal block TB2 (33). Power is present at the line filter (50) whenever the cutter is connected to an AC source.

Switching on the main power switch (49) provides 115 VAC power to the following devices:

- AC terminal block TB2 (33)
- DC power supplies (32a & 32b)
- Terminals 34(neutral) and 44(hot) of the contactor (41)
- Stacker table via noise filter 3 (58)
- Cutter fan (89)
- The voltage adjust option (52)

The contactor (41) is energized when the E-Stop (15) (and if present, the E-Stop on the Stacker) and cover interlocks (23) are closed. A 12-15VDC potential is applied to the contactor coil (41) which permits 115 VAC power to be presented to one side of each of the three solid state relays (30, 31, & 57), the static bar power supply (55), and the hole punch option if present.

Details of Operation

- A 16A line filter (50) in line with the main power switch (49) eliminates electrical noise.
- The +15 VDC power to the contactor (41) is reduced to +12 VDC by means of a 4 Ohm, 5 Watt resistor (56).
- A 33 Ohm, 1/2 Watt resistor (86) limits the current through the E-Stop lamp when the E-Stop switch (15) is depressed or the cover is open.
- The DC power supply (32a & 32b) is protected by a 1.5A, VAC fuse at TB2-17 (33).
- When the cutter is in online mode, the enable switch (14) may not be activated while any cutter faults or hard errors are indicated.

Initial Actions

- Ensure that the power cord is plugged into an active power source.
- Ensure that the cutter's top cover is closed.
- Ensure that the E-Stop (15) is in its raised position.

Procedure

WARNING

115 VAC is present in the control cabinet. Perform all continuity checks with the power cord detached from the Continuous Cutter.

Turn on the main power switch (49).

Some of the cutter control panel displays are lit.

Y N
Open the electrical panel cover using a 4 mm hex key to unlock the bottom latch. Lift to remove the cover. Remove the plastic safety cover over the DC power supplies (32a/32b) and TB2 (33) with a 2.5 mm hex key.

The CPU Control Board (29) power LED's are lit.

Y N
Check fuse F1(34) at TB2-17 (33).
The fuse is conducting.

Y N
| • Replace fuse F1(34) (1.5A, 250 VAC).

Place a multimeter set to AC volts across TB2-13 and TB2-16 (33).
The meter reads approximately 115 VAC.

Y N
Place a multimeter set to AC Volts across the load side (BLK and WHT wires) of the 16A line filter (50).
The meter reads approximately 115 VAC.

Y N
| • Recheck the customer's source.
| • Replace the power cord.

Place a multimeter set to AC Volts across the load side of the 16A line filter (50).
The meter reads approximately 115 VAC.

Y N
| • Replace the line filter (50) (**REP 36**) (**PL 2.2**).

Place a multimeter set to AC Volts across the main power switch (49) input side (BLK and WHT).
The multimeter reads approximately 115 VAC.

Y N
| • Check connections between the line filter (50) and the main power switch (49).

Place a multimeter set to AC Volts across the main power switch (49) output side (BLK and WHT).
The multimeter reads approximately 115 VAC.

Y N
| • Check that main power switch (49) is on.
| • Replace the main power switch (49) (**REP 39**) (**PL 2.2**).

Place a multimeter set to AC volts across TB2-13 and -16 (33).
The meter reads approximately 115 VAC.

Y N
| • Repair the connections between the main power switch and TB2 (33) terminals 14 and 15.

A B C
Place a multimeter set to DC Volts across DC power supply (32b) output connector SK2 pins 2 (+5 VDC) and 5 (common).
The meter reads +5 VDC.

Y N
| • Place an AC voltmeter across SK1 pins 1 and 3.
The meter reads 115 VAC.

Y N
| • Check continuity between fuse F1 and SK1 pin 1.
| • Replace the DC power Supply (32b) (**REP 36**) (**PL 2.2**).

Place a multimeter set to DC Volts across DC power supply (32b) output connector SK2 pins 1 (+15 VDC) and 5 (common).
The meter reads +15 VDC.

Y N
| • Replace the DC power Supply (32b) (**REP 36**) (**PL 2.2**).

Place a multimeter set to DC Volts across DC power supply (32b) output connector SK2 pins 6 (-15 VDC) and 5 (common).
The meter reads -15 VDC.

Y N
| • Replace the DC power Supply (32b) (**REP 36**) (**PL 2.2**).

The I/O Board (28) power LED's are lit.

Y N
Place a multimeter set to DC Volts across DC power supply (32a) output connector SK2 terminals 5 (common) and 2 (+5 VDC).
The meter reads +5 VDC.

Y N
| • Replace the DC power Supply (32a) (**REP 36**) (**PL 2.2**).

Place a multimeter set to DC Volts across DC power supply (32a) output connector SK2 terminals 5 (common) and 1 (+15 VDC).
The meter reads +15 VDC.

Y N
| • Replace the DC power Supply (32a) (**REP 36**) (**PL 2.2**).

Place a multimeter set to DC Volts across DC power supply (32a) output connector terminals 5 (common) and 6 (-15 VDC).
The meter reads -15 VDC.

Y N
| • Replace the DC power Supply (32a) (**REP 36**) (**PL 2.2**).

Place a multimeter set to DC volts across terminals A-1 and A-2 of the contactor (41).
The meter reads approximately +12 VDC.

Y N
| • Repair the wiring between TB1-20 (42) and the contactor (41).

Loosen three screws securing the cutter control panel and lift the cutter control panel to disconnect P23 from J23.

Place a multimeter set to Ohms across P23 pins 1 and 2.
The meter indicates continuity.

Y N
Check continuity across pins 1 and 2 of the E-Stop switch (15) when the E-Stop switch is in the raised position.
Continuity exists.

Y N
| • Replace the E-Stop switch (15) (**REP 37.1**)(**PL 2.1**).
| • Repair the wiring between connector J23 and terminal block TB1(42).

Press the Enable switch (14).

The Enable switch illuminates (may require a 10 second wait after power is turned on to be illuminated steady). With the cutter offline and print registration off, the cutter's margin trimmer motor turns on (audible noise).

Y N
• Check fuse F4 at TB2-21.
Place a multimeter set to AC volts across TB2-13 and pin 2 of SSR1 (30).
The meter reads 115 VAC.

Y N
| • Repair wiring between TB2-21 and SSR1 (30) pin 2.

Place a multimeter set to DC Volts across SSR1 (30) pins 3(+) & 4(-).
The meter reads +5 VDC.

Y N
Place a meter set to DC volts across connector J310 on the I/O board (28) pins 5 (+) and 6 (-).
The meter reads +5 VDC.

Y N
| • Replace the I/O board (28)(**REP 36**)(**PL 2.2**).
| • Check wiring between SSR1 (30) and I/O board (28).
| • Replace SSR1 (30)(**REP 36**)(**PL 2.2**).

• Check that margin trimmer motor (20) connector (J20/P20) is connected.

Turn off power to the cutter and unplug the power cord (51).
Place a multimeter set to Ohms across P20 pin 1 and P20 pin 3 to the trimmer motor (20).
The meter reads approximately 5.4 Ohms.

Y N
| • Replace the motor start capacitor (19)(**REP 41**)(**PL 1.8**).

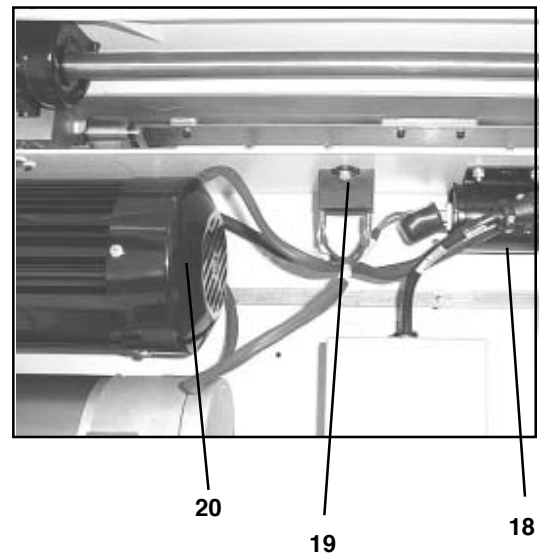
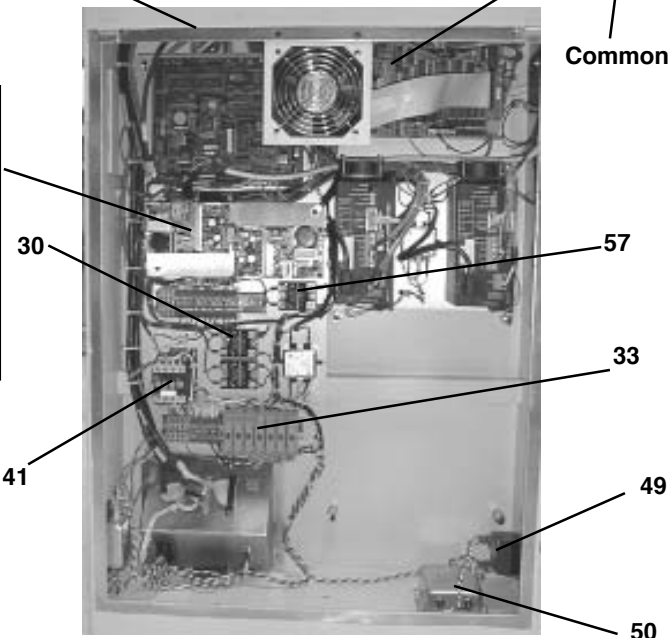
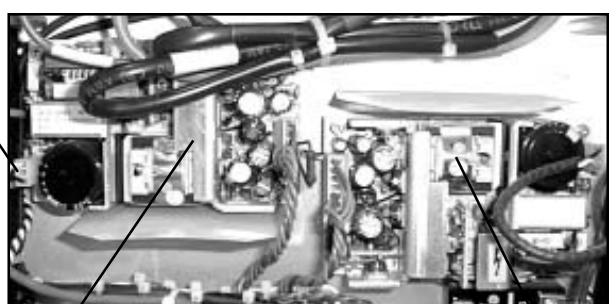
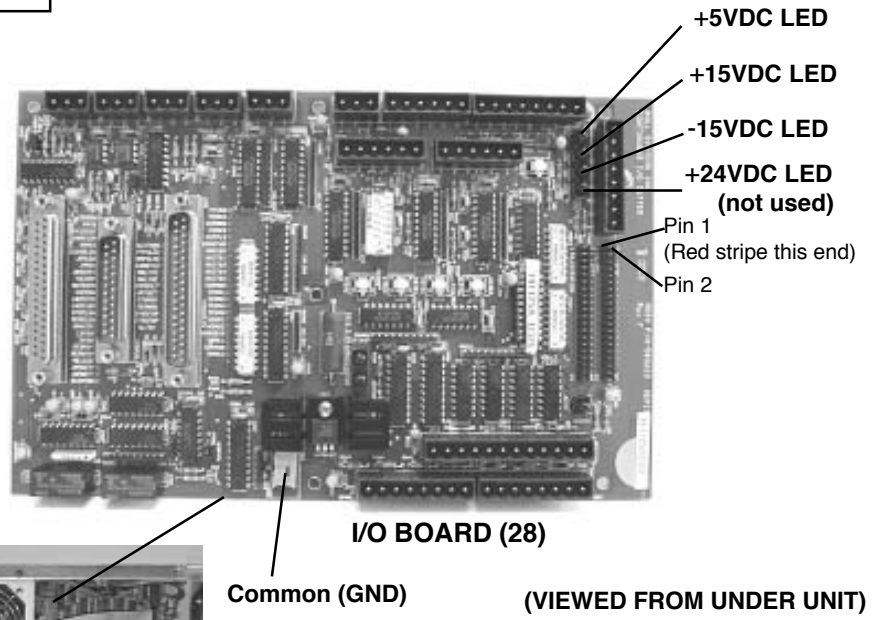
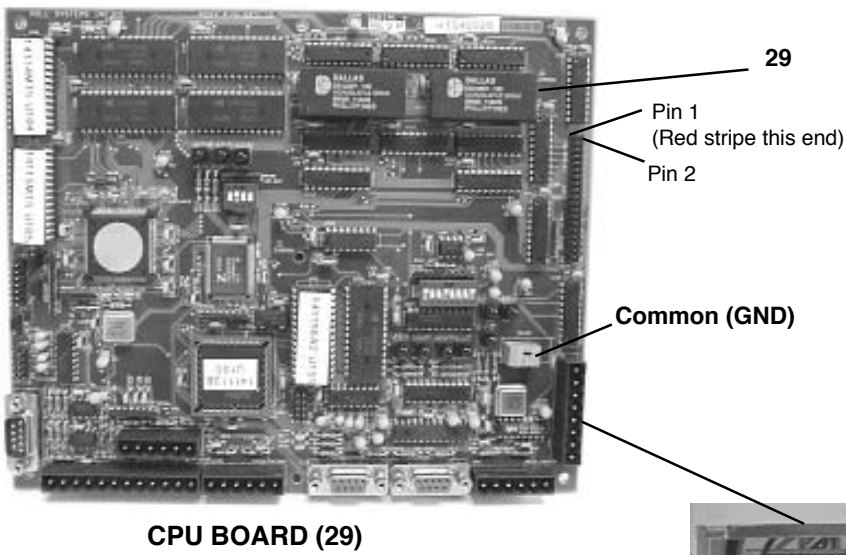
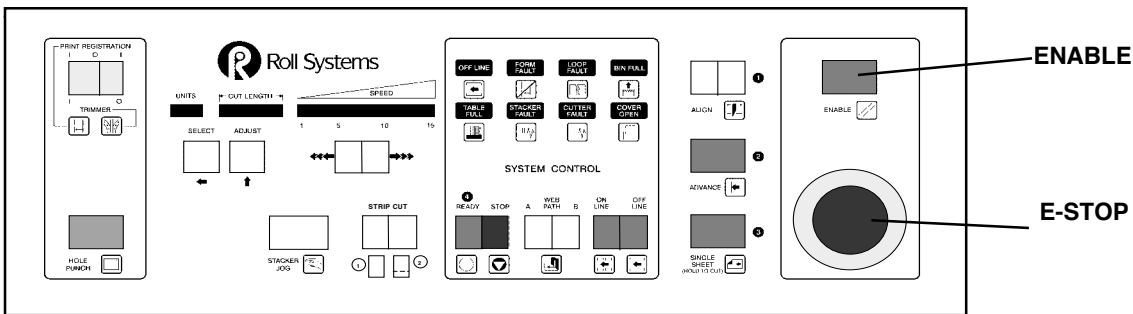
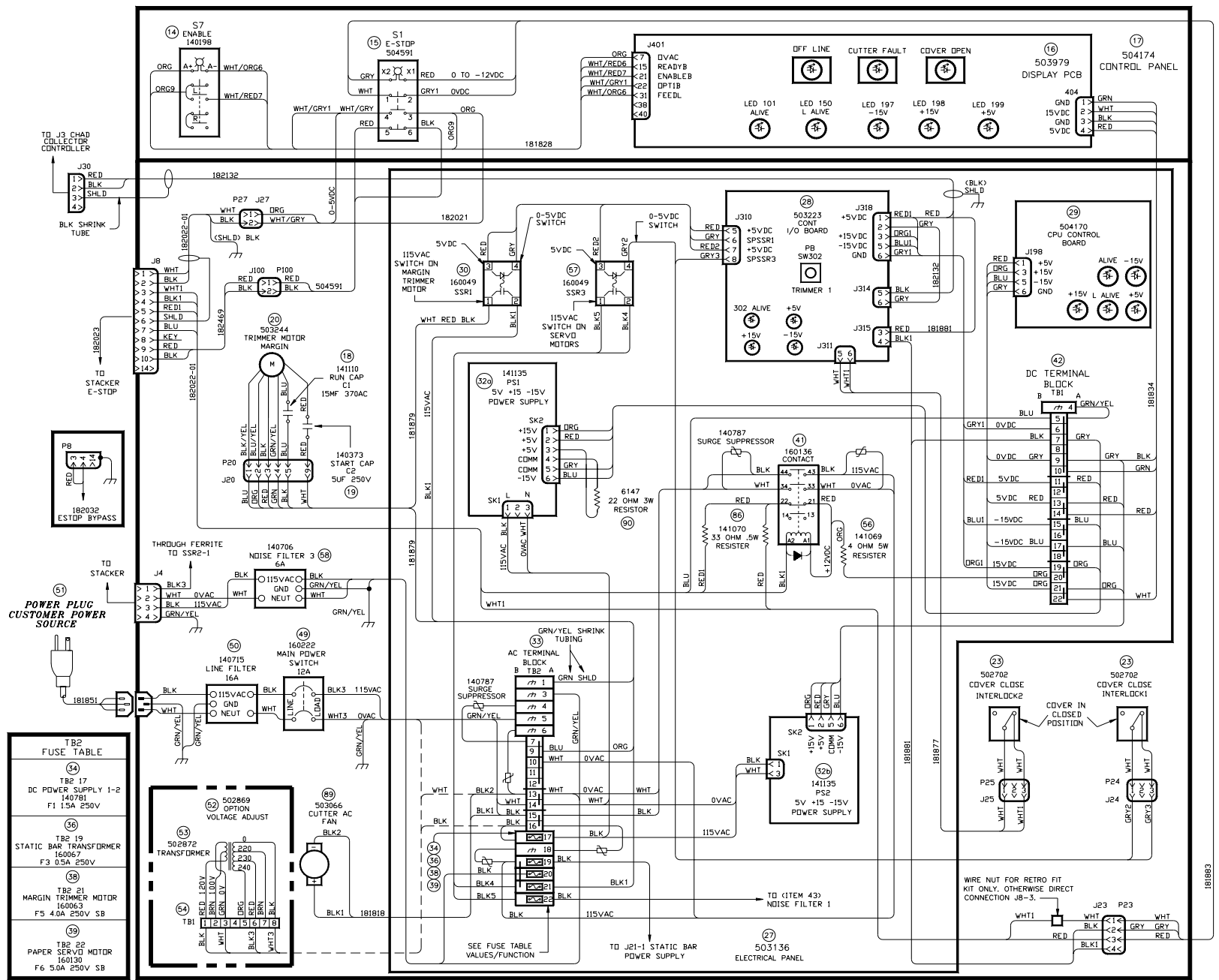
Place a multimeter set to Ohms across P20 pin 2 and P20 pin 5 to the trimmer motor (20). The meter reads approximately 4.3 ohms initially, then rises as cap is charged.

Y N
| • Replace the motor run capacitor (18)(**REP 42**)(**PL 1.8**).
| • Replace the trimmer motor (20) (**REP 21**)(**PL 1.8**).

The problem is resolved.

Y N
| **Go to SFA diagram.**

Go to System Checkout, Section 1.







RAP 2.0 - Cutter Diagnostics

Theory of Operation

The CPU and I/O boards in the cutter monitor and control the paper and knife drive servo amplifiers and also control the operator panel switch functions. When a servo amplifier system fault condition is detected, the operator is notified of that condition by the lighting of the cutter fault light on the control panel.

Details of Operation

- There are nine error conditions which can be displayed when the Ready switch is pressed after the **CUTTER FAULT** light is lit.
- If more than one error condition exists, the highest error code number will be displayed first. Press the Ready switch a second time to display each successive error code in the units and speed display windows on the operator control panel.
- An 8-position DIP switch on the CPU board is used to assist in adjusting servo system setup.
- This RAP serves as a pointer to other RAPs that will direct the service person to procedures to correct the indicated error.
- The top cover open removes power from the servo motors. This may cause 00-03 errors.

Procedure

The cutter does not operate normally and the cutter fault light on.

Y N

Go to Power-Up RAP 1 (RAP 5 for non-domestic power source)

Press the ready switch to display the error code. If an error condition has been corrected and the cutter fault light remains on or is turned on again, a second error may exist. Press the ready switch to display the next error. Proceed to the RAP listed below:

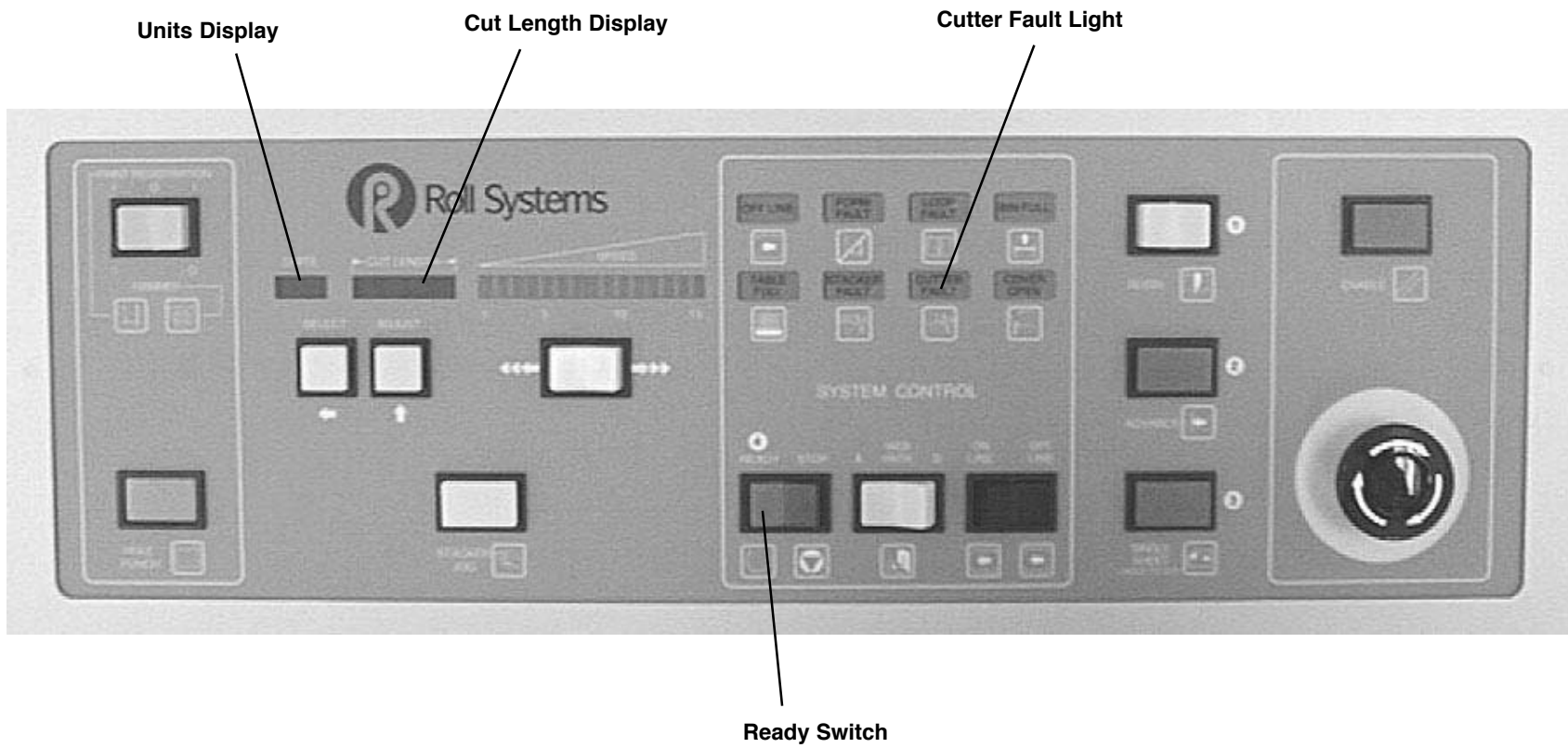
- Error Code 00 go to RAP 2.1
- Error Code 01 go to RAP 2.2
- Error Code 02 go to RAP 2.3
- Error Code 03 go to RAP 2.4
- Error Code 04 go to RAP 2.5
- Error Code 05 go to RAP 2.6
- Error Code 06 go to RAP 2.7
- Error Code 07 go to RAP 2.8
- Error Code 08 go to RAP 2.9

Problem is resolved.

Y N

Go to SFA diagram, Page 2-2.

Go to System Checkout, Section 1.



OPERATOR CONTROL PANEL

When the cutter fault light is lit, press and hold the ready button to display the error code value. The cut length display will indicate the error code number. Release the ready button then press and hold the ready button again for multiple errors.

NOTE: There may not always be an error code value for all cutter faults.

Cut Length Display	Definition	Cut Length Display	Definition
00	Error Code 00 Knife drive servo error. A bad status was received from the knife servo amplifier. This problem could be an amplifier problem or a motor problem.	06	Error Code 06 Run Time Home Sensor Position Error. This is the same as Error Code 4 except that it occurs when the system is running instead of initial turn-on.
01	Error Code 01 Knife drive servo motor position error.	07	Error Code 07 Cutter Internal Jam. The software has instructed the paper drive servo amplifier to stop driving paper because the paper jam sensor has detected something in its light path.
02	Error Code 02 Paper drive servo error. A bad status was received from the paper servo amplifier. This problem could be an amplifier problem or a motor problem.	08	Error Code 08 Page Size Error. Software has detected a longer time than is allowed from the time the paper drive motor stops and the knife motor begins its cut. This could be a paper servo amplifier adjustment or too much drag on the paper.
03	Error Code 03 Paper drive servo motor position.		
04	Error Code 04 Knife home position error. At initial turn-on of the system, the knife servo moves the knife drive shaft back and forth until it finds its home position. If it is unable to find the home position or if it takes too much time to find the home position, Error Code 4 will be displayed.		
05	Error Code 05 Servo motor power is forced down because either the top cover has been opened or SSR3 (57) opens under software control.		





RAP 2.1 Error Code 00 - Knife Drive Servo Error

Theory of Operation

The knife drive servo motor power is supplied by the knife servo amplifier (47) which receives its control signals from the CPU Control Board (29). The servo controlled DC motor (48) drives the upper knife blade through a driveshaft and eccentric linkage. If error code 00 is displayed, a bad status was received from the knife servo amplifier. This problem could be an amplifier problem or a motor problem.

Details of Operation

- Feedback to the control software is achieved by monitoring the integral encoder of the DC knife drive motor. The encoder is part of the servo motor and is not a serviceable item.
- The servo amplifier is powered by 115 VAC.
- The fuse at TB2-23 (33) protects the knife drive servo amplifier.

Initial Actions

Place the main power switch to off and detach the power cord to verify the following:

- Remove the knife drive cover (REP 7) and rotate the knife driveshaft by hand to check for mechanical binding. Check the knife mechanical linkage for binding and correct by adjustment (ADJ 5) or replacement of the linkage (REP 6).
- Check the knife drive belt (ADJ 6) and upper blade lubrication (Section 6).
- The infeed brush is properly tensioned.
- Check fuse continuity of F7 (40) at TB2-23 (33). Replace if open. (REP 36).
- Check that top cover magnets meet.

Procedure

WARNING

115 VAC is present in the control cabinet. Perform all continuity checks with the power cord detached from the Continuous Cutter.

Connect the power cord. Place the cutter in offline mode by pressing the offline switch. Turn on the main power switch and wait up to 10 seconds until the cutter fault light goes out. Press the Enable switch (14). Press Ready.

Error Code 00 is displayed.

N Y

Remove the electrical panel cover using a 4 mm hex key to unlock the latch at the bottom and lift the cover.

The knife servo amplifier (47) power LED is lit (green).

NOTE: If both the knife servo amplifier (47) and the paper servo amplifier (44) power LEDs are not lit, proceed to SSR3 checkout later in this RAP.

Y N

Remove the AC cord at the knife servo amplifier (47) and place a multimeter set to AC volts across the live and neutral sockets of the cord.

The meter reads 115 VAC.

Y N

Place a multimeter set to AC Volts across noise filter 2 (46) "LOAD" side (brown and blue wires).

The meter reads 115 VAC.

Y N

Place a multimeter set to AC Volts across noise filter 2 (46) "LINE" side (white and black wires).

The meter reads 115 VAC.

Y N

- Check for an open white wire between TB2-12 and the right side of noise filter 2 (46) "LINE".
- Check for an open black wire between TB2-23 and the left side of noise filter 2 (46) "LINE".
- Recheck fuse F7 for continuity at TB2-23

Replace noise filter 2 (46). (REP 36)(PL 2.2)

Repair or replace the AC cord from the noise filter to the knife servo amplifier.

Replace the knife servo amplifier (47). (REP 36)(PL 2.2)(ADJ 15)

On the CPU PCB switch 101, turn DIP switch 1 off first then turn DIP switches 2 through 6 on and then turn DIP switch 1 back on.

The knife cycles continuously

Y N

- Check seating of all connectors on knife servo amplifier.
- Go to servo amplifier/servo motor fault isolation RAP 6.0

Perform knife servo adjustment (ADJ 15)

The knife servo adjustment was successful

Y N

Go to servo amplifier/servo motor fault isolation RAP 6.0

- Replace CPU (29) (REP 36) (REP 36.1) (ADJ 19) (PL 2.2)

Return to SFA diagram, Section 2

Return to System Checkout, Section 1

SSR3 Checkout

Both the knife drive servo amplifier (47) and the paper drive servo amplifier (44) power LEDs are lit (green).

N

Place a multimeter set to AC Volts between SSR3 (57) terminal 2 and TB2-12.

The meter reads 115 VAC

Y N

Go to Power Up RAP 1.

Place a multimeter set to AC Volts between SSR3 (57) terminal 1 and TB2-12.

The meter reads 115 VAC

Y N

Place a multimeter set to DC Volts across SSR3 (57) terminal 3 (+) and terminal 4 (-).

The meter reads approximately +4.27 VDC

Y N

Place a multimeter set to DC Volts between SSR3 terminal 3 (+) and TB300 (ground) on the I/O board.

The meter reads + 5VDC

Y N

- Check continuity between SSR3 terminal 3 and J310-7 on I/O board (28).
- Replace I/O board (28). (REP 36)(ADJ 19)(PL 2.2)

Check continuity between SSR3 terminal 4 and J310-8

There is continuity

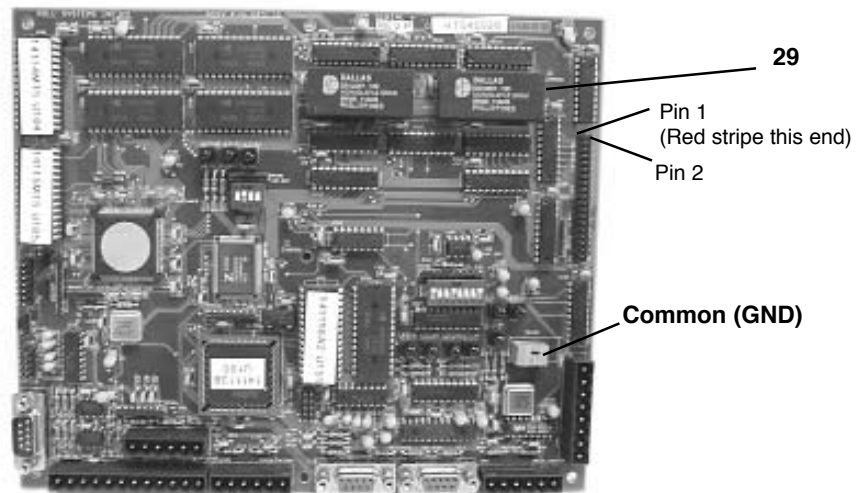
Y N

- Replace cover close interlock 1 (23) (REP 35)(ADJ 11) (PL 2.3)
- Check wiring for loose or broken connections.

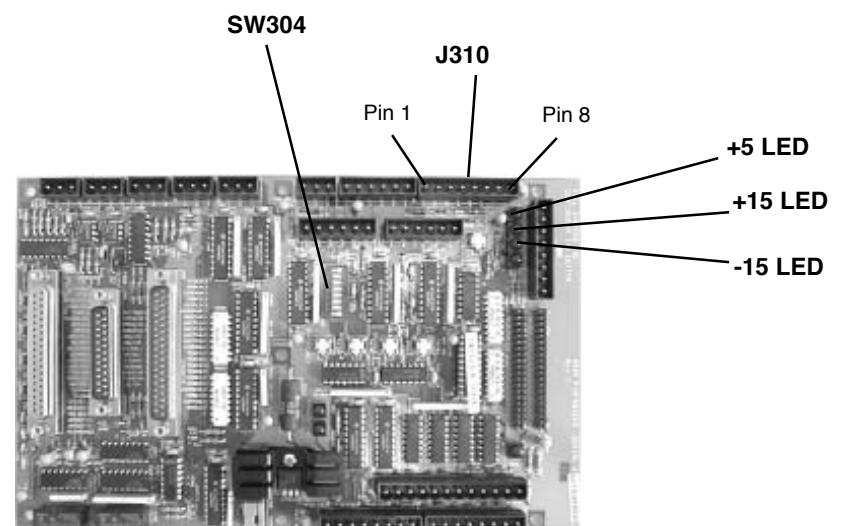
Replace SSR3 (57) (REP 36) (PL 2.2)

Go to SFA diagram, Section 2

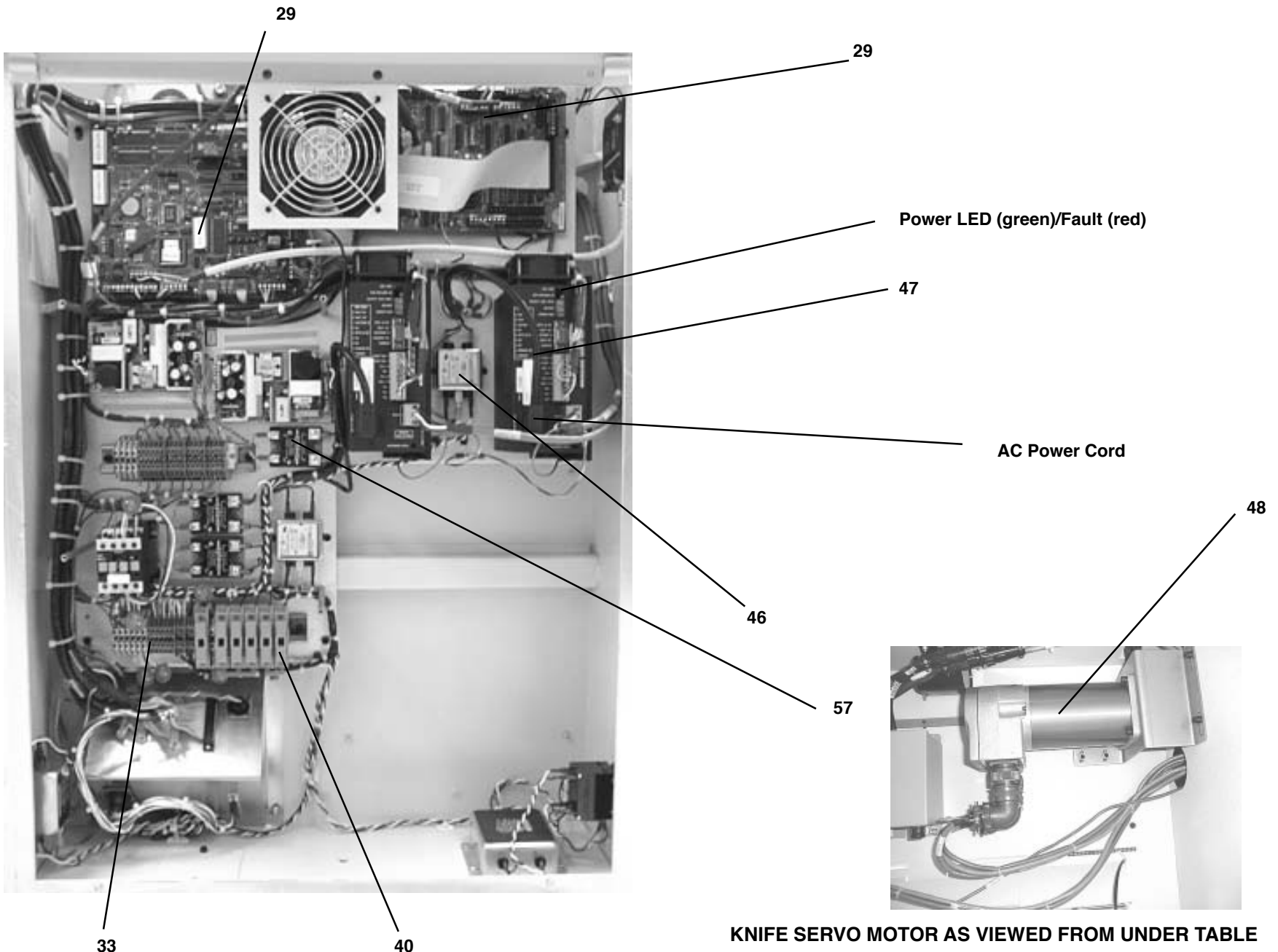
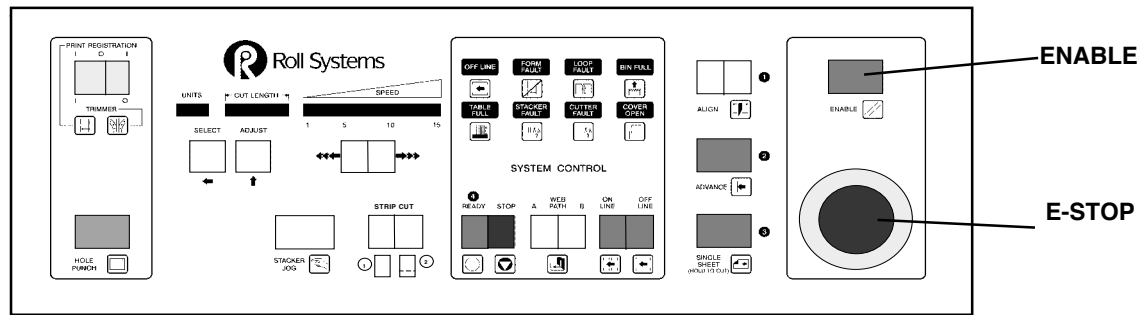
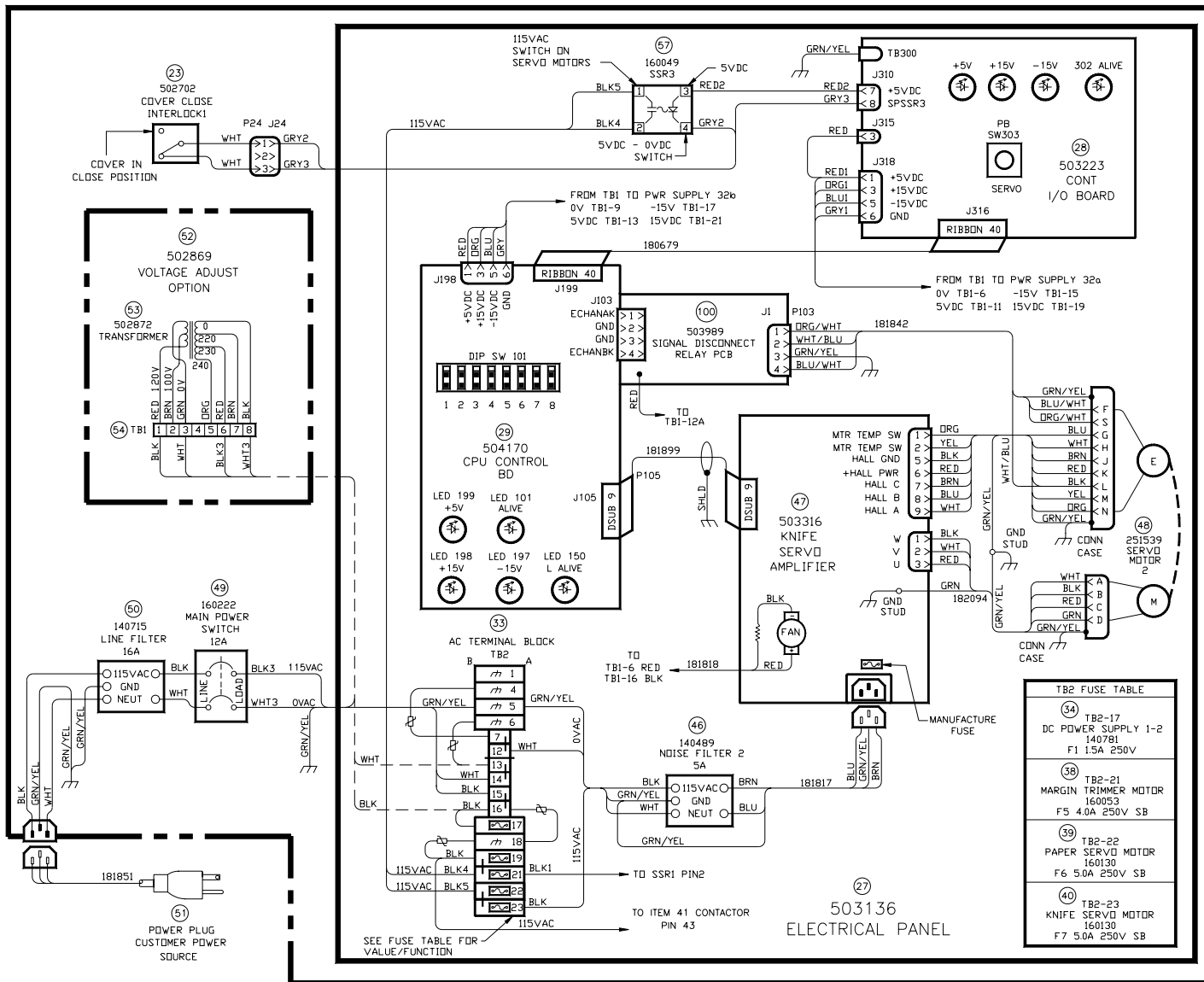
Go to System Checkout, Section 1



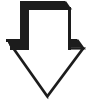
CPU BOARD (29)



I/O PCB



KNIFE SERVO MOTOR AS VIEWED FROM UNDER TABLE





RAP 2.2 Error Code 01 - Knife Drive Servo Motor Position Error

Theory of Operation

The knife DC motor power is supplied by a servo amplifier (controllable power supply) which receives its control signals from the CPU board. The DC motor drives the knife upper blade via a timing belt to a driveshaft with an eccentric linkage. When error code 01 is displayed, it indicates that an out of limits position error has been detected during the knife cycle.

Details of Operation

- An encoder wheel is attached to the motor to provide position feedback to the CPU board.
- The servo amplifier is powered by 115 VAC.
- Fuse F7 (40) at TB2-23 (33) protects the knife servo amplifier.

Initial Action

Verify the following:

- The knife upper blade has been properly lubricated. See Section 6, **Operator Maintenance**.
- The knife upper blade is not obstructed with paper debris.
- With power off, the knife upper blade can be moved by turning the knife driveshaft.
- Check fuse F7 (40) at TB2-23 (33).

Procedure

WARNING

115 VAC is present in the control cabinet. Perform all continuity checks with the power cord detached from the Continuous Cutter.

Place the cutter in offline mode by pressing the offline switch (9). Turn on the main power switch (49) and wait until the cutter fault light is out. Press the enable switch (14) after 10 seconds. Press the single sheet (13) switch.

The knife blade cuts the web.

Y N

Turn off power and turn it back on again in offline mode.
Wait approximately ten seconds, or until pressing the enable switch (14) lights the enable switch (14).

The cutter fault light is out (not illuminated).

Y N

Press the ready switch (7).

Error code 1 is displayed.

Y N

Go to **RAP 2.0 Cutter Diagnostics**.

Check fuse F7 (40) at TB2-23 (33).

- Perform the cutter knife servo adjustment (**ADJ 15**).

Adjustment was successful.

Y N

- Go to **RAP 2.1 Error Code 00**.

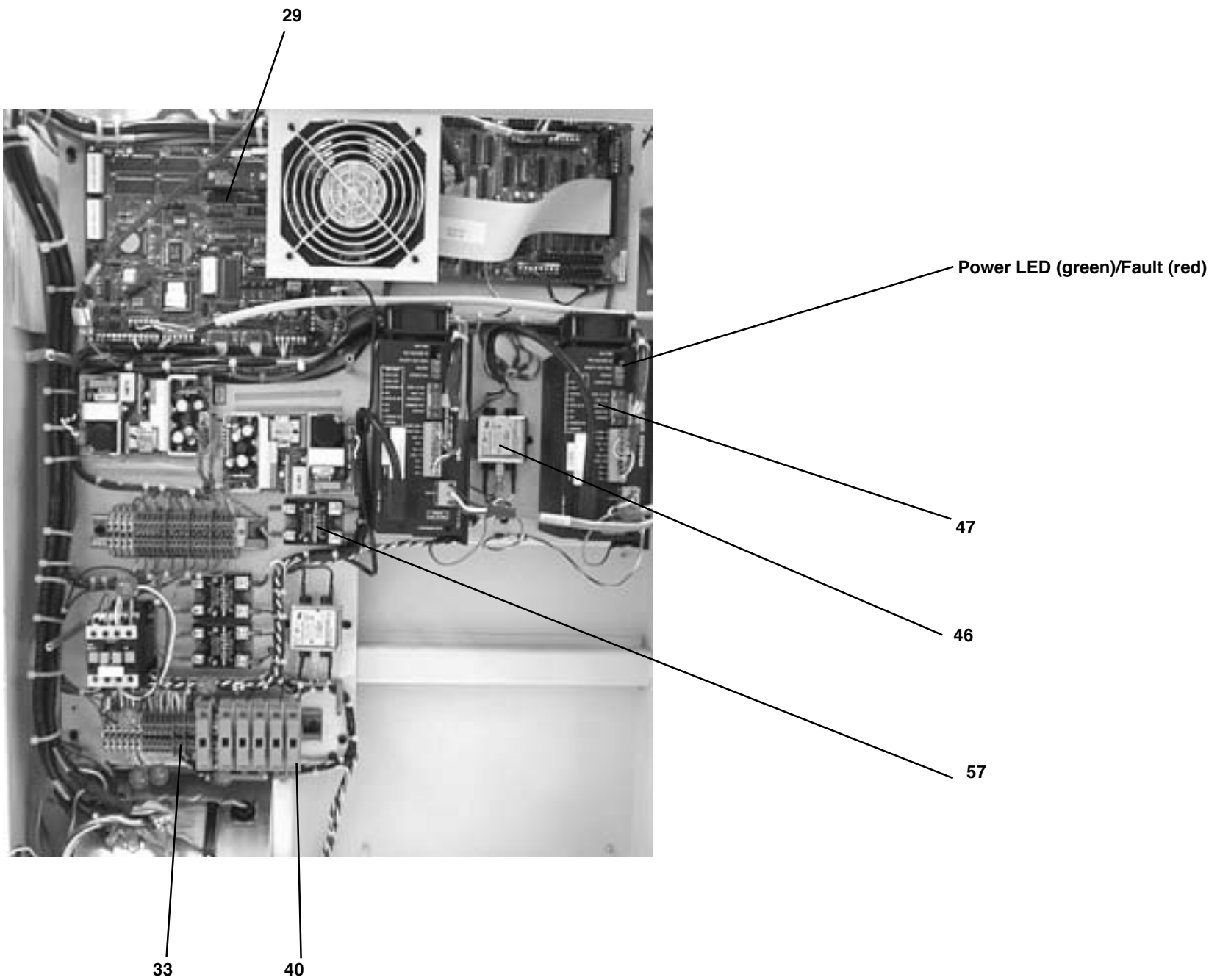
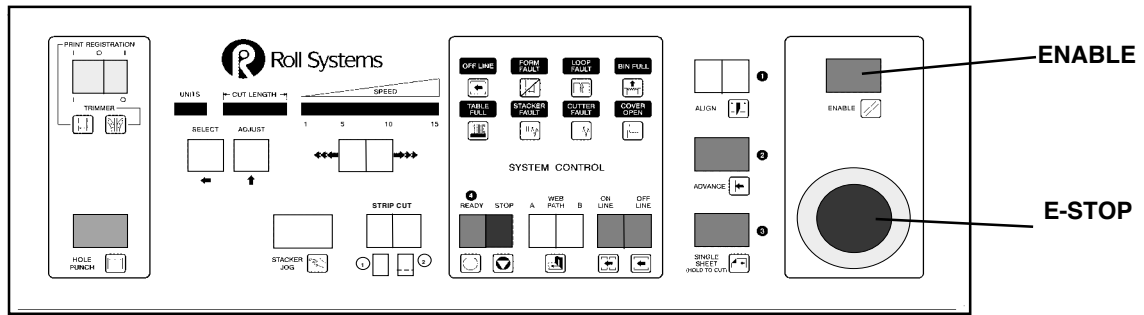
- Verify upper and lower knife adjustments (**ADJ 4** and **ADJ 5**).
- Continue job and monitor closely for 5-10 minutes.
- **Go to System Checkout in Section 1.**

Problem is resolved.

Y N

- Go to **SFA Diagram, Section 2**.

Go to System Checkout, Section 1.







RAP 2.3 Error Code 02 - Paper Drive Servo Error

Theory of Operation

The paper drive servo motor power is supplied by the paper servo amplifier (44) which receives its control signals from the CPU Control Board (29). The servo controlled DC motor (45) drives the pinless paper rollers and/or tractors. If error code 02 is displayed, a bad status was received from the paper servo amplifier. This problem could be an amplifier problem or a motor problem.

Details of Operation

- Feedback to the control software is achieved by monitoring the integral encoder of the DC paper drive motor. The encoder is part of the servo motor and is not a serviceable item.
- The servo amplifier is powered by 115 VAC.
- The fuse (39) at TB2-22 (33) protects the paper drive servo amplifier.

Initial Actions

Place the main power switch to off and detach the power cord to verify the following:

- The web is correctly threaded.
- The infeed brush is properly tensioned.
- The edge guides are flush against the web.
- The top cover is closed (magnets meet) and the E-Stop switch (15) is raised.
- Check fuse F6 (39) at TB2-22 (33).

Procedure

WARNING

115 VAC is present in the control cabinet. Perform all continuity checks with the power cord detached from the Continuous Cutter.

Connect the power cord. Place the cutter in offline mode by pressing the offline switch. Turn on the main power switch and wait up to 10 seconds until the cutter fault light goes out. Press the Enable switch (14). Press Ready.

Error Code 02 is displayed.

N Y

Remove the electrical panel cover using a 4 mm hex key to unlock the latch at the bottom and lift the cover.

The paper servo amplifier (44) power LED is lit (green).

NOTE: If both the knife servo amplifier (44) and the paper servo amplifier (44) power LEDs are not lit, proceed to SSR3 checkout later in this RAP.

Y N

Remove the AC cord at the paper servo amplifier (44) and place a multimeter set to AC volts across the live and neutral sockets of the cord.

The meter reads 115 VAC.

Y N

Place a multimeter set to AC Volts across noise filter 1 (43) "LOAD" side (brown and blue wires).

The meter reads 115 VAC.

Y N

Place a multimeter set to AC Volts across noise filter 1 (43) "LINE" side (white and black wires).

The meter reads 115 VAC.

Y N

- Check for an open white wire between TB2-12 and the right side of noise filter 1 (43) "LINE".
- Check for an open black wire between TB2-22 and the left side of noise filter 1 (43) "LINE".
- Re-check fuse F6 for continuity at TB2-22

Replace noise filter 1 (43). **(REP 36)(PL 2.2)**

Repair or replace the AC cord from the noise filter to the paper servo amplifier.

Replace the paper servo amplifier (44). **(REP 36)(PL 2.2)(ADJ 16)**

On the CPU PCB switch 101, turn DIP switch 1 off first then turn DIP switches 2 through 7 on and then turn DIP switch 1 back on.

The paper oscillates back and forth continuously

Y N

- Check seating of all connectors on paper servo amplifier.
- Go to servo amplifier/servo motor fault isolation **RAP 6.0**

Perform paper servo adjustment **(ADJ 16)**

The paper servo adjustment was successful

Y N

Go to servo amplifier/servo motor fault isolation **RAP 6.0**

- Replace CPU (29) **(REP 35) (REP 35.1) (ADJ 19) (PL 2.2)**

Return to SFA diagram, Section 2

Return to System Checkout, Section 1

SSR3 Checkout

Both the knife drive servo amplifier (47) and the paper drive servo amplifier (44) power LEDs are lit (green).

Y N

Place a multimeter set to AC Volts between SSR3 (57) terminal 2 and TB2-12.

The meter reads 115 VAC

Y N

Go to Power Up **RAP 1.**

Place a multimeter set to AC Volts between SSR3 (57) terminal 1 and TB2-12.

The meter reads 115 VAC

Y N

Place a multimeter set to DC Volts across SSR3 (57) terminal 3 (+) and terminal 4 (-).

The meter reads approximately +4.27 VDC

Y N

Place a multimeter set to DC Volts between SSR3 terminal 3 (+) and TB300 (ground) on the I/O board.

The meter reads +5VDC

Y N

- Check continuity between SSR3 terminal 3 and J310-7 on I/O board (28).
- Replace I/O board (28). **(REP 36)(ADJ 20)(PL 2.2)**

Check continuity between SSR3 terminal 4 and J310-8

There is continuity

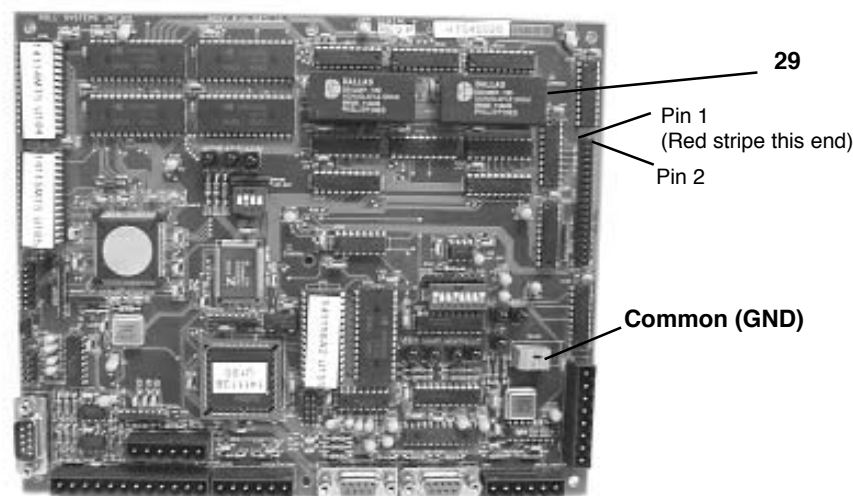
Y N

- Replace cover close interlock 1 (23) **(REP 35)(ADJ 12) (PL 2.3)**
- Check wiring for loose or broken connections.

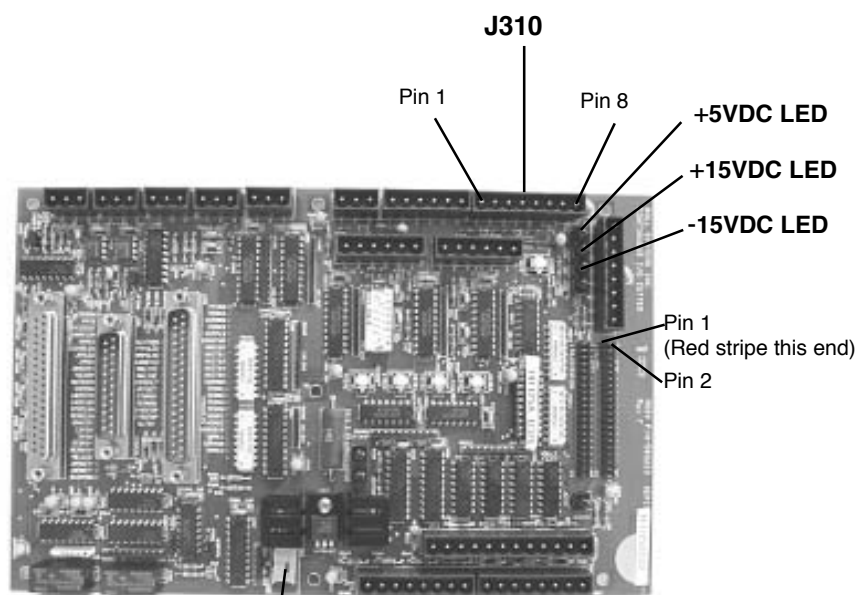
Replace SSR3 (57) **(REP 36) (PL 2.2)**

Go to SFA diagram, Section 2

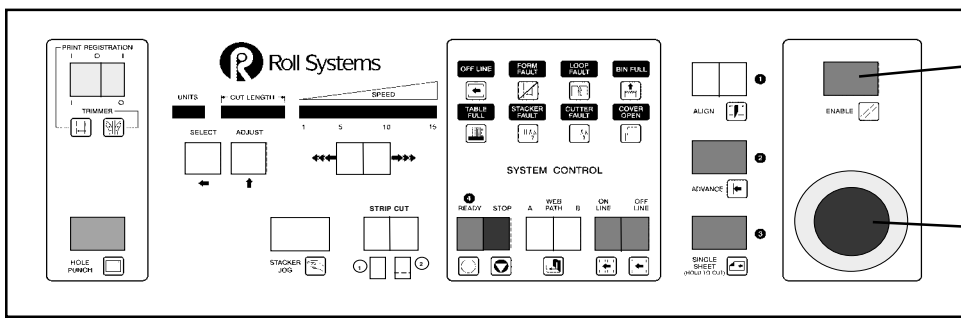
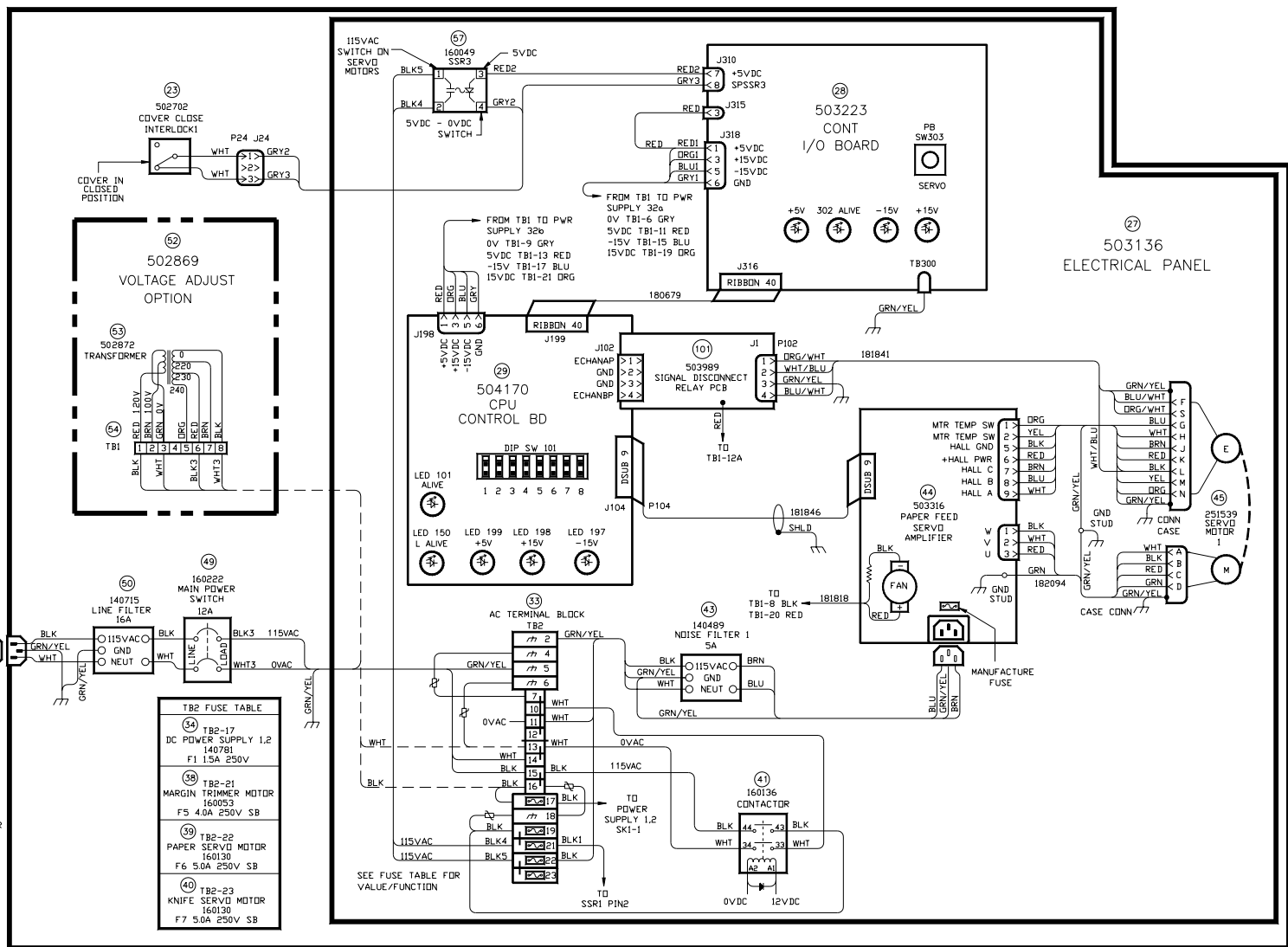
Go to System Checkout, Section 1



CPU BOARD (29)

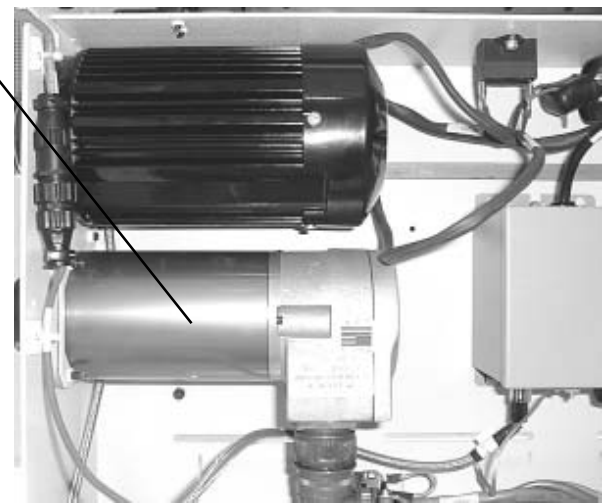


I/O BOARD (28)

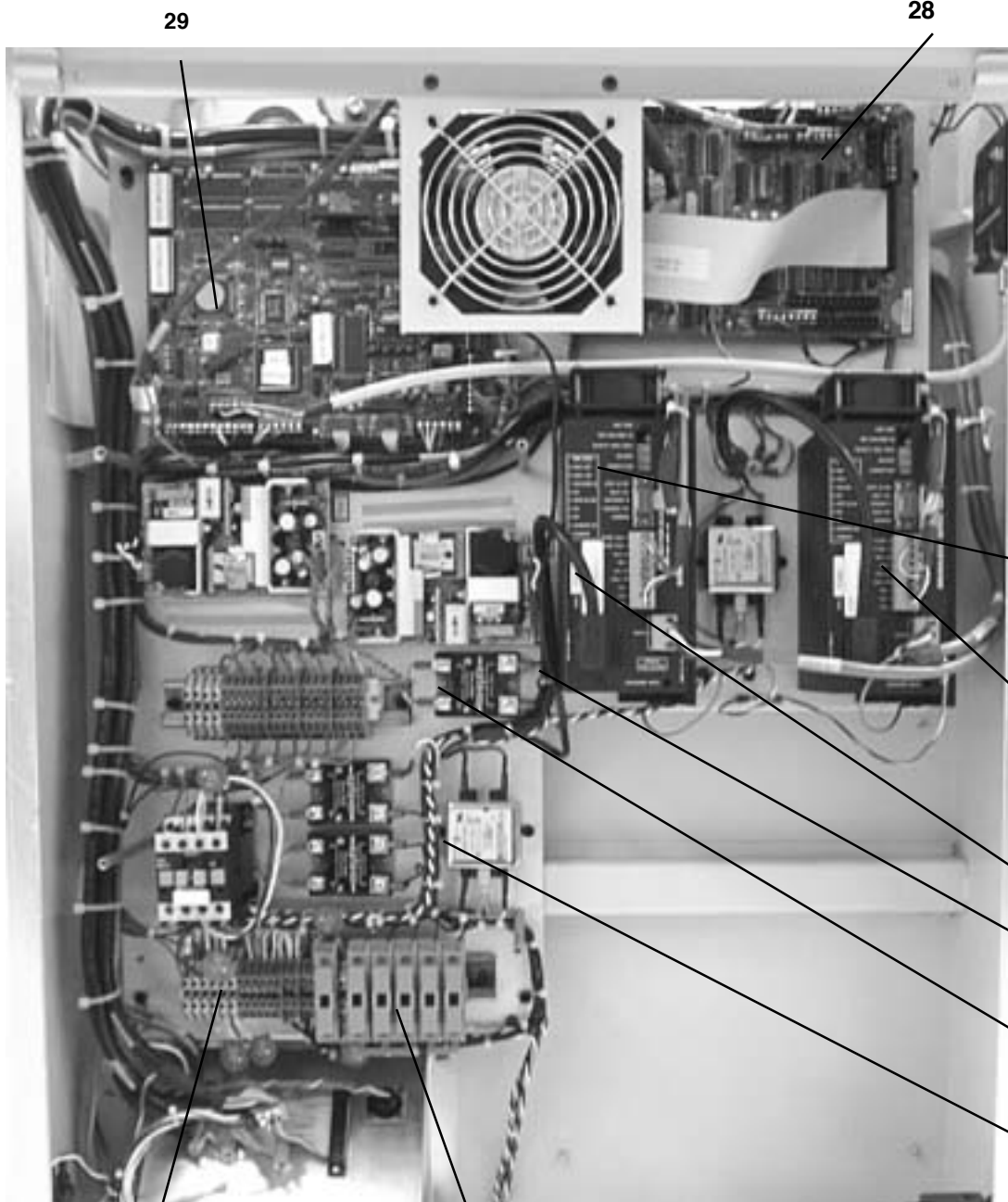


ENABLE

E-STOP 45



PAPER SERVO MOTOR AS VIEWED FROM UNDER TABLE



Power LED (green)/Fault (red)

47

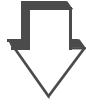
AC Power Cord

57

43

33

39





RAP 2.4 - Error Code 03 - Paper Servo Position Error

Theory of Operation

The DC motor power is supplied by a servo amplifier (44) (controllable power supply) which receives its control signals from the CPU board (29). The DC motor (45) drives the pinless paper feed rollers and/or tractors. When error code 3 is displayed, it indicates that a position error has been detected and is out of limits during the paper feed cycle.

Details of Operation

- An encoder wheel is attached to the paper drive servo motor (45) to provide position feedback to the CPU board.
- The paper servo amplifier (44) is powered by 115 VAC.
- Fuse F6 (39) at TB2-22 (33) protects the paper servo amplifier (44).

Initial Action

Verify the following:

- Ensure that the web is correctly threaded.
- Ensure that the infeed brush is correctly adjusted and that the web is just lightly touching the parallel rod edge guides.
- Check fuse F6 (39) at TB2-22 (33).
- Ensure that the E-Stop switch (15) is raised and the cover is closed.

Procedure

WARNING

115 VAC is present in the control cabinet. Perform all continuity checks with the power cord detached from the Continuous Cutter.

Place the cutter in offline mode by pressing the Offline switch (9). Turn on the main power switch (49) and wait until the cutter fault light is out. Press the Enable switch (14) after 10 seconds. Press the single sheet switch (13). The CUTTER FAULT light is out.

The web flows freely into the cutter pinless paper feed rollers or tractors.

Y N

- Adjust the cutter infeed brush (**Operator Information**, Section 6).
- Ensure that the tractors turn freely with no binding and that power is **OFF**.
- Adjust the parallel rod edge guides (**Operator Information**, Section 6).
- Check for, and remove, obstructions or jammed paper along the web path.
- Carefully check the paper path for freedom of web movement, then turn off power and turn it back on again in offline mode.

Wait approximately ten seconds until pressing the enable switch (14) lights the enable lamp.

The CUTTER FAULT light is out (not illuminated).

Y N

Press the ready switch (7).

Error code 3 is displayed.

Y N

Check fuse F6 (39) at TB2-22.

Go to **RAP 2, Cutter Diagnostics**.

- Perform the cutter paper servo amplifier adjustment (**ADJ 16**).

Adjustment was successful.

Y N

- Go to **RAP 2.3, Error Code 2**.

- Continue job and monitor closely for 5-10 minutes.

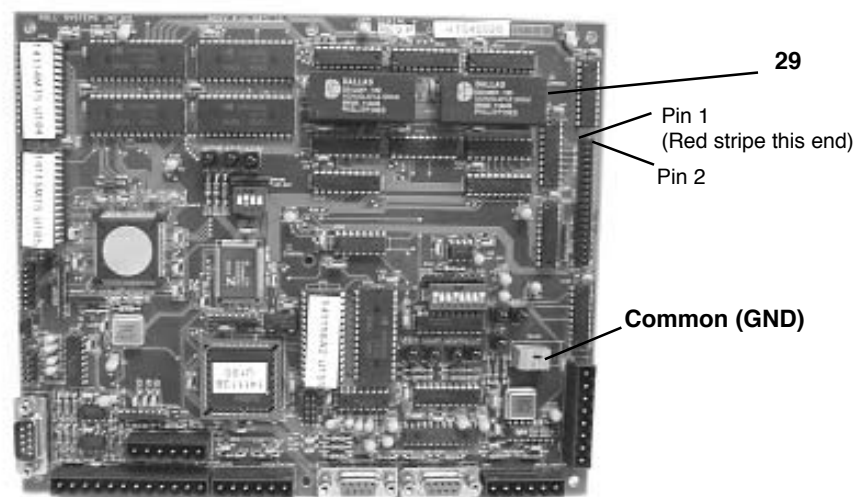
- **Go to System Checkout in Section 1.**

Problem is resolved.

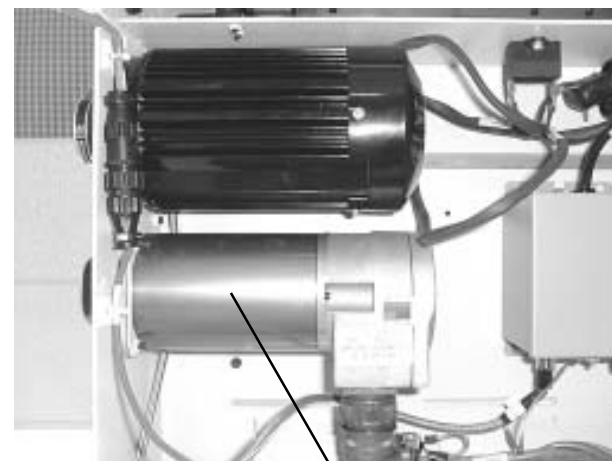
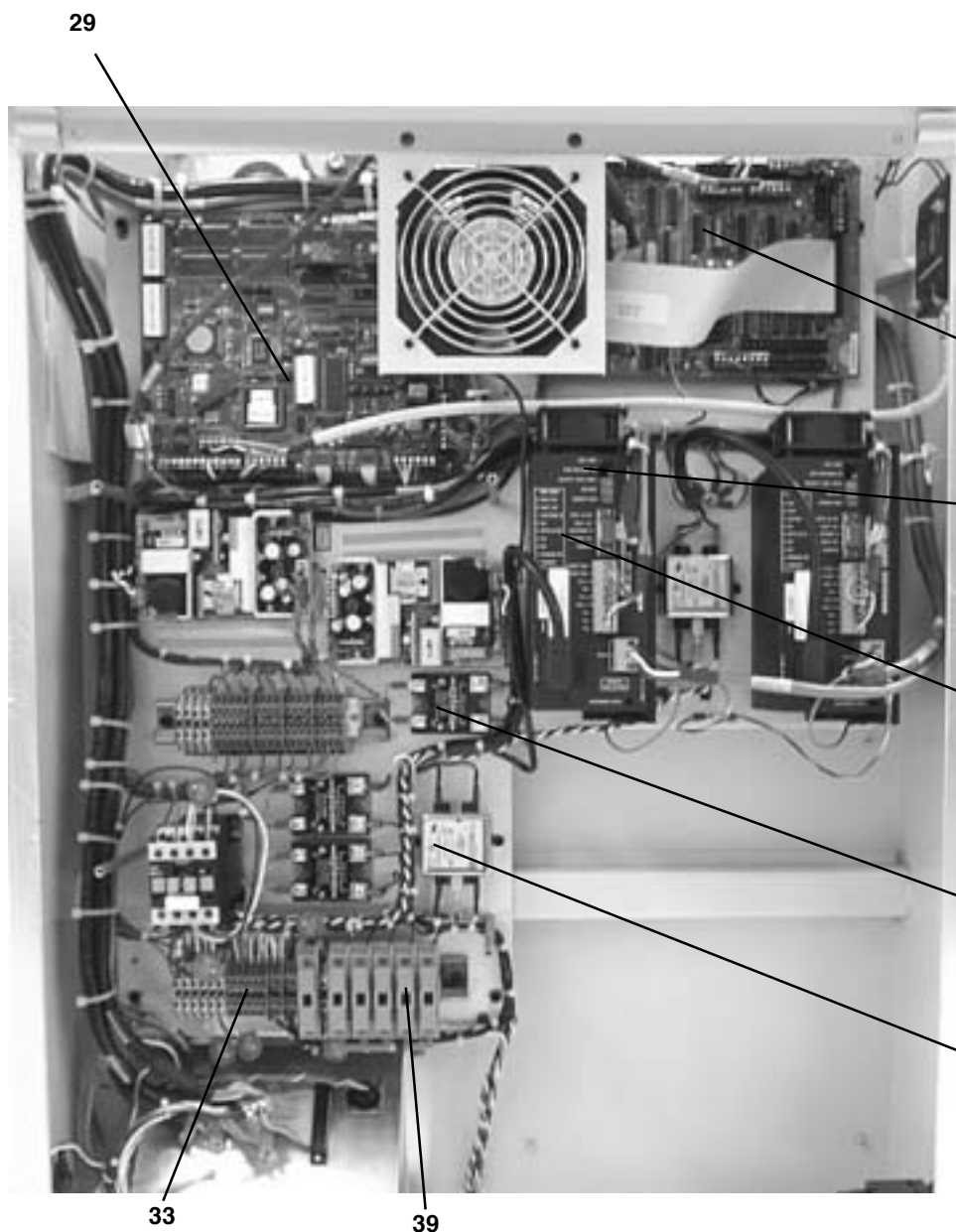
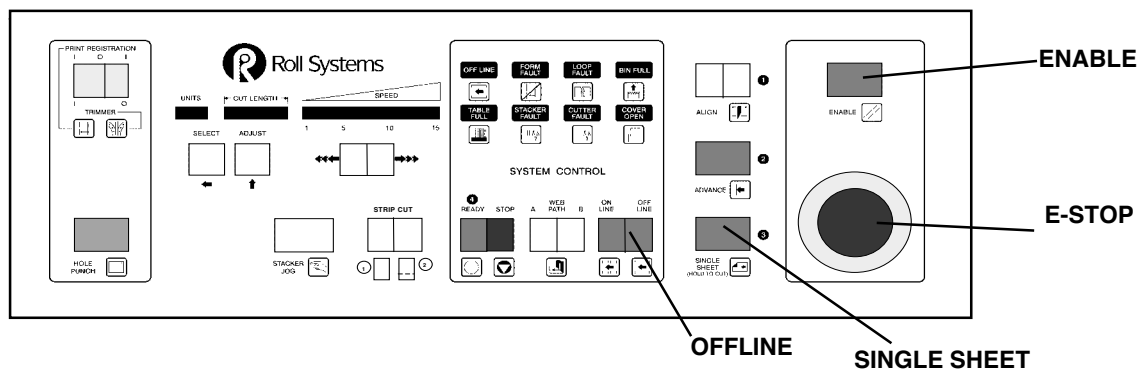
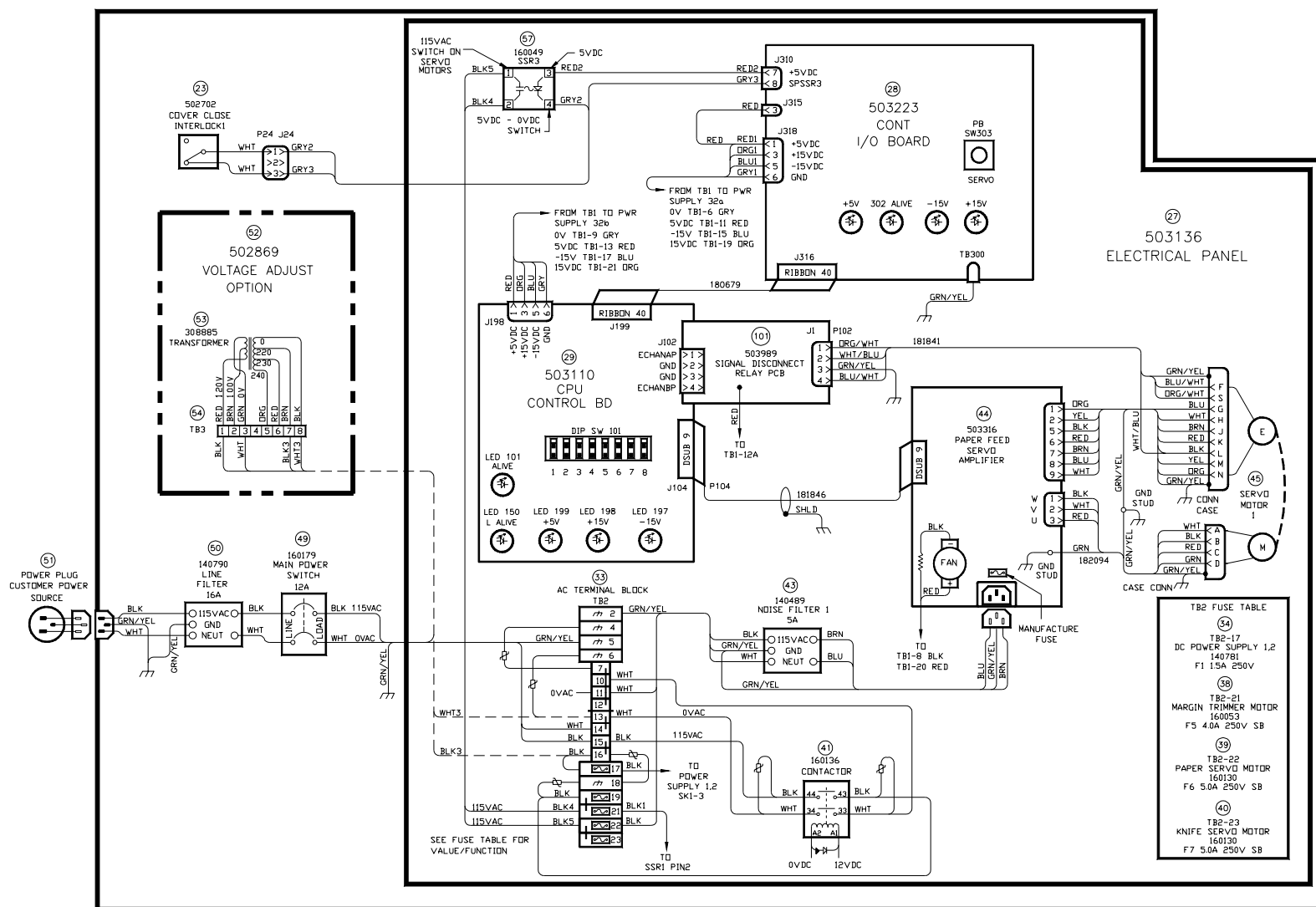
Y N

- **Go to SFA Diagram, Section 2.**

Go to System Checkout, Section 1.



CPU BOARD (29)



Power LED (green)/Fault LED(red)





RAP 2.5 - Error Code 04 - Knife Home Position Error

Theory of Operation

A pin is mounted to the knife driveshaft with a fixed relationship to the upper knife blade's topmost or "home" position. An opto-interruptor is mounted on the knife home sensor PCB (26). This PCB is mounted to the cutter frame directly below the knife driveshaft. When the driveshaft rotates, the pin passes through the opto-interruptor thereby breaking a light beam. The knife is in its home position when the light beam is interrupted. When error code 4 is displayed, it indicates that the home position has not been detected.

Details of Operation

- The home sensor (26) signal is 0 VDC and rises to +5 VDC \pm 1 when the driveshaft pin interrupts the beam.
- The Enable switch (14) will blink while it searches for the home position signal **AT INITIAL POWER-ON ONLY**. The knife driveshaft can be seen rotating back and forth during the seek time.

Initial Action

Place the main power switch to off and detach the power cord to verify the following:

- Check fuse F7 (40) at TB2-23 (33) and replace it if open.
- Ensure that the E-Stop switch (15) is raised and the cover is closed.

Procedure

WARNING

115 VAC is present in the control cabinet. Perform all continuity checks with the power cord detached from the Continuous Cutter.

Place the cutter in offline mode by pressing the Offline switch (9). Turn on the main power switch (49) and wait until the cutter fault light goes out. Press the Enable switch (9) after 10 seconds.

WARNING

Disconnect the AC power cord whenever working near the knife driveshaft. The moving home sensor pin can cause serious personal injury.

The Enable switch (9) blinks, then goes out and the cutter fault light is out.

Y N

- Remove the knife driveshaft cover and check the home sensor (26) for paper debris or damage.
- Check that the driveshaft clamp collar containing the home locating pin is tight.
- Turn the cutter off, manually rotate the knife out of home position, turn the cutter on, and then press the enable switch .

The knife oscillates and finds its home position.

Y N

- Verify that the key is intact in the drive pulley.
- On the CPU board, set DIP switch 101-5 to on and then set DIP switch 101-1 to on. Rotate the knife driveshaft so that the pin blocks the home sensor.

The table full lamp lights.

Y N

Place a multimeter set to DC volts across CPU (29) connector J109, pins 1 (+V) and 3 (COM).

The meter reads +15 VDC.

Y N

Replace the CPU (29) board (**REP 35**)(**PL 2.2**).

Place a multimeter set to DC volts across CPU (29) connector J109, pins 2 (OUT) and 3 (COM).

The meter reads 0 VDC when the beam is not interrupted by the pin.

Y N

- Verify that the cable between the CPU board (29) J109 and the home sensor board (26) at PI is securely plugged in at both ends.
- Check continuity of cable, replace if defective:

J109-1	to	P1-1
J109-2	to	P1-2
J109-3	to	P1-3
- Replace the home sensor board (26) (**REP 31**)(**PL 1.6**).

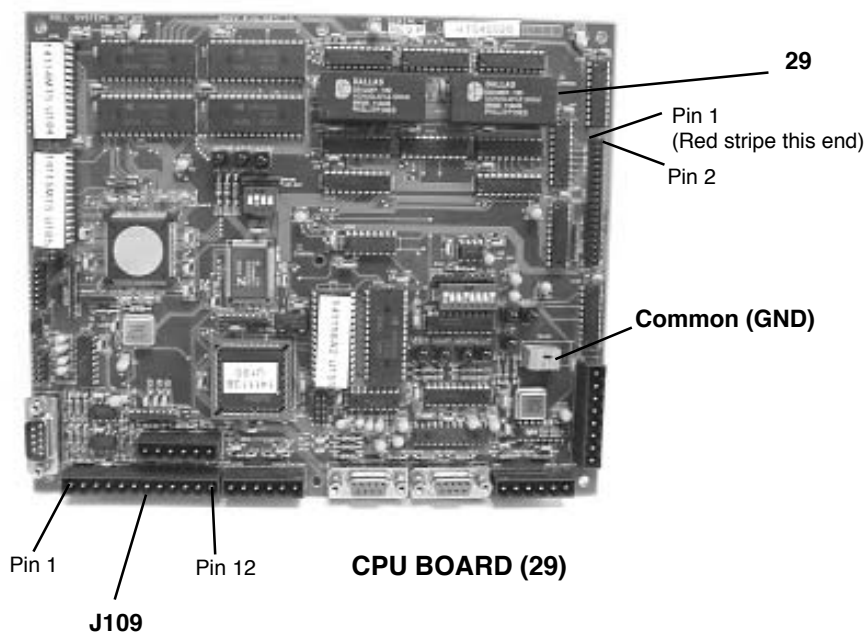
The meter reads +5 \pm 1 VDC when the pin interrupts the beam.

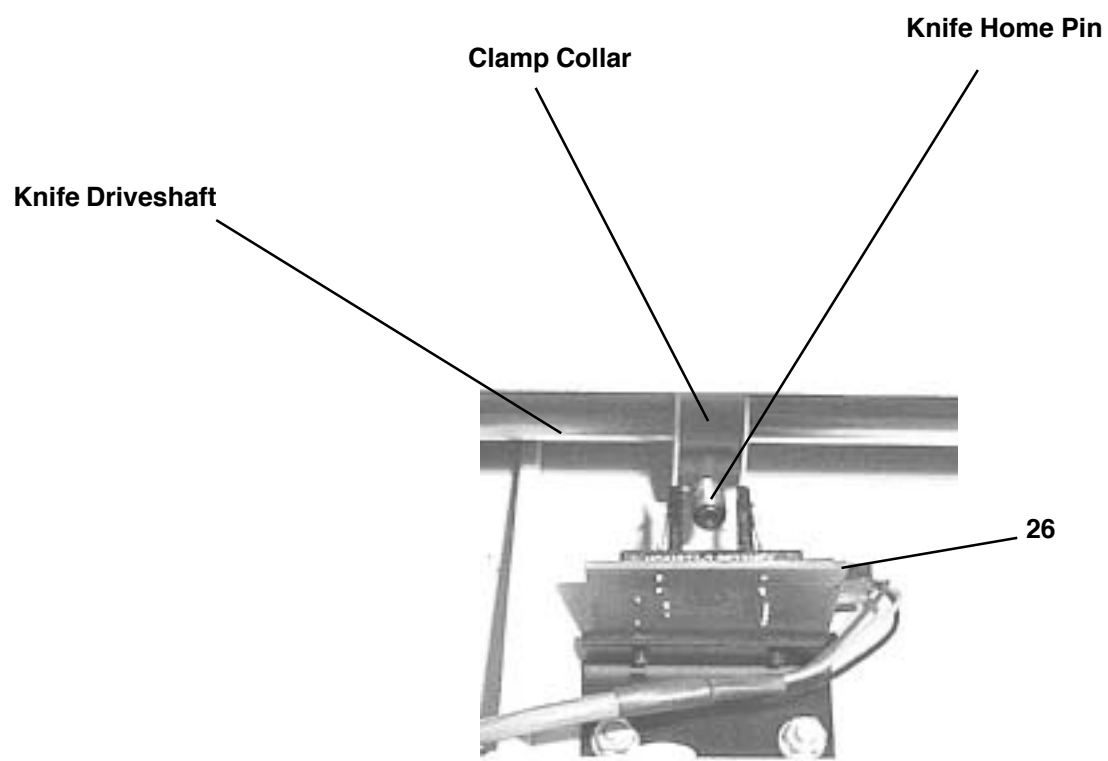
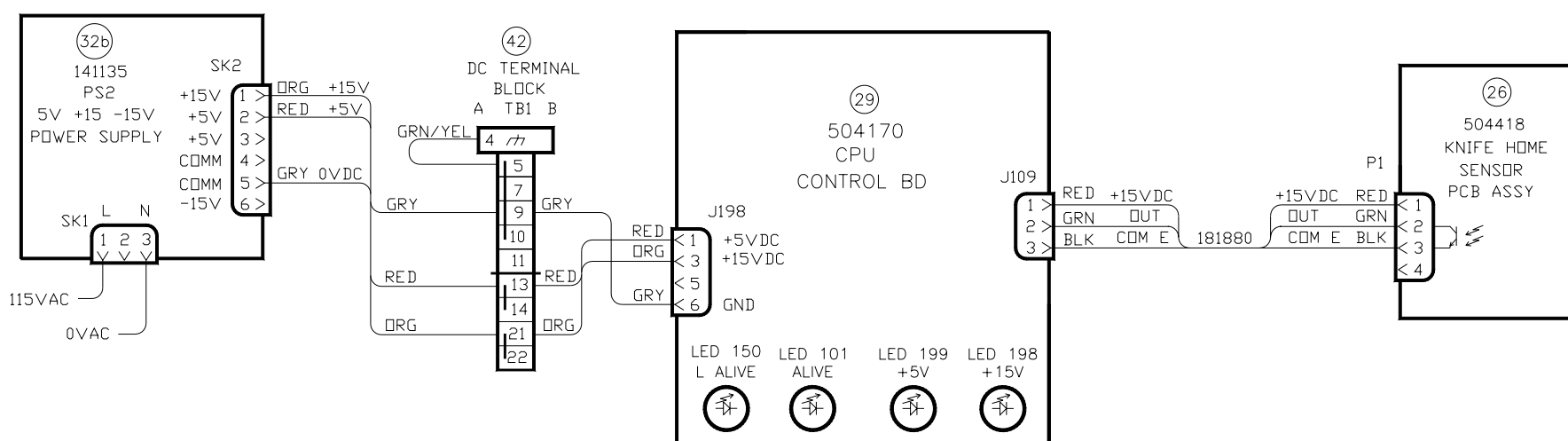
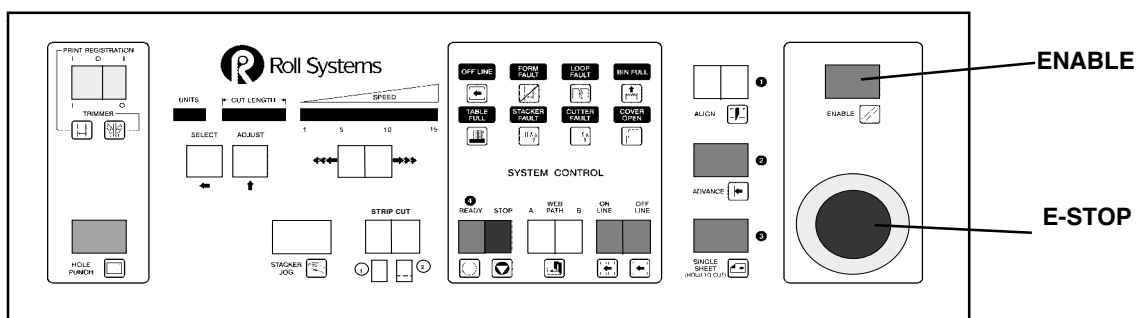
Y N

- Replace the home sensor board (26) (**REP 31**)(**PL 1.6**).
- Replace CPU board (29) (**REP 35**)(**PL 2.2**).

Go to SFA diagram, Section 2

Go to System Checkout, Section 1





KNIFE HOME SENSOR AS VIEWED FROM UNDER TABLE





RAP 2.6 - Error Code 05 - Servo Power Forced Down

Theory of Operation

There are two conditions that will force the shutdown of AC power to the servo amplifiers (44 & 47). These conditions occur when the software detects the top cover is open and/or when E-Stop switch (15) is pushed. If there is a stacker E-Stop, pushing it will also cause shutdown of AC power to the servo amplifiers.

Details of Operation

The two cover interlocks (22 and 23) are magnetically actuated switches. One interlock switch (23) is used exclusively by the I/O PCB (28) to inform the software that the cover is open. The other interlock (22) is in series with the E-Stop switch (15) and will force the contactor (41) to drop out if it fails or is deactivated. It also is connected to the I/O PCB (28). Power to the servo amplifiers (44 & 47) is removed via SSR3 (57) under I/O PCB (28) control.

Initial Action

Verify the following:

- Ensure that the web is correctly threaded.
- Ensure that E-Stop switch (15) is raised (and also the stacker E-Stop if present) and the top cover is closed.

Procedure

WARNING

115 VAC is present in the control cabinet. Perform all continuity checks with the power cord detached from the Continuous Cutter.

Place the cutter in offline mode by pressing the Offline switch (9). Turn on the main power switch (49) and wait until the cutter fault light goes out. Press the Enable switch (14) after 10 seconds.

The enable switch (14) lights and the cutter fault light is out.

Y N

Press the Ready switch (7).

Error Code 5 is displayed.

Y N

Go to **RAP 2, Cutter Diagnostics**.

Remove the electrical panel cover using a 4 mm hex key to unlock the latch at the bottom and lift the cover.

The LEDs on the servo amplifiers are OFF.

Y N

Return to SFA.

The top cover is open.

Y N

- Place a multimeter set to Ohms between pin 5 on I/O PCB (28) at connector J311 and J25 pin1.

The meter shows continuity.

Y N

- Repair or replace cable P/N 181877

Place a multimeter set to Ohms between pin 6 of I/O PCB (28) at connector J311 and J25 pin 3.

The meter shows continuity.

Y N

- Repair or replace cable P/N 181877

Place a multimeter set to Ohms across pins 1 and 3 at connector J25 on the interlock 2 (23) side. Be sure the top cover is closed.

The meter shows continuity.

Y N

- Replace interlock 2 (23). **(REP 34)(PL 2.3)**

The problem is resolved.

Y N

- Place a multimeter set to Ohms between pin 8 on I/O PCB (28) at connector J310 and J24 pin 2.

The meter shows continuity.

Y N

- Repair or replace wire.

Place a multimeter set to Ohms between terminal 4 of SSR3 (57) and J24 pin 1.

The meter shows continuity.

Y N

- Repair or replace wire.

Place a multimeter set to Ohms across pins 1 and 2 at connector J24 on the interlock 1 (22) side. Be sure the top cover is closed.

The meter shows continuity.

Y N

- Replace interlock 1 (22). **(REP 34)(PL 2.3)**

The problem is resolved.

Y N

- Replace I/O PCB (28) **(REP 35)(PL 2.2)**.

The problem is resolved.

Y N

- Place a multimeter set to Ohms across pins 1 and 2 of the cutter E- Stop switch (15) for continuity.
- Replace the E-Stop switch **(REP 35)(PL 2.1)**.

A B C D

The problem is resolved.

Y N

- Disconnect cable P/N 182022 from J8 on the cutter I/O panel (at the base of the cutter) and plug in the E-Stop bypass connector.
- Power up the cutter.

The problem is resolved.

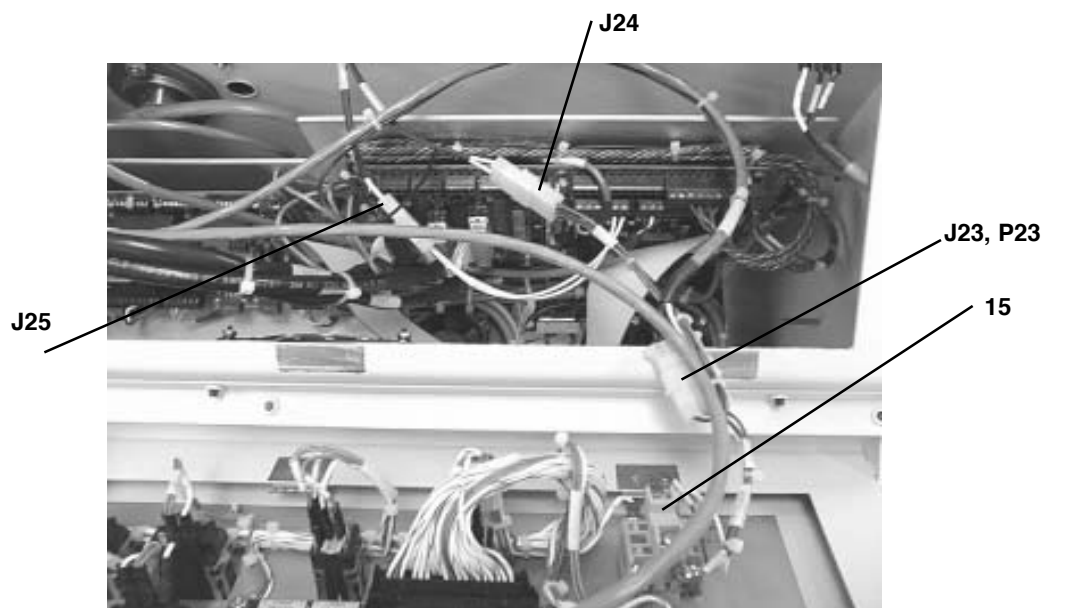
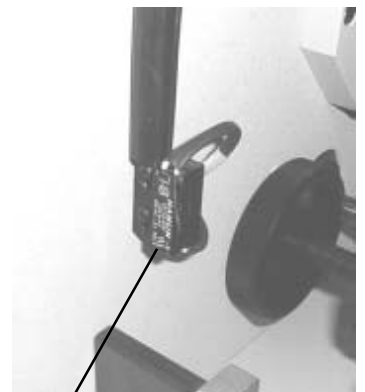
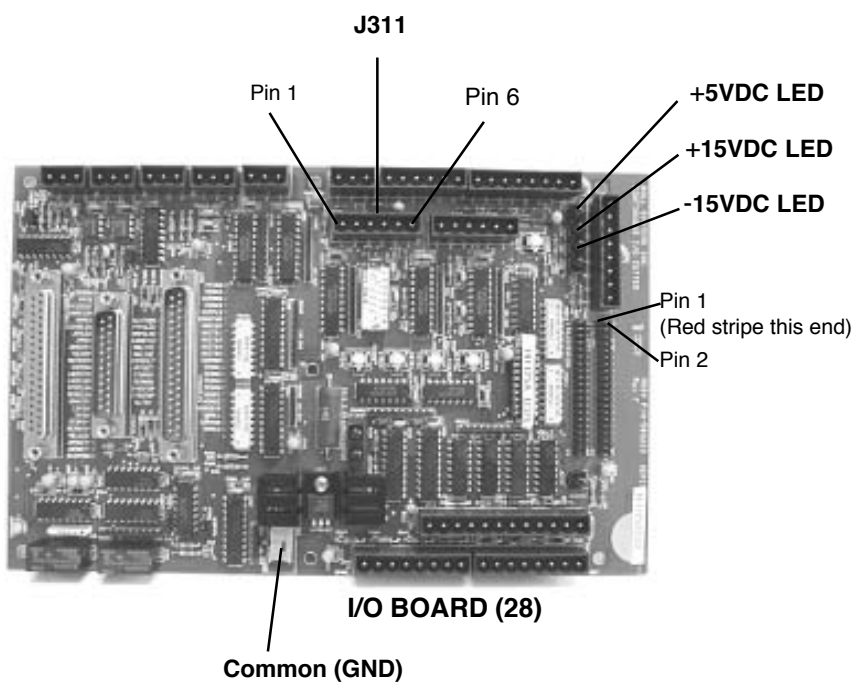
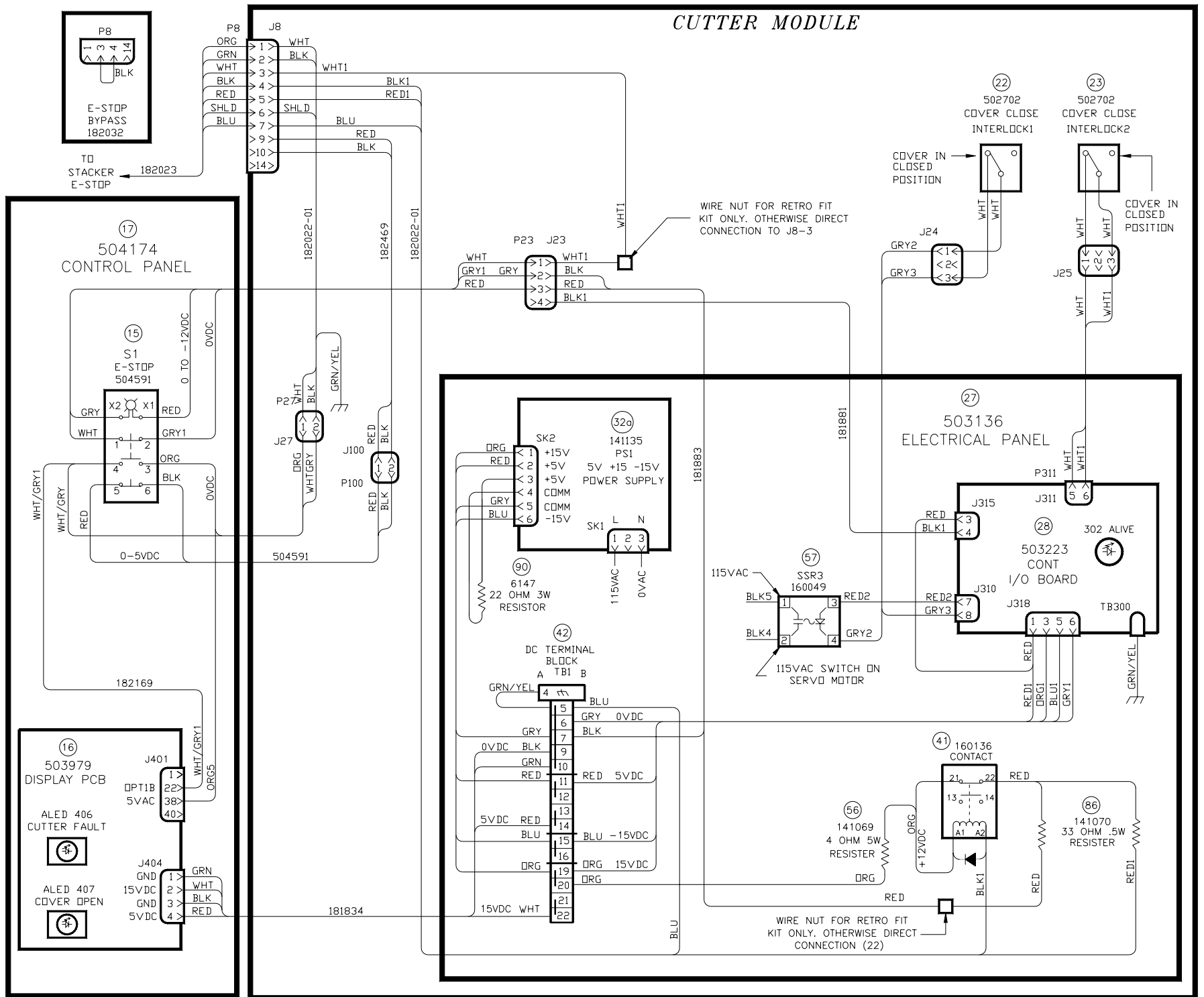
Y N

- Replace the stacker E-Stop switch **(REP 35)(PL 2.1)**.

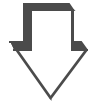
Go to SFA diagram, Section 2

Go to System Checkout Section 1

A B C D







RAP 2.7 - Error Code 06 - Run Time Home Sensor Position Error

Theory of Operation

A pin is mounted to the knife driveshaft with a fixed relationship to the upper knife blade's topmost or "home" position. An opto-interruptor is mounted on the knife home sensor PCB (26). This PCB is mounted to the cutter frame directly below the knife driveshaft. When the driveshaft rotates, the pin passes through the opto-interruptor thereby breaking a light beam. The knife is in its home position when the light beam is interrupted. When error code 6 is displayed, it indicates that the home position has not been detected within an acceptable time.

Details of Operation

- The home sensor PCB (26) signal is 0VDC and rises to +5 VDC ±1 volts when the driveshaft pin interrupts the beam.
- Software keeps track of the time required for the home sensor pin to make a complete rotation. If this time exceeds the calculated time, error code 6 is issued. This error code is very close to error code 4 except in this case the error occurs while running..

Initial Action

Verify the following:

- The knife upper blade has been properly lubricated. See Section 6, **Operator Maintenance**.
- The knife upper blade is not obstructed with paper debris.
- With power off, the knife upper blade can be moved by turning the knife driveshaft without binding.
- Ensure that the infeed brush is correctly tensioned and that the parallel rod edge guides are lightly touching the web.

Procedure

WARNING

115 VAC is present in the control cabinet. Perform all continuity checks with the power cord detached from the Continuous Cutter.

Place the cutter in offline mode by pressing the Offline switch (9). Turn on the main power switch (49) and wait until the cutter fault light goes out. Press the Enable switch (14) after 5 seconds.

WARNING

Disconnect the AC power cord whenever working near the knife driveshaft. The moving home sensor pin can cause serious personal injury.

The Enable switch (14) blinks, then goes out and the cutter fault light is out.

Y N

- Check the knife area for any obstruction that may prevent the knife from completing its cycle.
- Lubricate the knife and eccentric linkage. See **Section 6**.
- Remove the lower knife guards (**REP 6**) and check the left and right knife eccentric linkage for binding or damaged parts.
- Check the knife driveshaft for a loose pulley or a broken belt.
- Check the upper knife for excessive binding. Remove and clean the upper knife. Replace if required (**REP 25**)(**ADJ 5**).

The problem is resolved.

Y N

- Open the electrical panel cover and observe the knife servo amplifier (47).

The cooling fan is operating.

Y N

- Check -15 VDC to the knife servo amplifier (47) fan from TB1-6 (0 VDC) and TB1-16 (-15 VDC) (42).
- Replace the fan (**REP 35**)(**PL 2.2**).

The red LEDs on the knife amplifier are OFF.

Y N

- Verify that all cable connections on the knife servo amplifier (47) do not have loose connectors or broken wires.
- Verify that the knife servo motor (48) cable connections are tight.

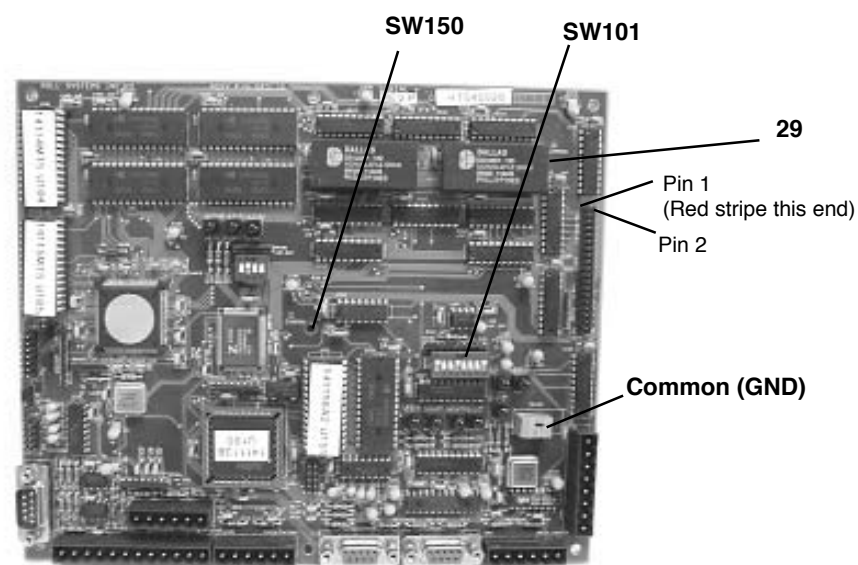
The problem is resolved

Y N

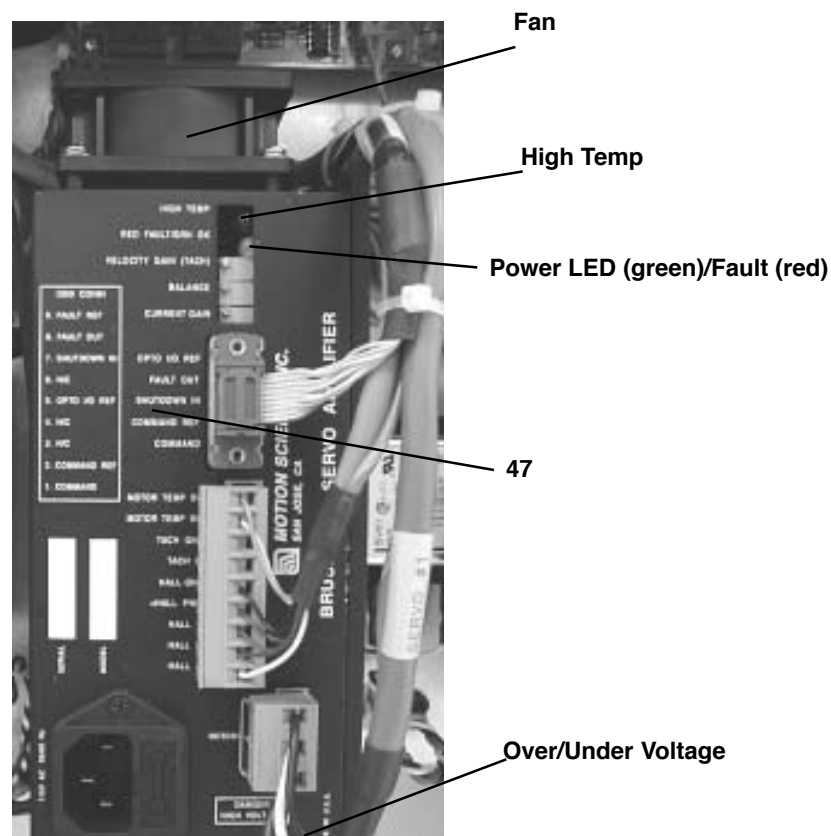
Go to Servo Amplifier/Servo Motor fault Isolation RAP 6.0

Go to SFA diagram, Section 2.

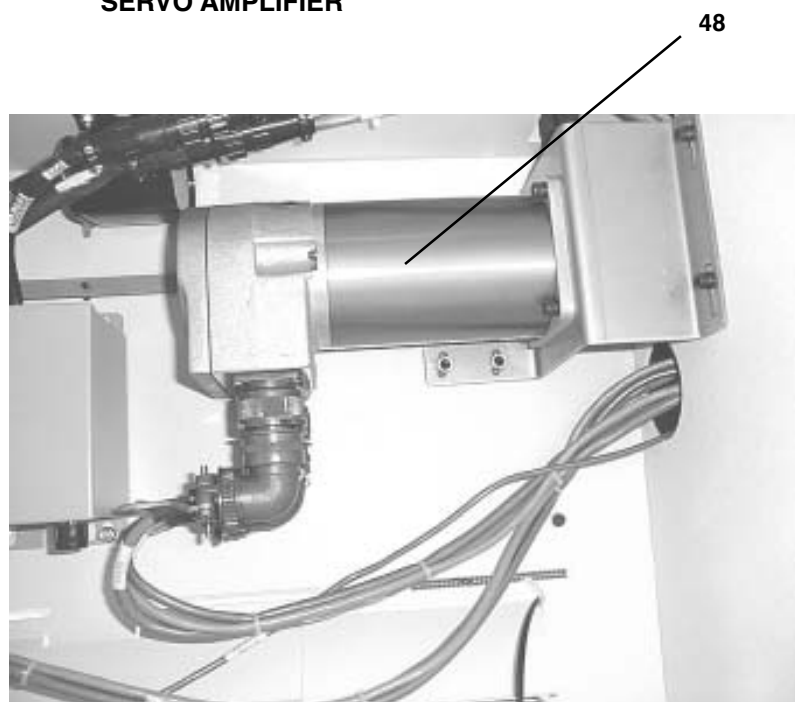
Go to System Checkout, Section 1

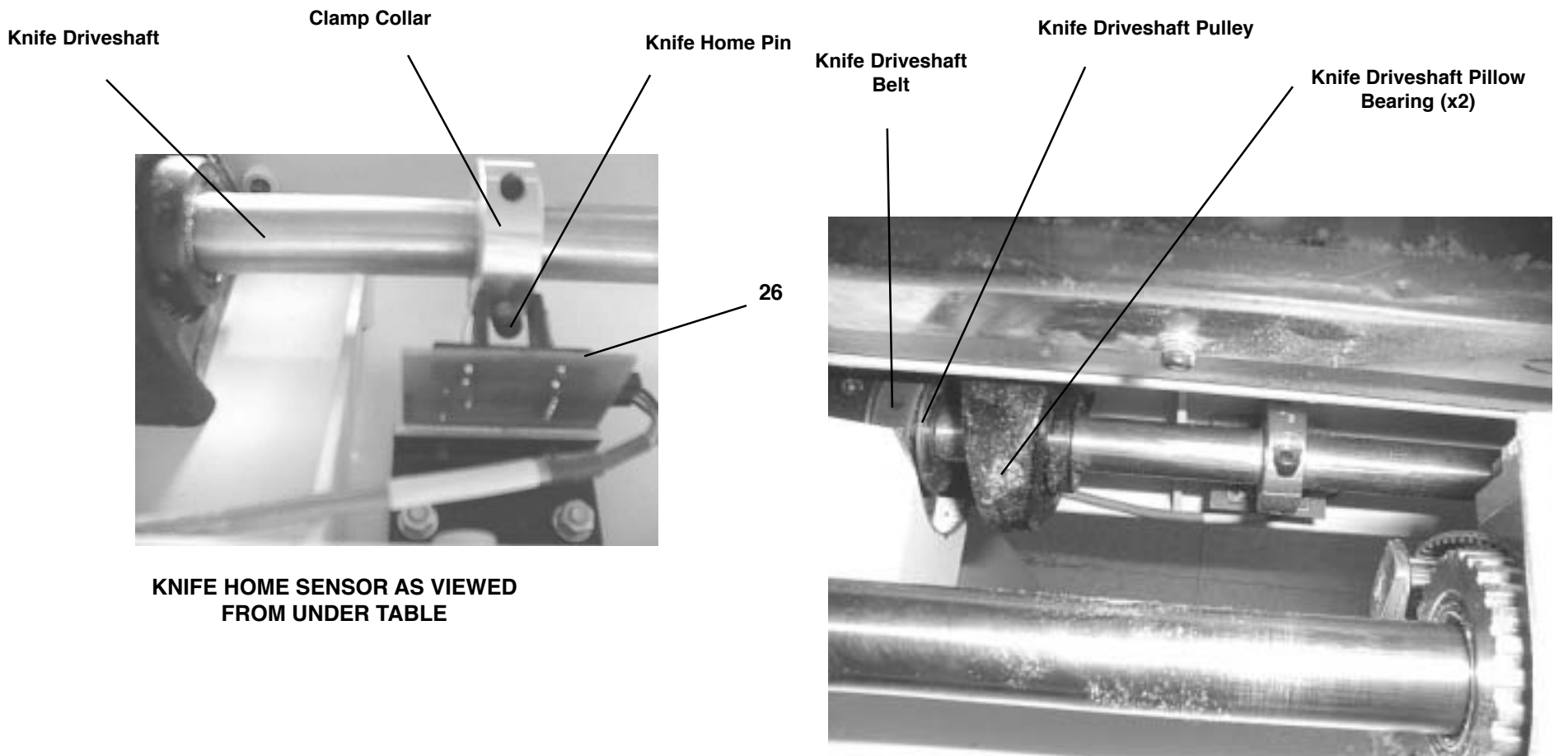
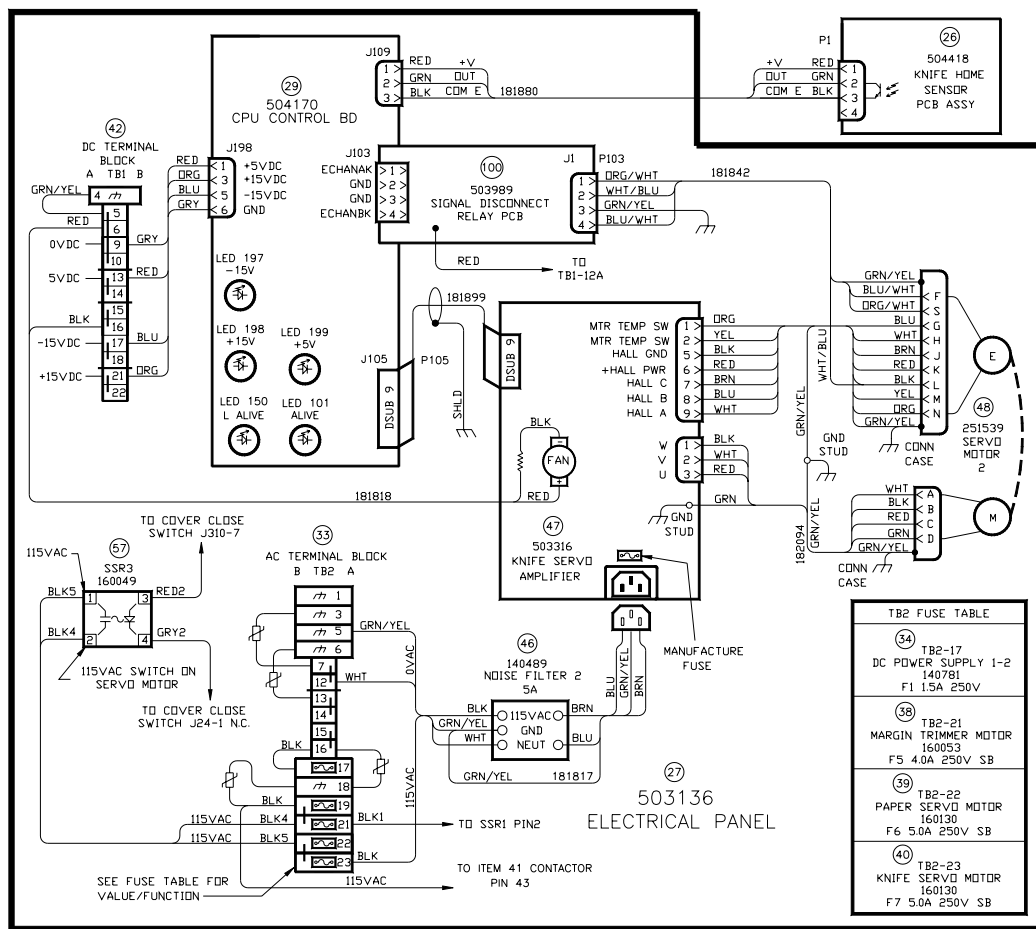


CPU BOARD (29)



SERVO AMPLIFIER

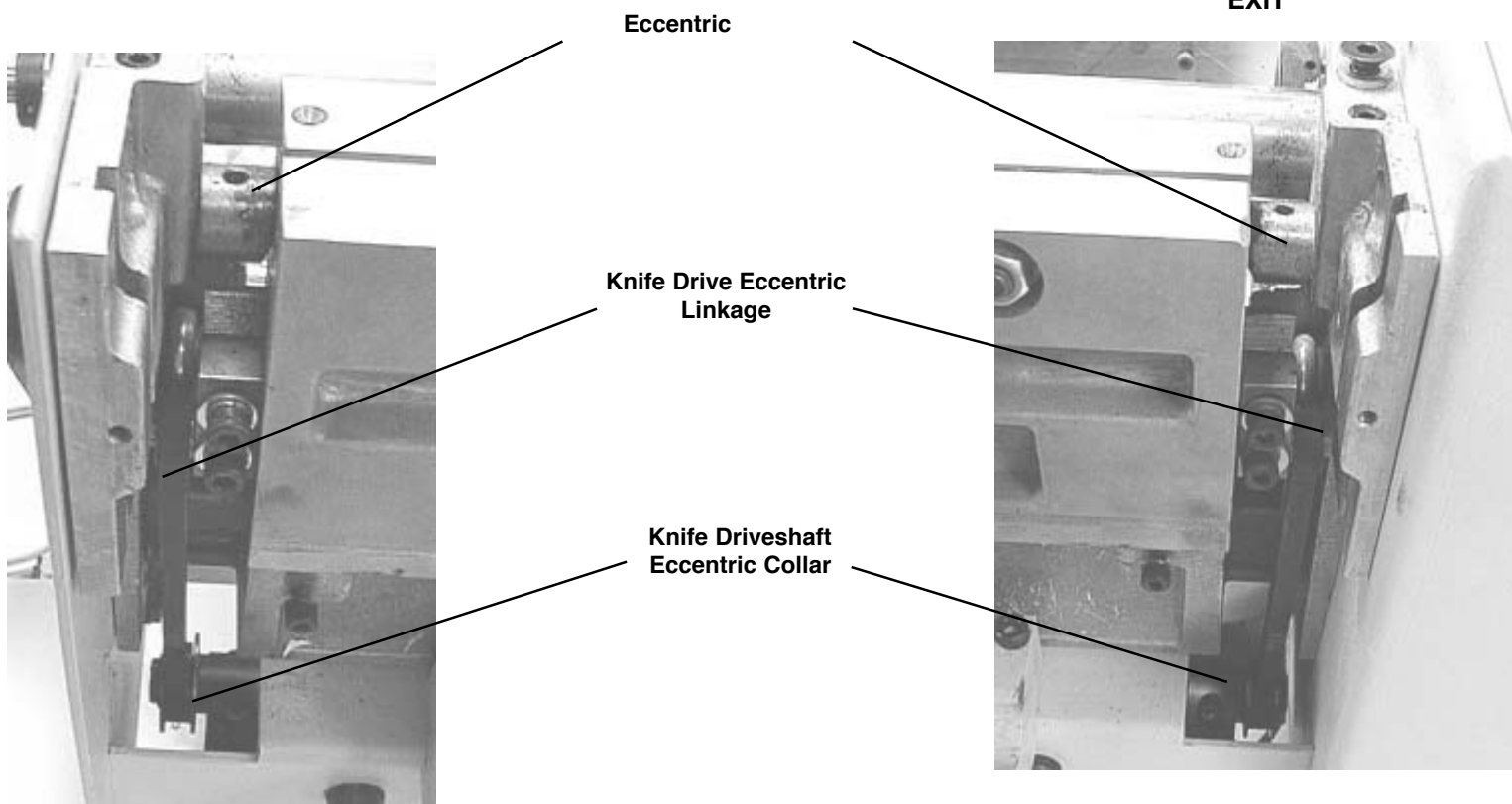




KNIFE HOME SENSOR AS VIEWED FROM UNDER TABLE

LEFT AS VIEWED FROM PAPER EXIT

RIGHT AS VIEWED FROM PAPER EXIT







RAP 2.8 - Error Code 07 - Cutter Internal Jam

Theory of Operation

A reflective sensor (87) is mounted behind the operator panel and points across the paper path to a reflective target affixed to the opposite wall. This sensor is referred to as the jam or paper sensor. The sensor beam is just ahead of the tractors exit point. Anything that disrupts this beam will stop the cutter but does not remove power from the servo amplifiers.

Details of Operation

- The paper sensor (87) outputs a +5 VDC signal when the beam is broken and drops to zero volts when there is nothing blocking the sensor.

Initial Action

Verify the following:

- Ensure that the web is correctly threaded.
- Ensure that the infeed brush is correctly adjusted and that the parallel rod edge guides are lightly touching the web.

Procedure

WARNING

115 VAC is present in the control cabinet. Perform all continuity checks with the power cord detached from the Continuous Cutter.

Place the cutter in offline mode by pressing the offline switch (9). Turn on the main power switch (49) and wait until the cutter fault light goes out. Press the enable switch (14) after 5 seconds, then press the ready switch (7).

Error code 7 is displayed.

N Y

- Open the top cover and clear the paper jam.
- Clean the paper sensor lens and reflective target.
- Close the top cover and restart the cutter.

The problem is resolved.

Y N

- Place a multimeter set to DC volts across I/O PCB (28) connector J312, pins 1 (+15VDC) and 3 (Gnd).

The meter reads +15 VDC.

Y N

- Replace the I/O (28) board **(REP 35)(PL 2.2)**.

Place a multimeter set to DC volts across I/O PCB (28) connector J312, pins 2 (PAPER) and 3 (Gnd).

The meter reads +5 VDC when the beam is interrupted.

Y N

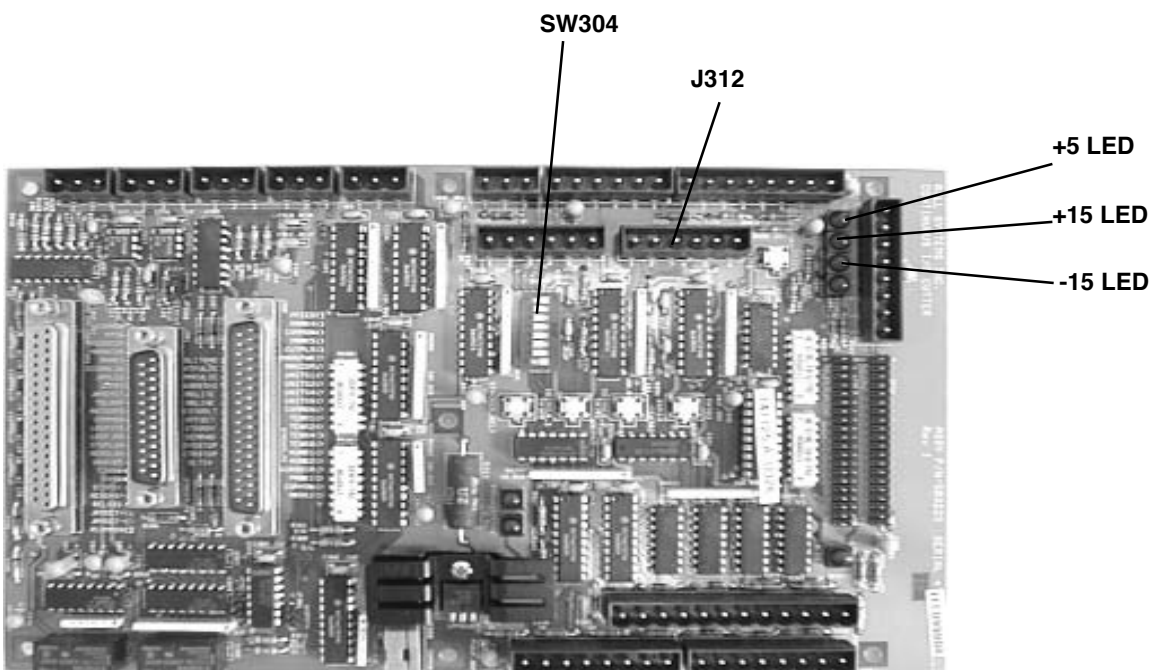
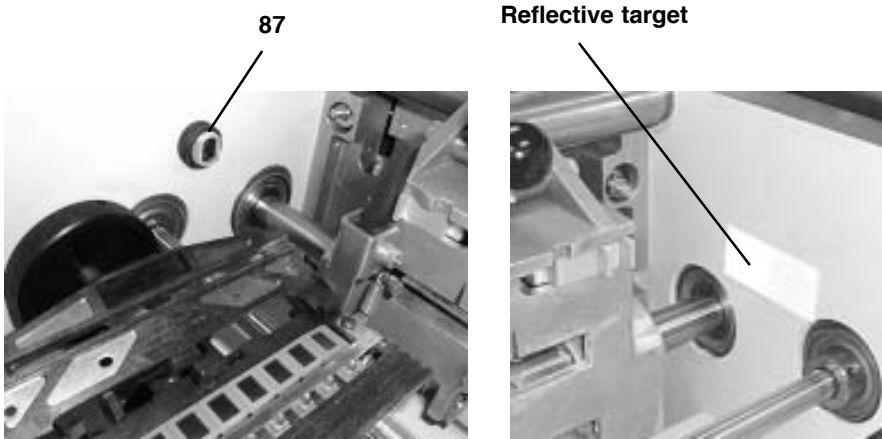
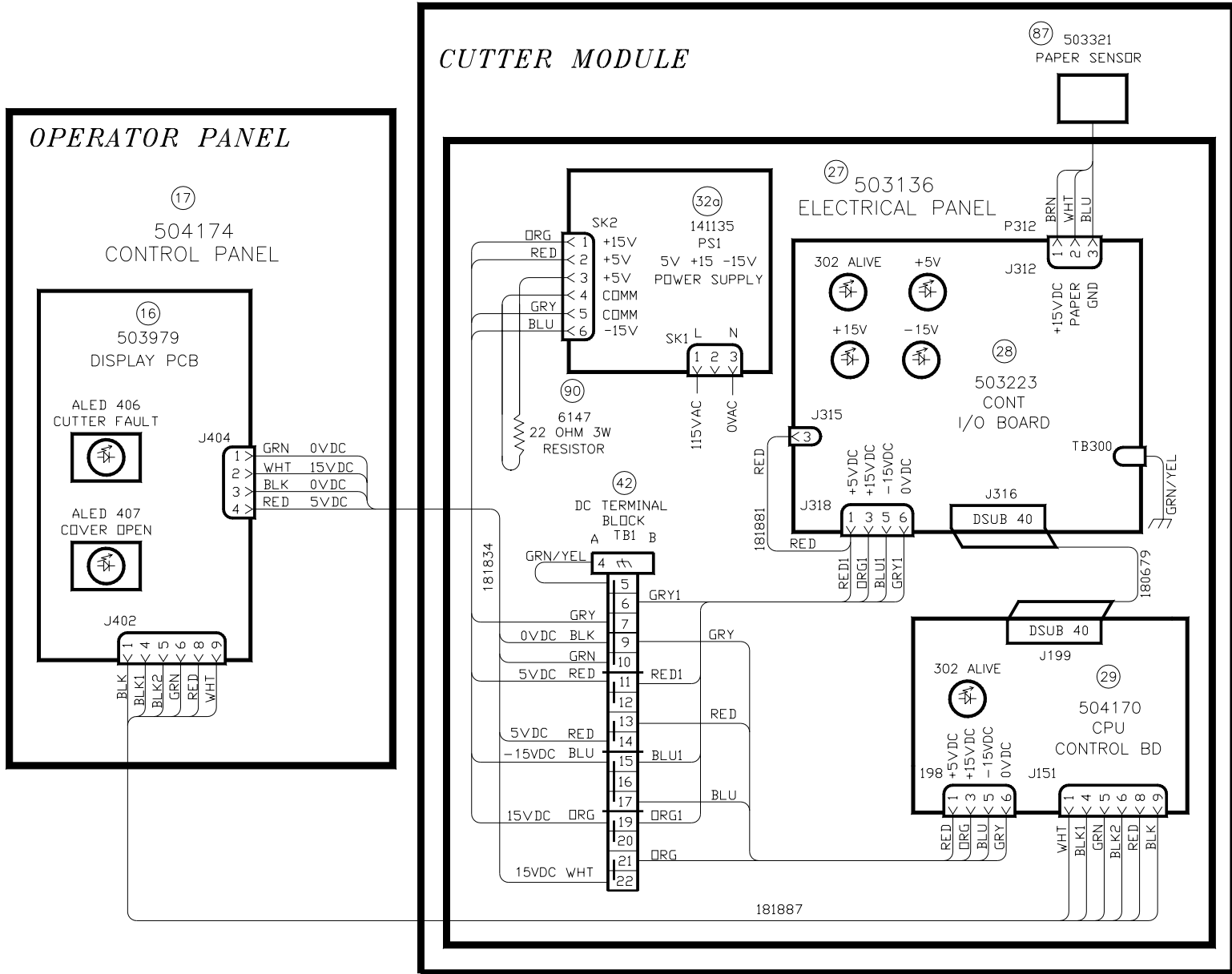
- Replace the paper (jam) sensor (87) **(PL 2.3)**.

The meter reads 0 VDC when the beam is not interrupted.

Y N

- Replace the paper (jam) sensor (87) **(PL 2.3)**.
- Check wiring between I/O board (28) and the paper (jam) sensor (87).
- Replace the I/O (28) PCB **(REP 35)(PL 2.2)**.

Restart the cutter and return to SFA.







RAP 2.9 Error Code 08 - Page Size Error

Theory of Operation

The CPU reports a page size error when the knife fails to start to cut the form within a specified time after the paper was issued an advance command. Form length is defined in the software in two ways. For tractor fed paper it uses the length set by the operator, for pinless operation it uses the print registration mark on the paper. An error will be reported for a form length discrepancy of 0.065". This could be a paper servo amplifier adjustment or too much drag on the paper.

NOTE: If error codes 02 and/or 03 are also displayed, perform RAP 2.3 and/or RAP 2.4 before performing RAP 2.9 (this RAP).

Details of Operation

- The form length is influenced by the paper servo amplifier (44), paper drive servo motor (45), and paper path components.

Initial Action

Verify the following:

- Ensure that the web is correctly threaded.
- Ensure that the infeed brush is correctly adjusted and that the parallel rod edge guides are lightly touching the web.
- Ensure that the E-Stop switch (15) is raised and the cover is closed.

Procedure

WARNING

115 VAC is present in the control cabinet. Perform all continuity checks with the power cord detached from the Continuous Cutter.

Place the cutter in offline mode by pressing the Offline switch (9). Turn on the main power switch (49) and wait until the cutter fault light goes out. Press the Enable switch (14) after 5 seconds. Press the Ready switch (7).

Error code 8 is displayed.

N Y

- Open the top cover and inspect the paper path for anything that could cause excessive drag on the paper.
- Check the drag caused by the brush assembly. The brush should just touch the paper.
- Close the top cover and restart the cutter.

The problem is resolved.

Y N

Open the electrical panel cover and observe the paper servo amplifier (44).

The red LEDs on the paper servo amplifier are OFF.

Y N

- Allow the amplifiers to cool down and restart the system.
 - Check that environmental specifications are being met.
- Unplug the AC power plug to the amplifier and check the voltage level.

The voltage level is within specification (120VAC ± 10%).

Y N

- Inform customer that source voltage must be within specification.
- Check the paper drive shaft bearings and belt for binding or loose components. Replace as required.
- Go to **RAP 3.0** - Paper path.

Perform the paper servo amplifier (44) adjustments (**ADJ 16**).

The problem is resolved.

Y N

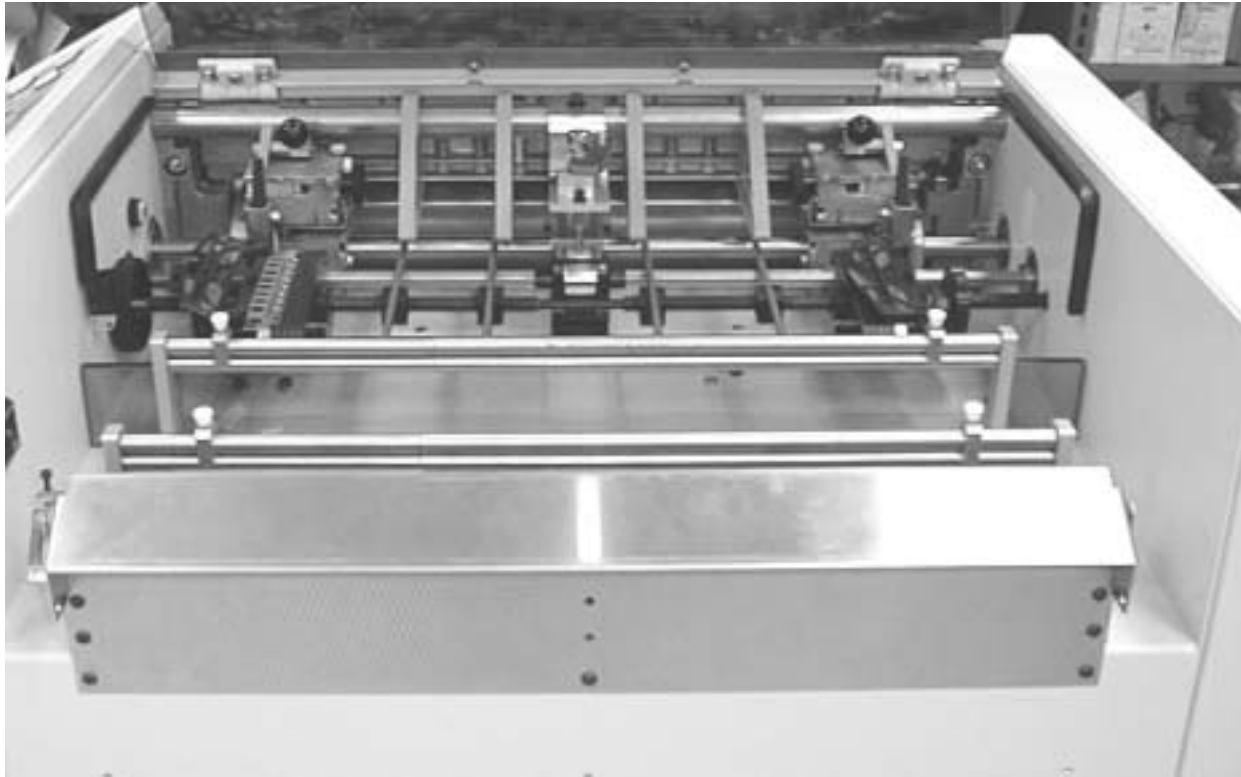
Replace the paper servo amplifier (44) (**REP 35**) (**PL 2.2**).

The problem is resolved.

Y N

- Replace the paper drive motor (45) (**REP 20**) (**PL 1.1**).

Go to System Checkout, Section 1



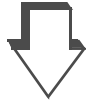
PAPER PATH INFEED AREA

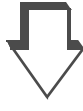


PAPER DRIVE COMPONENTS

45







RAP 3.0 - Paper Path

Theory of Operation

Web is pulled from the loop between the printer and tower by either a nip for pinless web or tractors for pinfed web. The web's horizontal position is controlled by a pair of parallel rod guides and two pair of edge guides.

Details of Operation

- DC motors drive the knife driveshaft and paper feed shaft by means of pulleys and belts.
- An AC motor drives a shaft for the margin trimmers.
- The pinless nip assembly consists of one roller driven by the paper feed shaft and a pressure roller mounted above it.

Initial Action

Verify the following:

- Ensure that the web is correctly threaded
- Ensure that the infeed brush is correctly adjusted and that the parallel rod edge guides are lightly touching the web.
- If pinless feed, ensure that the drive roller is in the down position.

Procedure

WARNING

115 VAC is present in the control cabinet. Perform all continuity checks with the power cord detached from the Continuous Cutter.

The system is operating normally with web being fed and cut.

Y N

The web is fed into the cutter.

Y N

- Remove the drive system cover (REP 2).

The paper drive motor runs.

N Y

- Verify that the paper drive belt is intact. Replace the paper drive belt (REP 12) (PL 1.1) if it is broken or worn.
- Verify that the paper drive pulley is secure on the motor shaft. Tighten if required.
- Verify that the paper drive idler pulley is secure to the frame and applying tension to the paper drive belt. Tighten if required.

The problem is resolved.

N Y

- Restart the cutter and go to the System Checkout diagram, Section 1.

Go to Servo Motor/Servo Amplifier Fault Isolation (RAP 6.0)

The web is being cut.

Y N

- Remove the upper knife blade cover (REP 5), the knife linkage covers (REP 6), the knife driveshaft cover (REP 7), and the knife drive belt cover (REP 8).

The knife drive motor runs.

N Y

- Verify that the knife drivebelt is intact. Replace the knife drive belt if it is broken or worn (REP 28) (PL 1.6).
- Verify that the knife pulleys are secure on their shafts. Tighten if required.

The problem is resolved.

N Y

- Restart the cutter and go to the System Checkout diagram, Section 1.

Go to Servo Motor/Servo Amplifier Fault Isolation (RAP 6.0)

The adjacent sides of the cut sheets form precise right (90 degree) angles.

Y N

- Check pressure roller skew (ADJ 10).
- Adjust the front or rear edge guides to correct the problem.

The sheet lengths are uniformly within specification.

Y N

The web is pinless.

Y N

- Check that tractor belts are not excessively worn.
- Check tractor pins are not worn.
- Check tractor drive bearings are not worn.
- Replace the tractors (REP 15) (PL 1.2).
- Check pressure roller force (ADJ 9).
- Check drive system pulleys for loosened set screws. Tighten if loose.
- Check drive roller bearings, replace if worn.(REP 18)

The sheet's cut edges are clean and free of defects.

Y N

The upper and lower knife blades are sharp and free of damage.

WARNING

The knife blades' cutting edges are extremely sharp.

Y N

- Replace the damaged blade(s) (REP's 25 and 26) (PL 1.7).
- Adjust the upper blade (ADJ 5).

A B C

A B C

The web loop is quickly consumed and the cutter rapidly turns on and off.

N Y

- The cutter's speed setting is too high for the printer speed.

The web loop falls to the floor and a loop fault is displayed.

N Y

- The cutter's speed setting is too slow for the printer speed.

The web is passing through the knife without jamming.

Y N

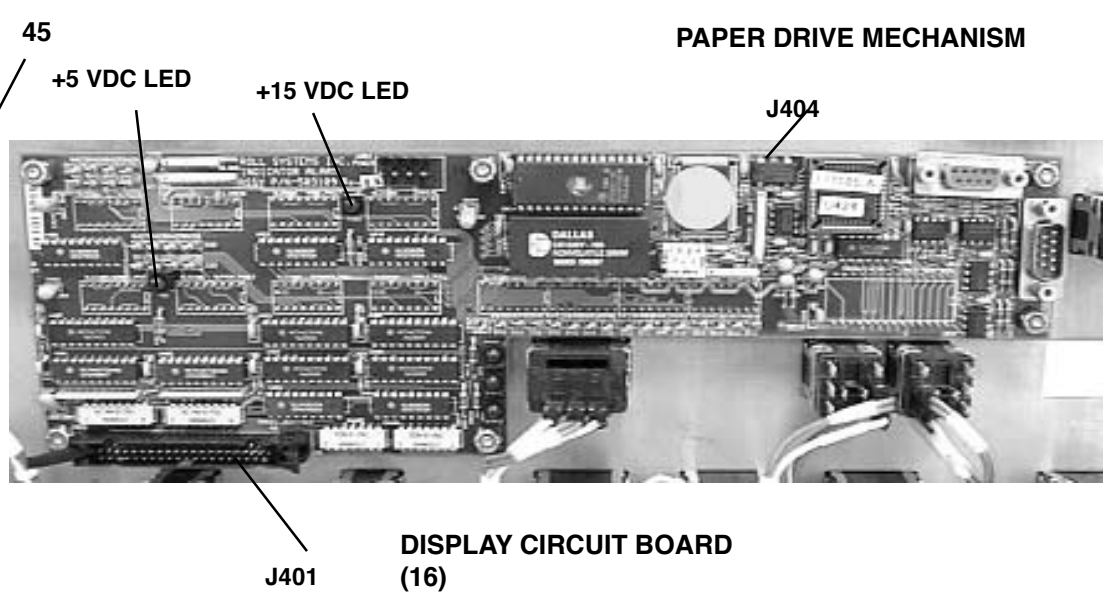
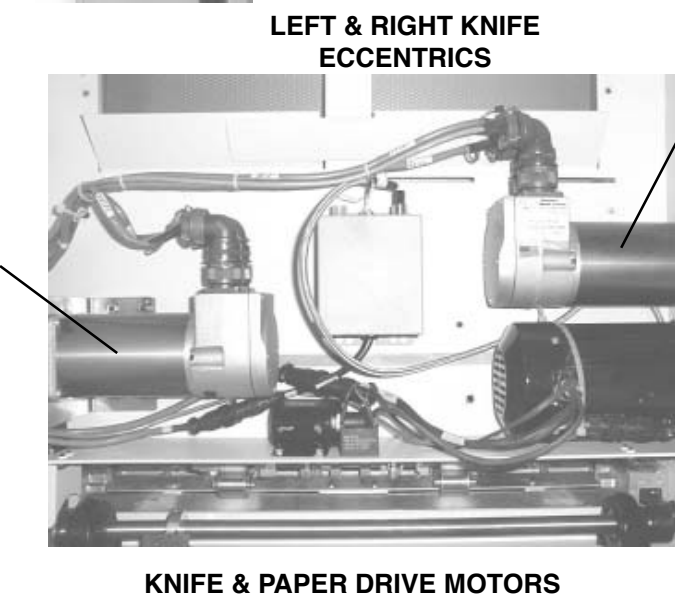
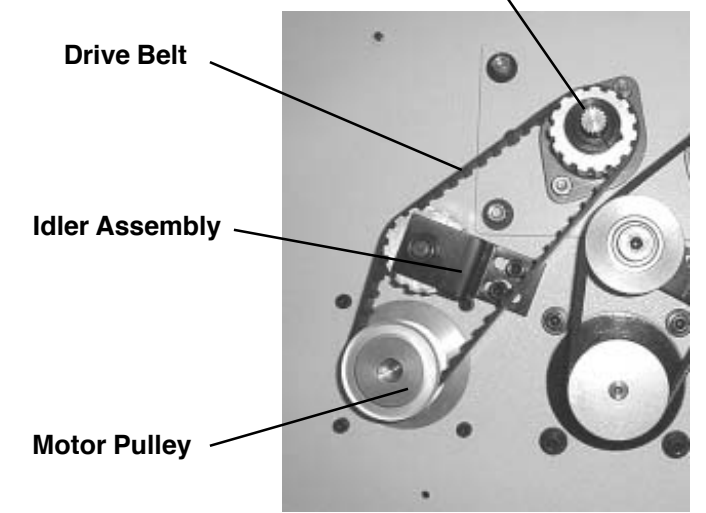
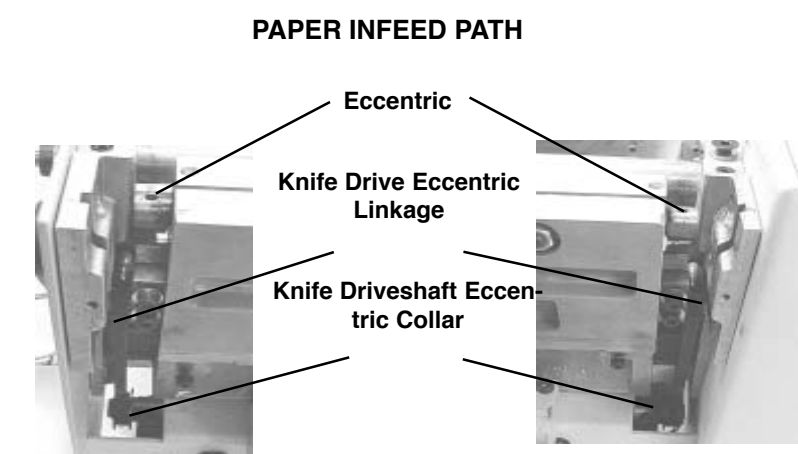
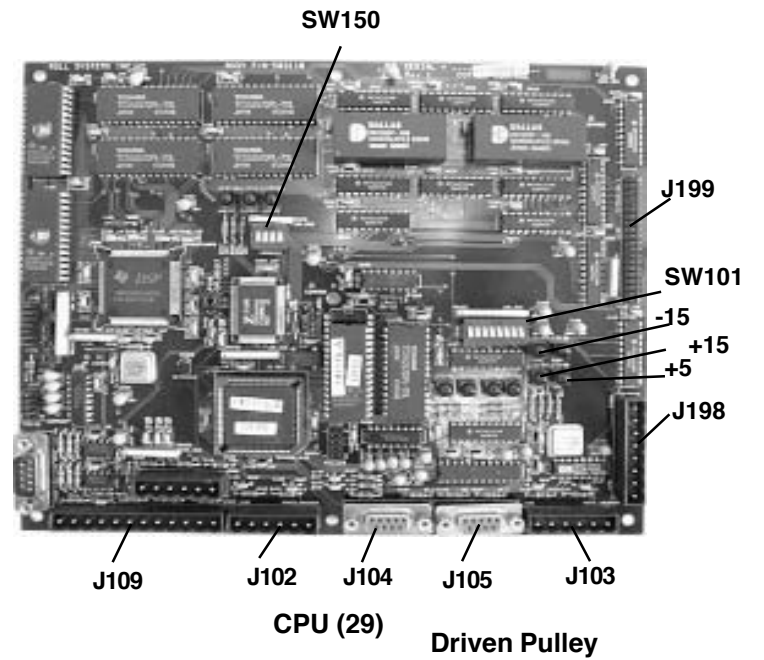
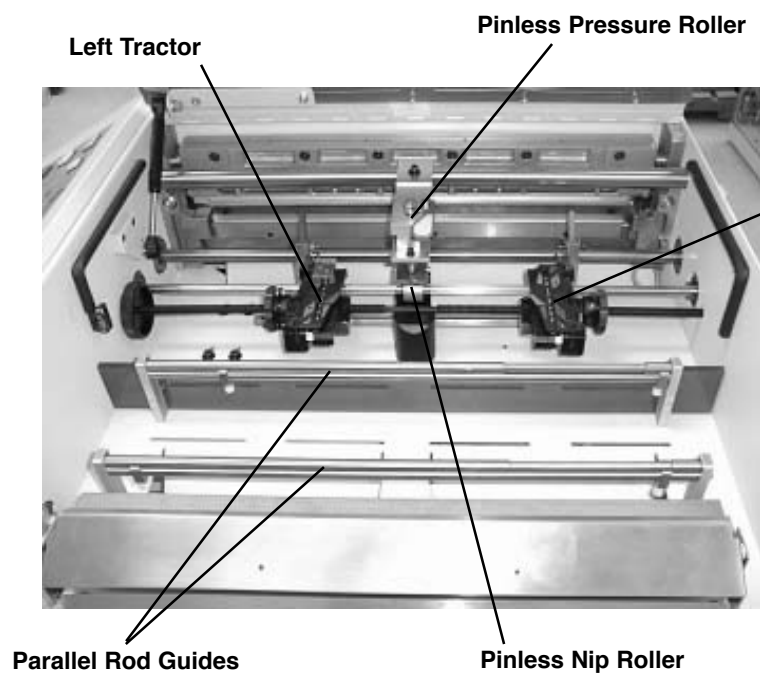
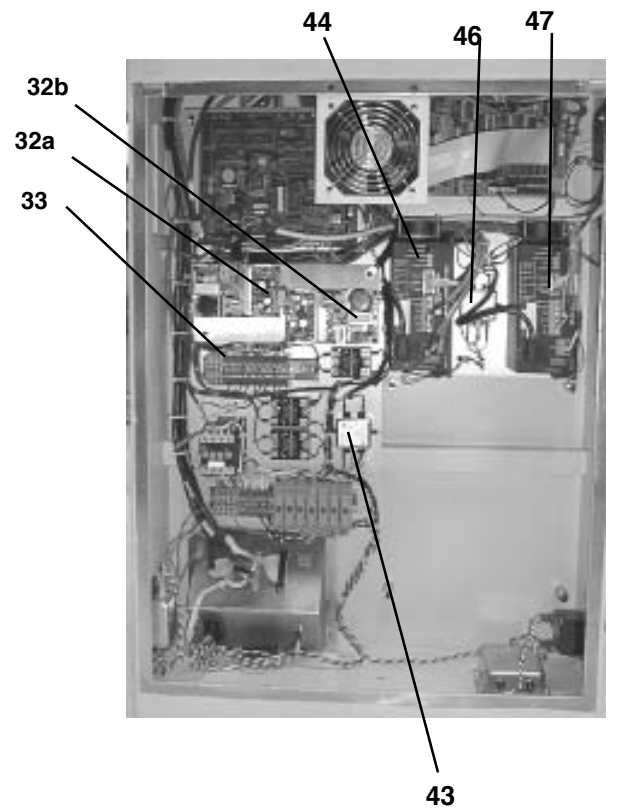
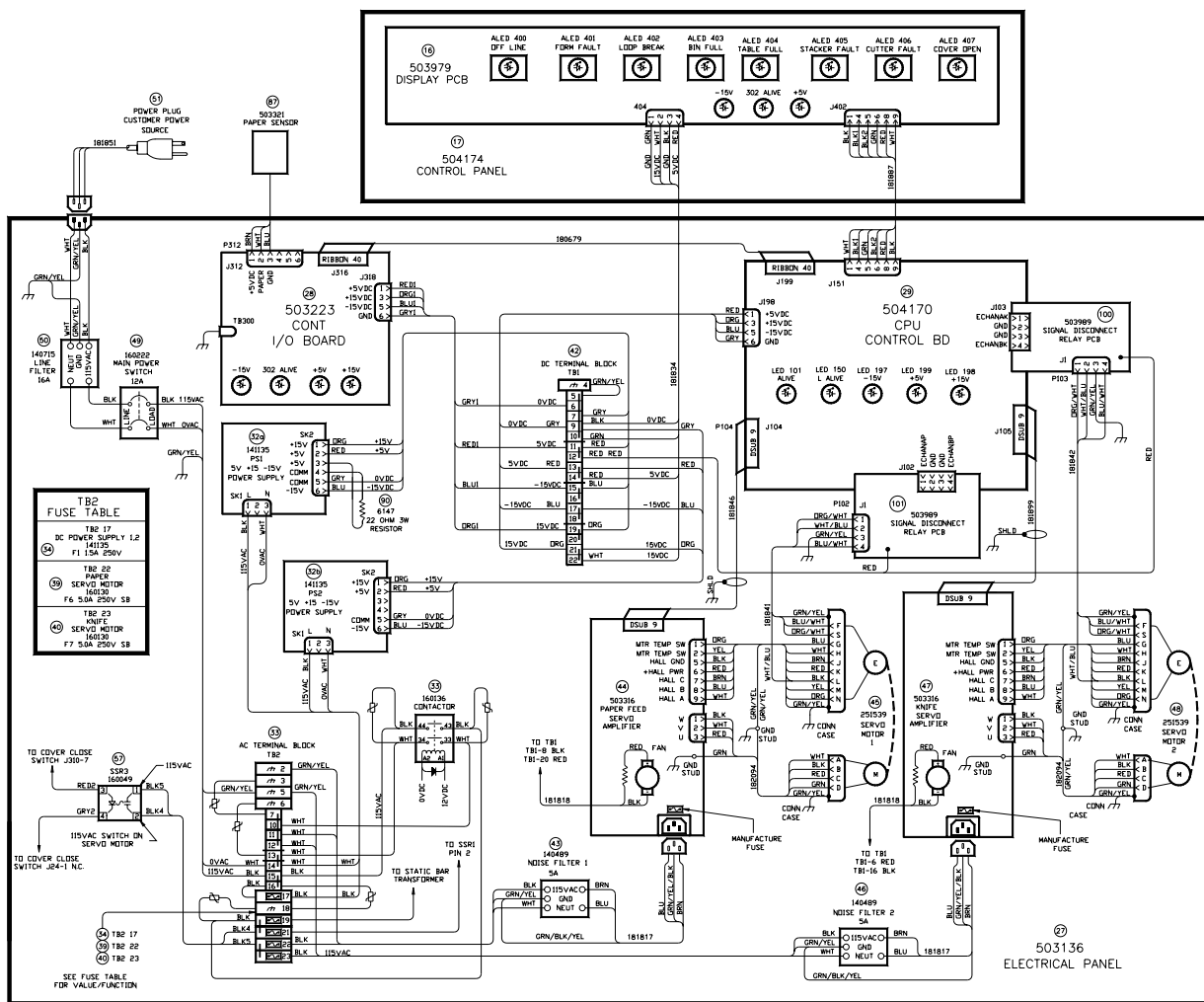
- Cycle the system power (off-on) and then wait approximately 10 seconds. Press the enable switch (14) and wait for any blinking to stop. Shut the cutter off before removing the knife covers. Examine the knife position by removing the upper knife cover (REP 7) and looking at the eccentric position at each end of the knife driveshaft.

The eccentrics are at their top position (knife is fully raised).

Y N

- Go to RAP 2.7.

Go to System Checkout, Section 1







RAP 4.0 - Other Faults

Theory of Operation

A Bin Full fault light illuminates when the bin full sensor is blocked by trimmed paper in the waste bin to notify the operator to empty the bin.

A Loop fault light illuminates when the bottom tower sensor detects the loop for longer than four seconds.

A Table Full Fault Light illuminates when the table is full and needs to be emptied.

A Stacker Fault light informs the operator that the stacker has experienced a problem and has stopped, or that the BookMaster system has experienced a problem.

A Form Fault light illuminates when the pinless print registration option is employed and two successive marks fail to be detected.

Details of Operation

- The stacker or BookMaster manuals contain troubleshooting information and should be referred to by the CE when responding to a stacker fault call.
- The loop sensor tower contains setup information attached to its inside cover.
- The jam (bottom) sensor on the tower is normally closed, if blocked for approximately 3 seconds, it will open and signal the cutter to stop.

Initial Action

Verify the following:

- Ensure that the web is correctly threaded.
- Ensure that the infeed brush is correctly adjusted and that the parallel rod edge guides are lightly touching the web.

Procedure

WARNING

115 VAC is present in the control cabinet. Perform all continuity checks with the power cord detached from the Continuous Cutter.

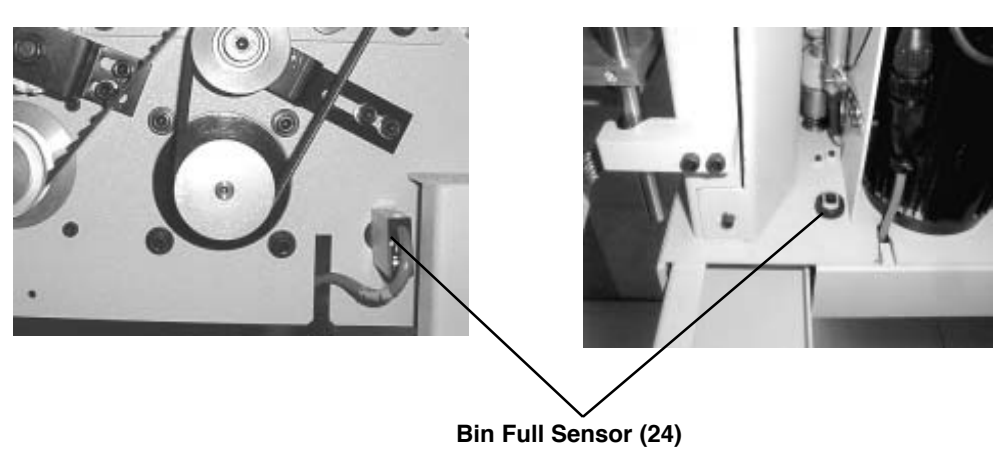
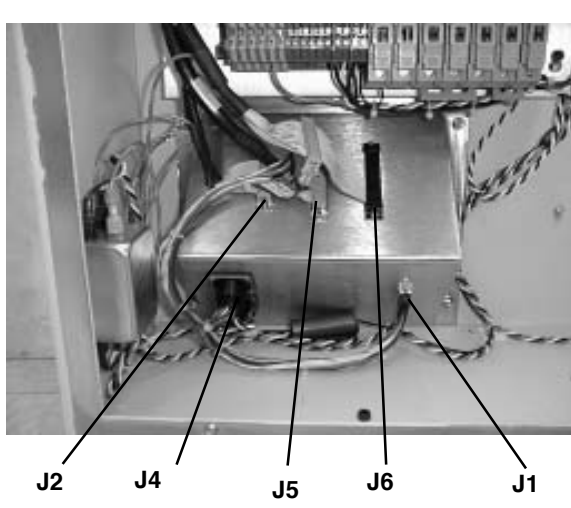
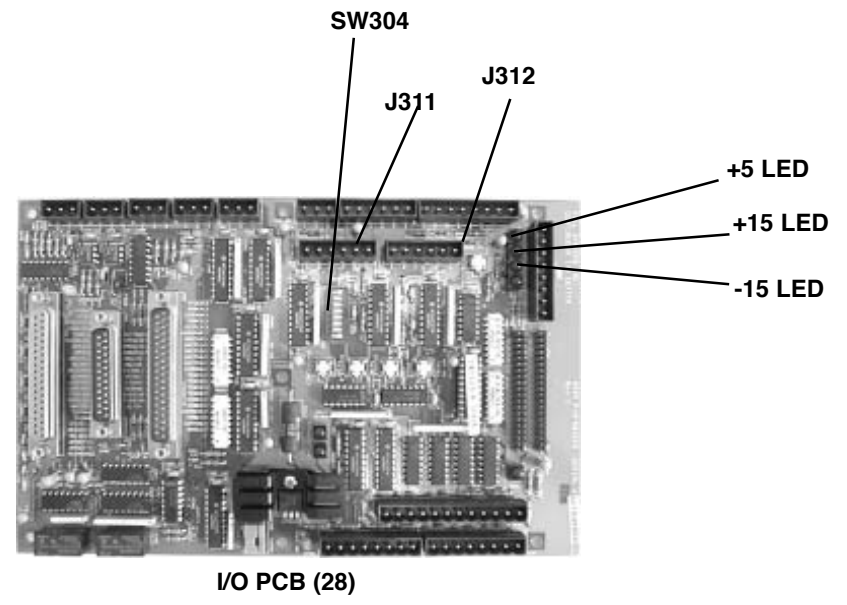
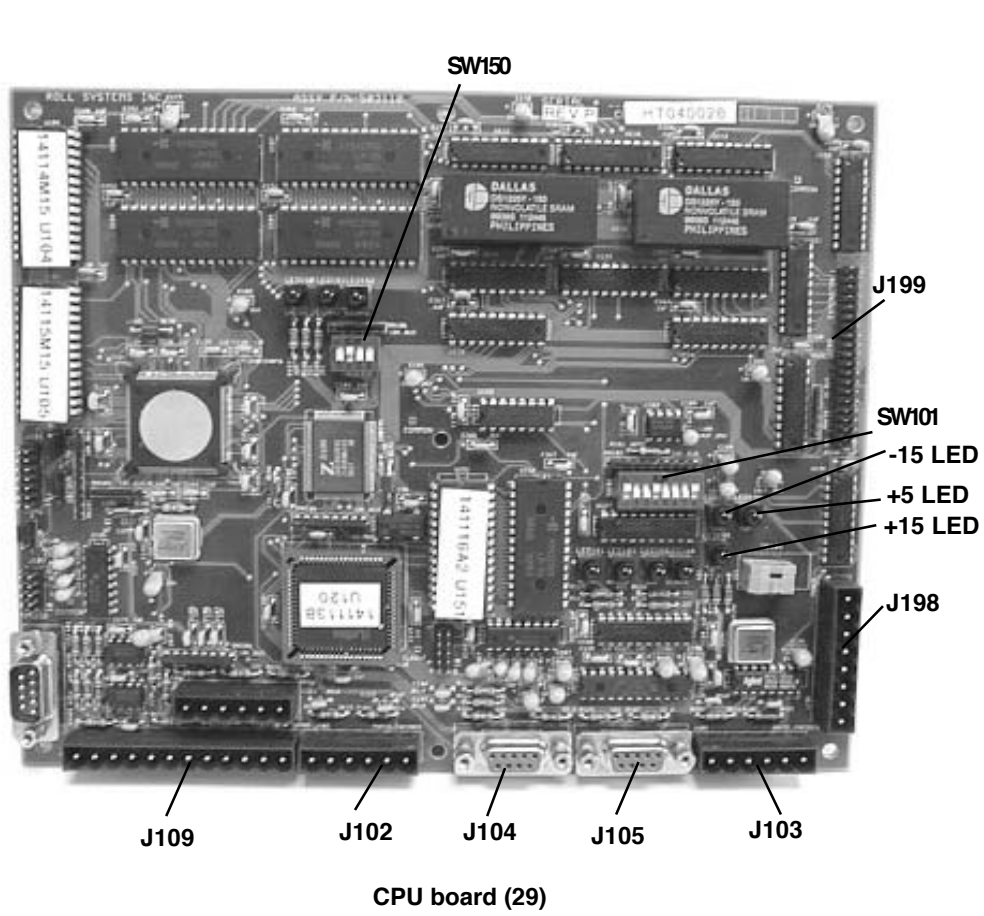
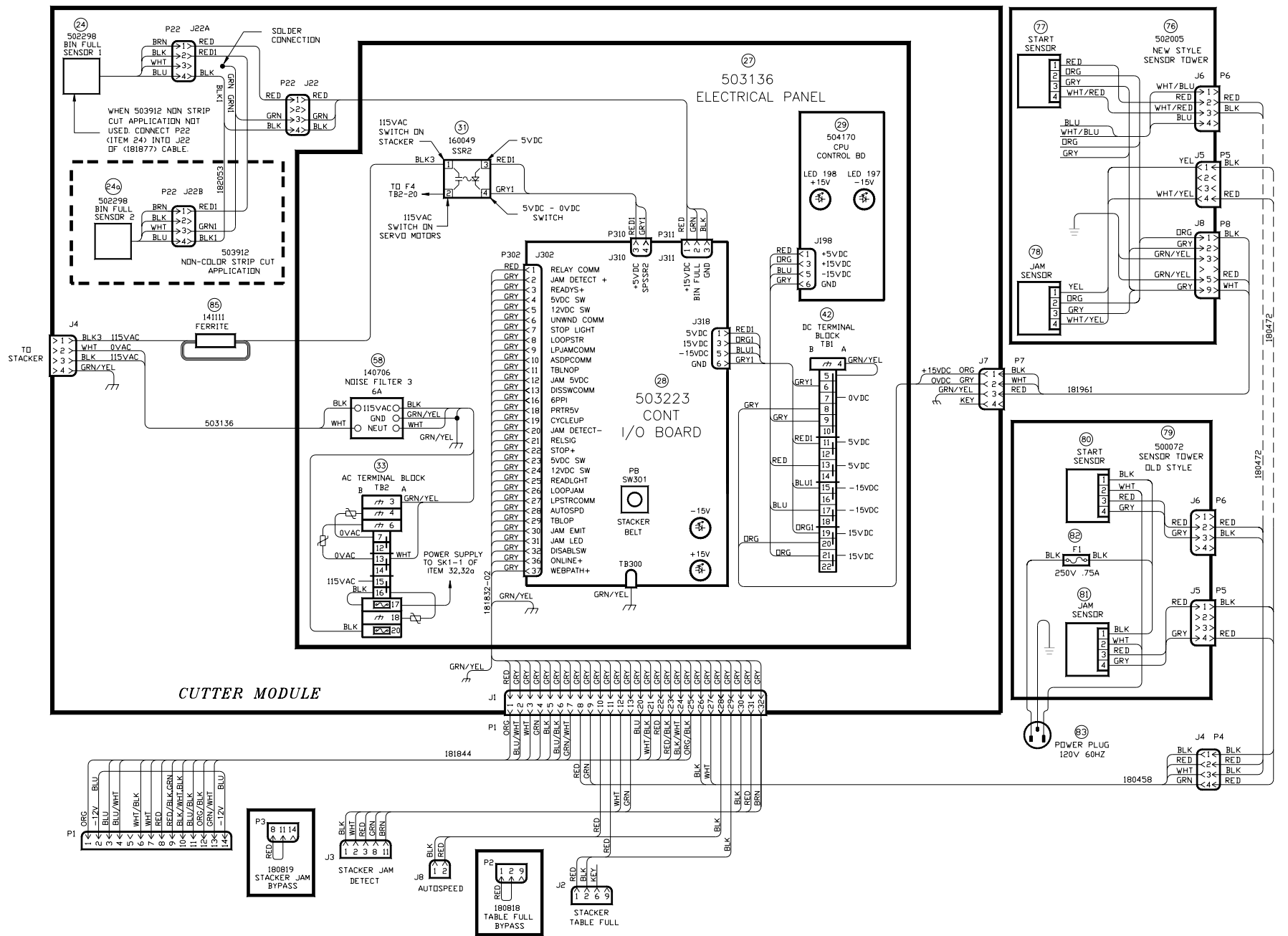
The system is operating normally with web being fed and cut

Y	N	
		The Stacker Fault light is off.
Y	N	
		• Refer to the stacker manual for troubleshooting information.
		The Bin Full light is off.
Y	N	
		The Waste Bin is full of paper
Y	N	
		The red LED at the rear of the bin full sensor is lit.
Y	N	
		• Check that the retroreflective tape opposite the sensor is clean and not damaged or obstructed.
		• Check Bin Full sensor (24) adjustment (ADJ 12).
		Place a multimeter set to DC Volts across the Bin Full connector J22, pin 1 (+) and pin 3 (-).
		The meter reads +15 VDC.
Y	N	
		Place the meter across I/O PCB (28) connector J311 pins 1 (+) and 3 (-).
		The meter reads +15 VDC.
Y	N	
		The +15 VDC indicator LED 202 on the I/O board (28) is on.
Y	N	
		The +15 VDC LED 198 on the CPU board (29) is on.
Y	N	
		• Go to Power-Up RAP 1.0.
		• Repair the cable to J318 on the I/O board
		• Replace the I/O board (28) (REP 35) (PL 2.2)
		• Repair the cable between J22 and J311 on the I/O board (28)
		• Replace the Bin Full sensor (24) (REP 38) (PL 2.3).
		• Repair the cable from J311 on the I/O board (28) to the Bin Full sensor
		• Empty the waste bin.
		The Table Full light is off.
Y	N	
		The stacker table is full.
Y	N	
		• Check connector J302 on the I/O board (28).
		• Check connector J1/P1 at the interface plate.
		• Check connector J2 to the stacker.
		• Refer to the stacker manual or BookMaster documents for troubleshooting information.
		• Empty the stacker table.
		The Loop Fault light is off.
Y	N	
		The cutter's speed is adjusted to be slightly faster than the printer's speed.
Y	N	
		• Increase the cutter's speed slightly.

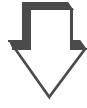
A	B	C
		Place the cutter in offline mode and operate the cutter until the web slack raises the loop above the tower's jam sensor
		The loop fault light is off.
Y	N	
		Remove the tower cover and check that the jam sensor LED goes on and off when the sensor is blocked and unblocked.
Y	N	
		• Check sensor power supply is plugged in.
		• Check sensor adjustment (ADJ 17).
		• Replace sensor (REP 40) (PL 2.3).
		Resume online operation.
		The loop fault light stays off.
Y	N	
		• Check connections to cutter.
		• Check the jam sensor.
		• Replace the jam sensor (REP 40) (PL 2.3)

Go to System Checkout, Section 1

A B C







RAP 5.0 - Power Up (non-120 VAC)

Theory of Operation

The cutter operates with 115 VAC power directly from the customer's source using an optional transformer to convert the input power to 115 VAC. The main power switch/circuit breaker (49) turns on the power and provides the initial circuit protection. Secondary device specific protection is provided by a series of fuses at terminal block TB2 (33). Power is present at the line filter (50) whenever the cutter is connected to an AC source. Switching on the main power switch (49) provides 115VAC power to the following devices:

- AC terminal block TB2 (33).
- DC power supplies (32a & 32b).
- Terminals 34(neutral) and 44(hot) of the contactor (41).
- Stacker table via noise filter 3 (58).
- Cutter fan (89).
- The voltage adjust option (52).

The contactor (41) is energized when the E-Stop (15) and cover interlock (23) is closed. A 12-15VDC potential is applied to the contactor solenoid (41) which permits 115 VAC power to be presented to one side of each of the three solid state relays (30, 31, & 57), the static bar power supply (55), and the hole punch option if present.

Details of Operation

- A 10A line filter in line with the main power switch (49) eliminates electrical noise.
- The +15 VDC power to the contactor (41) is reduced to +12 VDC by means of a 4 Ohm, 5 Watt resistor (56).
- A 33 Ohm, 1/2 Watt resistor (86) limits the current through the E-Stop lamp when the E-Stop switch (15) is depressed or the cover is open.
- The DC power supply (32a & 32b) is protected by a 1.5A, 250VAC fuse at TB2-17 (33).
- When the cutter is in online mode, the enable switch (14) may not be activated while any cutter faults or hard errors are indicated.

Initial Actions

- Ensure that the power cord is plugged into an active power source.
- Ensure that the system is clear of faults if is in online mode or placed in offline mode.
- Ensure that the cutter's top cover is closed.
- Ensure that the E-Stop switch (15) is in its raised position.

Procedure

WARNING

115 VAC is present in the control cabinet. Perform all continuity checks with the power cord detached from the Continuous Cutter.

Use the following transformer (54) taps for non-domestic power sources:

Voltage	hot (BLK)	neutral (WHT)
240 VAC	TB1-5	TB1-8
230 VAC	TB1-6	TB1-8
220 VAC	TB1-7	TB1-8
100 VAC	TB1-2	TB1-3

NOTE: TB1 (54) is mounted on the transformer (53) on the floor of the unit.

Open the electrical panel cover using a 4 mm hex key to unlock the bottom latch and lift to remove the cover. Remove the plastic safety cover over the DC power supplies (32a/32b) and TB2 (33) with a 3mm hex key.

Turn on the main power switch (49).

Place a multimeter set to AC Volts across the appropriate terminals at TB2 (33) to the transformer from the table above.

The meter reads the customer's source voltage

Y N

- Recheck the customer's source.
- Replace the power cord.
- Repair the connections between the transformer and TB2.
- Replace the transformer (53).

Some of the cutter control panel displays are lit.

Y N

The CPU Control Board (29) power LED's are lit.

Y N

Check fuse F1(34) at TB2-17 (33).
The fuse is conducting.

Y N

Replace fuse F1(34) (1.5A, 250VAC).
Place a multimeter set to AC volts across TB2-13 and TB2-16 (33).

The meter reads approximately 115 VAC.

Y N

Place a multimeter set to AC Volts across the load side (BLK and WHT wires) of the 10A line filter (50).

The meter reads approximately 115 VAC.

Y N

Recheck the customer's source.
Place a multimeter set to AC Volts across the load side of the 10A line filter (50).

The meter reads approximately 115 VAC.

Y N

Replace the line filter (50) (REP 36) (PL 2.2).
Place a multimeter set to AC Volts across the main power switch (49) input side (BLK and WHT).

The multimeter reads approximately 115 VAC.

Y N

Check connections between the line filter (50) and the main power switch (49).

Place a multimeter set to AC Volts across the main power switch (49) output side (BLK and WHT).

The multimeter reads approximately 115 VAC.

Y N

Replace the DC power Supply (32b). (REP 35) (PL 2.2)
Place a multimeter set to DC Volts across DC power supply (32b) output connector terminals 5 (common) and 1 (+15 VDC).

A

B

C

The meter reads +5VDC

Y N

Replace the DC power Supply (32b). (REP 35) (PL 2.2)
Place a multimeter set to DC Volts across DC power supply (32b) output connector terminals 5 (common) and 1 (+15 VDC).

The meter reads +15 VDC.

Y N

Replace the DC power Supply (32b). (REP 35) (PL 2.2)
Place a multimeter set to DC Volts across DC power supply (32b) output connector terminals 5 (common) and 6 (-15 VDC).

The meter reads -15 VDC.

Y N

Replace the DC power Supply (32b). (REP 35) (PL 2.2).

The I/O Board (28) power LED's are lit.

Y N

Place a multimeter set to DC Volts across DC power supply (32a) output connector SK2 terminals 5 (common) and 2 (+5 VDC).

The meter reads +5 VDC.

Y N

Replace the DC power Supply (32a). (REP 35) (PL 2.2).
Place a multimeter set to DC Volts across DC power supply (32a) output connector SK2 terminals 5 (common) and 1 (+15 VDC).

The meter reads +15 VDC.

Y N

Replace the DC power Supply (32a). (REP 35) (PL 2.2).
Place a multimeter set to DC Volts across DC power supply (32a) output connector terminals 5 (common) and 6 (-15 VDC).

The meter reads -15 VDC.

Y N

Replace the DC power Supply (32a). (REP 35) (PL 2.2)
Place a multimeter set to DC volts across terminals A-1 and A-2 of the contactor (41).

The meter reads approximately +15 VDC.

Y N

Repair the wiring between TB1-20 (42) and the contactor (41).
Loosen three screws securing the cutter control panel and lift the cutter control panel to disconnect P23 from J23.

Place a multimeter set to Ohms across P23 pins 1 and 2.

The meter indicates continuity.

Y N

Check continuity across pins 1 and 2 of the E-Stop switch (15).
Continuity exists (the E-Stop switch must be in raised position).

Y N

- Replace the E-Stop switch (15) (REP 36.1) (PL 2.1).
- Check the adjustment of the cover close interlock switches (ADJ 12).
- Replace the cover interlock switch (REP 34) (PL 2.3).
- Repair the wiring between connector J23 and terminal block TB1(42).

Press the Enable switch (14).

The enable switch illuminates (may require a 10 second wait after power is turned on to be illuminated steady).

Y N

Perform the switch check (adjacent page) for the enable switch

The enable switch passes the switch test

Y N

- Repair the switch connections.
- Replace the enable switch lamp (PL 2.1).
- Replace the enable switch (14) (PL 2.1).

The cutter's margin trimmer motor turns on (audible noise).

Y N

Check fuse F4 at TB2-21.
Place a multimeter set to AC volts across TB2-13 and pin 2 of SSR1 (30).

The meter reads 115 VAC.

Y N

Repair wiring between TB2-21 and SSR1 (30) pin 2.
Place a multimeter set to DC Volts across SSR1 (30) pins 3(+) & 4(-).

The meter reads +5 VDC.

Y N

Place a meter set to DC volts across connector J310 on the I/O board (28) pins 5 (+) and 6 (-).

The meter reads +5 VDC.

Y N

Replace the I/O board (28). (REP 35) (PL 2.2).
Check wiring between SSR1 (30) and I/O board (28).
Replace SSR1 (30).

Check that margin trimmer motor (20) connector (J20/P20) is connected.

Turn off power to the cutter and unplug the power cord (51).

Place a multimeter set to Ohms across P20 pin 1 and P20 pin 3 to the trimmer motor (20).

The meter reads approximately 5.4 Ohms.

Y N

Replace the motor start capacitor (19) (PL 1.8).
Place a multimeter set to Ohms across P20 pin 2 and P20 pin 5 to the trimmer motor (20). The meter reads approximately 4.3 ohms initially, then rises as cap is charged.

Y N

- Replace the motor run capacitor. (18). (PL 1.8).
- Replace the trimmer motor (20). (REP 21) (PL 1.8).

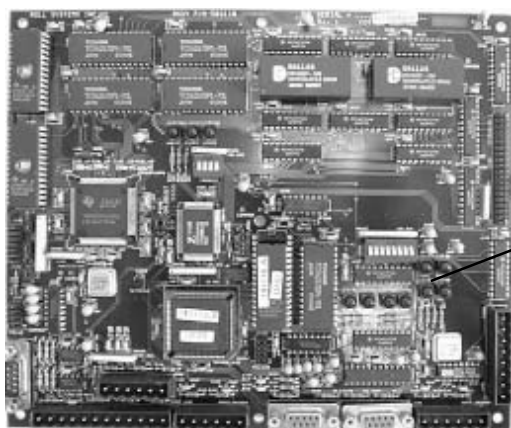
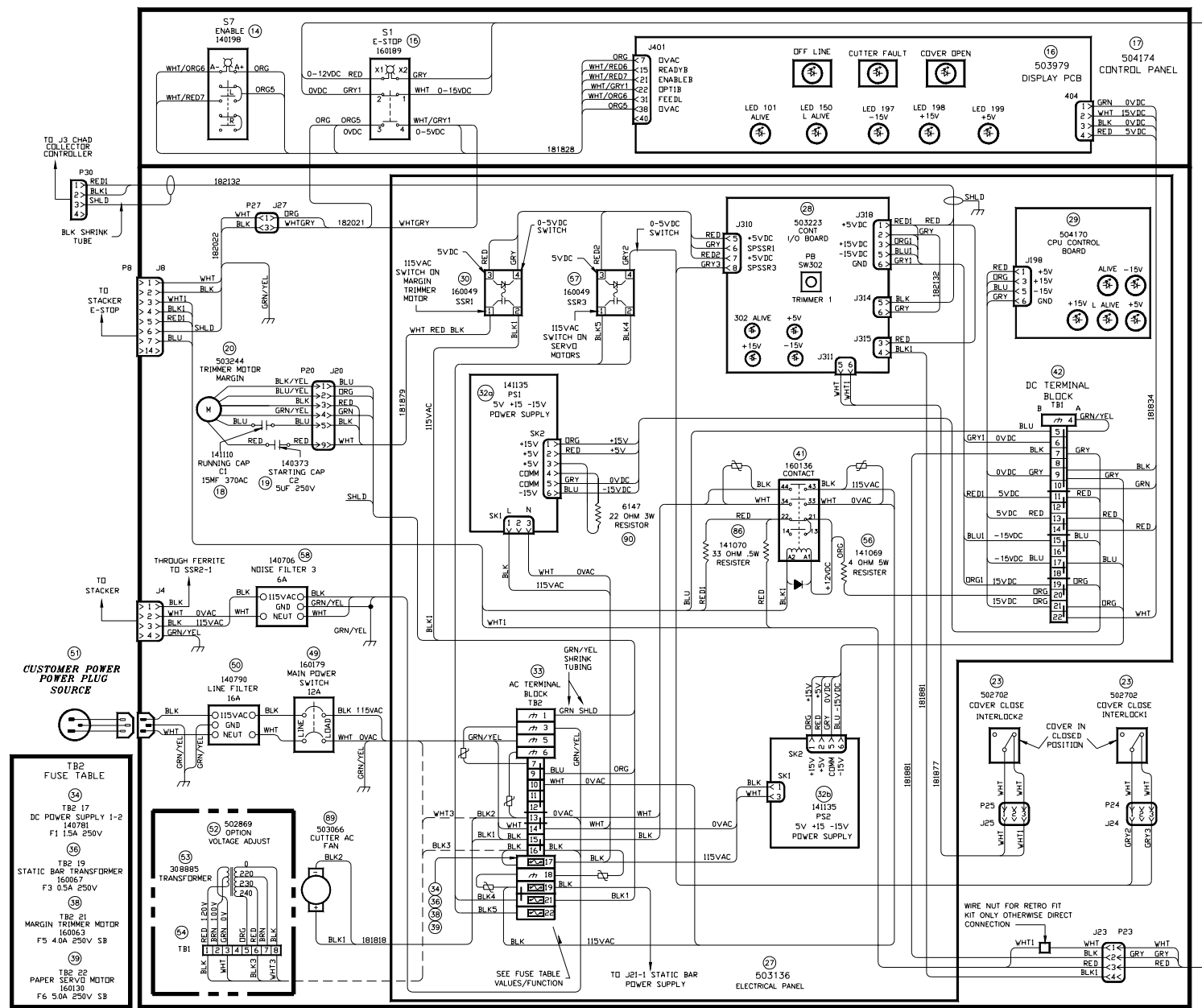
The problem is resolved.

Y N

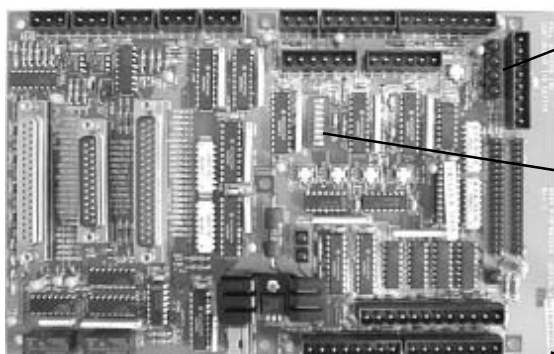
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Go to System Checkout, Section 1

A B C



29 CPU Board Power LEDs

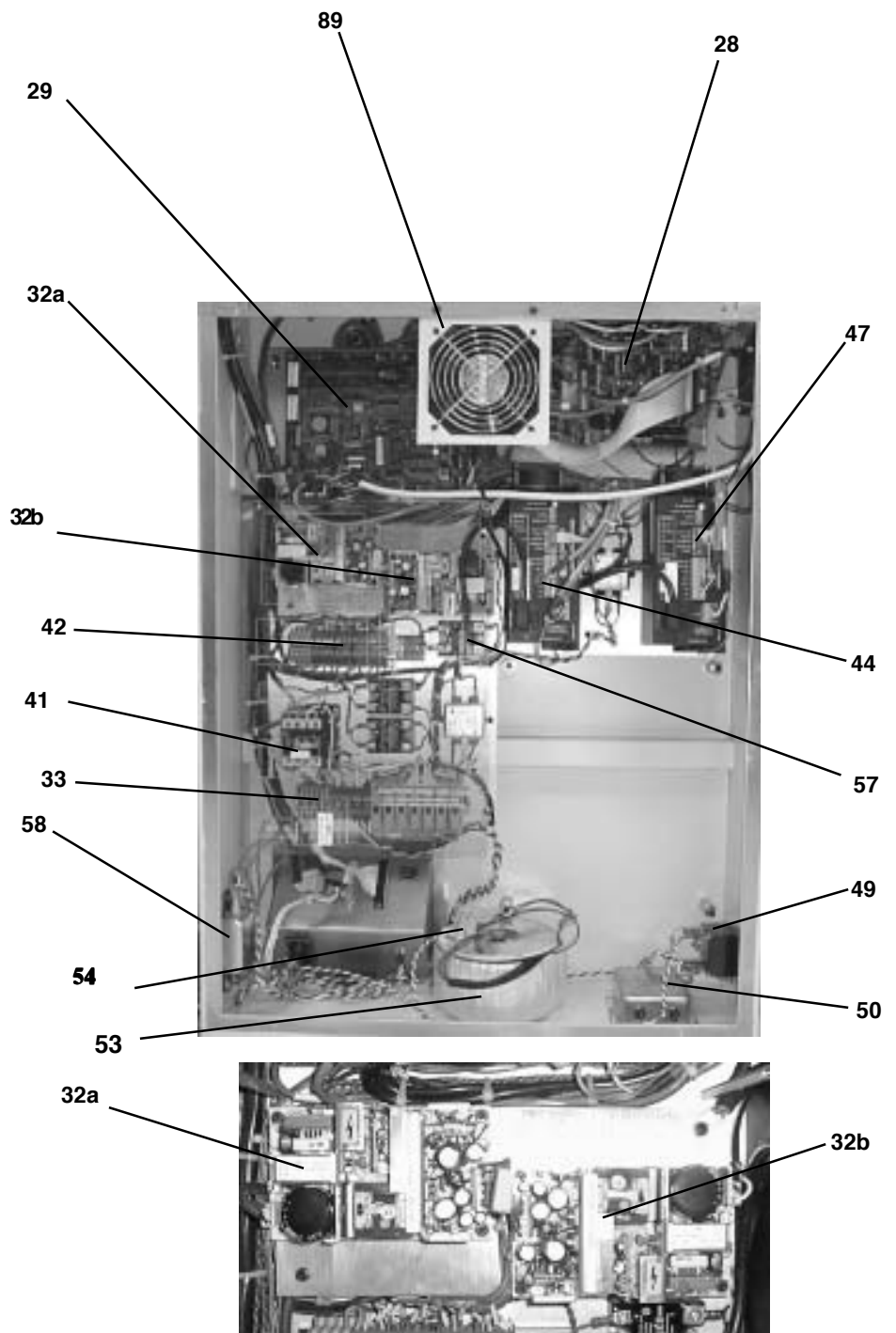


I/O Board Power LEDs

DIP Switch 304

Switch Test

1. Place I/O board DIP switch 304 positions 3 & 4 to ON.
2. Press each switch on the control panel to be tested and the error lights will toggle on and off if the switch is functioning.







RAP 6.0 - Servo Amplifier/Servo Motor Fault Isolation

Theory of Operation

The Continuous Cutter has two identical servo systems, one for knife operation and one for paper feed operation. Each servo system is comprised of a brushless DC motor and a brushless DC servo amplifier. Commands from the microprocessor on the CPU control board, supply the amplifier with appropriate signals to increase power to the motor and to decrease power when it is desired to halt the motor. The amplifier must also be able to maintain the motor's motion free condition when it is desired to have no cutting or feeding action. Software adjustments are built into the control program to permit the CSE to set the motionless condition (balance) and the proper acceleration (gain).

Details of Operation

There are three status LEDs on each servo amplifier:

- The high temp LED, at the top of the amplifier, turns on if the internal temperature of the amplifier exceeds 135° C. (275° F)
- The power/fault LED, the second LED down, indicates any amplifier failure when it lights red.
- The over/under voltage LED, at the bottom of the amplifier, turns on when the voltage inside the amplifier exceeds 190 VDC or falls below 90 VDC. This LED may blink during motor start-up or slowdown if there is a problem.
- The motor contains three Hall effect sensors 120 degrees apart.
- Both the feed and knife motors contain encoders to sense rotational position. Reference **Motor Encoder Outputs** on next page.
- Calibration signals are sent to the amplifier from the system control board.
- The knife servo system (motor and amplifier) is not directly interchangeable with the feed servo system. Gain and balance adjustments must be made.

Initial Actions

- Verify 115 VAC input to the servo amplifier.
- Verify that servo gain and balance adjustments have been properly performed. Refer to **Servo Amplifier Calibration Problems** on next page.
- Verify wiring from the CPU control board to the servo motor encoder is correct.
- Verify wiring from the servo motor to the amplifier is correct.

WARNING

115 VAC is present in the control cabinet. Perform all continuity checks with the power cord detached from the Continuous Cutter.

The three servo amplifier LED fault indicators are off.

Y N

The high temperature LED is off.

Y N

- Check cooling fan is running.
- Check that dirt and dust buildup is not inhibiting cooling.

The high temperature LED turns on only after long periods of operation.

Y N

- Check wiring to servo motor for short circuit.
- Check servo motor winding resistances. Refer to **Servo Motor Winding Resistances** on next page.

The power/fault LED indicator is green.

Y N

- Shut the system down and restart. If the power/fault LED turns red after a short period of time, shut the system down and unplug the motor power connector (labeled MOTOR) at the amplifier. Restart the system.

The power/fault LED indicator is green.

Y N

Replace the amplifier. **REP 35**

The under/over voltage LED is off.

Y N

Place an AC voltmeter across TB2-11 and TB2-22 (paper servo amplifier {44}) or TB-12 and TB2-23 (knife servo amplifier {47}).

The meter reads between 108-127 VAC.

Y N

- Voltage is out of specified range-customer supply must be corrected.
- Check for open power wiring between motor and amplifier (4-pos. connector).
- Check for excessive loading on the motor such as obstructions in the drive train or bearing failure.
- Check motor winding resistances. Refer to **Servo Motor Winding Resistances** on next page.

A B C D E F

A B C D E F

The servo gain and balance adjustments can be performed.

Y N

- Check motor winding resistances. See chart on next page.
- Check Hall sensor outputs. See chart on next page.

The motor winding resistances were correct.

Y N

Replace the servo motor.

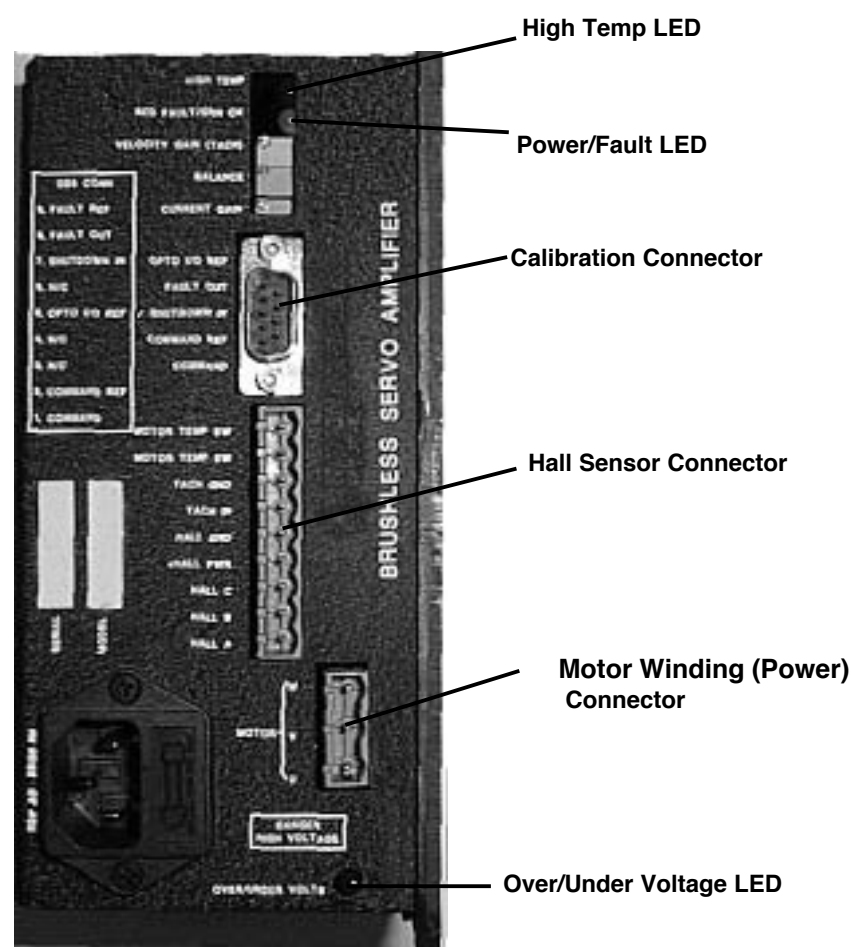
The Hall sensor outputs were correct.

Y N

Replace the servo motor. (**REP 20/PL 1.1** for paper drive motor, **REP 29/PL 1.6** for knife drive motor.)

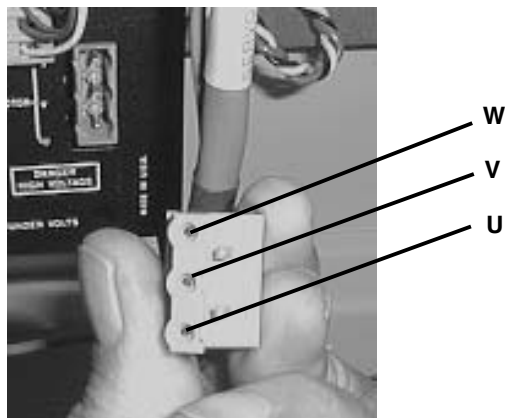
Replace the servo amplifier. (**REP 35/ADJ 16/PL 2.2** for paper drive servo amplifier, **REP 35/ADJ 15/PL 2.2** for knife drive servo amplifier.)

Return To SFA



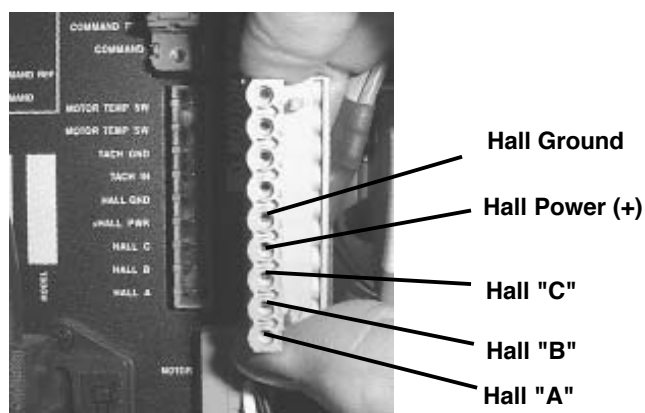
SERVO AMPLIFIER

Servo Motor Winding Resistances



1. Power Off Cutter.
2. Wait for servo amplifier to discharge. Green/Red LED Power/Fault indicator turns off.
3. Disconnect the servo amplifier motor output by removing the amplifier connector of the suspected amplifier/motor.
4. Use a DVM set to Ohms to check the suspected motor winding resistances
5. The resistance is nominally 1.3 Ohms at room temperature. Be sure to check between W and V, W and U, and V and U.
6. Also check between W and motor case, V and Motor case, and U and motor case for an open circuit condition.
7. Replace the motor if the above conditions are not met.

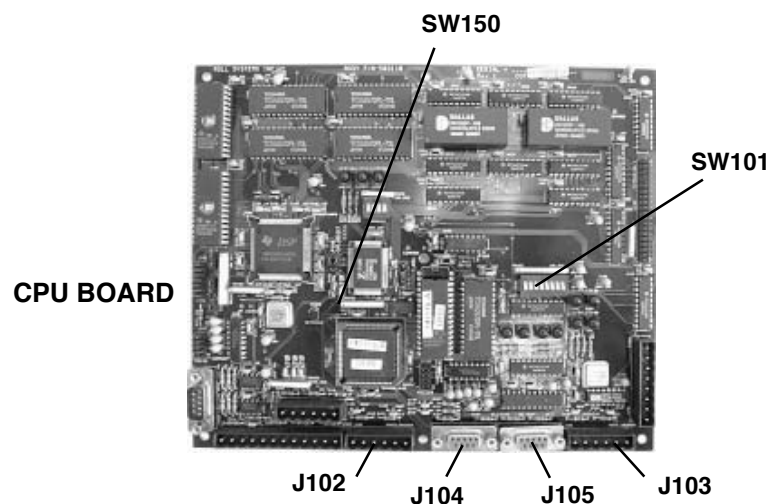
Hall Sensor Outputs



Hall Sensor Connector

1. Power off Cutter.
2. Wait at least 60 seconds for the servo amplifiers to discharge. Green/Red LED Power/Fault indicator turns off.
3. At least one Hall sensor output should be in the high state of approximately 4.95 VDC.
4. There should not be a condition that puts all sensors in the high state at the same time.
5. With motor power connector removed, the motor shaft can be rotated manually and the voltage levels of each Hall sensor output can be observed to change. Each sensor is located 120 degrees apart so a large shaft movement may be necessary to see a voltage change.
6. Turn cutter power back on.
 - Hall Sensor Power** - should range from 4.5VDC – 4.7 VDC.
 - Hall Sensor Ground** - All voltage measurements are referenced to this Hall sensor outputs from the motor should be either ~ 0.125 VDC or 4.95 VDC.
 - Measure between Hall sensor "A" and Hall ground.
 - Measure between Hall sensor "B" and Hall ground.
 - Measure between Hall sensor "C" and Hall ground.
 - If voltages are not at these levels then to separate motor or amplifier fault swap the suspect servo motor with the 2nd motor by switching connectors at the motor. Remeasure voltages above.
7. Replace the motor if the above conditions are not met.

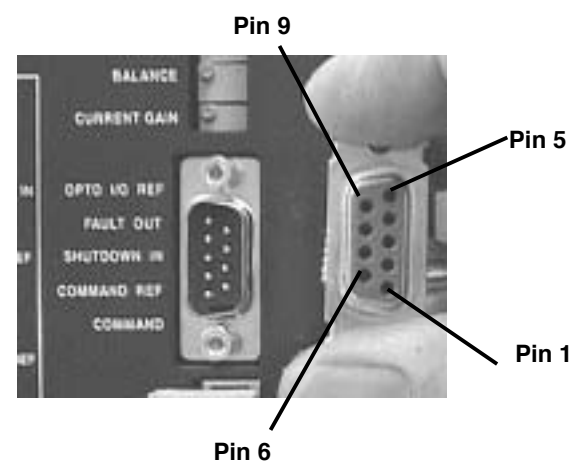
Motor Encoder Outputs



1. Encoder outputs are located on the Main CPU Control board of the cutter. Outputs are digital and have a low state voltage of ~.1VDC and high state of ~ 5VDC.
 - Feed Motor Encoder Connections are at P102 –1 (phase A), P102-4 (phase B), and P102-2 (common).
 - Knife Motor Encoder Connections are at P103 –1 (phase A), P103-4 (phase B), and P103-2 (common).
2. Check encoder output switching by removing motor power connector from amplifier and then manually rotate the motor shaft and observe voltage level changes on the above pins. Failure of proper voltage changes most likely indicates a bad encoder in the servo motor.
3. Replace the servo motor if the above conditions are not met.

Servo Amplifier Calibration Problems

This sequence will verify the calibration signals from the main control board of the cutter.



1. Power off cutter.
2. Remove AC power plug from the suspected servo amplifier/motor.
3. Remove the 9 pin D-type connector from the amplifier.
4. Turn cutter power back on.
5. Using a DC voltmeter, place the black lead on frame or power supply common.
 - a) Place the RED lead in pin 1 of the connector and measure 0VDC. This the analog command signal to run the servo amplifier/motor.
 - b) Next measure 0VDC in pin 7. This is the amplifier shutdown signal which is disabled at this point.
 - c) Next measure approximately 5VDC on pin 8. This the servo fault input to the control board. It should always be at 5VDC during this test. If not then there is a input port problem with the main control board.
6. Place the particular servo amplifier/motor into the balance mode by the DIP switches on the main control board.
 - a) The voltage at Pin 1 of the connector should now alternate between plus and minus with a range of approximately +5VDC to –5VDC. This signal normally causes the motor to alternately reverse direction.
 - b) The voltage at pin 7 should be 5VDC thus enabling the amplifier output if the connector was plugged in.
 - c) Pin 8 should not have changed.
7. Disable balance calibration mode by the DIP switches above.
8. Enable the gain mode to the same servo amplifier above and note the voltage reading at pin 1.
 - a) Voltage at pin 1 should be a non-alternating ~+5VDC.
 - b) Pin 7 voltage should be same as 6b.
 - c) Pin 8 voltage should be same as 5c or 6c.
9. Disable gain mode and power off cutter.
10. Any lack of voltage or large variation from above means that the main control board is likely bad.
11. Reconnect AC plug and the D-connector to amplifier when done.



Section 3.0 is reserved for future use.

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REP 1 - Top Cover and Safety Shield

Purpose - This procedure describes how to remove and replace the top cover and safety shield.

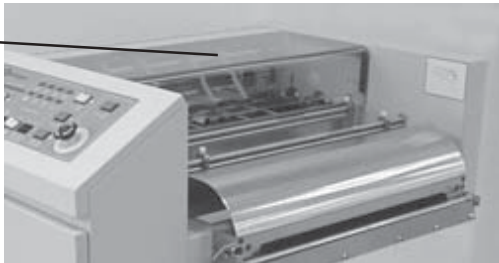
Parts List - See Parts List Covers/Casters Parts List 3.1 in Section 5.

Tools: 4 mm hex key
 3 mm hex key
 10 mm box or socket wrench
 1/4" blade screwdriver

WARNING

Turn off the cutter; disconnect from electrical source.

Top Cover

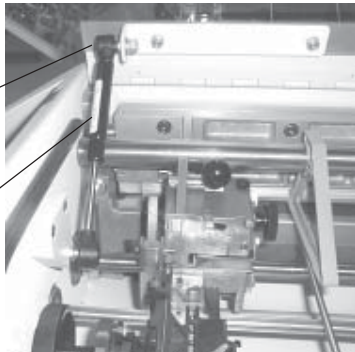


Top Cover Removal

1. Lift the top cover. Use the screwdriver to pry off the bottom plastic cap of the top cover cylinder. Separate the cylinder from the top cover bracket.

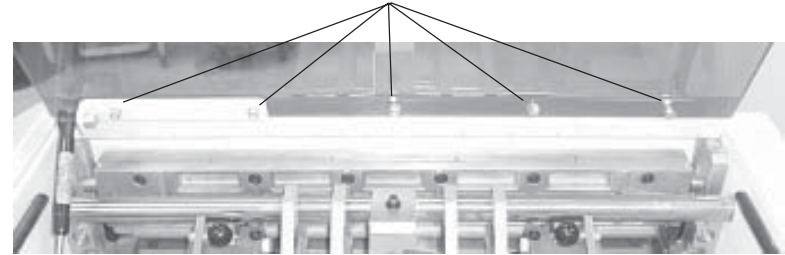
Plastic Cap

Top Cover Cylinder



2. Remove the five 10 mm nuts and washers holding the top cover to the hinge.

10 mm Nuts



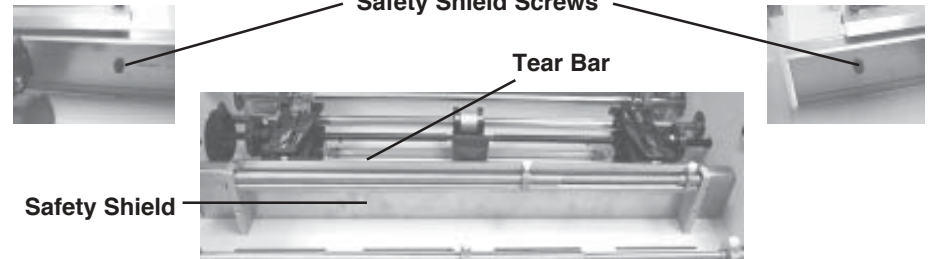
The top cover can now be removed, hold the top cover while removing.

Safety Shield and Tear Bar Removal

1. Use the 4mm hex key to remove one screw from each side of the shield to the parallel rod supports. The screws are on the backside of the supports.

Safety Shield Screws

Tear Bar



Safety Shield

2. Use the 3mm hex key to remove the two end screws securing the tear bar to the parallel rod supports.

Tear Bar Screw

Tear Bar Screw



Replacement

Reverse the removal procedure for replacement.

Adjustment

ADJ 12

REP 2 - Drive System Cover

Purpose - This procedure describes how to remove and replace the system drive cover to expose the margin trimmer and paper drive belts and pulleys.

Parts List - See Parts List 3.1 in Section 5

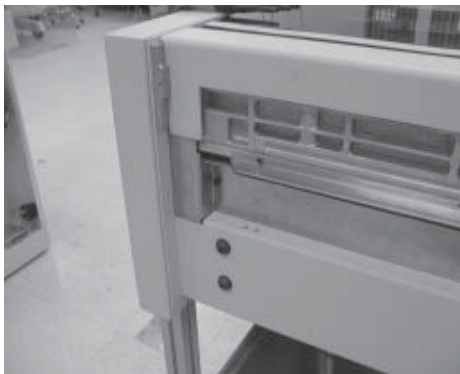
Tools: 3 mm hex key

WARNING

Turn off the cutter; disconnect from electrical source.

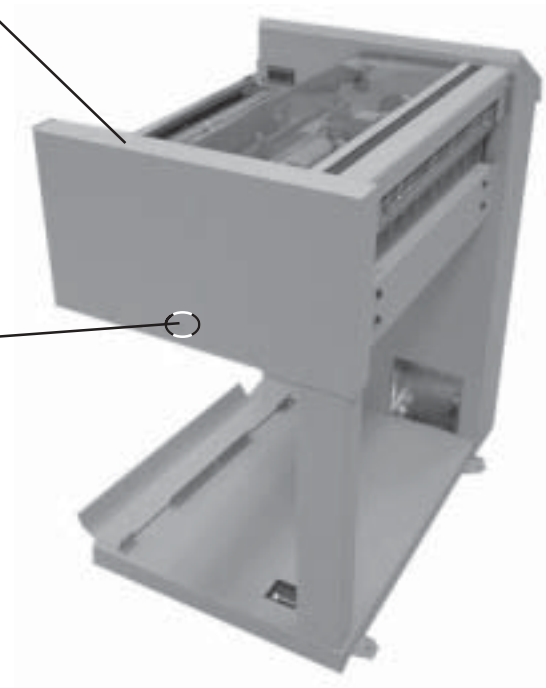
Removal

1. Remove the screw securing the drive system cover using a 3 mm hex key and lift upward to clear the two top clips.



Drive System Cover

Screw is
Located
Behind
Cover



Replacement

Reverse the removal procedure for replacement.

Adjustment

REP 3 - Bottom Cover

Purpose - This procedure describes how to remove and replace the bottom cover.

Parts List - See Parts List 3.1 in Section 5

Tools: 4 mm hex key

Replacement

Reverse the removal procedure for replacement.

Adjustment

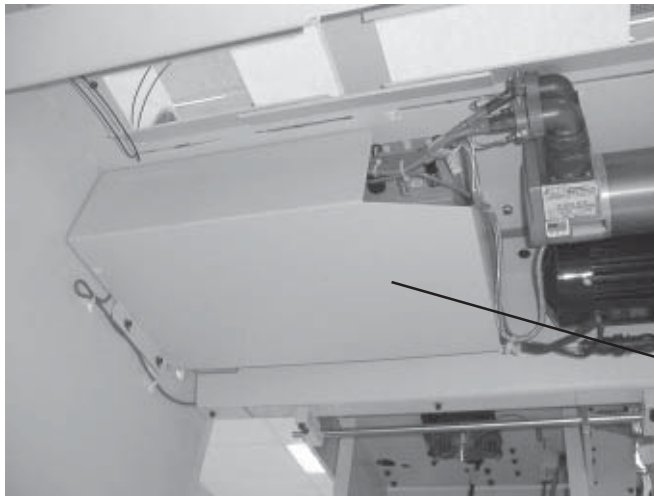
N/A

WARNING

Turn off the cutter; disconnect from electrical source.

Removal

1. Support the cover and loosen the three socket head screws from the bottom cover using a 4 mm hex key. Slide the cover back to clear the keyhole slots.



Bottom Cover

2. Place the cover in a safe location until ready for reinstallation.

REP 4 - Electrical Panel Cover

Purpose - This procedure describes how to remove and replace the electrical panel cover.

Parts List - See Parts List 3.1 in Section 5

Tools: 4 mm hex key

WARNING

Turn off the cutter; disconnect from electrical source.

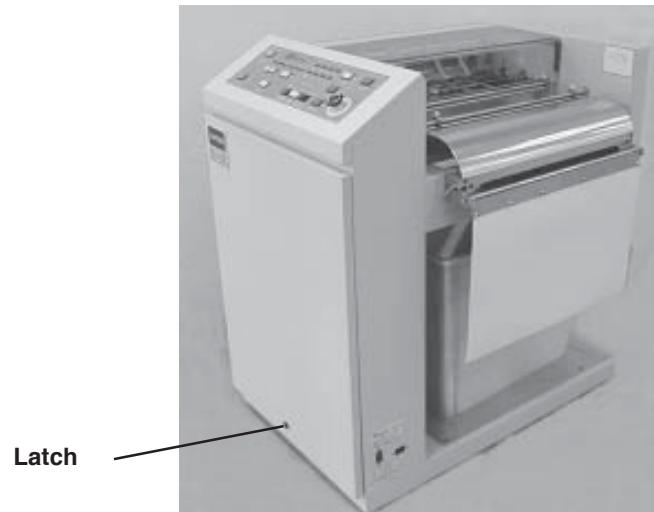
Removal

1. Use the 4 mm hex key to turn the latch at the bottom center of the electrical panel
2. Lift the electrical panel to clear two top clips and remove to a safe place.

Replacement

Reverse the removal procedure for replacement.

Adjustment



REP 5 - Upper Knife Blade Cover

Purpose - This procedure describes how to remove and replace the upper knife blade cover.

Parts List - See Parts List 3.1 in Section 5

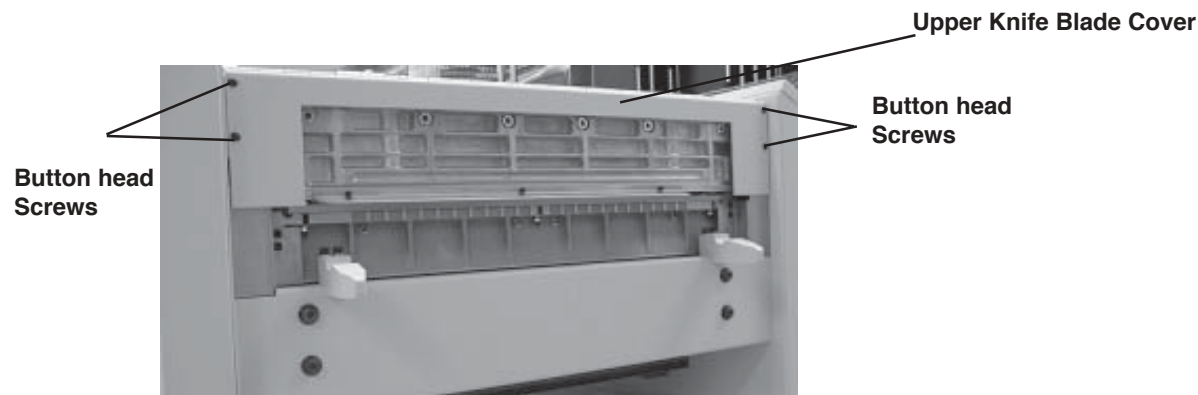
Tools: 3 mm hex key

WARNING

Turn off the cutter; disconnect from electrical source.

Removal

1. Lift the top cover. Use the screwdriver to pry off the bottom plastic cap of the top cover cylinder. Separate the cylinder from the top cover bracket.
2. Remove the four button head screws in the upper knife casting using a 3 mm hex key.



3. Lift the cover.

Replacement

Reverse the removal procedure for replacement.

Adjustment

N/A

REP 6 - Knife Guard and Linkage Guards

Purpose - This procedure describes how to remove and replace the knife guard and linkage guards.

Parts List - See Parts List 3.1 in Section 5

Tools: 2.5 mm hex key
3 mm hex key

WARNING

Turn off the cutter; disconnect from electrical source.

Removal

1. Remove upper knife blade cover. **(REP 5)**
2. Remove the three upper knife guard screws.

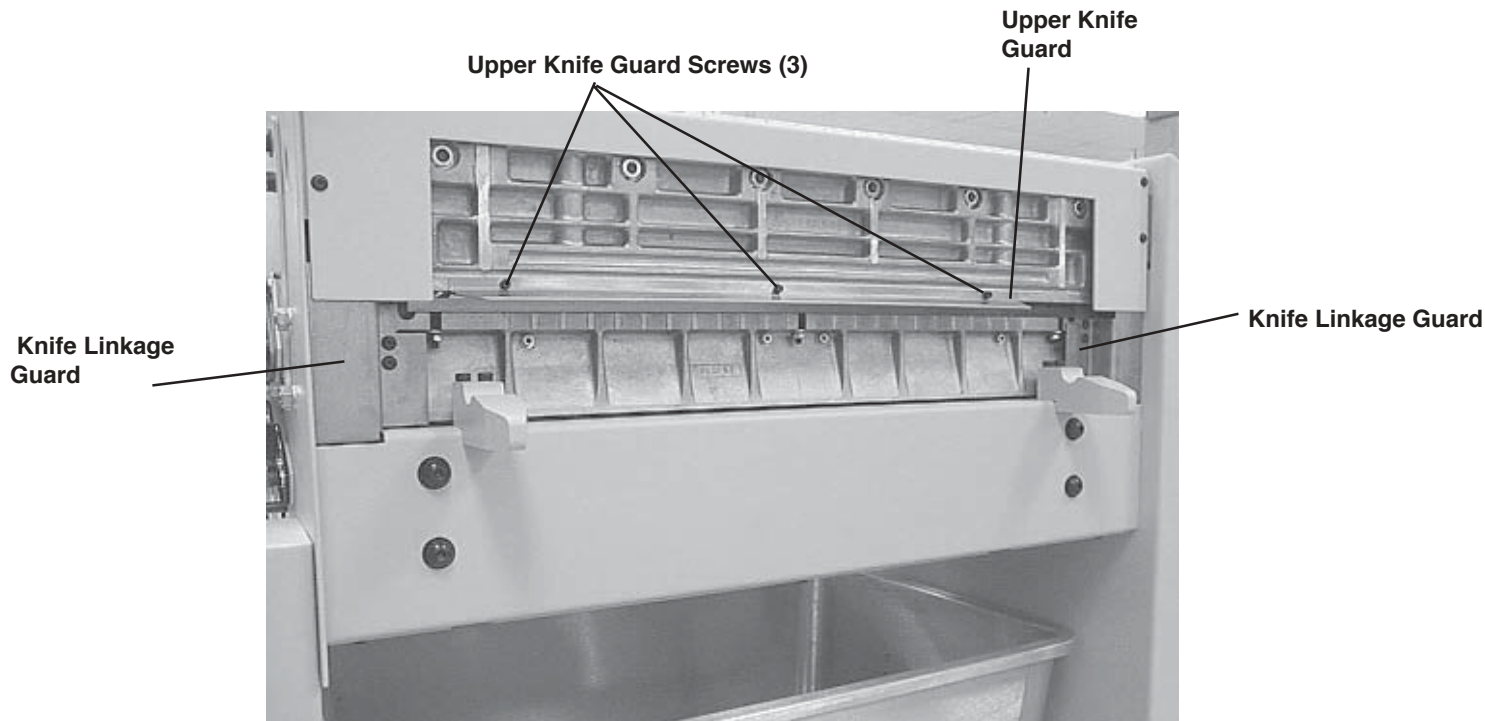
3. Remove the two screws from the left and right linkage guards.

Replacement

Reverse the removal procedure for replacement.

Adjustment

N/A



REP 7 - Knife Driveshaft Cover

Purpose -This procedure describes how to remove and replace the knife driveshaft cover.

Parts List - See Parts List 3.1 in Section 5

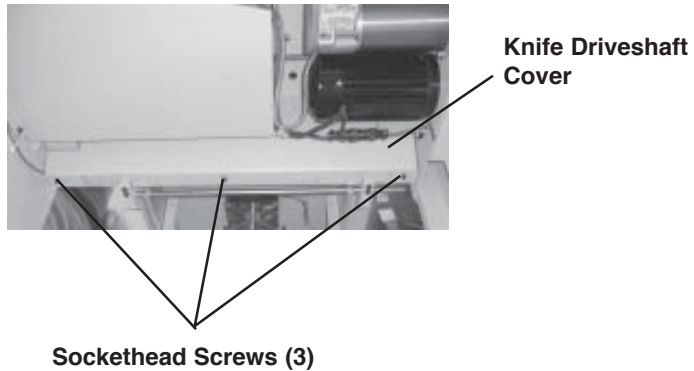
Tools: 4 mm hex key

WARNING

Turn off the cutter; disconnect from electrical source.

Removal

1. Loosen three socket head screws using a 4 mm hex key and slide the cover to clear the keyhole slots.



Replacement

Reverse the removal procedure for replacement.

Adjustment

N/A

REP 8 - Knife Drive Belt Cover

Purpose -This procedure describes how to remove and replace the drive belt cover.

Parts List - See Parts List 3.1 in Section 5

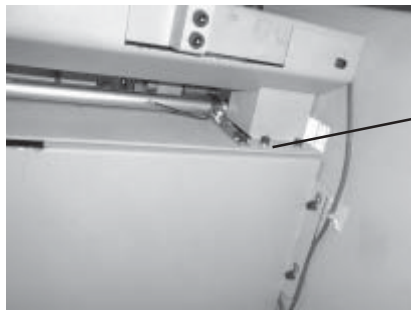
Tools: 4 mm hex key

WARNING

Turn off the cutter; disconnect from electrical source.

Removal

1. Remove the lower knife drive belt cover. **(REP 7)**
2. Loosen two socket head screws using a 4 mm hex key and slide the cover to clear keyhole slots.



Knife Drive
Belt Cover

Replacement

Reverse the removal procedure for replacement.

Adjustment

N/A

REP 9 - Control Panel

Purpose -This procedure describes how to remove and replace the control panel that permits access to the left side bearings and bushings of the paper drive (splined) and margin trimmer drive shafts.

Parts List - See Parts List 2.1 in Section 5

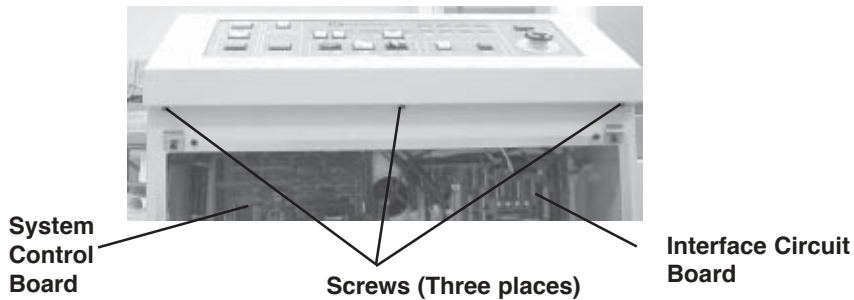
Tools: 4 mm hex key

WARNING

Turn off the cutter; disconnect from electrical source.

Procedure

1. Remove the electrical panel cover. **(REP 4)**
2. Loosen three hex head screws using a 4 mm hex key and pull the control panel toward the operator position.



3. Unplug connectors J400, J401, J402, and J404 at the display board and cover interlock connectors J23 and J24.

NOTE: Do not leave the Operator Panel hanging on the cutter frame, place it in a safe place.

Replacement

Reverse the removal procedure for replacement.

Adjustment

N/A

REP 10 - Loop Control Flap

Purpose - This procedure describes how to remove and replace the loop control flap

Parts List - See Parts List 1.11 in Section 5

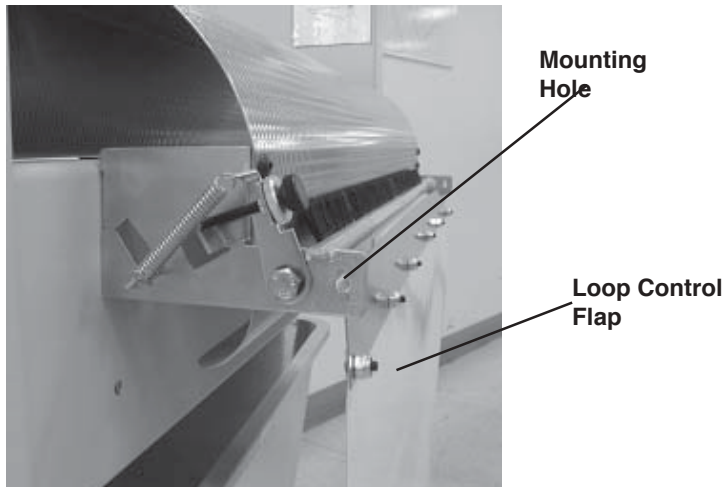
Tools: None required

WARNING

Turn off the cutter; disconnect from electrical source.

Procedure

1. Flex the loop control flap to slide the end tabs out of or into the slots in the loop control mount.



Replacement

Reverse the removal procedure for replacement.

Adjustment

REP 11 - Infeed Brush Assembly

Purpose - This procedure describes how to remove and replace the infeed brush and brush mounting bracket.

Parts List - See Parts List 1.11 in Section 5

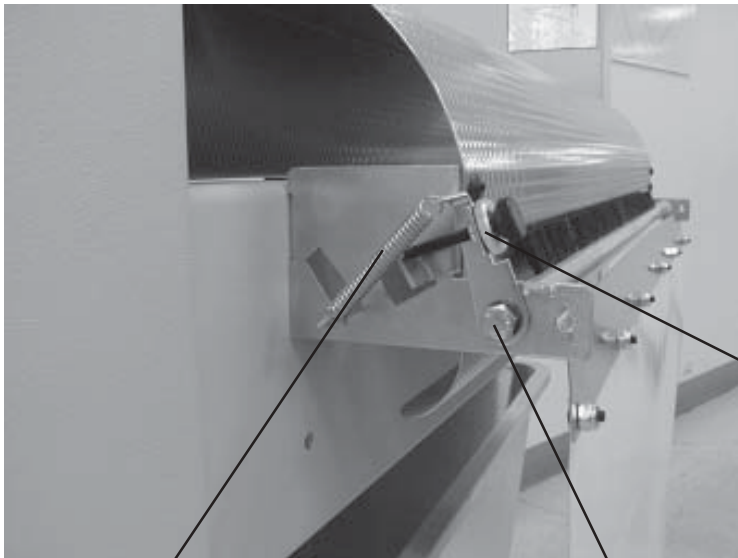
Tools: 10 mm open end wrench
3 mm hex key
Retaining ring pliers

WARNING

Turn off the cutter; disconnect from electrical source.

Procedure

1. Remove one end of the extension spring from the brush tensioning assembly.
2. Use a 10 mm open end wrench to remove the single hex head screw from the end of the brush and remove the brush tensioning assembly.



Spring

Hex Head Screw

Brush Tensioning Assembly

3. Loosen two screws securing the brush tensioning assembly mounting plate until the brush can be slid far enough to the left to become free of the busing on the right side.
4. Free the left brush end from the tensioning assembly mounting plate .
5. Remove the retaining ring and install it on the replacement brush.

Replacement

Reverse the removal procedure for replacement.

Adjustment

ADJ 1

REP 12 - Paper Drive Belt

Purpose - This procedure describes how to remove and replace the paper drive belt.

Parts List - See Parts List 1.1 in Section 5

Tools: 5 mm hex key

WARNING

Turn off the cutter; disconnect from electrical source.

Procedure

1. Remove the drive system cover. **(REP 2)**
2. Loosen the paper drive belt tensioner using a 5mm hex key and remove the drive belt.

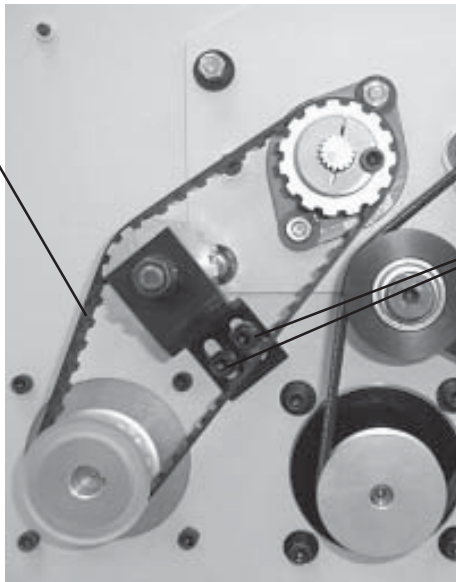
Replacement

Reverse the removal procedure for replacement.

Adjustment

ADJ 6

Paper Drive Belt



5 mm hex screws

REP 13 - Margin Trimmer Drive Belt

Purpose - This procedure describes how to remove and replace the margin trimmer drive belt.

Parts List - See Parts List 1.8 in Section 5

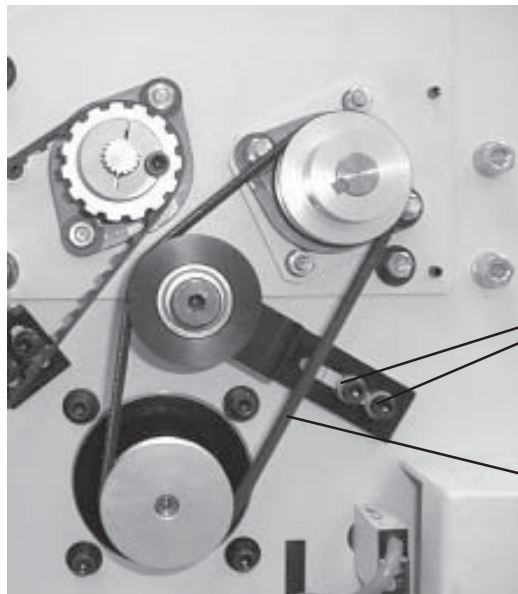
Tools: 5 mm hex key

WARNING

Turn off the cutter; disconnect from electrical source.

Procedure

1. Remove the drive system cover. **(REP 2)**
2. Loosen the margin trimmer drive belt tensioner using a 5 mm hex key, and remove the drive belt.



5 mm Hex
Screws

Margin Trimmer Drive
Belt

Replacement

Reverse the removal procedure for replacement.

Adjustment

ADJ 6

REP 14 - Paper Driveshaft

Purpose - This procedure describes how to remove and replace the splined paper drive shaft.

Parts List - See Parts List 1.1 in Section 5

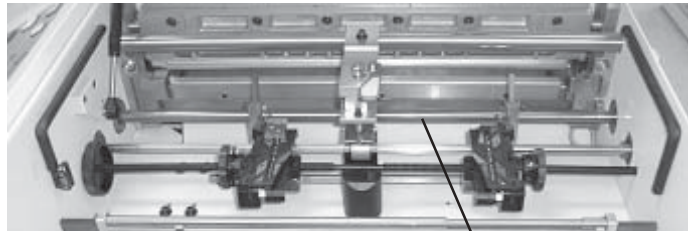
Tools: 3/32 inch hex key 1/8 inch hex key
 9/64 inch hex key 5 mm hex key
 10 mm open end wrench

WARNING

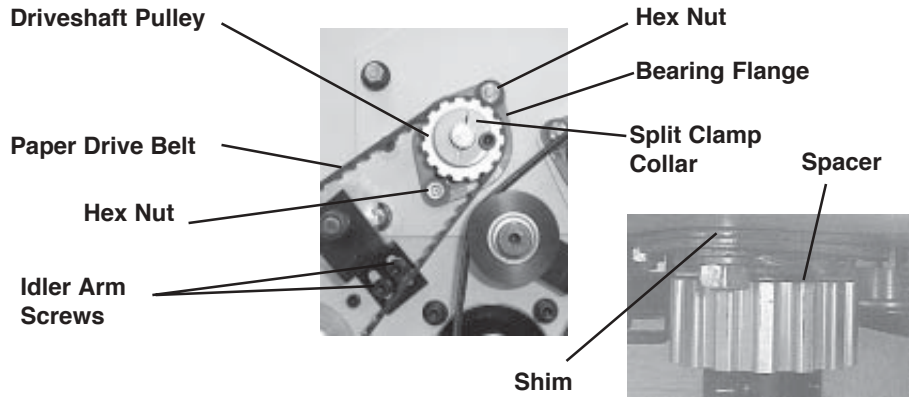
Turn off the cutter; disconnect from electrical source.

Procedure

1. Remove the control panel (REP 9) and drive system cover (REP 2). Open the top cover and remove all upper and lower paper guides.
2. Loosen two idler arm screws to slacken the paper driveshaft belt tensioner with a 5 mm hex key and remove the paper drive belt.



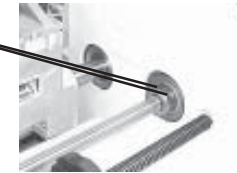
Splined Paper Drive Shaft



3. Use a 9/64" hex key to loosen the screw in the split clamp collar on the paper drive shaft (drive system side of the cutter) and remove the clamp collar, driveshaft pulley, and spacer.
4. Use a 3/32" (or 1/8") hex key to loosen the set screws in both bearings securing the drive shaft to bearings. Note that the set screws seat on flats on the splined paper drive shaft.



OPERATOR SIDE



DRIVE SYSTEM SIDE

Bearing Set Screws

5. Scribe a line around drive side flange and operator side flange before removing. Loosen the two hex nuts on both bearing flanges.
6. Slide the paper drive shaft away from the non-operator side of the cutter and completely out of the cutter.

Replacement:

Reverse the removal procedure for replacement. Be sure that the flanges fit inside the scribe marks of the original flanges.
NOTE: When replacing the splined paper drive shaft, place the end with the flats at the end of the shaft into the cutter first, as shown.

Adjustment



Flats

NOTE: The tractor belt position in each tractor must be the same. Match the position of the left tractor belt to the position of the right tractor belt after inserting the splined paper drive shaft into the right tractor.

ADJ 6

REP 16 - Paper Driveshaft Bearings

Purpose - This procedure describes how to remove and replace the splined paper driveshaft bearings.

Parts List - See Parts List 1.1 in Section 5

Tools: 1/8 inch hex key 3/32 inch hex key
 9/64 inch hex key 5 mm hex key
 10 mm open end wrench

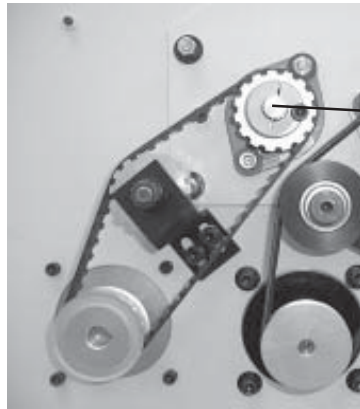
WARNING

Turn off the cutter; disconnect from electrical source.

NOTE: Paper driveshaft bearings may use either 1/8 inch or 3/32 inch set screws

Procedure

1. Remove the control panel (**REP 9**), drive system cover (**REP 2**), and all upper and lower paper guides.



Splined Paper Driveshaft

2. Loosen the paper drive belt tensioner using a 5mm hex key, and remove the drive belt.

3. Loosen the screw in the split clamp collar on the paper drive shaft clamp collar using a 9/64 hex key and remove the clamp collar and paper drive shaft pulley.
4. Loosen the set screws in the bearings.
5. Remove two 10mm nuts from the shaft bearing and slide the bearing from the shaft.

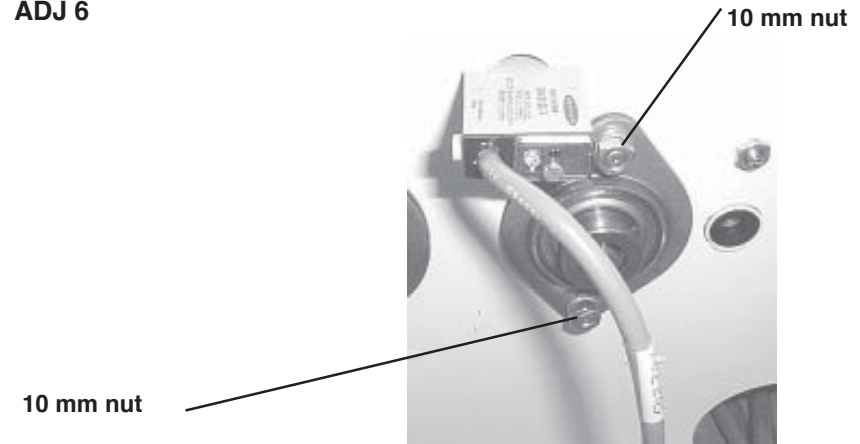
Replacement

NOTE: Install both shaft bearings on the shaft ends before tightening the nuts.

1. Reverse the removal procedure for replacement.

Adjustment

ADJ 6



REP 17 - Margin Trimmer Driveshaft Bearings

Purpose - This procedure describes how to remove and replace the margin trimmer bearings.

Parts List - See Parts List 1.8 in Section 5

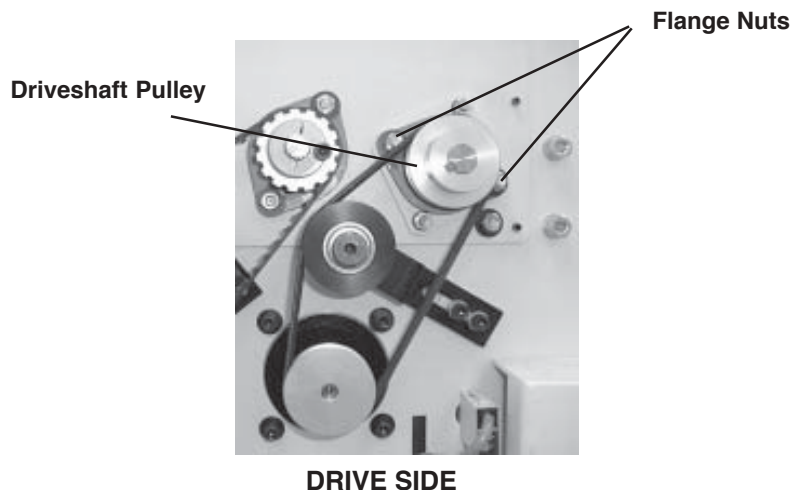
Tools: 1/8" hex key
 5 mm hex key
 2.5 mm hex key
 10 mm open end wrench

WARNING

Turn off the cutter; disconnect from electrical source.

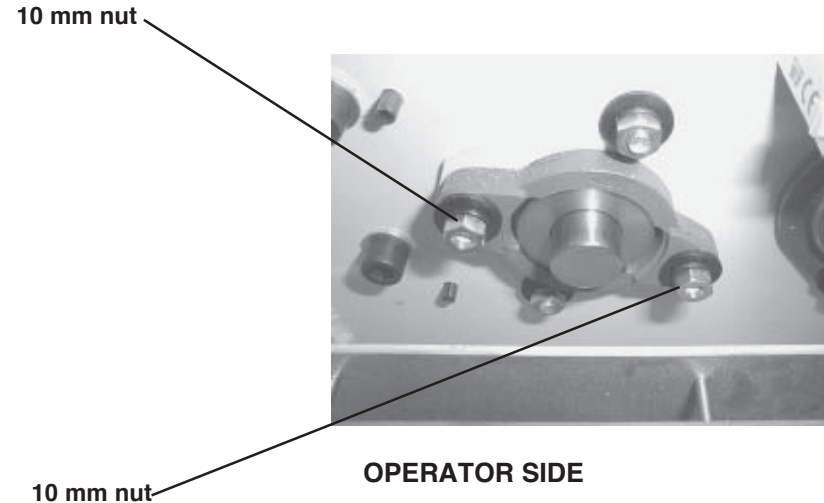
Procedure

1. Remove the control panel (**REP 9**) and drive system cover. (**REP2**)
2. Loosen the margin trimmer drive belt tensioner using a 5 mm hex key, and remove the drive belt.



3. Scribe a line around drive side flange and operator side flange before removing. Remove the two flange nuts and pull the driveshaft, bearing, and pulley assembly from the cutter. This will be one assembly.

4. Remove two nuts from the shaft bearing using a 10 mm open end wrench and slide the bearing from the shaft.



Replacement

NOTE: Install both driveshaft bearings onto the driveshaft ends before tightening the nuts.

1. Reverse the removal procedure for replacement. Be sure that the flanges fit inside the scribe marks of the original flanges.

Adjustment

ADJ 6

REP 18 - Pinless Drive Roller

Purpose - This procedure describes how to remove and replace the pinless drive roller.

Parts List - See Parts List 1.4 in Section 5

Tools: 4 mm hex key

WARNING

Turn off the cutter; disconnect from electrical source.

Procedure

1. Raise the pressure roller.
2. Remove the control panel (**REP 9**) and drive system cover. (**REP 2**)
3. Remove the Paper Drive Shaft. (**REP 14**)
4. Remove two screws at the front of the drive roller and slide the roller assembly out.

Replacement

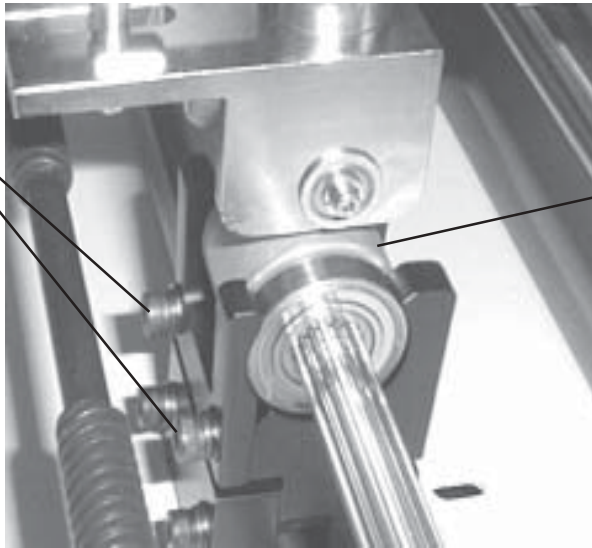
1. Slide the bearing assembly onto the drive roll support. Install the back roll support and screws. Do not tighten the screws at this time.
2. Install the splined shaft through the drive roller assembly, thus locating the drive roller assembly vertically without bending the splined shaft.
3. Tighten the two roll support screws.

Adjustment

1. Adjustment consists of positioning the drive roller assembly at the desired position along the hex shaft, depending upon the web width selected.
2. Loosen the two positioning screws using a 4 mm hex key and slide the assembly. Once positioned, be sure to firmly secure the positioning screws.

See **ADJ 8**

Drive Roll
Support
Screws



Pinless Drive Roller

REP 19 - Pressure Roller

Purpose - This procedure describes how to remove and replace the pinless pressure roller.

Parts List - See Parts List 1.4 in Section 5

Tools: 3/16" hex key

WARNING

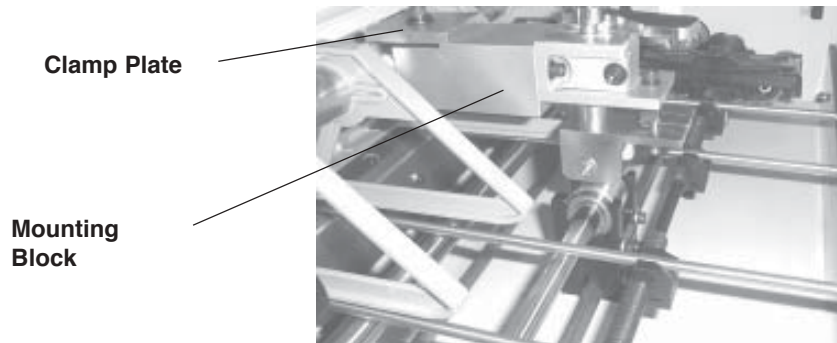
Turn off the cutter; disconnect from electrical source.

Procedure

1. Open the top cover and lift the pressure roller by turning the cam arm clockwise.

NOTE: To facilitate replacement in the same location, place a mark on the mounting shaft using a felt tipped pen.

2. Use a 3/16" hex key to remove the screw fastening the clamp plate to the mounting shaft.



3. The mounting shaft contains a keyway which a screw in the mounting block engages. Rotate the mounting block downward to remove the pressure roller assembly.

Replacement

NOTE: The clamping plate must rest on the top surface of the mounting block, not in the machined recess.

1. Reverse the removal procedure for replacement.

Adjustment

ADJ 9, ADJ 10, and ADJ 11

Center the pressure roller such that it is centered upon the pinless drive roller.

REP 20 - Paper Drive Motor

Purpose - This procedure describes how to remove and replace the paper drive motor.

Parts List - See Parts List 1.1 in Section 5

Tools: 5 mm hex key
5/32" hex key

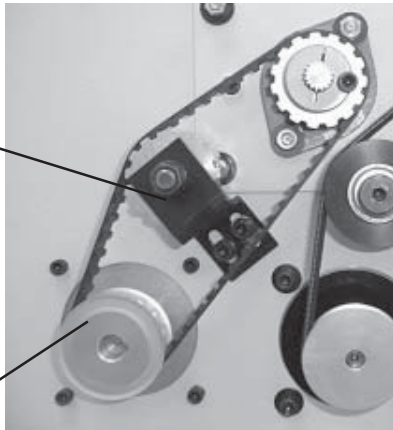
WARNING

Turn off the cutter; disconnect from electrical source.

Procedure

1. Remove the bottom cover (**REP 3**) and drive system cover (**REP 2**).
2. Slacken the paper drive belt tensioner using a 5 mm hex key, and remove the drive belt.

Paper Drive Belt Tensioner



Paper Drive Motor Pulley

3. Loosen the screw in the paper drive motor pulley using a 3 mm hex key and remove the pulley and shaft key.
4. Remove two electrical connectors from the paper drive motor.



Paper Drive Motor

5. Remove four screws securing the motor using a 5/32" hex key while supporting the motor.

CAUTION

The motor weighs approximately 9.5 pounds

Replacement

1. Reverse the removal procedure for replacement.

Adjustment

ADJ 6

REP 21 - Margin Trimmer Drive Motor

Purpose - This procedure describes how to remove and replace the margin trimmer drive motor.

Parts List - See Parts List 1.8 in Section 5

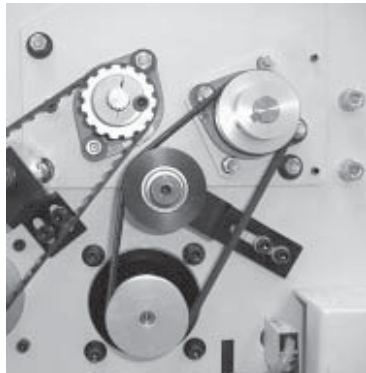
Tools: 3/16" hex key
 3 mm hex key
 5 mm hex key

WARNING

Turn off the cutter; disconnect from electrical source.

Procedure

1. Remove the bottom cover (**REP 3**) and drive system cover. (**REP 2**)
2. Loosen the margin trimmer drive belt tensioner using a 5 mm hex key, and remove the drive belt.



3. Remove the margin trimmer motor pulley using a 5 mm hex key.
4. Disconnect the margin trimmer motor's electrical connector and starting capacitor connectors.
5. Remove the margin trimmer motor by removing four bolts securing the motor using a 3/16" hex key while supporting the motor.

Margin Trimmer Motor



Replacement

1. Reverse the removal procedure for replacement.

Adjustment

ADJ 6

REP 22 - Margin Trimmer Assembly and Shaft

Purpose - This procedure describes how to remove and replace the complete margin trimmer assemblies and shaft.

NOTE: Refer to Slitter Option in Section 8 if system has a center slitter installed.

CAUTION

If system has the Gutter Cut option installed do not use this procedure. Refer to Gutter Cut Option in Section 8

Parts List - See Parts Lists 1.8, 1.9 and 1.10 in Section 5

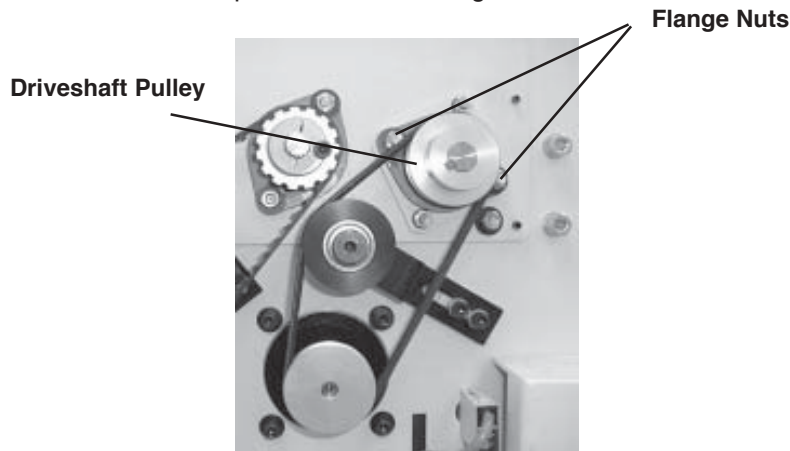
Tools: 1/8 inch hex key
5 mm hex key
10 mm open end wrench

WARNING

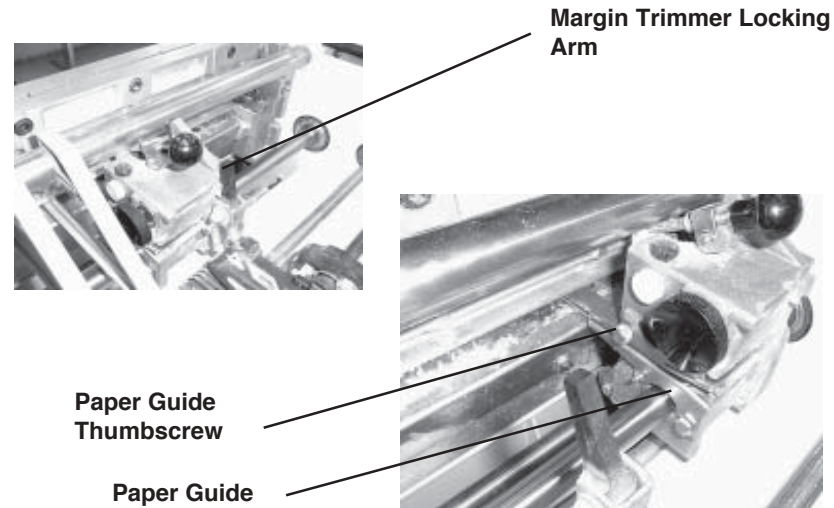
Turn off the cutter; disconnect from electrical source.

Procedure

1. Remove the control panel (**REP 9**) and drive system cover (**REP 2**). Open the top cover and remove all upper and lower paper guides.
2. Loosen the margin trimmer drive belt tensioner using a 5 mm hex key and slip the belt off the pulley (**REP 13**).
3. Scribe a line around the bearing flanges. Remove the bearing flange nuts (two) on the drive side margin trimmer shaft bearings with a 10 mm wrench. Note spacers between flanges.



4. Pull the margin trimmer locking arm away from the margin trimmer and slide the trimmer along the shaft away from the tractor. Do this for each margin trimmer.
5. Loosen the paper guide thumbscrew and remove the paper guide by pulling it back towards the infeed area. Do not let guide contact the blades.
6. Slide the margin trimmer shaft out toward non-operator side of machine. Support each margin trimmer assembly as it is removed from the shaft.



WARNING

The margin trimmer cutting wheel and margin chopper are extremely sharp.

Replacement

1. Reverse the removal procedure for replacement. Observe the scribe line.

Adjustment

ADJ 3

REP 23 - Margin Trimmer Assembly Rebuild

Purpose - This procedure describes how to rebuild the Continuous Cutter Reverse Hub trimmer assemblies (left and right). This procedure describes how to rebuild the Reverse Hub Margin trimmers in the Continuous Cutter. The instructions describe the RIGHT trimmer but the procedure is applicable to both the RIGHT and LEFT trimmers. It can be completed in less than one hour.

There are four tasks to accomplish:

1. Remove the left and right margin trimmers from the Continuous Cutter.
2. Vacuum the margin trimmers to remove any accumulated paper dust.
3. Disassemble each trimmer and rebuild with the kit.
4. Reinstall the rebuilt margin trimmers in the Continuous Cutter.

WARNING

Use extreme care when handling the trimmer blades. They are very sharp.

Parts List - See Parts Lists 1.9 and 1.10 in Section 5.

Tools Required -

1/8 inch hex key	1.5 mm hex key
3 mm hex key	5 mm hex key
6 inch Adjustable wrench	7 mm open end wrench
Blade Screwdriver	

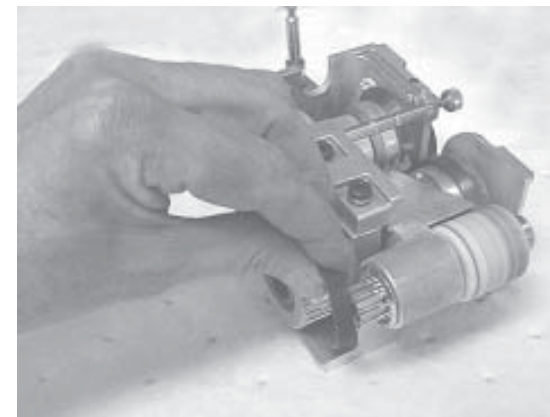
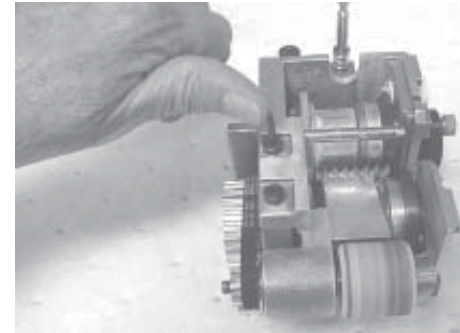
NOTE: These rebuild instructions are for the reverse hub margin trimmer only. Margin trimmers 503132 and 503133 must first be converted to reverse hub margin trimmers 504555 and 504556 respectively. Order conversion kits 504662 and 504663.

Disassemble Margin Trimmer

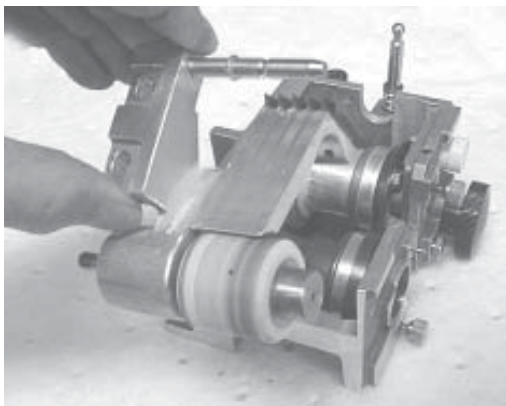
1. Remove the paper trim roller assembly. Pull back on the margin trimmer pin and knob and slide the paper trim roller assembly off the shaft.



2. Loosen the support assembly with a 3 mm hex key and remove the belt.



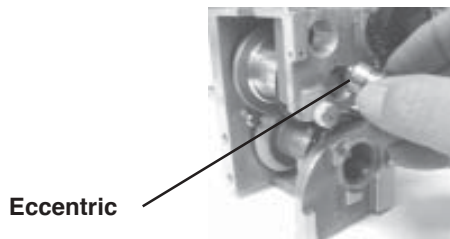
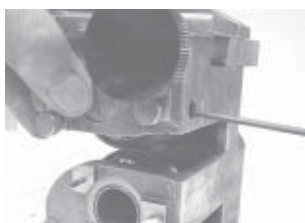
3. Remove the two support assembly mounting screws and lift out the support assembly. Slip the belt off the pulley.



4. Remove the margin trimmer oiler assembly by loosening the thumbscrew on top of the housing and pulling the margin trimmer oiler assembly straight out from the housing.



5. Remove the eccentric setscrew with a 2.5 mm hex key while holding the spring loaded eccentric in place. When you feel the eccentric “give”, remove it and the spring from the housing.



6. Compress the upper hub assembly and push the upper hub axle out of the housing with a hex key. Remove the axle.

WARNING

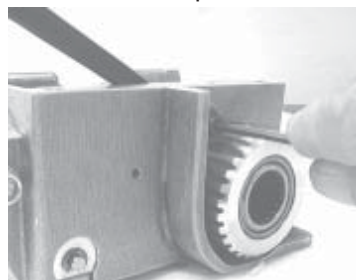
The tapered blade is very sharp.



7. While still compressing the upper hub assembly together, carefully remove it from the housing.

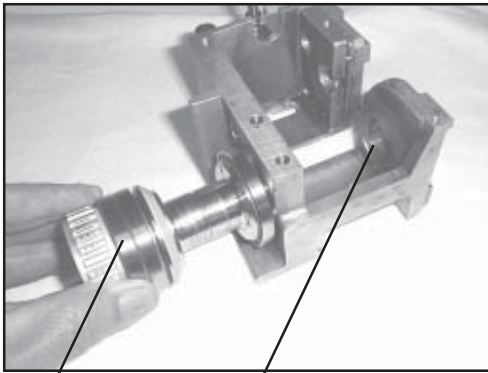


8. Use a 3 mm hex key and a 7 mm open end wrench to remove the screw, two spring washers, two flat washers, and locknut that are holding the lower hub in place. Remove the spacer.



9. Carefully remove the lower hub assembly .

WARNING
The cylindrical blade is very sharp.



Hub Assembly Bronze Bushing

Clean the ID and faces of the bronze bushing in the housing with a dry cloth. **DO NOT USE ANY TYPE OF SOLVENT.** Inspect the bore of the bronze bushing. It should be round and free of gouges or galling. Replace the entire housing if the bushing is oblonged or heavily scored. Lightly oil the bushing.

Left Housing Assembly - P/N 503877

Right Housing Assembly - P/N 503878

NOTE: Writing is visible on left lower hub bearing.

Rebuild Margin Trimmer

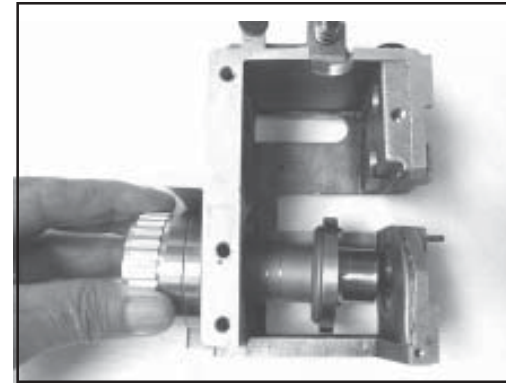


1. Install the new cylindrical margin trimmer blade on the lower hub assembly using the new screws (P/N 102566). A blade screwdriver is used.

WARNING

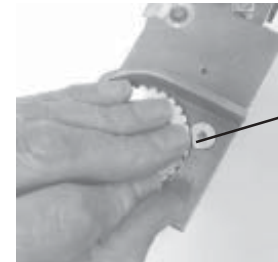
The cylindrical blade is very sharp.

2. Carefully insert the rebuilt lower hub assembly into the cleaned housing.



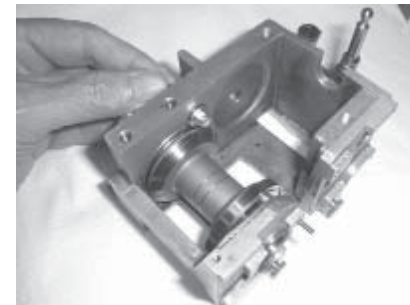
3. Install hardware kit (P/N 503859).

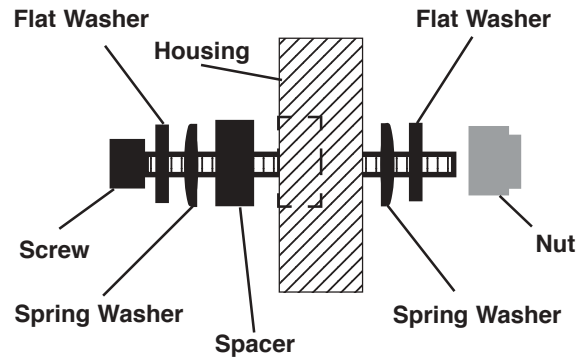
Place the spacer in the housing cavity as shown.



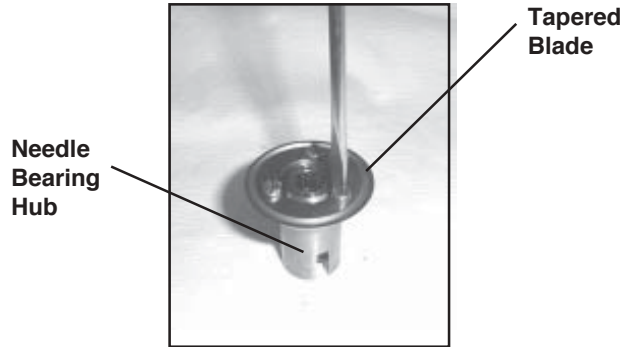
Spacer

Next, assemble a flat washer and then a spring washer on the socket head cap screw. Put the screw through the spacer and housing. Assemble the remaining spring washer (note curved surface), flat washer, and locknut on the screw. Tighten with a 3 mm hex key and 7 mm open end wrench.

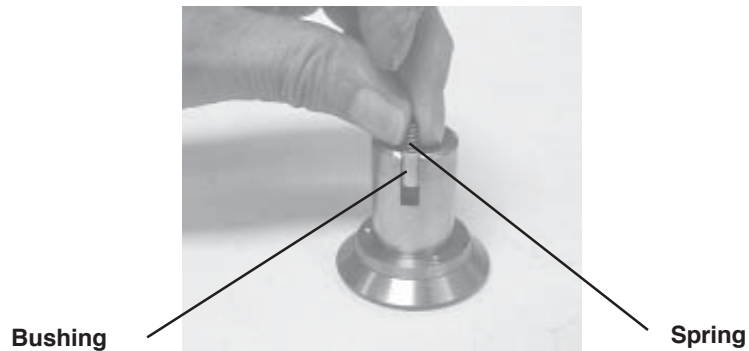




4. Remove the tapered blade from the needle bearing hub assembly with a blade screwdriver and discard the screws. Clean the outside of the needle bearing hub with a non-metallic abrasive pad. Attach the new tapered blade to the cleaned needle bearing hub assembly with the cheesehead screws.



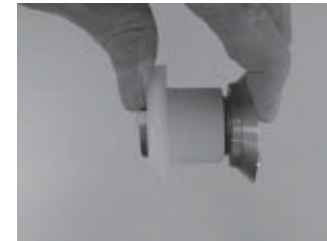
5. Assemble each compression spring into a plastic bushing and place both sets into the needle bearing hub assembly.



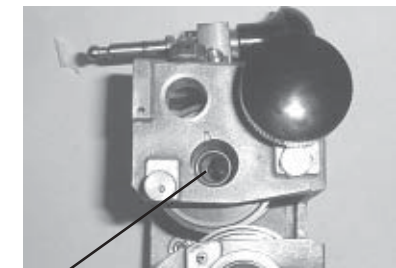
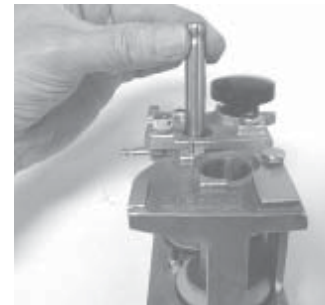
6. Mount the new friction wheel assembly on the needle bearing assembly and press down as shown.



7. This assembly MUST remain compressed while inserting it into the housing. Align the assembly with the housing as shown to permit easier insertion of the upper hub axle.

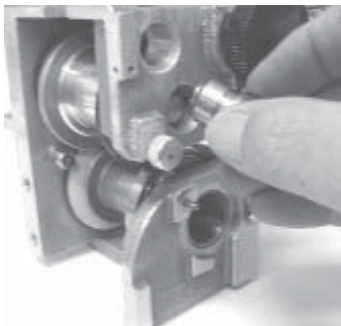


8. Insert the upper hub axle with the rounded end going in first. Ensure that the rounded end of the axle is correctly seated in the counter bore inside the housing wall.

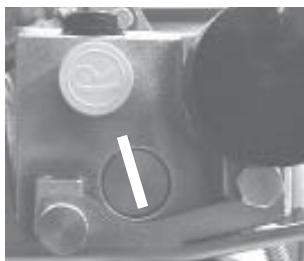


Note alignment

9. Place the eccentric and its spring in position in the housing and hold in place.



Align the reference mark on the housing and the groove in the eccentric. This is an initial setting. Use a 2.5 mm hex key to tighten the new set screw.

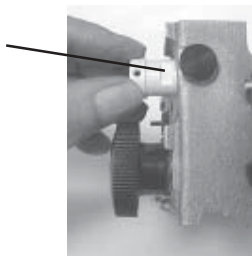


10. Saturate the new margin trimmer oiler assembly with Roll Systems oil P/N 502741.

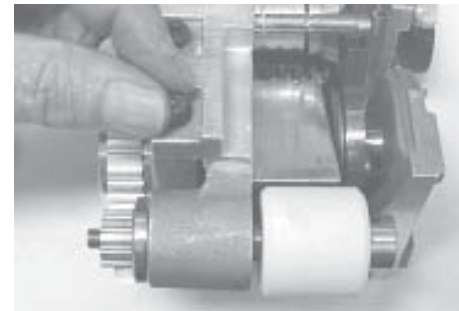


Place the new margin trimmer oiler assembly into the housing with the "flat" facing up and tighten the thumbscrew to just hold the oiler in the housing. It should have some lateral play.

Flat



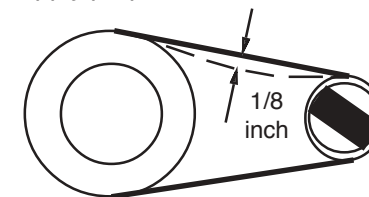
11. Mount the support assembly to the housing and loosely secure with new low profile socket head screws.



12. Slide the belt in place.



13. Slide the support assembly down to apply proper belt tension and tighten in place with the 3 mm hex key.



14. Verify that the chopper blade does not contact the lower hub or the upper tapered blade. Turn the large pulley by hand to check for binding.



15. Replace the paper trim roller assembly. Pull back on the margin trimmer pin and knob and slide the paper trim roller assembly on the shaft.

REP 24 - Tractor Assembly Rebuild

Purpose - This procedure describes how to rebuild a tractor assembly (left or right).

Parts List - See Parts Lists 1.3 in Section 5

Tools: Phillips screwdriver

10 mm open end wrench

Removal:

1. Remove the tractor assembly from the cutter. **(REP 15)**

2. Remove the tractor door:

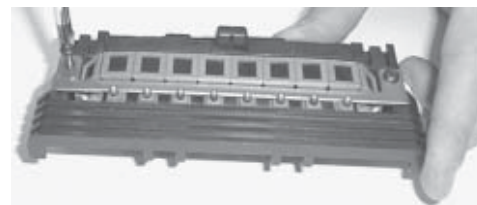
A. Remove both door springs.



B. Remove the two Phillips screws holding the door to the frame. Open



3. Remove the belt guide plate by removing the two Phillips screws.

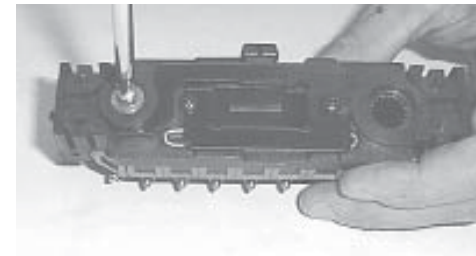


4. Remove the inboard side frame:

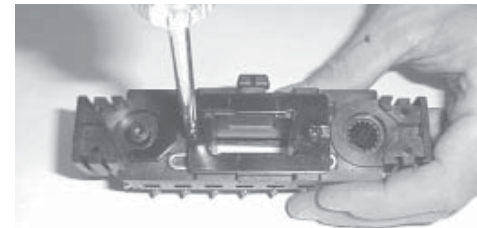
A. Remove the two inboard side frame mounting screws.



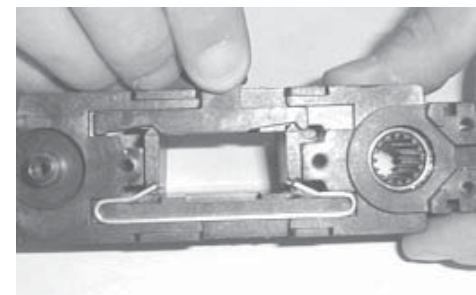
B. Remove the lock handle by removing the screw and washer holding it to the frame.



C. Remove the two Phillips screws holding the clamp plate and pull the clamp plate away from the frame.

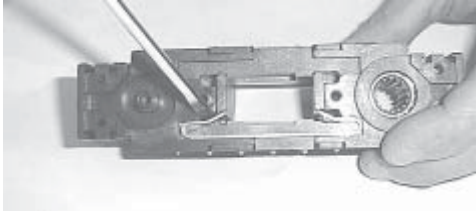


D. Pull the adjustment arm off the frame. Note the orientation of the adjustment arm before removing. It must be replaced in the same orientation.

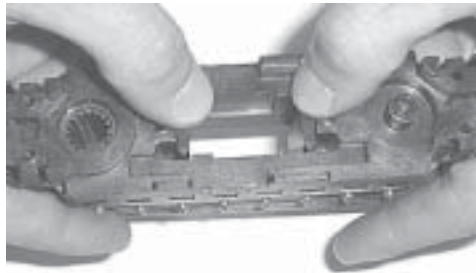


REP 24 - Tractor Assembly Rebuild (continued)

E. Pry the support shelf spring out of the frame with a blade screwdriver.



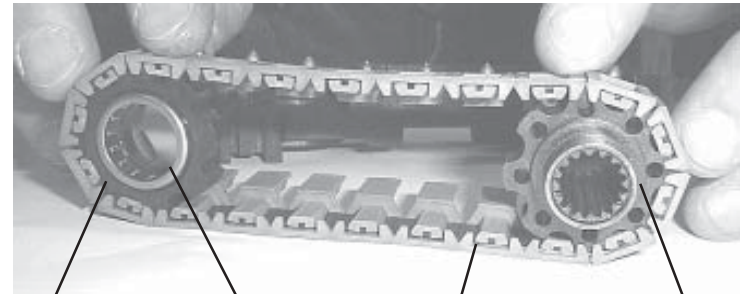
F. Press the two support shelf tabs inward and back to separate the support shelf from the side frame.



5. Place the side frame down with the belt facing up and lift the belt and sprockets off the side frame. Separate the belt and sprockets after they have been removed from the frame. Loosen the idler post if needed.



6. The labeled items and the tractor door (with springs) are the replaceable parts of the tractor assembly.



Idler Sprocket

Needle Bearing

Belt

Drive Sprocket



Oilite Bushing

Replacement Procedure:

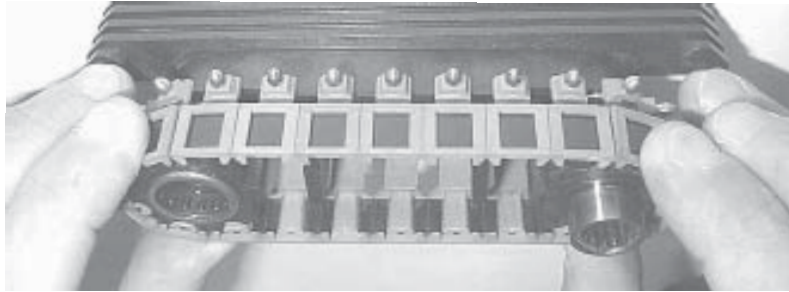
Replacement is the reverse of the removal procedure. The following steps are for clarification.

1. Belt and Sprockets:

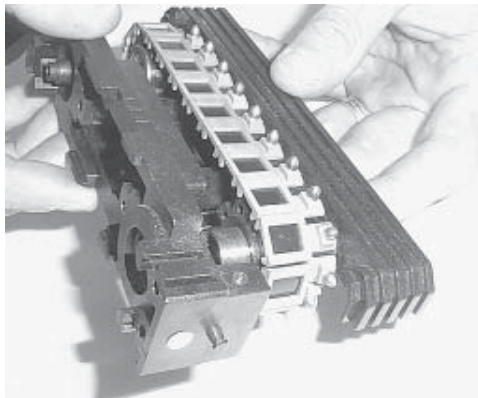
- A. The idler sprocket and the drive sprocket should be placed in the belt prior to mounting on the frame.
- B. The short end of the drive sprocket and the needle bearing in the idler sprocket should face away from the pins in the belt

REP 24 - Tractor Assembly Rebuild (continued)

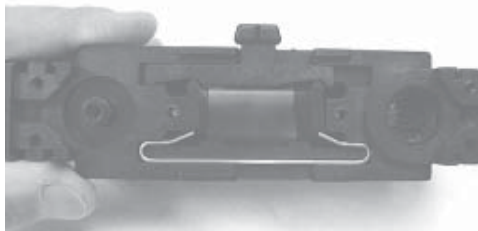
C. Place the belt and sprockets as a single unit into the inboard side



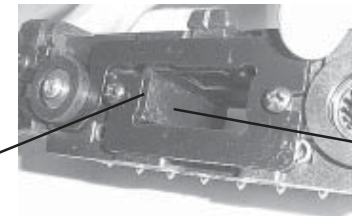
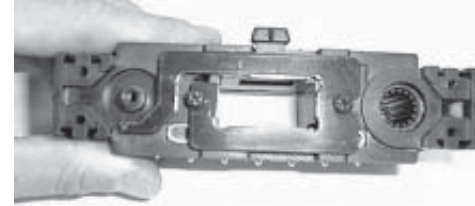
3. Press the inboard side frame assembly and the outboard side assembly together. Replace the screws removed in step 4A of removal procedure.



4. Replace the adjustment arm and support shelf spring as shown. The adjustment arm must be replaced in the same orientation as it was when it



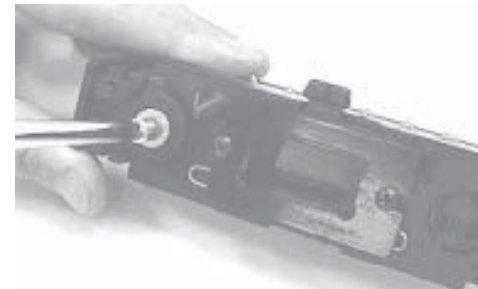
5. Replace the clamp plate with screws as shown. Note orientation of clamp plate. The inside edge of the clamp plate must be flush with the inside face of the outboard side frame tab.



Inside Edge of Clamp Plate

Inside Face of Outboard Side Frame Tab

6. Replace the locking handle with screw and washer as shown. It is in the unlocked position.



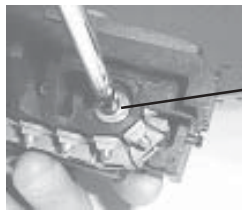
7. Replace the belt guide plate and screws removed in step 3 of removal procedure.

REP 24 - Tractor Assembly Rebuild (continued)

8. Replace the tractor door and springs removed in steps 2A and 2B of the removal procedure.
9. Verify that the belt turns freely and refer back to **REP 15**.

Adjustment

Loosen the idler post screw to adjust tractor belt tension. The idler post can be adjusted laterally to achieve the correct belt tension. Correct belt tension is when the belt moves freely without excessive play. Do not overtighten the belt as that will cause excessive drag.



Idler Post
Screw

REP 25 - Upper Knife Blade

Purpose - This procedure describes how to remove and replace the upper knife blade.

Parts List - See Parts List 1.7 in Section 5

Tools: 3/32" hex key
 3 mm hex key
 4 mm hex key
 6 mm hex key
 13 mm socket



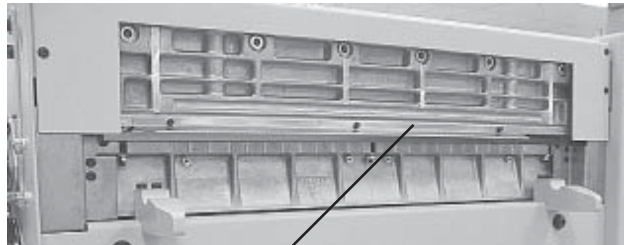
WARNING

Turn off the cutter; disconnect from electrical source.

The knife blades are extremely sharp.

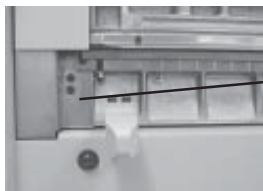
Procedure

1. Remove the upper blade cover by removing four button head screws at each end using a 3 mm hex key (**REP 5**).
2. Remove the upper knife guard by removing three screws using a 3/32" hex key.



Upper Blade Guard

3. Remove the two screws in each linkage guard with a 3mm hex key.



Linkage Guards



4. Remove the upper blade casting by removing six nuts using a 13 mm socket and 6 mm hex key. Be careful not to drop the two plates separating the two halves of the castings.



6. Remove each of the two upper blade clamps using a 4 mm hex key while supporting the blade using a cloth or thick gloves to prevent being cut.



Grooves

7. Inspect the blade stop for wear.

Replacement

1. Reverse the removal procedure for replacement. Note that there must be 10 grooves above each blade clamp when replacement blade is installed. Clean the knife blade casting of paper dust and excess oil. If the casting wick is clogged with oil and paper dust, reverse and reinsert in groove in casting. Replace if needed. Coat both surfaces of blade and casting with oil.

Adjustment

Adjustment is mandatory whenever the upper or lower blade is removed or loosened. See **ADJ 5** in this section.

REP 26 - Lower Knife Blade

Purpose - This procedure describes how to remove and replace the lower knife blade.

Parts List - See Parts List 1.7 in Section 5

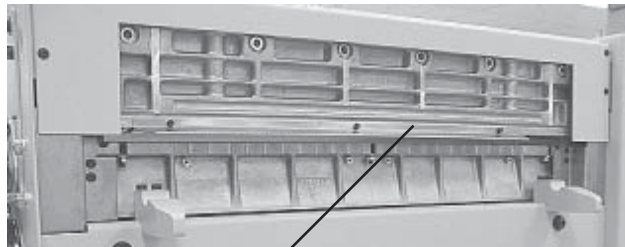
Tools: 3/32" hex key
 3 mm hex key
 4 mm hex key
 8 mm open end wrench

WARNING

Turn off the cutter; disconnect from electrical source.

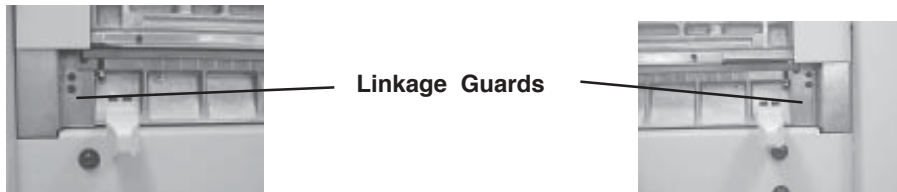
Procedure

1. Remove the upper blade cover by removing four button head screws at each end using a 3 mm hex key (**REP 5**).
2. Remove the upper knife guard by removing three screws using a 3/32" hex key.



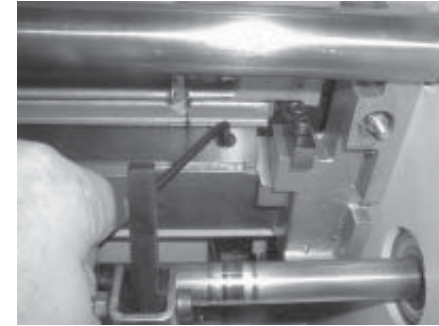
Upper Blade Guard

3. Remove the two screws in each linkage guard with a 3mm hex key.



Linkage Guards

5. Remove three bolts securing the lower blade using a 3 mm hex key and 8 mm open end wrench.



Replacement

1. Reverse the removal procedure for replacement.

Adjustment

Adjustment is mandatory whenever the upper or lower blade is removed or loosened. (**ADJ 4 & 5**)



The knife blades are extremely sharp. Use thick gloves when handling.

REP 27 - Upper Blade Linkage Arm

Purpose - This procedure describes how to remove and replace the upper blade linkage arm.

See Parts List 1.6 in Section 5

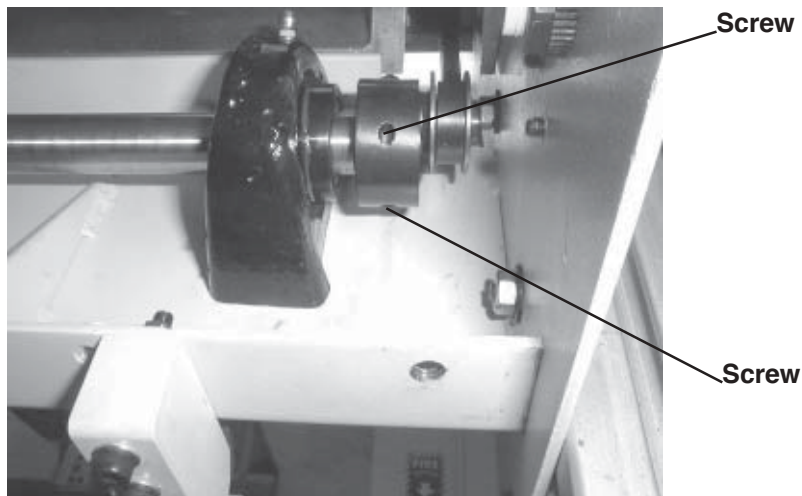
Tools: 4 mm hex key
Retaining ring pliers

WARNING

Turn off the cutter; disconnect from electrical source.

Procedure

1. Remove the upper knife blade cover (**REP 5**), the lower knife guard (**REP 6**), the knife driveshaft cover (**REP 7**) and the knife drive belt cover (**REP 8**).
2. Remove two screws securing the eccentric shaft clamp to the knife driveshaft. Do this to both sides.
3. Remove the retaining ring from the eccentric pin on the knife driveshaft.



4. Remove the retaining ring from the pin in the upper blade clamp pin and slide the upper blade linkage arm from both the upper and lower eccentric pins. Be careful not to lose the key locating the eccentric clamp on the knife driveshaft.



Replacement

1. Reverse the removal procedure for replacement.

Adjustment

ADJ 5

REP 28 - Knife Drive Belt

Purpose - This procedure describes how to remove and replace the knife drive belt.

Parts List - See Parts List 1.6 in Section 5

Tools: 4 mm hex key
5 mm hex key

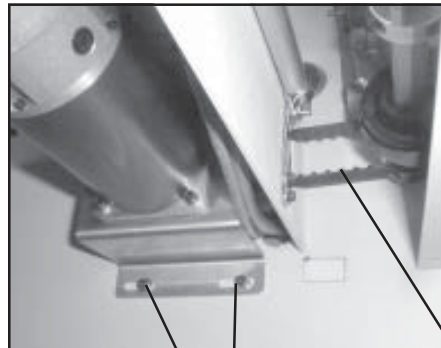
WARNING

Turn off the cutter; disconnect from electrical source.

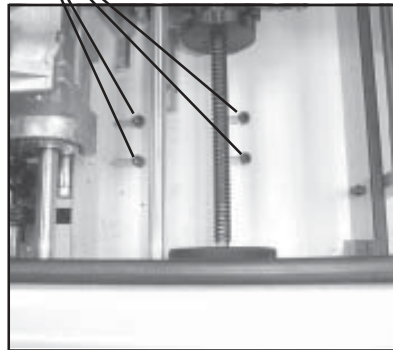
Procedure

1. Remove the knife belt guard, **(REP 8)** and bottom cover, **(REP 3)** and the operator side lower knife linkage guard. **(REP 6)**
2. Loosen 2 screws fastening the knife motor mount to the side frame using a 4 mm hex key, and 4 screws fastening the motor mount to the top frame using a 5 mm hex key.

Motor Mount Screws



Side Frame Screws



Knife Drive Belt



Knife Drive Belt

3. Slide the knife motor mount to slacken the belt.
4. Slip the belt off of the knife motor and knife drive shaft pulleys and over the end of the drive shaft.

Replacement

1. Reverse the removal procedure for replacement.

Adjustment

ADJ 6

REP 29 - Knife Drive Motor

Purpose - This procedure describes how to remove and replace the knife drive motor.

Parts list - See Parts List 1.6 in Section 5

Tools: 2 mm hex key
4 mm hex key

WARNING

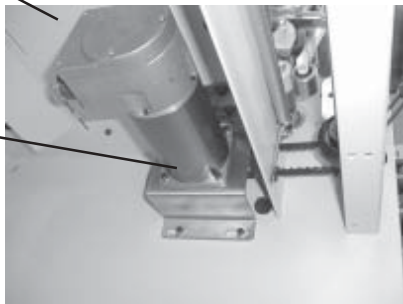
Turn off the cutter; disconnect from electrical source.

Procedure

1. Remove the knife drive belt. **(REP 28)**
2. Remove the two knife motor electrical connectors.

Electrical Connections

Mounting Screws



3. Remove the knife motor pulley by loosening two set screws using a 2 mm hex key.
4. Loosen four screws fastening the knife motor to its mount using a 4 mm hex key while supporting the motor.

CAUTION

Motor weighs approximately 9.5 pounds.

5. Remove motor bracket using the 4mm hex key.

Replacement

1. Reverse the removal procedure for replacement.

Adjustment

ADJ 6

REP 30 - Knife Driveshaft & Bearings

Purpose - This procedure describes how to remove and replace the knife drive shaft, pulley, linkage and bearings.

Parts List - See Parts List 1.6 in Section 5

Tools: 7 mm socket
7/32" hex key
1/8" hex key

WARNING

Turn off the cutter; disconnect from electrical source.

Procedure

1. Remove the knife driveshaft cover (**REP 7**), knife drive belt cover (**REP 8**) and bottom cover. (**REP 3**)
2. Remove the knife drive belt. (**REP 28**)
3. Remove the upper blade linkage arms from each side of the knife driveshaft. (**REP 27**)
4. Remove the home sensor circuit board bracket (**REP 31**) with the circuit board attached using a 7 mm socket.



NOTE: Keys are used to locate components on the knife driveshaft. Be careful not to lose them.

5. Remove two 7/32" screws from each of two pillow block bearings while

supporting the driveshaft.



6. To remove the pillow block bearings, use a 1/8" hex key to loosen two set screws securing each bearing to the shaft.
7. Remove the eccentric shaft collars, thrust washers and home sensor clamp collar from the shaft.

Replacement

1. Reverse the removal procedure for replacement but pull down on the driveshaft while tightening the pillow block bearings.
2. The upper blade linkage arms determine the precise location of the drive shaft. The linkage arms must be vertical and able to freely move in order to function correctly.

Adjustment

ADJ 6 and ADJ 13

REP 31 - Knife Home Sensor Assembly

Purpose - This procedure describes how to remove and replace the knife home sensor assembly which includes a shaft collar, screw and circuit board.

Parts List - See Parts List 1.6 in Section 5

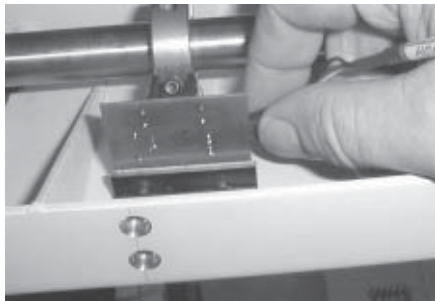
Tools: 7 mm socket
2.5 mm hex key

WARNING

Turn off the cutter; disconnect from electrical source.

Procedure

1. Remove the knife driveshaft cover (**REP 7**) and disconnect the home sensor electrical connector.
2. Remove 2 nuts securing the home sensor circuit board bracket using a 7 mm socket and remove the circuit board from the bracket with a 2.5 mm hex key.



Replacement

1. Reverse the removal procedure for replacement.

Adjustment

No adjustment is necessary unless the home sensor clamp has been removed. See (**ADJ 13**) if the clamp collar has been moved.

REP 32 - Static Bar

Purpose - This procedure describes how to remove and replace the high voltage static bar

Parts List - See Parts List 2.4 in Section 5

Tools: 3 mm hex key

WARNING

Turn off the cutter; disconnect from electrical source.

Procedure

1. Remove the bottom cover, **(REP 3)** and knife driveshaft cover. **(REP 7)**



2. Unplug the static bar connection to the static bar power supply.



3. Remove four screws securing the static bar straps to the frame using a 3 mm hex key.

Replacement

1. Reverse the removal procedure for replacement.

Adjustment

The needles on the static bar must face towards the trimmed paper.

REP 33 - Static Bar Power Supply

Purpose - This procedure describes how to remove and replace the static bar power supply.

Parts List - See Parts List 2.4 in Section 5

Tools: 8 mm socket

WARNING

Turn off the cutter; disconnect from electrical source.

Procedure

1. Remove the bottom cover. **(REP 3)**
2. Unplug static bar from power supply, disconnect static power supply AC power connector and remove three mounting nuts using an 8 mm socket.



Replacement

1. Reverse the removal procedure for replacement.

Adjustment

N/A

REP 34 - Top Cover Interlock Switches

Purpose - This procedure describes how to remove and replace the top cover interlock switches.

Parts List - See Parts List 2.3 in Section 5

Tools: 2 mm hex key
3 mm hex key

WARNING

Turn off the cutter; disconnect from electrical source.

Procedure

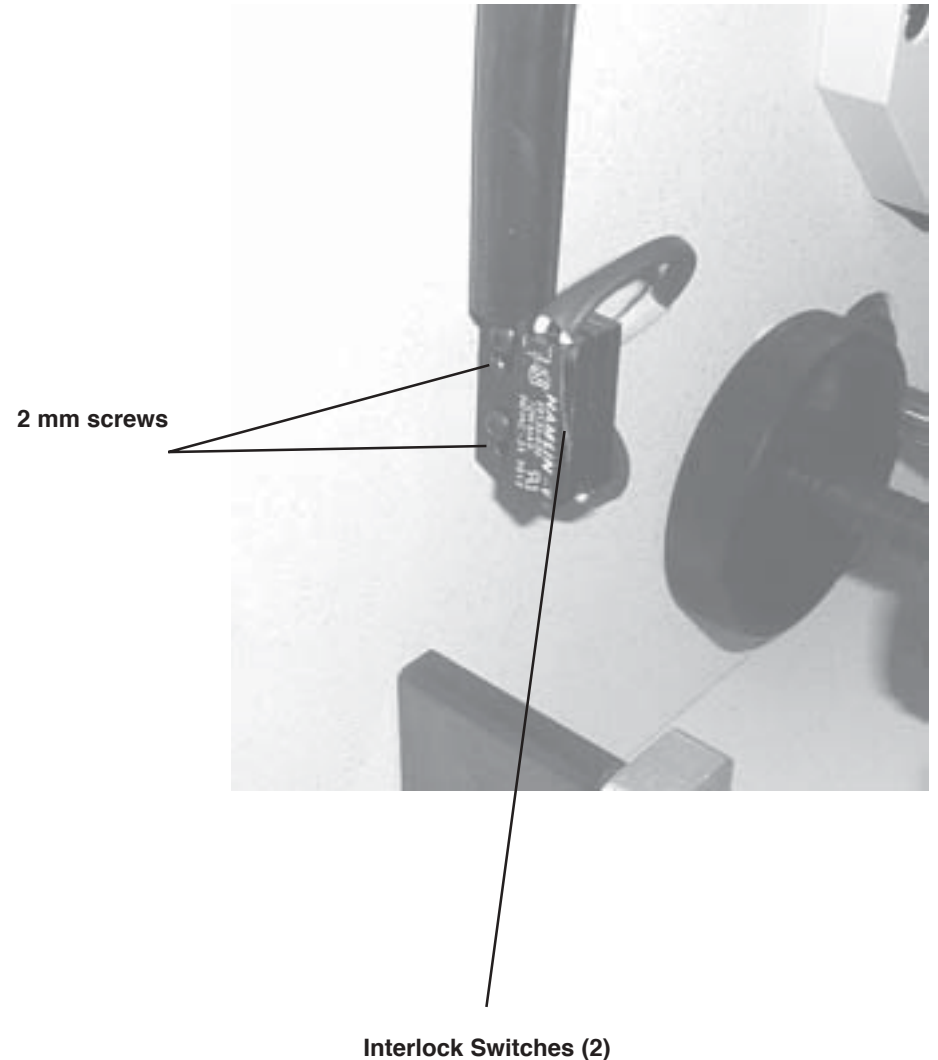
1. Lift the top cover, and remove the control panel (REP 9) to disconnect the interlock switch connector.
2. Remove two screws securing the switch to the frame using a 2 mm hex key.
3. Push the defective interlock switch(s) through the side panel. Use the 3 mm hex key to loosen the top cover gasket frame if it covers the side panel opening.

Replacement:

1. Reverse the removal procedure for replacement.

Adjustment

Loosen the two securing screws (**ADJ 11**) and position the switch such that the control panel cover open fault indicator correctly displays the cover condition when the cover is closed. Tighten the two screws.



REP 35 - Electrical Panel Components

Replacement

Purpose - This procedure describes how to remove and replace electrical panel components.

- Reverse the removal procedure for replacement.

Parts List - See Parts List 2.2 in Section 5

Tools: 2 mm hex key
 2.5 mm hex key
 3 mm hex key
 1 mm hex key
 1/4" blade screwdriver

Adjustment

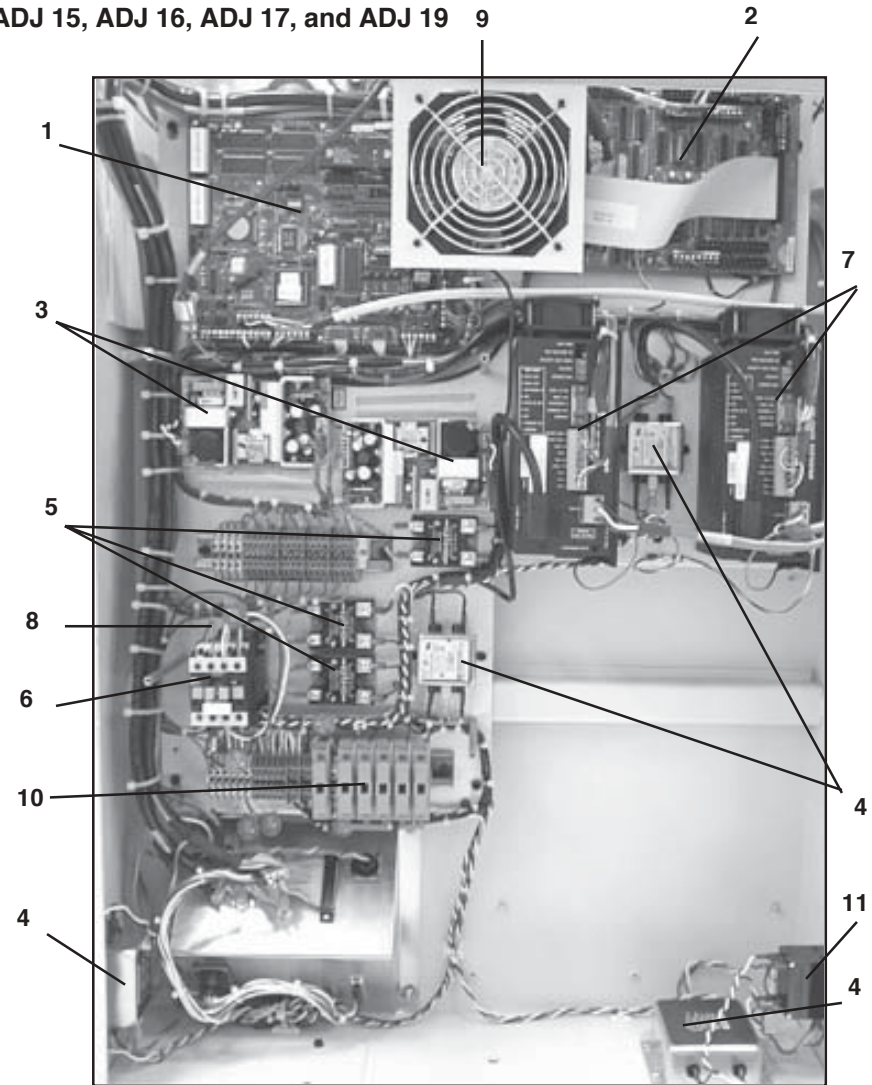
ADJ 15, ADJ 16, ADJ 17, and ADJ 19

WARNING
 Turn off the cutter; disconnect from electrical source.

Procedure

- Locate the item to be removed using the adjacent photo.

Item	Component	Connectors	Screws	Size
1	CPU PWB	6	6	2 mm
2	I/O Board	8, 1 grnd	6	2 mm
3	DC Power Supplies	2	4	slotted
4	Line and noise filters	5	2	3 mm
5	Solid State Relays	4	2	2.5 mm
6	Contactors	7 wires	2	2.5 mm
7	Servo Amplifiers	4	2	3 mm
8	Power Resistor	2 wires	2	1 mm
9	Fan Assembly	1	2	3 mm
10	Fuses	none	fuse holder pulls out	
11	Main Power Switch	2 connectors	2	Pull



REP 35.1 - Software Reset

Purpose - This procedure describes how to perform a software reset. A software reset is required whenever the CPU PWB is replaced.

NOTE: Record Print Registration settings before clearing memory.

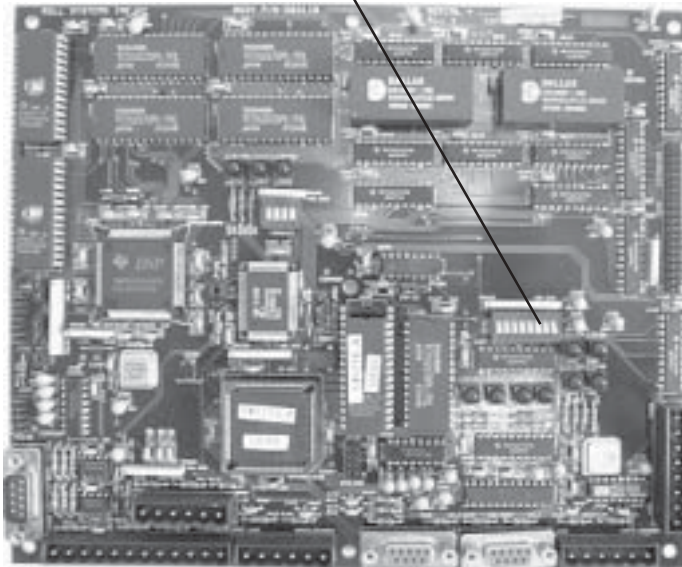
To perform a software reset (also referred to as Ready/Reset) follow the following procedure exactly:

NOTE: The order of the steps **must** be followed exactly as written.

1. Set all SW101 switches to the **OFF** position.
2. Set switch SW101-6 to the **ON** position.
3. Set switch SW101-1 to the **ON** position.

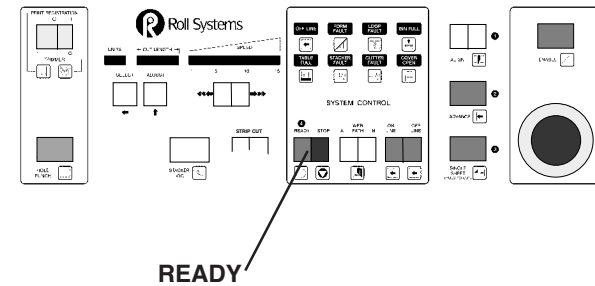


SW101



CPU PWB

4. Press the **READY** button on the cutter operator panel.



5. Set switch SW101-1 on the CPU PWB to the **OFF** position.
6. Set switch SW101-6 on the CPU PWB to the **OFF** position.
7. Set switch SW101-4 on the CPU PWB to the **ON** position.



SW101

The software reset has now been completed.

NOTE: Refer to **ADJ 18** to return switch SW101 settings to the customers system configuration.

Electrical

REP 36 - Control Panel Components

Purpose - This procedure describes how to remove and replace control panel components.

Parts List - See Parts List 2.1 in Section 5

Tools: 4 mm hex key
Small blade or Phillips screwdriver.

WARNING

Turn off the cutter; disconnect from electrical source.

Procedure

1. Remove the electrical panel cover. Use a 4 mm hex key to unlock the cover.



Pull the cover out from the bottom and push up to remove the cover from the cutter.

2. Using a 4 mm hex key, remove the control panel by loosening the three control panel mounting screws.

Control Panel Mounting Screws

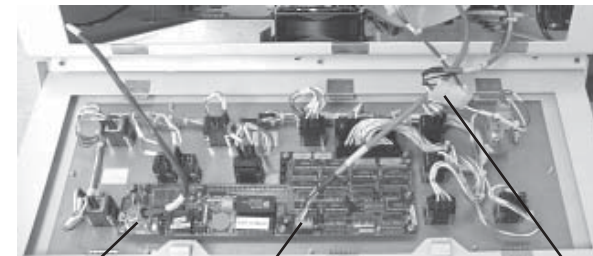


3. Strike the control panel with the heel of your hand in the direction of the arrow.



Use your other hand to “catch” the control panel when it is separated from the cutter frame.

4. Disconnect the three interface cables from the back of the operator panel.

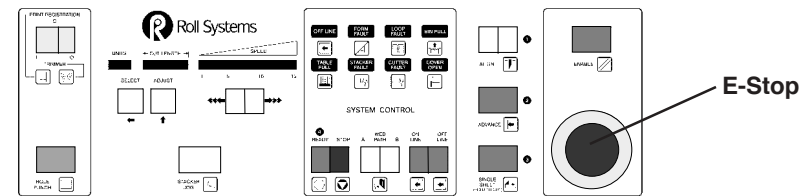


J402

J404

J24

5. Use the line drawing below to locate the switch position by switch name. Proceed to the pages that follow to locate switch details.



CONTROL PANEL

REP 36.1 - E-Stop Switch

Tools: #2 Phillips screwdriver
1 3/16" open end or an adjustable wrench

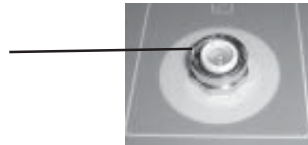
WARNING

Turn off the cutter; disconnect from electrical source.

Removal

1. Remove the wires from the six switch terminals using a Phillips screw driver.
2. Unscrew (CCW) the red lens cap.
3. Unscrew the chrome plated bezel with a 1 3/16" open end or adjustable wrench.

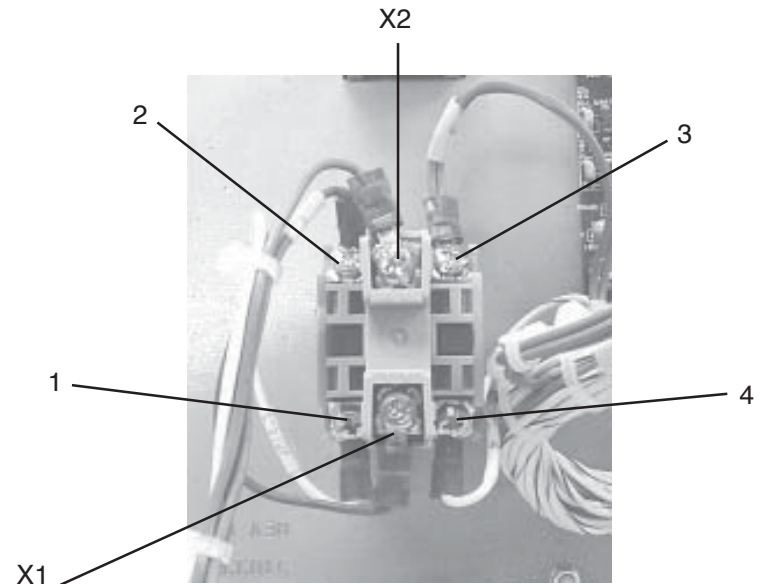
Chrome Bezel



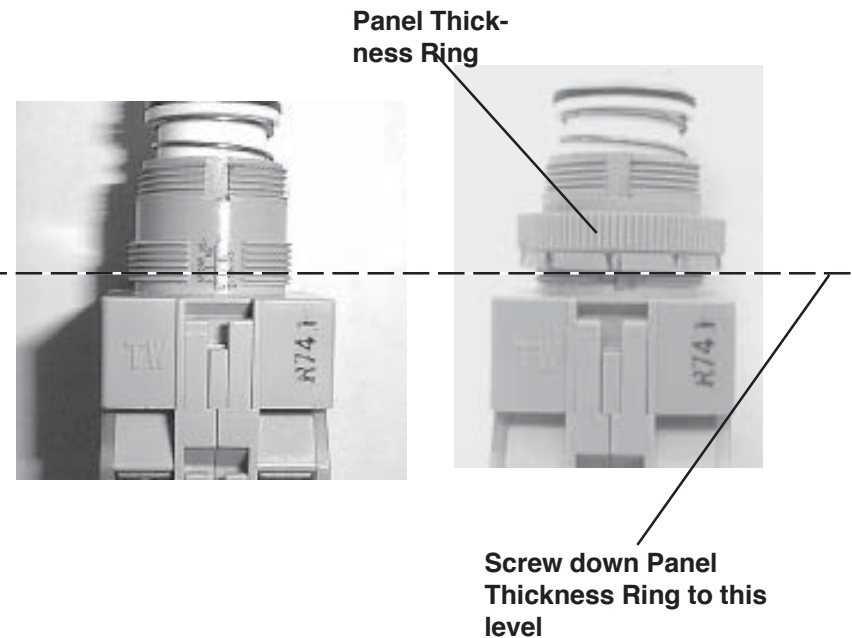
4. Remove the E-stop switch assembly.

Replacement

1. Screw the panel thickness ring on the switch to the position shown. The panel thickness ring should have the Roman numeral VI aligned over the vertically numbered rib on the switch neck between numbers 3 and 4.
2. Push the replacement switch assembly through the operator panel from the back with the orientation shown at right.
3. Attach the terminal wires to the new switch using a Phillips screw driver as shown at right.
4. Mount the control panel on the cutter.
5. Replace the power cord, turn on the cutter and test the switch.



REAR VIEW E-STOP SWITCH ASSEMBLY



REP 36.2 - E-Stop Lamp

CAUTION

Do not use pliers to remove the lamp.

Tools: Lamp removal tool (pencil eraser or equivalent)

WARNING

Turn off the cutter; disconnect from electrical source.

Lamp Replacement

1. Press the E-Stop switch in and unscrew the red lens cap counterclockwise.



2. The E-Stop lamp has a bayonet style base. It is removed by pushing the lamp further into the base and turning it counter clockwise.



3. Install the replacement lamp by pushing in and rotating the bulb clockwise using a pencil eraser or equivalent.
4. Reinstall the red lens cap.

REP 36.3 - Pushbutton & Rocker Switches

Tools: Needle nose pliers
Small blade screwdriver

WARNING
Turn off the cutter; disconnect from electrical source.

Lamp Removal

1. Pry off the lens cap by placing a small screwdriver into the slot at one end of the lens.
2. Lift the small metal tab to release the lamp.

Lamp Installation

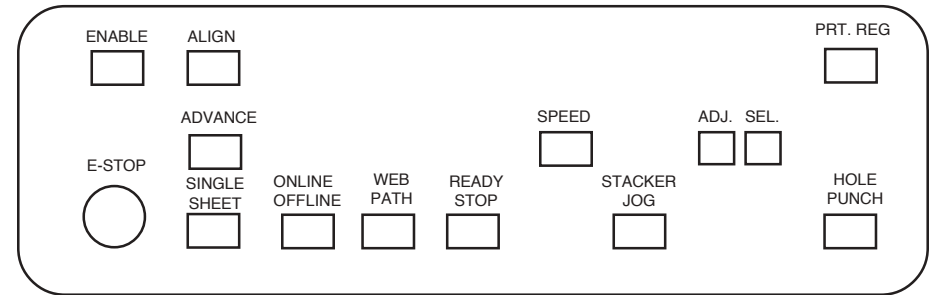
1. Carefully press the new lamp into the switch receptacle and snap the lens cap into place.
2. Test the lamp to ensure proper functioning.

Switch Removal

1. Locate the switch using the diagram at right which is a diagram of the rear of the control panel.
2. Carefully pull the wires from the switch using needle nose pliers.
3. Push the switch through the front of the control panel while squeezing the metal retaining clips.

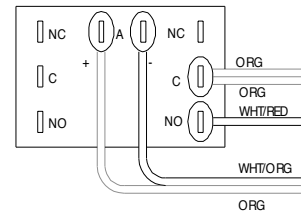
Switch Installation

1. Push the switch through the control panel opening from the front side until the switch body snaps into place.
2. Attach the wiring according to the diagrams on this and the following pages.

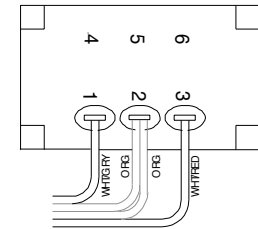


CONTROL PANEL SWITCH LOCATIONS- REAR VIEW

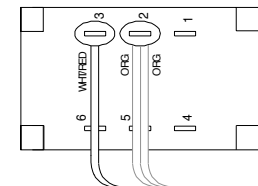
ENABLE



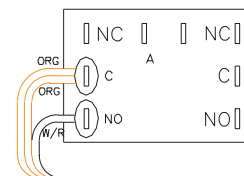
SPEED



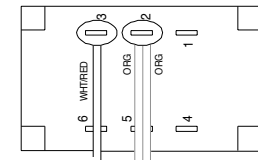
ONLINE/OFFLINE



STACKER JOG

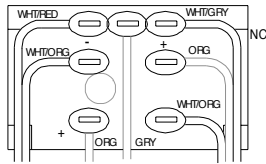


WEB PATH

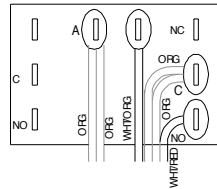


REP 36.3 (continued) - Pushbutton & Rocker Switches

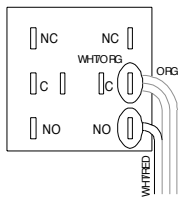
READY/STOP



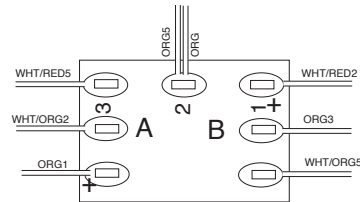
HOLE PUNCH



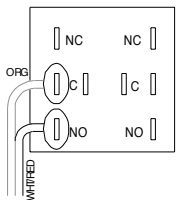
ADJUST



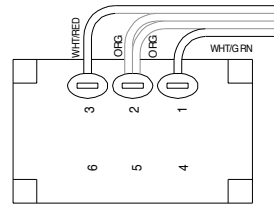
PRT. REG.



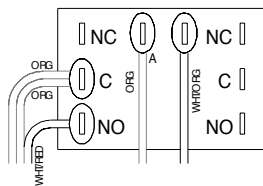
SELECT



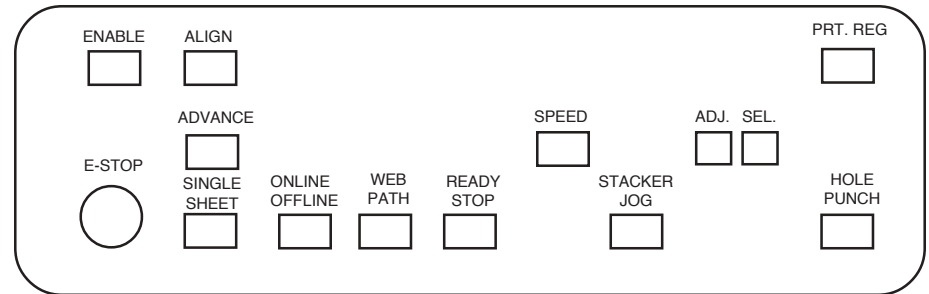
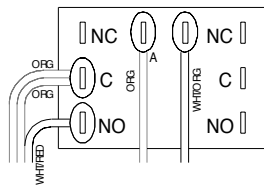
ALIGN



SINGLE SHEET



ADVANCE



CONTROL PANEL SWITCH LOCATIONS- REAR VIEW

NOTE: All switches are shown in actual orientation as viewed from the rear of the control panel.

REP 36.4 - Display Circuit Board

Tools: 5/16" open end wrench
Small blade screwdriver

WARNING

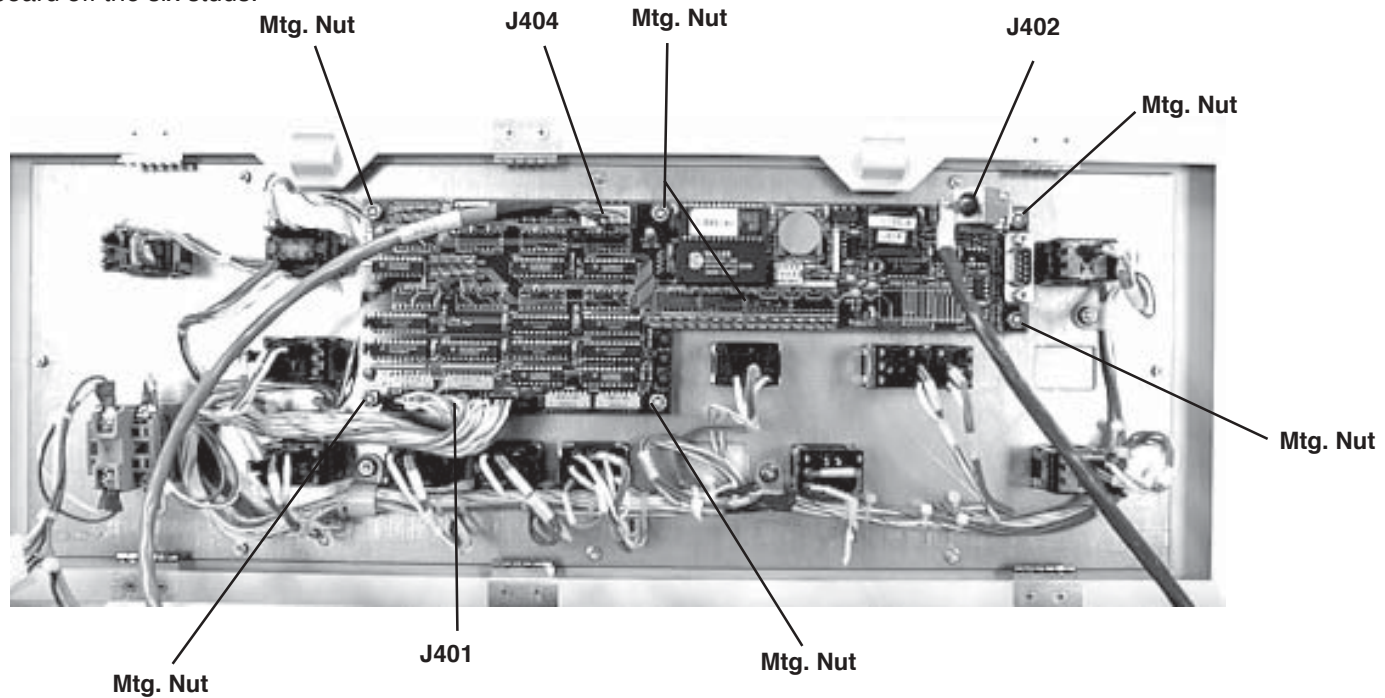
Turn off the cutter; disconnect from electrical source.

Removal

1. Remove the control panel. **(REP 9)**
2. Disconnect connectors J401, J402, and J404.
3. Remove six mounting nuts using a 5/16" open end wrench
4. Lift the display circuit board off the six studs.

Replacement

1. Place the display circuit board on the six studs.
2. Secure the display board to the studs with the mounting nuts.
2. Install connectors J401, J402, and J404.
3. Install the control panel.



REP 37 - Bin Full Sensor

Purpose - This procedure describes how to remove and replace the bin full sensor located beneath the drive system cover.

Parts List -See Parts List 2.3 in Section 5

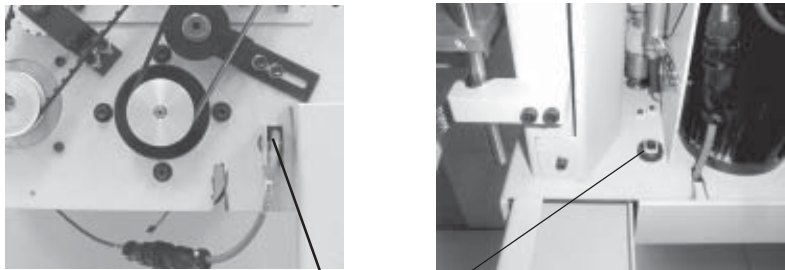
Tools: None

WARNING

Turn off the cutter; disconnect from electrical source.

Procedure

1. Remove the drive system cover. **(REP 2)**
2. Disconnect the bin full sensor's electrical connector.



Bin Full Sensor

3. Unscrew the plastic nut to remove the bin full sensor.

Replacement

1. Reverse the removal procedure for replacement.

Adjustment

ADJ 12

REP 38 - Main Power Switch/Circuit Breaker

Purpose - This procedure describes how to remove and replace the main power switch and circuit breaker.

Parts List -See Parts List 2.2 in Section 5

Tools: 5/16 inch hex key
Needle nose pliers

Replacement

Reverse the removal procedure for replacement.

Adjustment

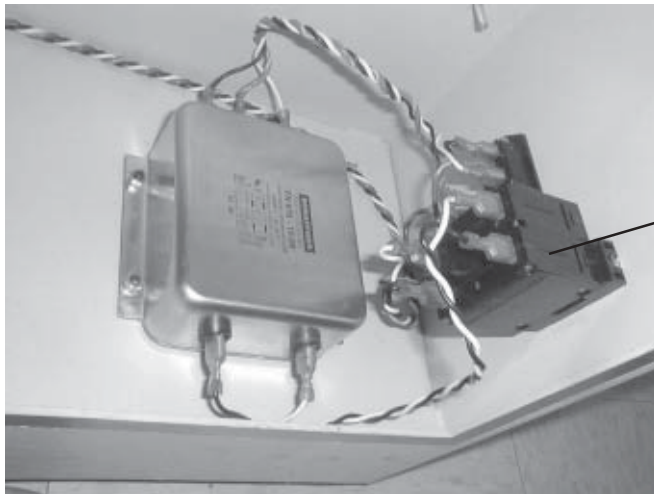
N/A

WARNING

Turn off the cutter; disconnect from electrical source.

Procedure

1. Remove four wire connections from the rear of the switch.



Main Power Switch/Circuit Breaker

2. Remove two screws securing the switch to the cutter frame.

REP 39 - Sensor Tower Sensors

Purpose - This procedure describes how to remove and replace the sensors in the sensor tower.

Parts List - See Parts List 2.3 in Section 5

Tools: 1/8 inch hex key
Flat blade screwdriver

WARNING

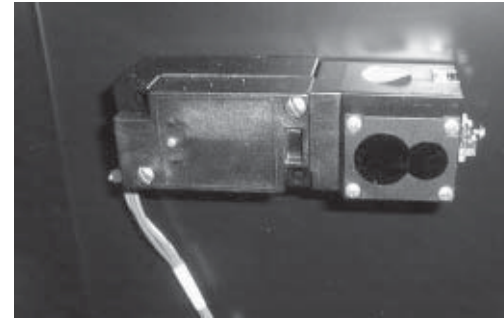
Disconnect the sensor tower from the power source.

Procedure

1. Remove the 4 screws from the sensor tower front cover using a 1/8 inch hex key.



2. Disconnect the sensor's electrical connector.
3. Use a 1/8" hex key to remove (from the backside) two screws securing the sensor to the frame.



Replacement

1. Reverse the removal procedure for replacement.

Adjustment See instructions attached to inside tower cover.

REP 40 - Margin Trimmer Motor Start Capacitor

Purpose - To replace the trimmer/chopper motor start capacitor.

Parts List - See parts list 1.8 in Section 5.

Tools: 9/32 inch box wrench

WARNING

Disconnect the cutter from the customers source.

Procedure

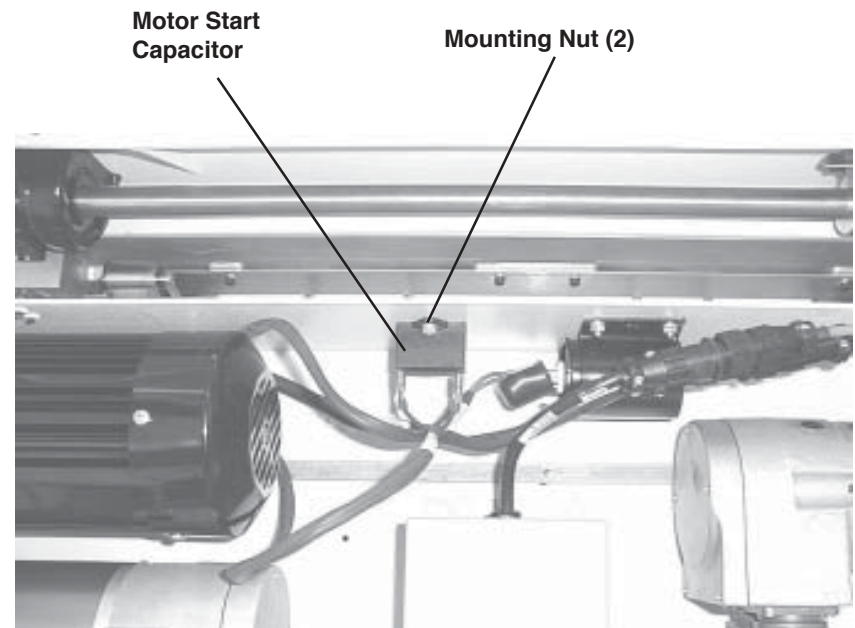
1. Remove the bottom cover. **(REP 3)**
2. Pull off the two spade connectors.
3. Remove the capacitor from the frame with the 9/32 inch box wrench.

Replacement

1. Reverse the removal procedure for replacement.

Adjustment

N/A



REP 41 - Margin Trimmer Motor Run Capacitor

Purpose - To replace the margin trimmer motor run capacitor.

Parts List - See parts list 1.8 in Section 5.

Tools: 9/32 inch box wrench

WARNING

Disconnect the cutter from the customers source.

Procedure

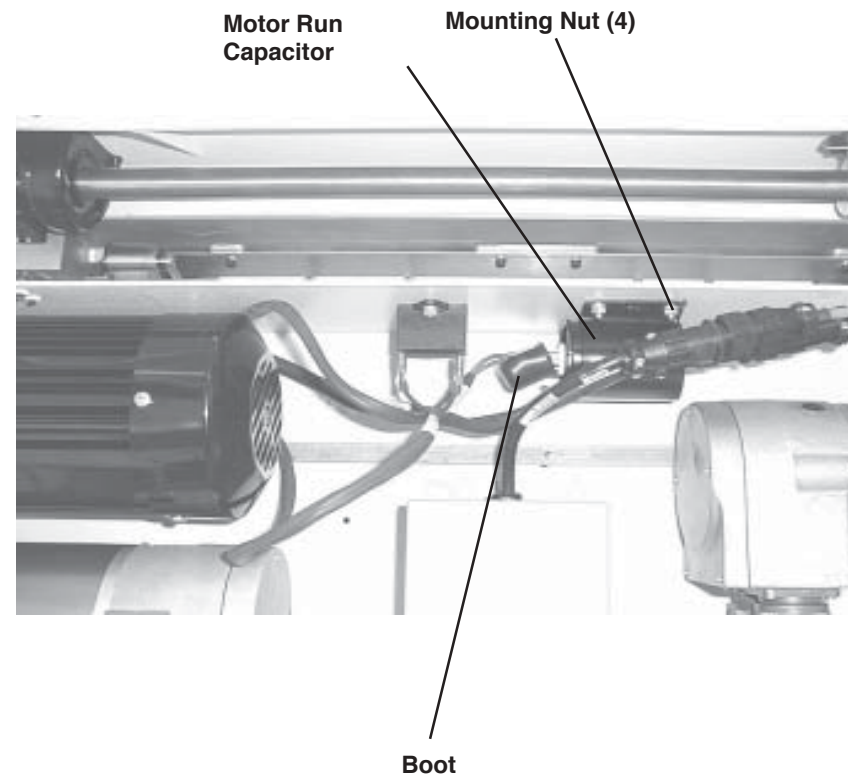
1. Remove the bottom cover. **(REP 3)**
2. Pull off the capacitor boot and slide it along the wire harness.
2. Pull off the two spade connectors.
3. Remove the capacitor from the frame with the 9/32 inch box wrench.

Replacement

1. Reverse the removal procedure for replacement.

Adjustment

N/A



ADJ 1 - Infeed Brush Assembly

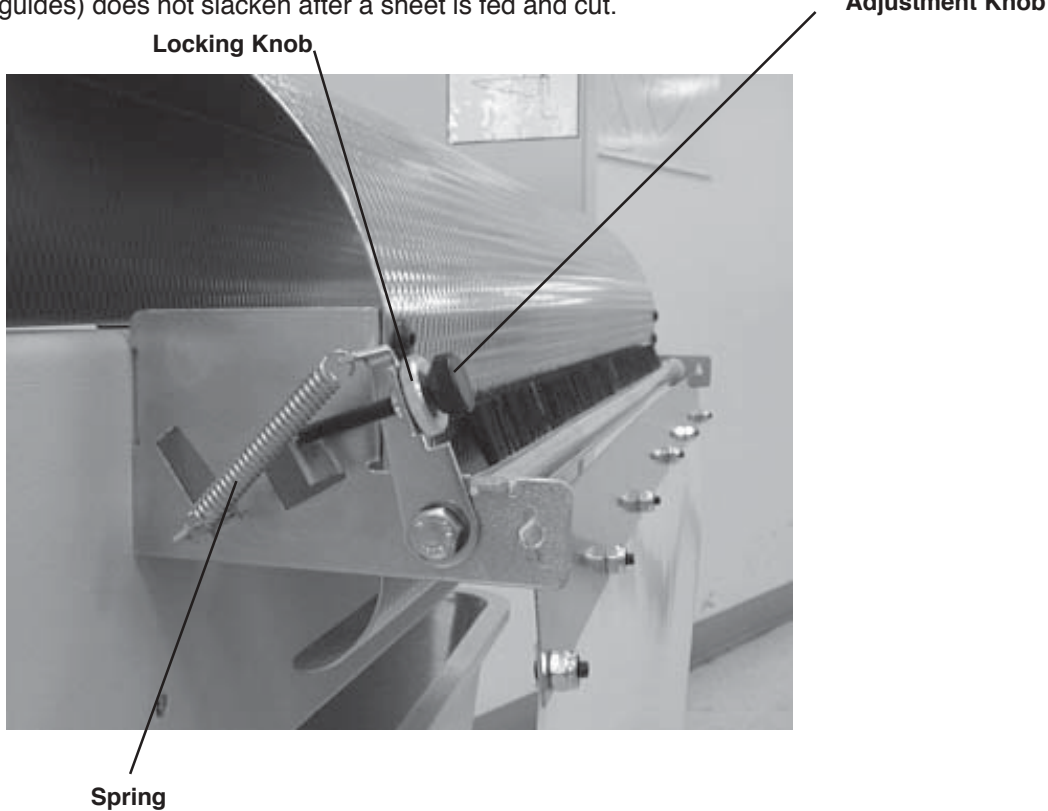
Purpose - The infeed brush may be located at the entrance to the cutter module, or in front of a turnbar. Its function is to dampen the inertia of the web before it enters the parallel rod guides. A spring maintains the brush position and the brush-to-web spacing is controlled by a thumbscrew adjustment.

Tools: None

Procedure:

1. Loosen the locking knob.
2. Rotate the adjustment knob to adjust the brush tension as the web is being fed, such that the web on the turnbar (or entering the parallel rod guides) does not slacken after a sheet is fed and cut.

3. Tighten the locking knob when correct brush tension has been achieved.



ADJ 2 - Tractor Assemblies

Purpose - The tractors feed pinfed paper to the cutter blade. Each tractor may be positioned to locate the web, and both may be moved closer or apart to fit the web.

Tools: None required

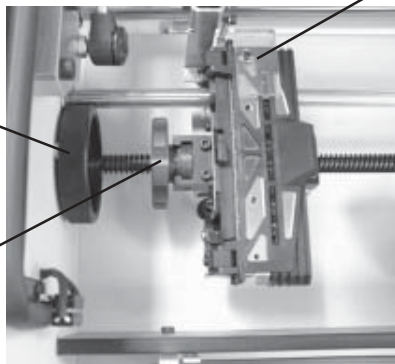
Procedure

PINFEEED

1. Ensure that the compression roller is in the raised position by rotating the cam arm fully clockwise.
2. Open the tractor door of each tractor and place the web holes over the tractor pins.
3. Adjust the individual tractors to fit the web holes on either side by turning the positioning knobs. The web should not be stretched so tight that the paper surrounding the holes deforms, nor so loose that the web bulges in the middle.

Spaces the Tractor Pair

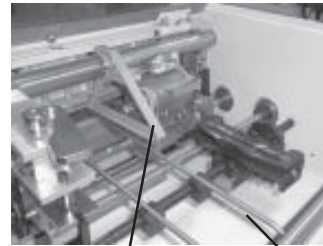
Positions Individual Tractors



TOF Sight Guide

4. Adjust the pair of tractors and web for center or right alignment, depending upon the application by moving each tractor using the position knob at the side of the tractor.

5. Make sure that the web supports are spaced beneath the web evenly, and that the web guides, above the web are also evenly positioned.



Web Guide



Web Support

PINLESS

1. Ensure that the compression roller is in the raised position by rotating the cam arm fully clockwise.
2. Adjust the individual tractors such that the outside edges of the web lie adjacent to and touching the inside edge of the tractor pins.



3. Adjust the pair of tractors and web as in step 4 of the pinfed procedure.
4. Place the web supports and guides as in step 5 of the pinfed procedure.
5. Lower the compression roller by rotating the cam arm fully counterclockwise.

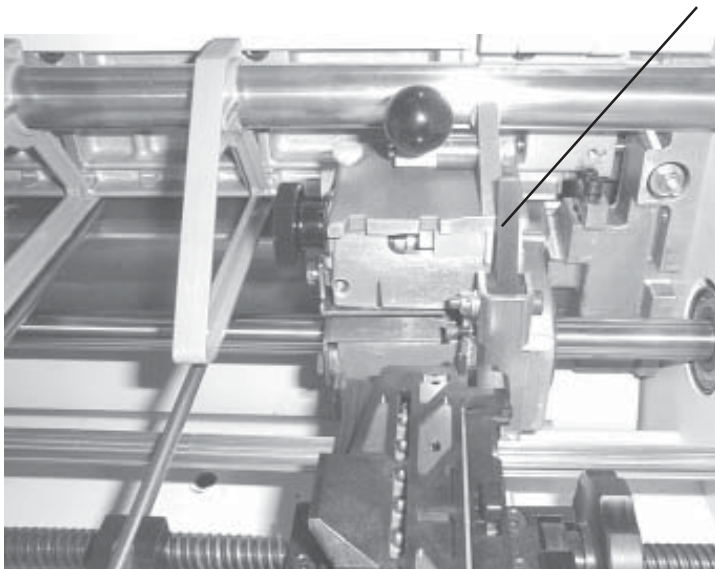
ADJ 3 - Margin Trimmers

Purpose - The margin trimmers are able to slide along the trimmer/chopper drive shaft to accommodate various web positions and widths. There are channels at the front of the trimmers to lock their position with respect to each of the tractors

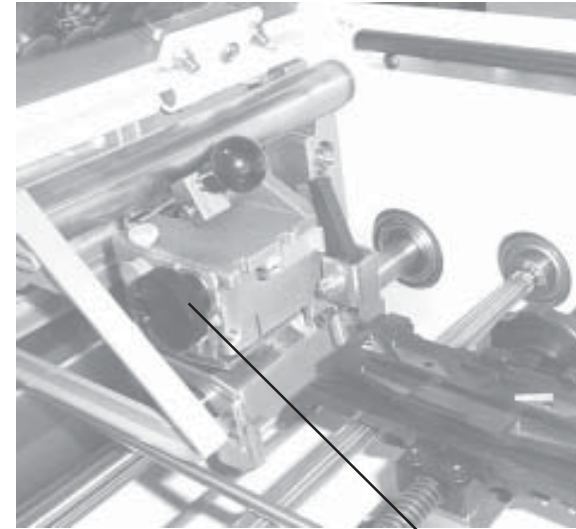
Tools: None required

Procedure

1. Lift the top cover, and ensure that each of the spring-loaded tractor guide arms are engaged with the margin trimmers. **Tractor Guide Arm**

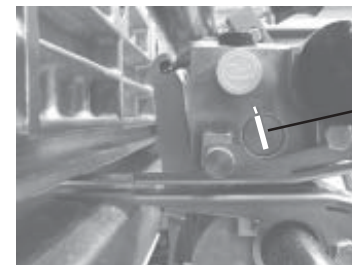


2. A plastic knob, facing the web center, permits the operator to make fine position adjustments to the trimmer's cut line and the amount of margin to be cut away.



Tractor Lateral Adjust Knob

3. Turn the eccentric screw to the position shown.



Eccentric Screw

ADJ 4 - Lower Knife Blade

Purpose - The lower knife blade is fixed in a position parallel to the output side of its mounting casting. This alignment ensures that the web cut line is at right angles to the web direction.

Tools: 4 mm hex key
8 mm open end wrench
scale

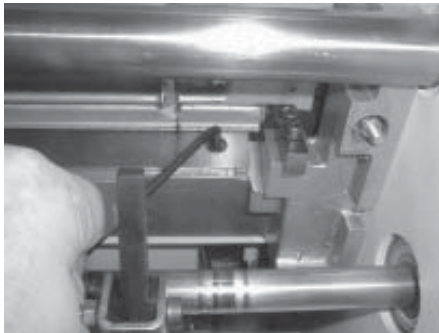
Procedure

WARNING

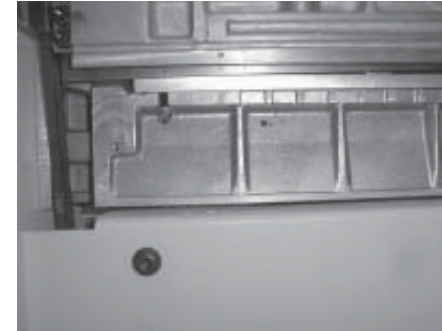
The knife blades are extremely sharp.

NOTE: Whenever the lower knife blade is adjusted or replaced it is necessary to perform the upper knife blade adjustment (ADJ5). Therefore, it is prudent to remove all covers necessary to perform both procedures.

1. Remove the top cover, (REP 1), knife guards (REP 6), upper knife cover (REP 5)
2. Loosen 3 lower knife blade fastening bolts using an 8 mm open end wrench and a 4 mm hex key. To insert the hex key into the socket head bolt, push the upper blade casting forward.



3. Position the lower knife blade such that the bottom edge of the blade projects 1.6 mm (.063") outward from the mounting casting machined surface. Ensure that this dimension is accurate at the two outermost fastening bolts as well as at the center.



4. Tightly fasten the three lower knife blade bolts and recheck the blade to casting dimension.
5. Proceed to the upper knife blade adjustment. (ADJ 5)

ADJ 5 - Upper Knife Blade

Purpose - Correct knife adjustment is critical to clean sheet cuts and long knife life. The objective of this procedure is to:

- make sure the upper blade cuts vertically.
- obtain the correct engagement compression between the upper and lower blades.
- adjust a blade stop to assure the upper blade does not impact the lower blade.

Tools: 3 mm hex key 4 mm hex key
 0.3 mm feeler gauge 12 mm feeler gauge
 Straight edge

Procedure

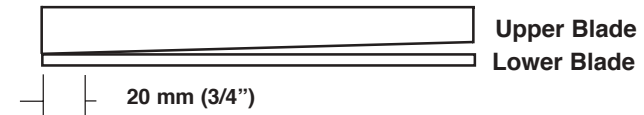
1. Ensure that the lower knife blade has been correctly adjusted before proceeding (**ADJ 4**).
2. If not already accomplished from the previous procedure, remove the top cover, (**REP 1**) upper knife blade cover, (**REP 5**) knife driveshaft cover, (**REP 7**) and both knife guards. (**REP 6**).
3. Verify that there are eight grooves visible from the top of the blade to the top of the clamping blocks.
4. Verify that there is 0.12 mm - 0.13 mm (.005 in.) between the upper blade casting and the clamping brackets. Adjust if necessary by loosening two screws on either of the clamping brackets.

CAUTION

Verify that the edges of the washers (mounting hardware for clamping blocks) do not protrude beyond surface of block being gapped.

5. Locate the upper knife blade stop and using a 4 mm hex key, loosen it and move the stop away from the blade.

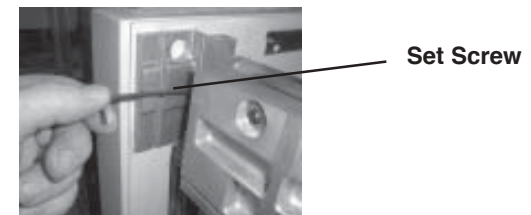
6. Reach under the knife blades and grasp the knife driveshaft. Turn the driveshaft slowly until the upper blade just barely overlaps the lower blade by about 20 mm (3/4") from the left side. It may be necessary to guide the upper blade over the lower blade by pulling it away from the lower blade. Use a pencil (do not scribe) to mark the upper blade at the point of overlap.



7. Stand on the output side of the cutter and place a straight edge across the upper blade casting.



8. Loosen the non-operator side set screw securing the eccentric pin which mounts the upper knife blade casting, using a 3mm hex key. Insert a hex key into the hole in the eccentric cam and adjust the top of the upper blade casting to be parallel to the knife mounting casting's top surface. This will set the cut line to vertical.



9. Tighten the set screw using the 3 mm hex key and remove the straight edge.

ADJ 5 - Upper Knife Blade (continued)

10. Slowly turn the knife driveshaft to continue downward operation of the knife until it reaches the point when it is just ready to overlap the lower blade in the far right side. Then stop rotation.
11. Use a .3 mm (.012") feeler gauge to check the separation between the upper blade and lower blade on the non-operator side where the pencil mark was placed.

If the separation is not precisely .3 mm, adjust the separation by loosening the operator side upper blade casting eccentric cam using a 3 mm hex key.

Slowly turn the cam until there is a .3 mm separation between the upper blade and cutting edge of the lower blade at the pencil mark.



12. Secure the cam set screw.
13. Slowly and carefully turn the knife drive shaft to raise the upper blade until the overlapping portion is once again at the 20 mm (3/4") pencil mark. Do not permit the upper blade to pass the mark and swing inward. If this happens, the upper blade will swing inward, and require you to reinstall the blade stop while forcing the upper blade outward.
14. Push the blade stop against the upper blade and tighten the two screws using a 4 mm hex key.



15. Rotate the knife driveshaft and verify that the upper and lower blades do not jam. If the blades start to jam, go to step 8 and repeat the procedure from that point. Insert a sheet of paper between the blades and manually rotate the knife driveshaft to cut the sheet. Check the cut edge quality before resuming operation. If the cut edge is not acceptable, perform the procedures starting again from step 8.

ADJ 6 - Knife Casting Spring Tension

Purpose - This procedure describes how to set the knife casting spring tension. The objective of this procedure is to ensure the upper knife presses against the lower knife with the correct amount of force to cut the web without damaging the knife.

Parts List - See Parts List 1.7 in Section 5

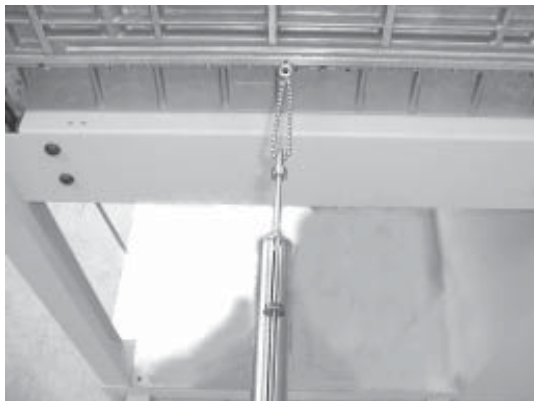
- Tools:** 2.5 mm hex key
 3 mm hex key
 10 mm socket wrench (must be a deep socket)
 Spring gauge capable of measuring 18 pounds near mid-range

WARNING

Turn off the cutter; disconnect from electrical source.

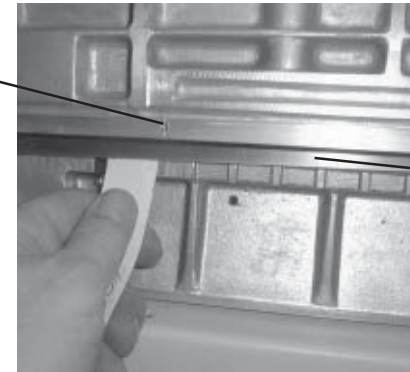
Procedure

1. Remove the top cover by removing the four button head screws in the upper knife casting using a 3 mm hex key (REP 5).
2. Remove the upper knife guard by removing three screws using a 2.5 mm hex key (REP 6).
3. Attach the spring scale to the center screw position as shown.



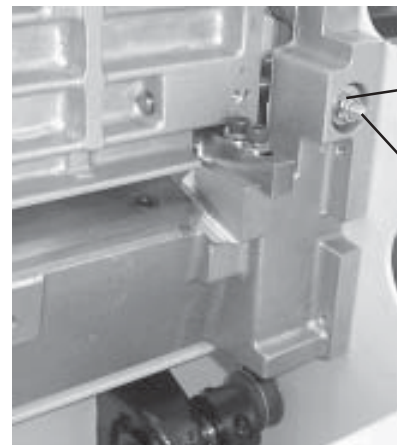
4. Rotate the knife down so that the upper blade touches the lower blade in the same area that the gauge is pulling on the casting.

Center Screw Position



Upper Knife

5. Place a piece of paper between the upper and lower blades (while pulling out on the upper casting).
6. Adjust both the left and right spring tension screws equally until approximately nine threads are exposed. Use a 10 mm socket to make this adjustment. This is done from inside the Cutter in the transport area.



Adjustment Nut

Adjustment Stud

(Right Side Shown)

7. Pull on the spring scale until the scale measures 18 pounds. Repeat steps 5 and 6 until the paper just falls out when 18 pounds is measured on the scale.

NOTE: If this adjustment cannot be achieved, inspect the neoprene isolators behind the adjustment nut and washer for wear or deterioration.

ADJ 7 - Belt Tensioning

Purpose - Proper belt tension ensures the correct engagement of the belt and pulleys as well as ensuring long bearing life.

Tools: 4 mm hex key 5 mm hex key
 Straight edge Ruler (English)

Procedure

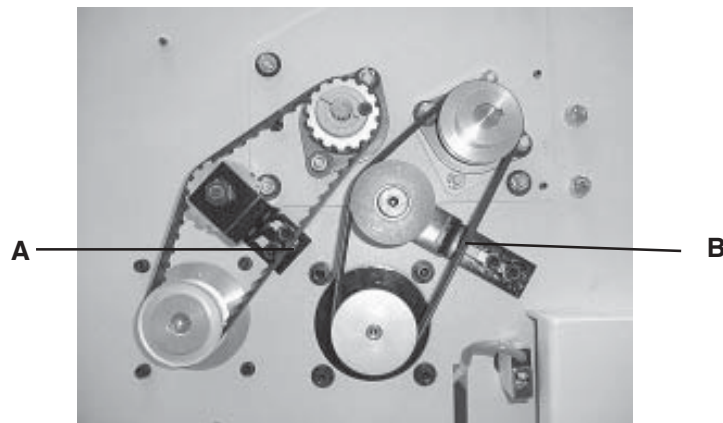
The belt tension is measured by the deflection at the point of greatest span whether engaging two or three pulleys.

There are three belts in the cutter.

- paper drive belt
- trimmer/chopper drive belt
- knife drive belt

Paper Drive & Margin Trimmer Drive Belts

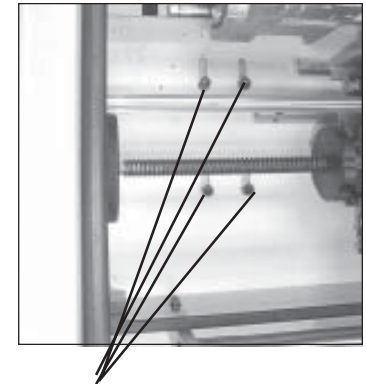
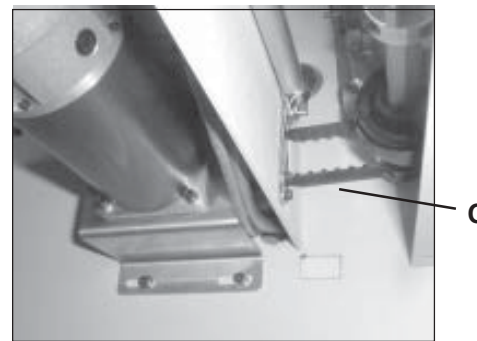
1. Remove the drive system cover. **(REP 2)**
2. Use a 5 mm hex key to loosen two screws securing the paper drive belt idler arm and adjust the belt to a deflection of plus or minus 1/4" at point "A" below. Tighten the idler screws and check the tension.



3. Use a 5 mm hex key to loosen two screws securing the margin trimmer drive belt idler arm and adjust the belt to a deflection of plus or minus 1/4" at point "B" above. Tighten the idler screws and check the tension.

Knife Drive Belt

1. Use a 4 mm hex key to loosen two screws securing the motor mount underneath the cutter frame, and a 5 mm hex key to loosen four screws securing the motor mount above the cutter frame.



Knife Motor Mounting Bolts

2. Adjust the belt deflection to plus or minus 1/4" at point "C" above, and tighten the lower motor mount screws first.
3. Tighten the upper motor mount screws and recheck the belt tension.

CAUTION

Be careful not to overtighten the the knife drive belt. It could cause the motor fuse to open.

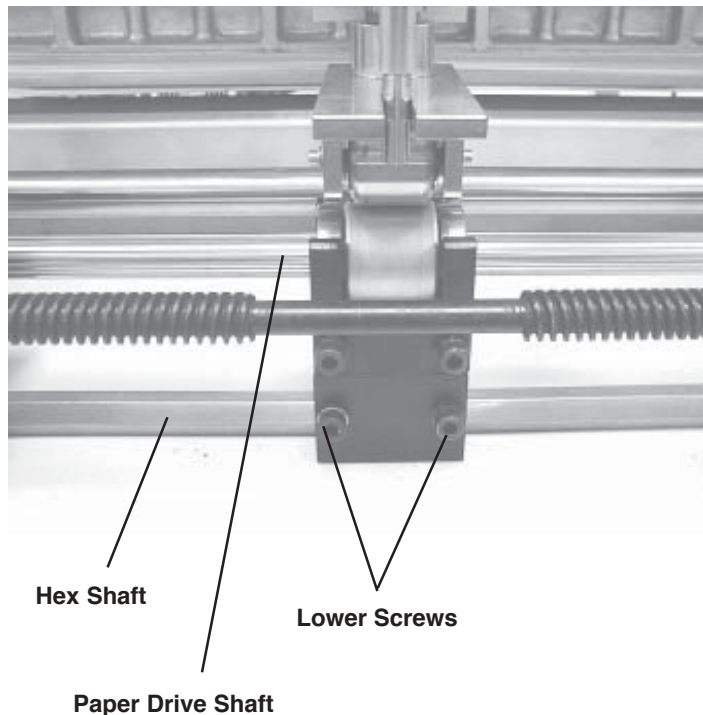
ADJ 8 - Paper Drive Roller Position (Versions 1 and 2, version 1 shown)

Purpose - The purpose of this adjustment is to position the hex shaft that the drive roller assembly is mounted parallel to the paper drive shaft.

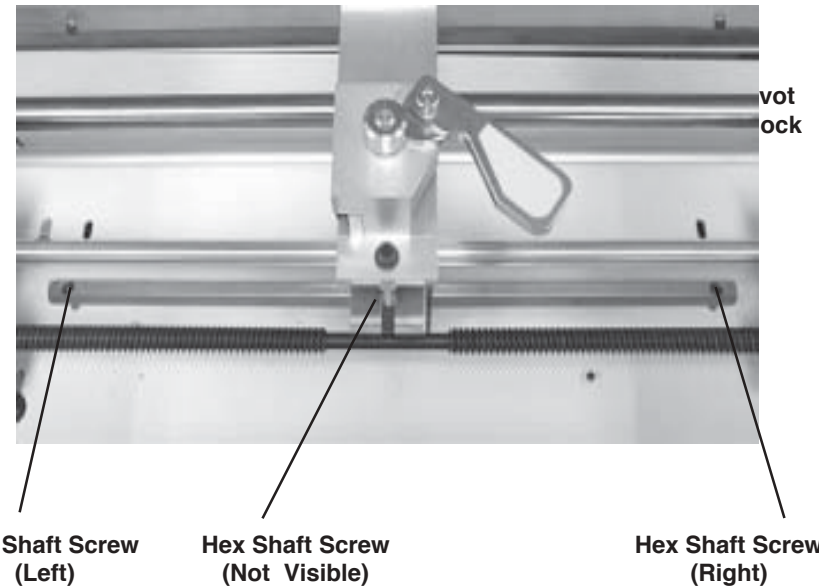
Tools: 3 mm hex key
4 mm hex key

Procedure

1. Open the tractor to the widest width possible.
2. Use a 4 mm hex key to loosen the two lower screws in the drive roller assembly.



3. Tighten the clamp screw. Note the position of the clamp plate. It **DOES NOT** rest in the step of the compression roll mounting block



4. Slide the drive roller assembly to one end of the hex shaft but do not restrict access to the screw securing the hex shaft to the frame. Tighten this screw with the drive roller in this position thus making this end of the hex shaft parallel to the drive shaft.
5. Slide the drive roller assembly to the opposing end of the hex shaft but do not restrict access to the screw securing the hex shaft to the cutter frame. Tighten the screw in the center of the hex shaft. Then tighten the remaining screw.
6. Position the drive roller assembly to the desired position on the hex shaft and tighten the two lower screws in the assembly.

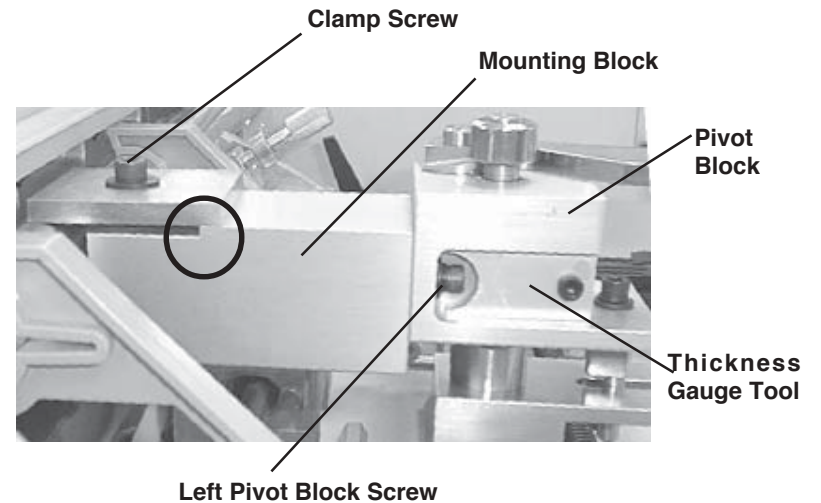
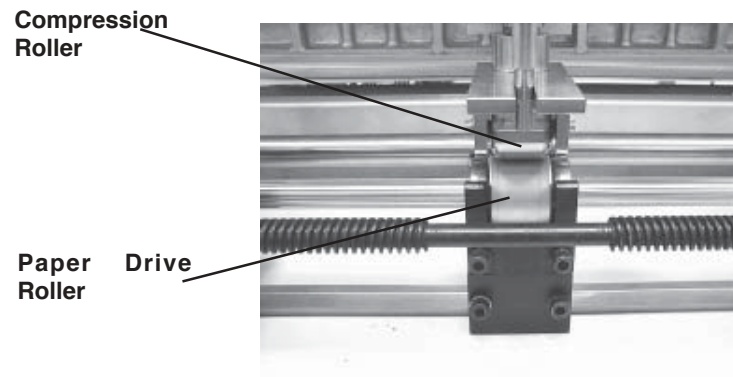
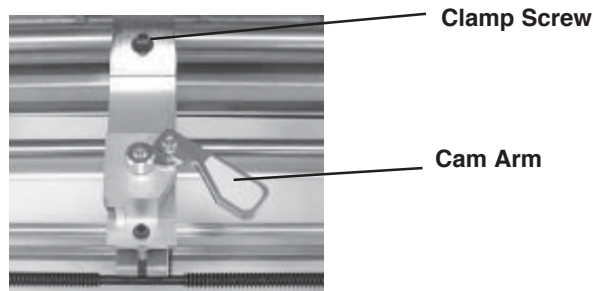
ADJ 9 - Compression Roller Position (Version 1)

Purpose - The compression roller must be centered as closely as possible above the paper drive roller and parallel to the drive roller when running pinless web. This ensures uniform drive force, reduced roller wear and maximum bearing life.

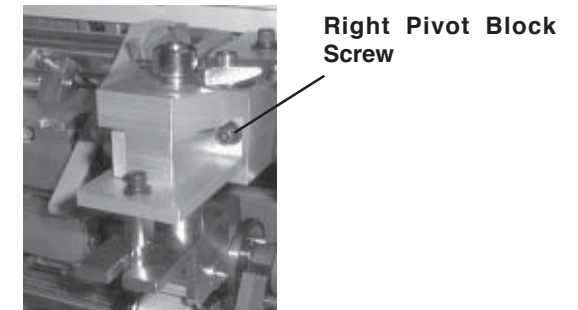
Tools: 3/16 inch hex key
9/64 inch hex key
4 mm hex key

Procedure

1. Raise the compression roller by rotating the cam arm fully clockwise.
2. Use a 3/16" hex key to loosen the clamping plate screw and position the compression roller assembly until it is exactly centered upon the paper drive roller.
3. Tighten the clamp screw. Note the position of the clamp plate. It **DOES NOT** rest in the step of the compression roll mounting block.



4. Remove the thickness gauge tool (set it aside) with a 9/64" hex key and loosen the two pivot block screws with a 4 mm hex key.



5. Rotate the cam arm counter clock wise allowing the compression roller to rest on the drive roller. The compression roller must contact the drive roller across its entire length.
6. Tighten the two pivot block screws.
7. Return the thickness gauge tool to the pivot block.

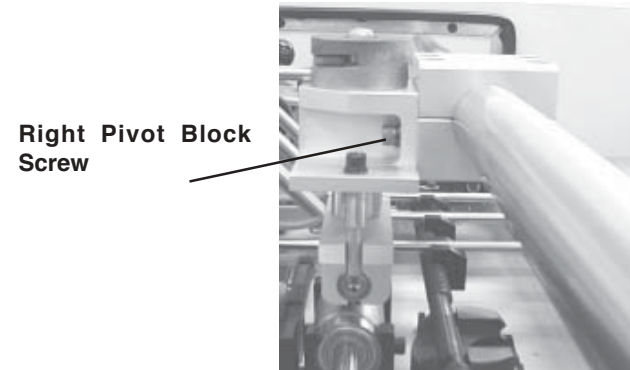
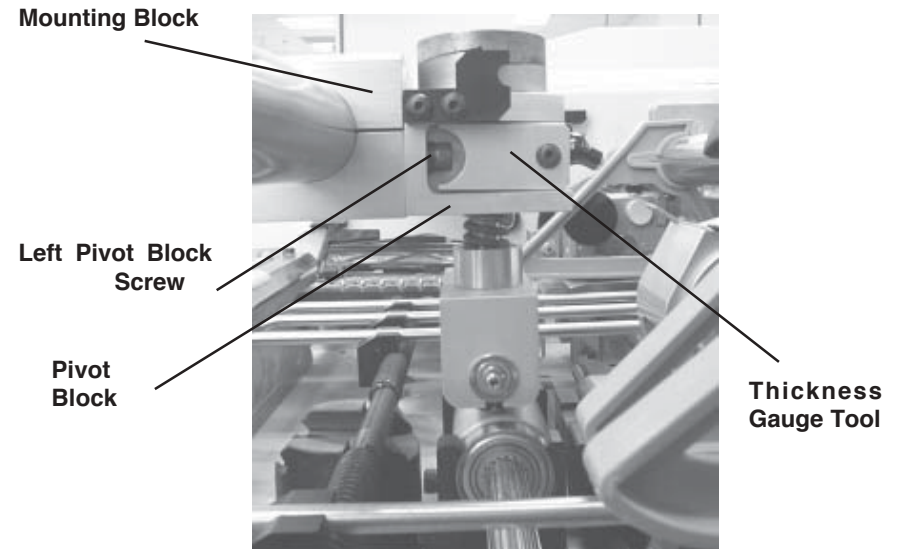
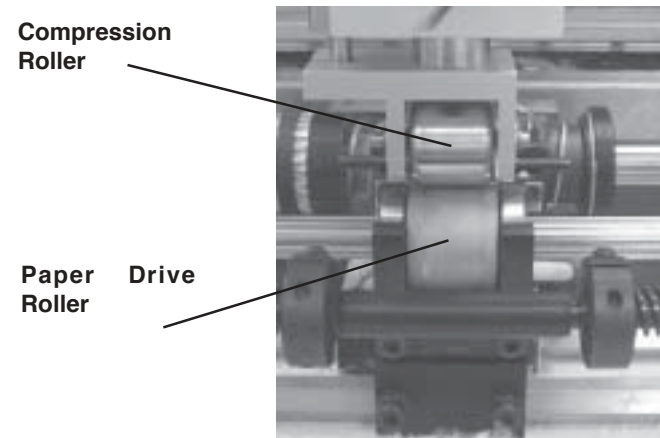
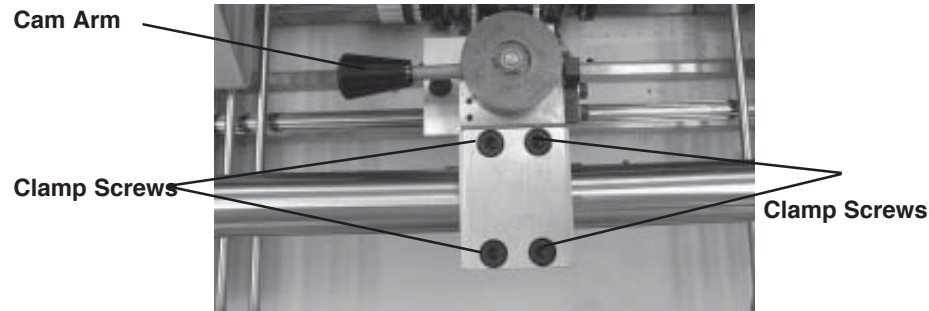
ADJ 9A - Compression Roller Position (Version 2)

Purpose - The compression roller must be centered as closely as possible above the paper drive roller and parallel to the drive roller when running pinless web. This ensures uniform drive force, reduced roller wear and maximum bearing life.

Tools: 3/16 inch hex key
9/64 inch hex key
4 mm hex key

Procedure

1. Raise the compression roller by rotating the cam arm fully clockwise.
2. Use a 3/16" hex key to loosen the clamping plate screws and slide the compression roller assembly until it is exactly centered upon the paper drive roller.
3. Tighten the four clamp screws.



4. Remove the thickness gauge tool (set it aside) with a 9/64" hex key and loosen the two pivot block screws with a 4 mm hex key.
5. Rotate the cam arm counter clockwise allowing the compression roller to rest on the drive roller. The compression roller must contact the drive roller across its entire length.
6. Tighten the two pivot block screws.
7. Return the thickness gauge tool to the pivot block.

ADJ 10 - Compression Roller Force (Version 1)

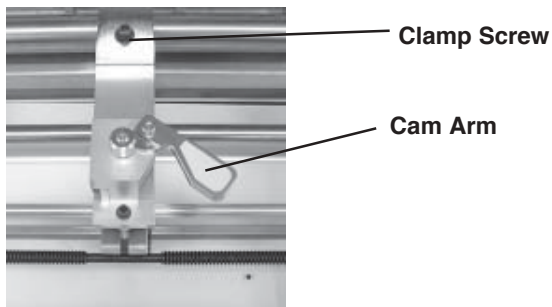
Purpose - This procedure adjusts the rotational position of the keyed shaft where the compression roller is mounted. The keyed shaft rotational position determines the amount of force exerted by the roller when loaded against the paper drive roller.

Tools: 9/64 inch hex key
3/16 inch hex key

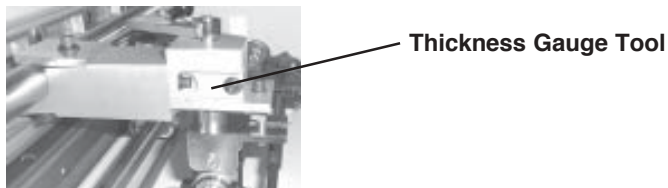
NOTE: You must perform the compression roller position adjustment before doing this adjustment.

Procedure:

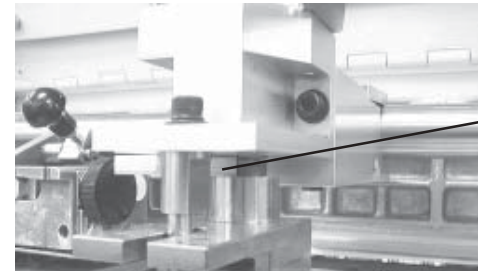
1. Remove the top cover, control panel cover, and drive system cover.



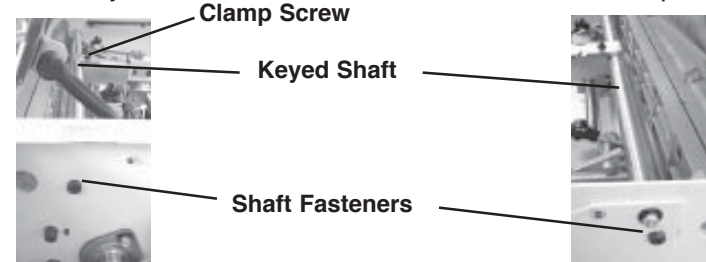
2. Raise the compression roller by rotating the cam arm fully clockwise.
3. Use the 9/64 inch hex key to remove one screw securing the thickness gauge tool attached to the side of the compression roller pivot block facing the control panel.
4. Release the cam arm and insert the rounded end of the tool to act as a spacer between the yoke and mounting cylinder. Raise the roller as



5. far as the tool will allow by rotating the cam arm closed (clockwise).
Loosen the shaft fasteners at each end of the compression roller mounting shaft. Loosen the clamping plate screw very slightly using the 3/16" hex key.



6. Rotate the keyed shaft clockwise as viewed from the control panel



- until the paper drive roller and compression roller touch and any slack in the keyway screw (underside of the compression roller yoke) is taken up.
7. Tighten the shaft fastener on the control panel side securely while maintaining the shaft rotation, then the shaft screw at the opposite end.
8. Check that a sheet of paper will not pass through the paper drive nip.
9. Tighten the clamp screw, open the cam arm, and return the tool to its place at the side of the pivot block.
10. Replace the covers.

ADJ 10A - Compression Roller Force (Version 2)

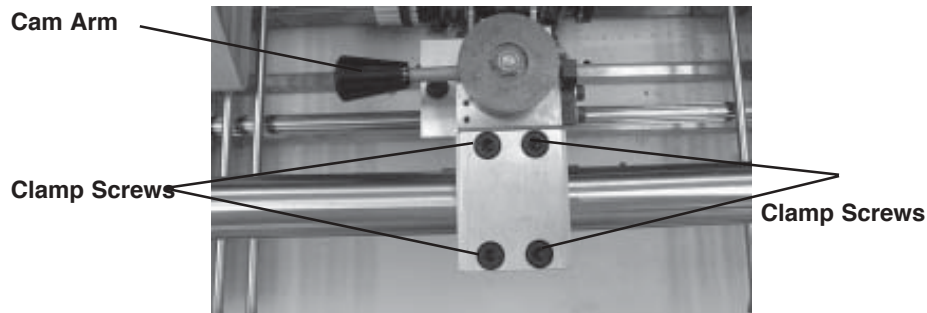
Purpose - This procedure adjusts the rotational position of the keyed shaft where the compression roller is mounted. The keyed shaft rotational position determines the amount of force exerted by the roller when loaded against the paper drive roller.

Tools: 9/64 inch hex key
3/16 inch hex key

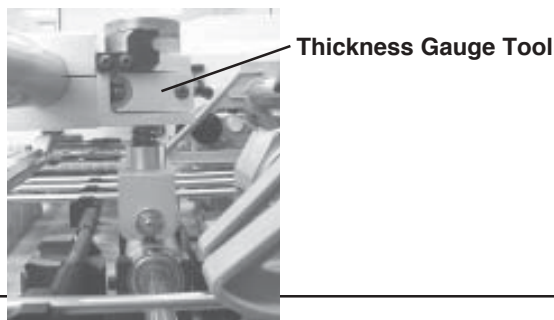
NOTE: You must perform the compression roller position adjustment before doing this adjustment.

Procedure:

1. Remove the top cover, control panel cover, and drive system cover.

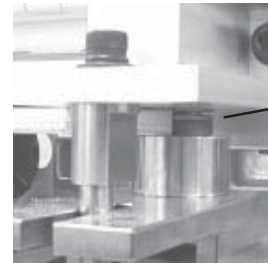


2. Raise the compression roller by rotating the cam arm fully clockwise.
3. Use the 9/64 inch hex key to remove one screw securing the thickness gauge tool attached to the side of the compression roller pivot block facing the control panel.

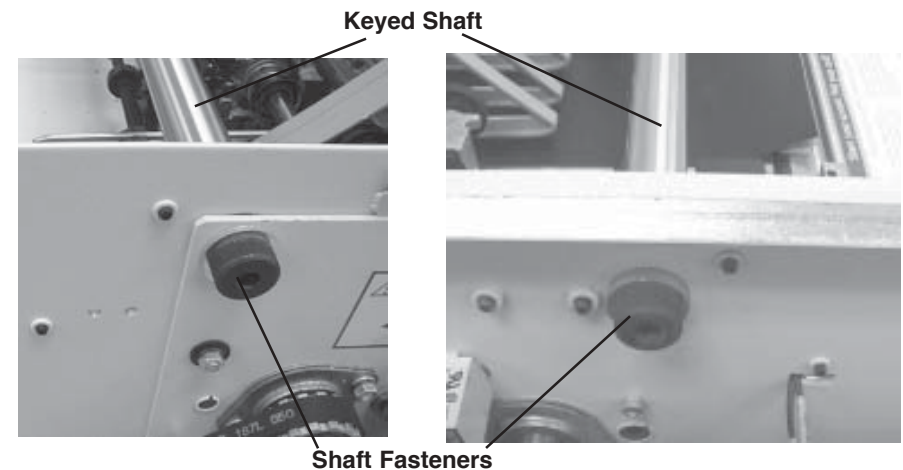


4. Release the cam arm and insert the rounded end of the tool to act as a spacer between the yoke and mounting cylinder. Raise the roller as far as the tool will allow by rotating the cam arm closed (clockwise).
5. Loosen the shaft fasteners at each end of the compression roller mounting shaft. Loosen the clamping plate screw very slightly using the 3/16" hex key.

**Thickness Gauge Tool
in its Adjustment Position**



6. Rotate the keyed shaft clockwise as viewed from the control panel until the paper drive roller and compression roller touch and any slack in the keyway screw (underside of the compression roller yoke) is taken up.



7. Tighten the shaft fastener on the control panel side securely while maintaining the shaft rotation, then the shaft screw at the opposite end.
8. Check that a sheet of paper will not pass through the paper drive nip.
9. Tighten the clamp screw, open the cam arm, and return the tool to its place at the side of the pivot block.
10. Replace the covers.

ADJ 11 - Pressure Roller Skew

Purpose:

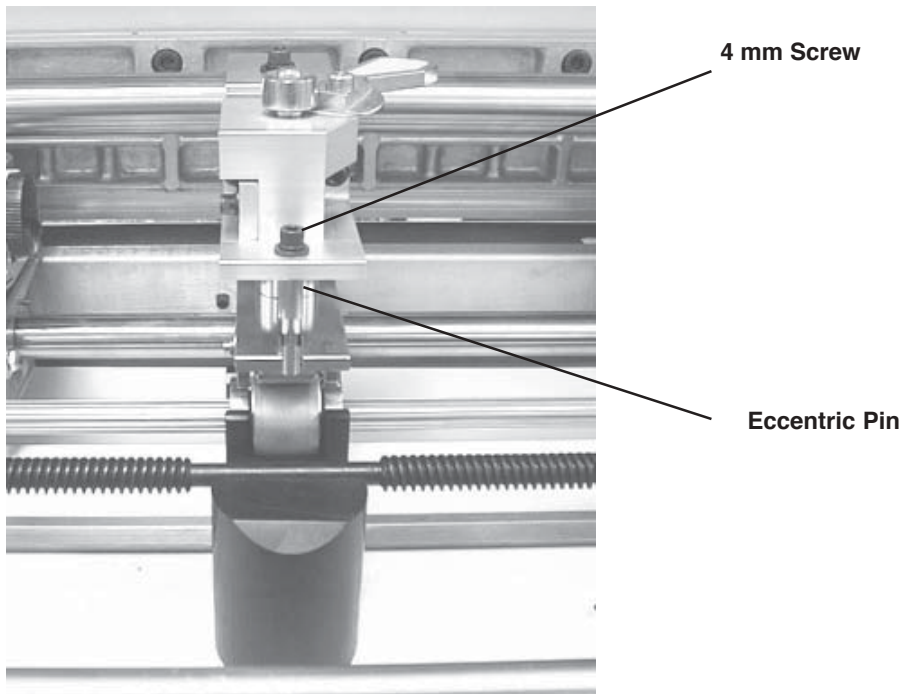
This procedure adjusts the angle at which the compression roller pulls the paper such that it will be in line with the path that the parallel rod guides determine. The web will bow (bubble) one side or the other if the feed direction differs from the parallel rod guides.

Tools: 3 mm hex key
4 mm hex key
Adjustable wrench

Procedure

1. Operate the cutter to determine whether the web is bowed.

2. If the web is bowed, open the top cover and use a 4 mm hex key to loosen the screw securing the eccentric pin at the front of the compression roller.
3. Use an adjustable wrench to gently rotate the eccentric stud in the direction of the paper bow. Rotating the eccentric stud will swing the compression roll yoke left or right, this in turn will bias the roller direction. The compression roller should be very slightly biased to the non-operator side edge guides.
4. Tighten the screw securing the eccentric stud, close the cover and run the cutter to observe whether the bow has disappeared.
5. Repeat steps 1- 4 as required.



ADJ 12 - Top Cover Interlock Switches

Purpose - The top cover interlock switches are magnetically actuated to close. The magnets are adhesively fixed to the plastic cover, therefore, the switches must be moved to make this adjustment. The control panel has a fault indicator light which indicates if the cover is open. If this light is on when the cover is closed, the switch may need adjustment.

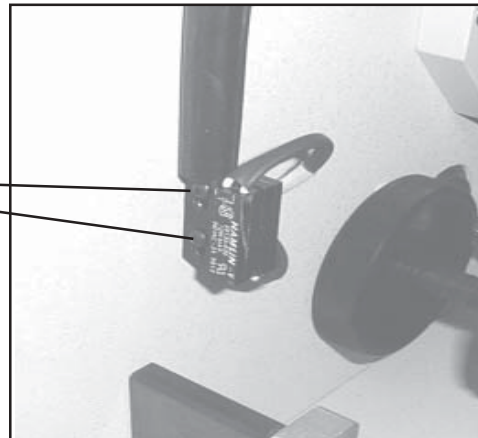
Tools: 2 mm hex key

Procedure

NOTE: Check the position of the E-Stop switch. It must be UP prior to adjustment.

1. Open the top cover and loosen two interlock switch mounting screws slightly. Position the switch all the way downward to open.
2. Gently close the cover and observe whether the cover open fault light and the E-Stop lamps are out. Adjust the switch gradually upward until the fault light is out without any flickering.
3. Secure the two interlock switch screws.

Interlock Switch
Screws



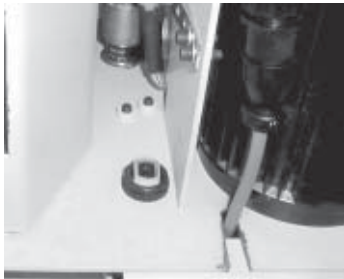
ADJ 13 - Bin Full Sensor

Purpose - The bin full sensor beam is reflected from a retroreflective tape mounted opposite the sensor on the cutter frame. When the beam is interrupted by waste paper in the bin, a signal is sent to turn on a bin full fault light on the cutter control panel.

Tools: Small, flat blade screwdriver (Potentiometer adjustment screwdriver)

Procedure

1. Remove the drive system cover. **(REP 2)**
2. Locate the bin full sensor and remove the plastic cover protecting the adjustments with the screwdriver.
3. Check that the sensor's electrical connector is connected and that the plastic nut securing the sensor to the frame is tight.



4. Turn the light/dark operation potentiometer to the light operated position.



5. Turn the gain potentiometer CCW until the LED on the rear of the sensor extinguishes.
6. Next turn the gain pot CW until the LED turns on and pulses then turn the gain pot two more turns CW.
7. Replace the plastic sensor cover and drive system cover.

Sensor Operation Checks

The following checks can be made at the I/O PCB.

J311-1	+15VDC supply voltage
J311-2	0 to 5VDC signal
	0 = unblocked +5VDC = blocked
J311-3	common

ADJ 14 - Knife Home Sensor

Purpose - The home sensor consists of a light emitting diode (LED) and sensor mounted across from each other on a small circuit board. The sensor detects a clamp collar screw as it passes through the detector pair. The clamp collar is positioned such that the knife upper blade is at the top of its stroke when the detection occurs.

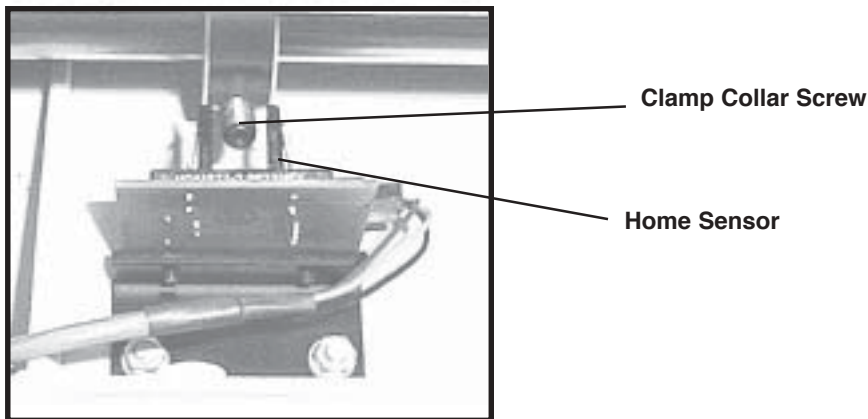
Tools: 3/16 inch hex key

Procedure

WARNING

Turn off the cutter; disconnect from electrical source.

1. Remove the knife driveshaft cover. **(REP 7)**
2. Rotate the knife driveshaft until the upper blade eccentric is at the top of its rotation.
3. Use the 3/16 inch hex key to loosen the home sensor clamp collar, to allow the collar to be turned by hand, and rotate it until the long clamp collar screw is located between the detector arms.
4. Carefully rotate the knife driveshaft until the clamp collar screws are in position, and tighten them. Again, rotate the driveshaft until the upper blade is fully raised and check that the clamp collar is in the correct position.
5. Replace the knife driveshaft cover.



Electrical

ADJ 15 - DC Power Supplies

Purpose - The power supplies provide all DC power to the cutter circuit boards and DC components. There are two identical power supplies in the system and each supply provides +5 VDC, +15 VDC, and -15 VDC. Only the +5 VDC is adjustable.

Tools: Small flat blade screwdriver
Multimeter

Procedure

1. Remove the electrical panel cover. **(REP 4)**
2. Turn on the main power switch.

WARNING
115 VAC is present on the electrical panel when the power switch is on.

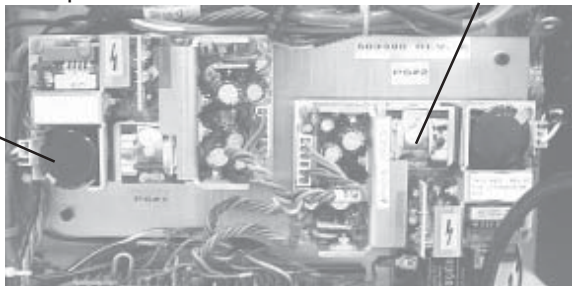
3. Place a multimeter set to DC Volts across the load point for each power supply.

Power Supply	Load Point	Positive Pin	Ground Pin
PS1	I/O PWB	J318-1	J318-6
PS2	CPU PWB	J198-1	J198-6

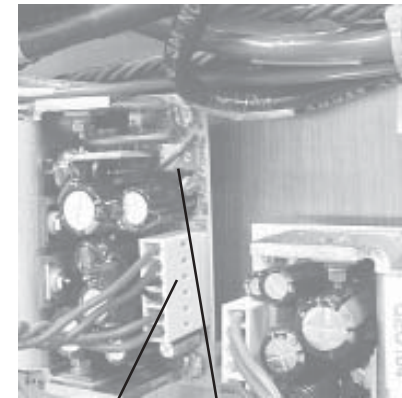
NOTE: The power supplies are identical. Each power supply is adjusted in the same manner.

5. Adjust the +5 VDC pot (VR1) on the circuit board of the power supply to read $+5.1 \pm 0.05$ VDC.
6. Replace the electrical panel cover.

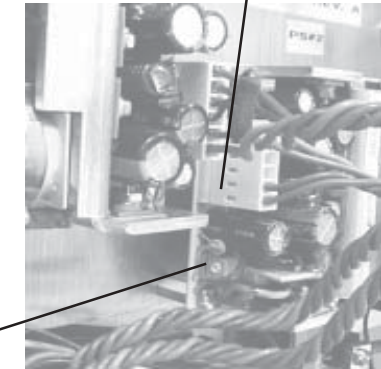
Power Supply PS1



Power Supply PS2

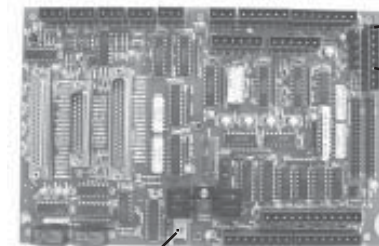


DC Output Connector SK2 for PS1



DC Output Connector SK2 for PS2

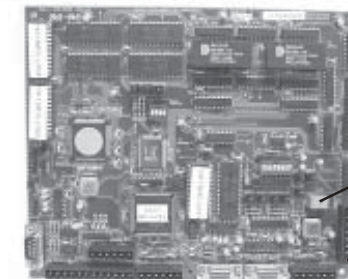
Power Supply +5 VDC Pot



Pin 318-1

Pin 318-6

Common



Common

Pin 198-6

Pin 198-1

ADJ 16 - Knife Servo Amplifier Adjustments

Purpose:

Servo amplifiers are operated in current mode. The amplifier must be matched to the DC motor it is driving. This requires two adjustments (gain and balance) that are mutually dependent. Always do both and in the order shown.

Initial steps:

- Power on the cutter.
- Release the E-Stop button.
- Remove the paper from the cutter.
- Close the top cover.
- Do not enable the cutter.
- Put the mode switch in the online position.
- Remove the front cover from the cutter. **(REP 4)**

NOTE: When installing a new servo-amplifier, find the mid-range adjustment point on the twenty turn gain and balance pots before making any further adjustment. This can be achieved by turning both pots fully (up to 20 turns) counter clockwise (CCW) and then ten turns clockwise (CW).

Tools Required: Miniature potentiometer-trimmer adjustment tool.

Procedure:

Balance Adjustment:

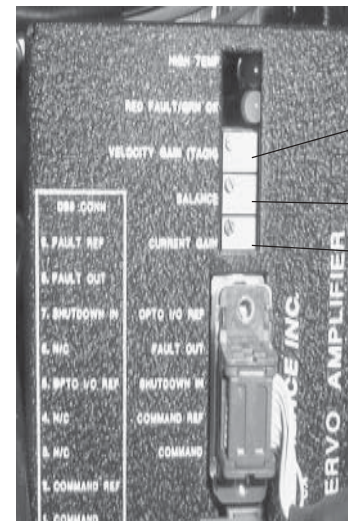
1. On the CPU PCB switch 101 turn DIP switches 2 through 6 on, and then turn DIP switch 1 on. The knife will cycle continuously. Wait 10 seconds before making any adjustments or reading of the speed display. (Ignore the number in the form length display.)
2. Adjust the balance pot on the knife drive servo amplifier until the speed display reads 7. Make initial adjustments in one turn increments and wait 3 seconds before reading. Turning clockwise increases display.
3. Turn DIP switch 1 off.

Current Gain Adjustment:

1. On the CPU PCB switch 101, with DIP switches 2 through 6 on, turn DIP switch 8 on then turn DIP switch 1 on. The knife will cycle continuously. Wait 10 seconds before making any adjustments or taking any readings from the speed display. Adjust the Current gain pot on the knife drive servo amp until the speed display reads 7 (CCW the display increases, CW decreases). Make initial adjustments in one turn increments and wait 3 seconds before reading.
2. Turn DIP switch 1 off then turn DIP switches 2 through 6, and 8 off.

Go back and verify both adjustments several times to assure they are both in specification.

NOTE: For most applications, turn DIP switch 4 to the ON position upon completion of adjustments.

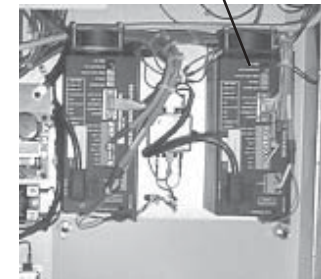


Velocity Gain (Tach) DO NOT ADJUST

Balance

Current Gain

Knife Servo Amplifier



ADJ 17 - Paper Servo Amplifier Adjustments

Purpose:

Servo amplifiers are operated in current mode. The amplifier must be matched to the DC motor it is driving. This requires two adjustments (gain and balance) that are mutually dependent. Always do both and in the order shown.

Initial steps:

- Power on the cutter.
- Release the E-Stop button.
- Remove the paper from the cutter.
- Close the top cover.

Do not enable the cutter.

- Put the mode switch in the offline position.
- Remove the electrical panel cover from the cutter. **(REP 4)**

NOTE: When installing a new servo-amplifier, find the mid-range adjustment point on the twenty turn gain and balance pots before making any further adjustment. This can be achieved by turning both pots fully (up to 20 turns) counter clockwise (CCW) and then ten turns clockwise (CW).

Tools Required: Miniature potentiometer-trimmer adjustment tool.

Procedure:

Balance Adjustment:

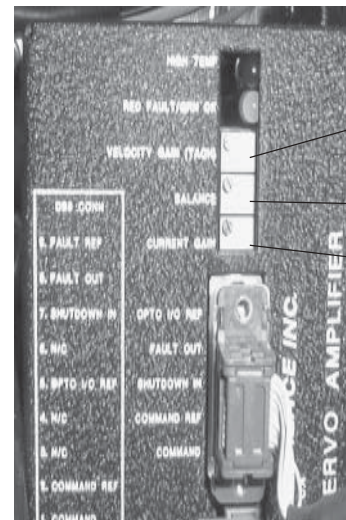
1. On the CPU PCB switch 101, turn DIP switches 2 through 7 on, and then turn DIP switch 1 on. The paper feed tractors will go forward then backwards continuously. Wait 10 seconds before making any adjustments or reading of the speed display.
2. Adjust the balance pot on the paper drive servo amplifier until the speed display reads 7. Make initial adjustments in one turn increments and wait 3 seconds before reading. Turning clockwise increases display.
3. Turn DIP switch 1 off.

Current Gain Adjustment:

1. On the CPU PCB switch 101, with DIP switches 2 through 7 on, turn DIP switch 8 on then turn DIP switch 1 on. The paper feed tractors will drive forward continuously. Wait 10 seconds before making any adjustments or taking any readings from the speed display. Adjust the Current gain pot on the paper drive servo amp until the speed display reads 7. Make initial adjustments in one turn increments and wait 3 seconds before reading. Turning counter clockwise increases display.
2. Turn DIP switch 1 off then turn DIP switches 2 through 7, and 8 off.

Go back and verify both adjustments several times to assure they are both in specification.

NOTE: For most applications, turn DIP switch 4 to the ON position upon completion of adjustments.



Velocity Gain (Tach)
DO NOT ADJUST

Balance

Current Gain

Paper Servo Amplifier



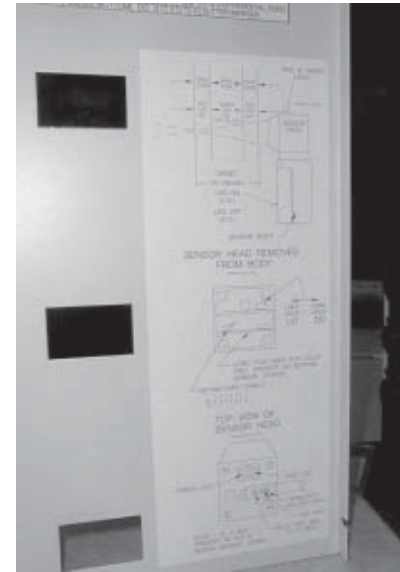
ADJ 18 - Sensor Tower Sensors

Purpose - The sensor tower contains a top and bottom loop sensor, each of which must be adjusted for sensitivity and light or dark operating mode. The bottom sensor must also be adjusted to have a three second time delay.

Tools: 1/8 inch hex key
Small blade screwdriver
Medium Blade screwdriver

Procedure

1. Remove the sensor tower cover by removing four screws.



2. Follow the instructions pasted to the inside cover for CTS type systems.

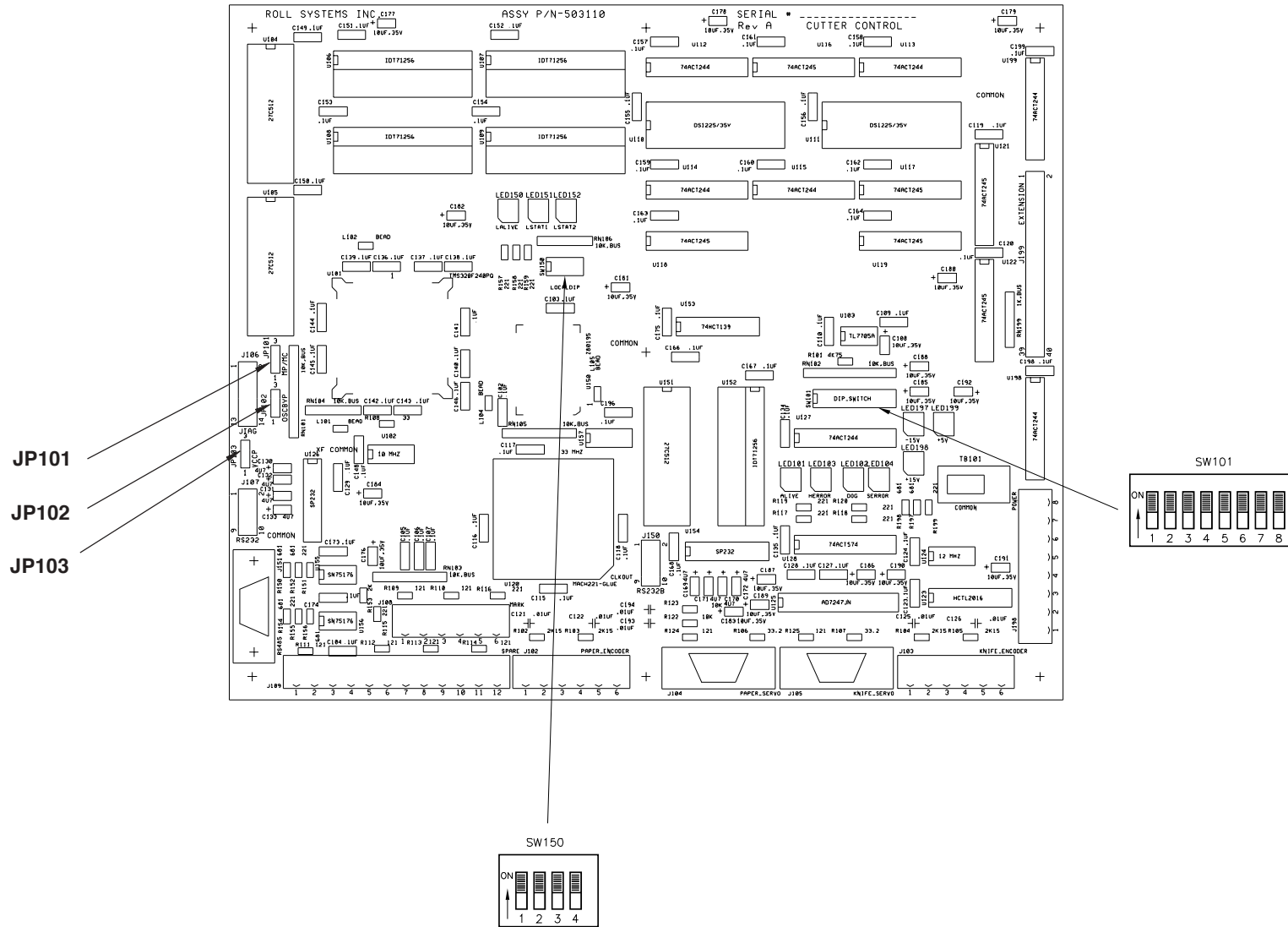
ADJ 19 - Switch and Jumper Settings

Purpose:

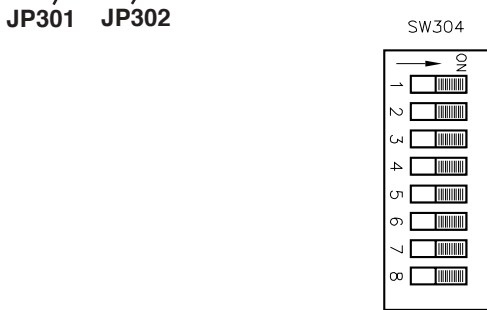
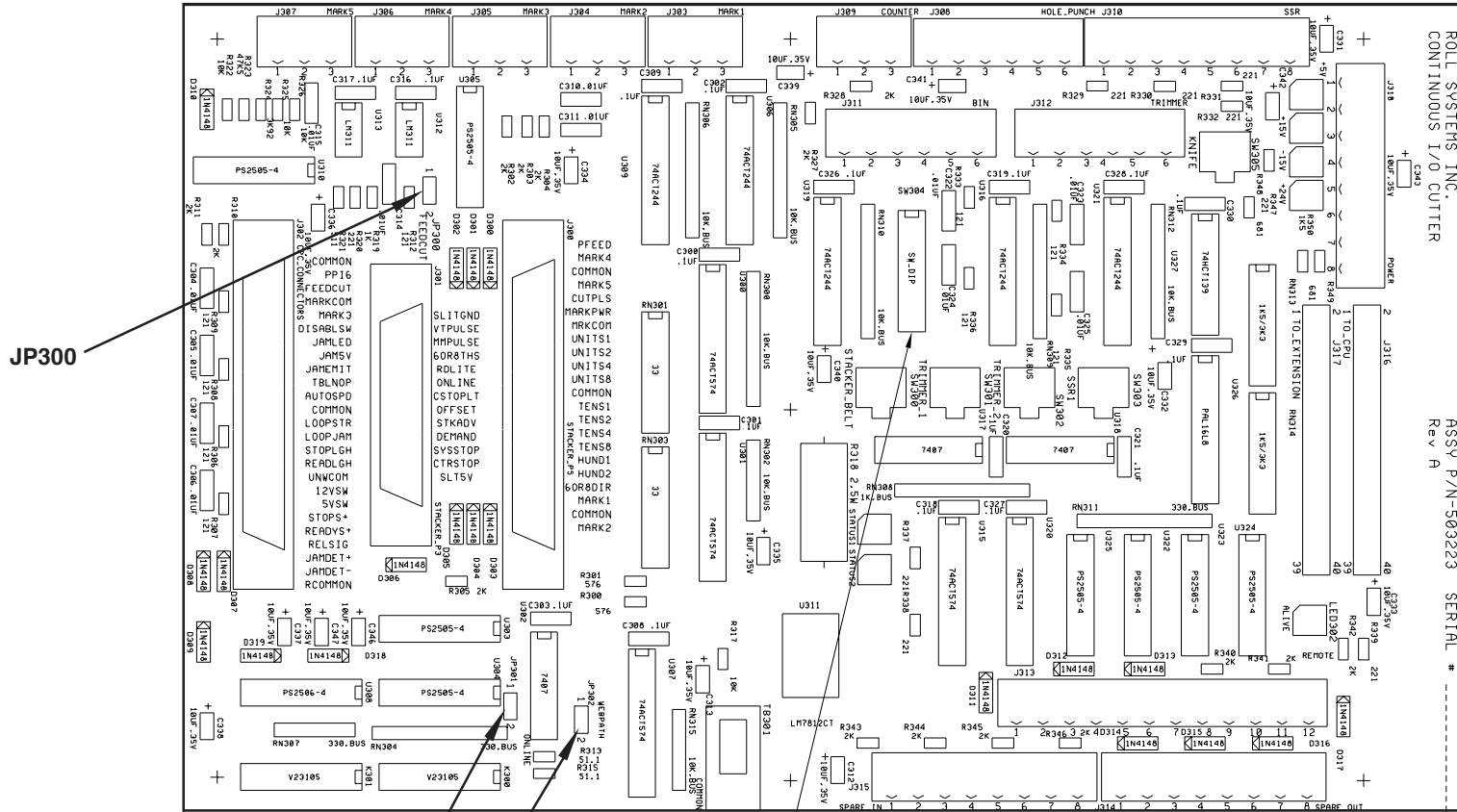
There are three printed wiring boards (PWBs) in the Continuous Cutter that have DIP switch packages and jumpers that must be set correctly before the cutter can run properly. The PWBs are the CPU Board, the I/O Board, and the Display board. In some cases the cutter application determines the switch and jumper settings and in other cases they may be used for diagnostic purposes. Refer to the listings below to determine the correct switch and jumper settings for your specific system and application.

Initial steps:

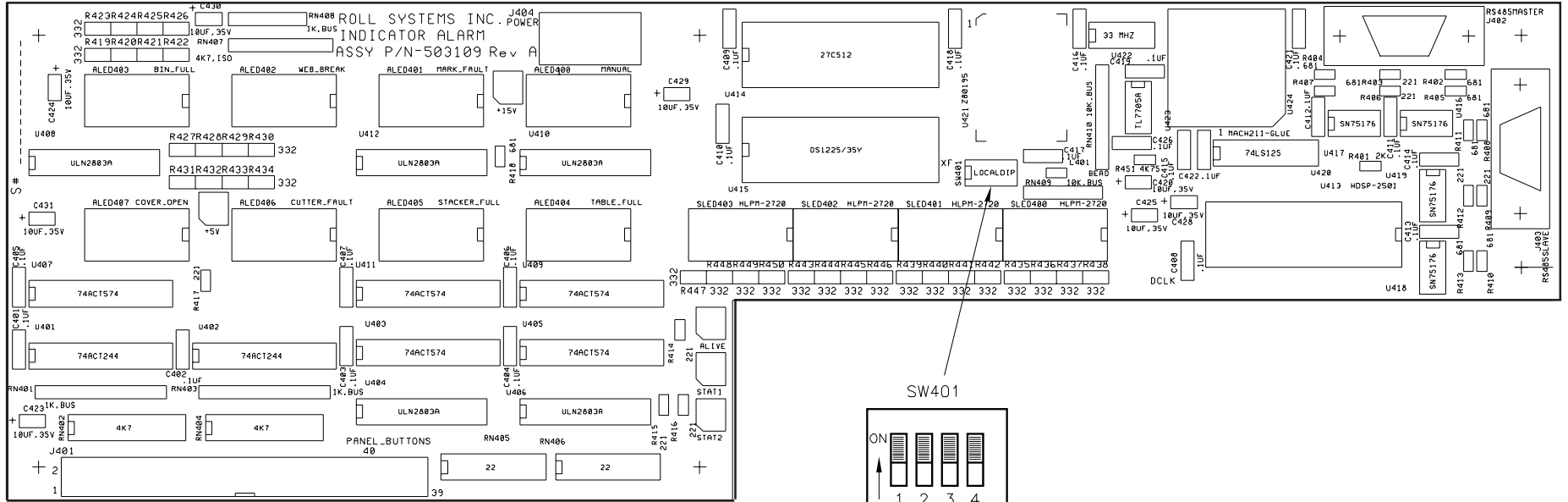
- Power off the cutter.
- Remove the electrical panel cover using a 4 mm hex key.



CPU BOARD SWITCH AND JUMPER POSITIONS



I/O BOARD SWITCH AND JUMPER LOCATIONS



DISPLAY BOARD SWITCH POSITION

APPLICATION SWITCH SETTINGS					
PWB	SWITCH #	CTS	BOOKMASTER	BOOKMASTER CF/2 & CF/3	BOOKMASTER CF/M And TwoUp System
CPU	101-1	OFF	OFF	OFF	OFF
	101-2	OFF	OFF	OFF	OFF
	101-3	OFF	OFF	OFF	OFF
	101-4	ON	ON	ON	ON
	101-5	OFF	OFF	OFF	OFF
	101-6	OFF	OFF	OFF	OFF
	101-7	OFF	OFF	OFF	OFF
	101-8	OFF	OFF	OFF	OFF
	150-1	OFF	OFF	OFF	OFF
	150-2	OFF	OFF	ON	ON
	150-3	OFF	OFF	OFF	OFF
	150-4	OFF	OFF	OFF	OFF
I/O	304-1	ON	OFF	OFF	OFF
	304-2	OFF enables the Print Registration button to shut off the trimmer/chopper motor when activated. ON will allow the trimmer/chopper motor to run normally. MUST BE OFF FOR BOOKMASTER CF/M			
	304-3	Turn ON 3 and 4 together to test switches and lamps			
	304-4				
	304-5	OFF	OFF	OFF	OFF
	304-6	ON turns OFF the paper jam sensor. OFF turns ON the paper jam sensor.			
	304-7	OFF if cutter has Print Registration ON if cutter does not have Print Registration			
	304-8	ON	ON	ON	ON
DISPLAY	401-1	ON	ON	ON	ON
	401-2	ON	ON	ON	ON
	401-3	ON	ON	ON	ON
	401-4	ON	ON	ON	ON

APPLICATION JUMPER SETTINGS							
PWB	JUMPER #	CTS	BOOKMASTER	PRINT REGISTRATION	PINLESS	HOLE PUNCH	COMMENT
CPU	101	1-2	1-2	1-2	1-2	1-2	
	102	2-3	2-3	2-3	2-3	2-3	
	103	2-3	2-3	2-3	2-3	2-3	
I/O	300	NONE	1-2	N/A	N/A	N/A	
	301	NONE	NONE	NONE	NONE	NONE	
	302	NONE	NONE	NONE	NONE	NONE	

Contents

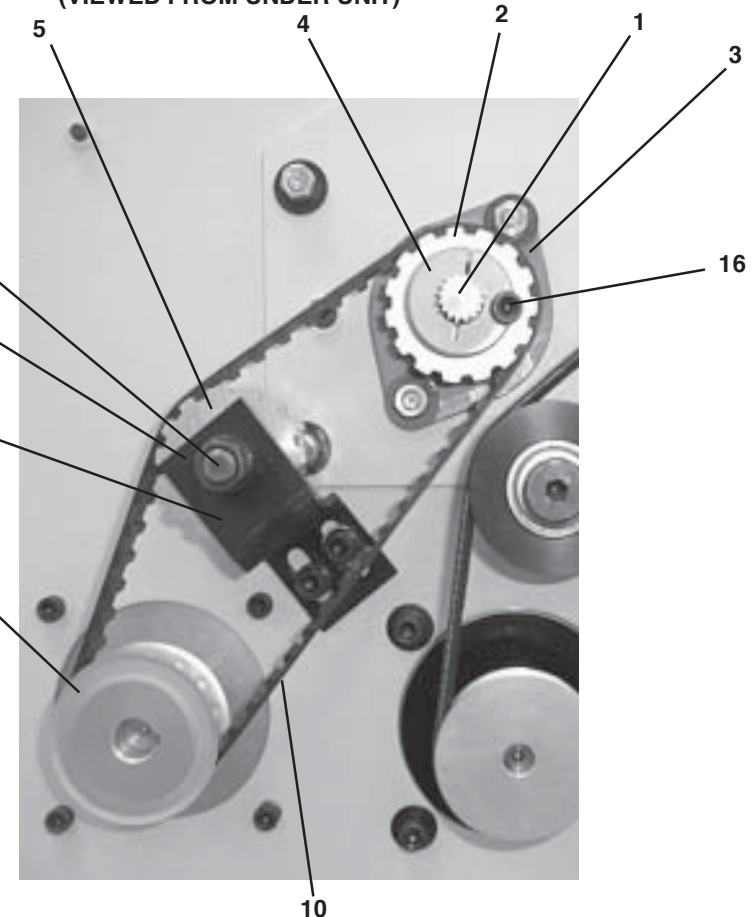
1.0	<u>Mechanical</u>	<u>Page</u>
1.1	Paper Drive Components	5-2
1.2	Tractor Drive	5-3
1.3	Tractor Assemblies	5-4
1.4	Pinless Drive	5-5
1.5	Pinless Pressure Roller Assembly	5-6
1.6	Knife Drive	5-7
1.7	Knife Assembly	5-8
1.8	Margin Trimmer Drive	5-9
1.9	Margin Trimmer Assembly (Right)	5-10
1.10	Margin Trimmer Assembly (Left)	5-11
1.11	Standard Infeed	5-12
1.12	90 Degree Infeed	5-13
2.0	<u>Electrical</u>	
2.1	Control Panel Components	5-14
2.2	Electrical Panel Components	5-15
2.3	Sensors & Interlocks	5-16
2.4	Static Suppression Components	5-17
3.0	<u>Frame, Enclosures</u>	
3.1	Covers, Casters	5-18

PL 1.1 Paper Drive Components

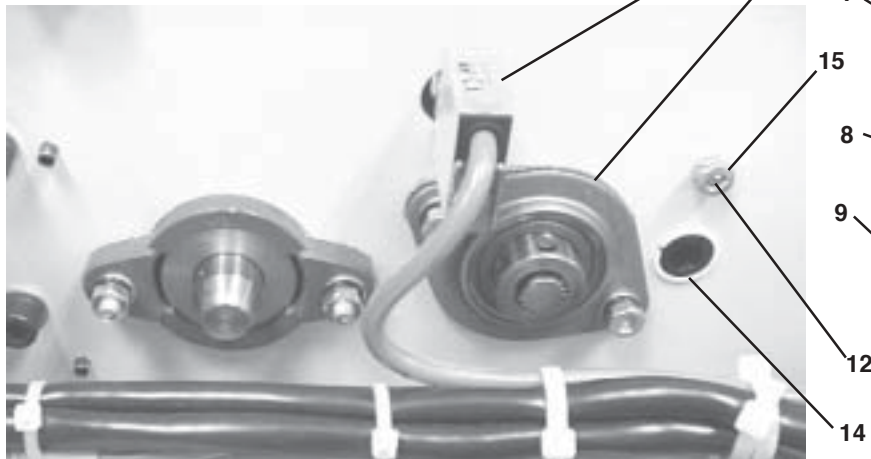
Item	Part	Description
1	310394	Splined Paper Drive Shaft
2	310429	Pulley, Paper Drive
3	251835	Ball Bearing Flange
4	311577	Clamp Collar
5	503262	Paper Drive Idler Pulley & Bearing
6	100259	Shoulder Bolt
7	100287	Spacer
8	310440	Paper Drive Idler Arm
9	310428	Paper Drive Motor Pulley
10	250211	Paper Drive Timing Belt
11	251539	Paper Drive Motor
12	251812	Spring Plunger, Adjustable
13	503321	Jam Sensor Assembly
14	251813	Bearing, Nyloner
15	100201	Nut
16	101316	Screw, M5



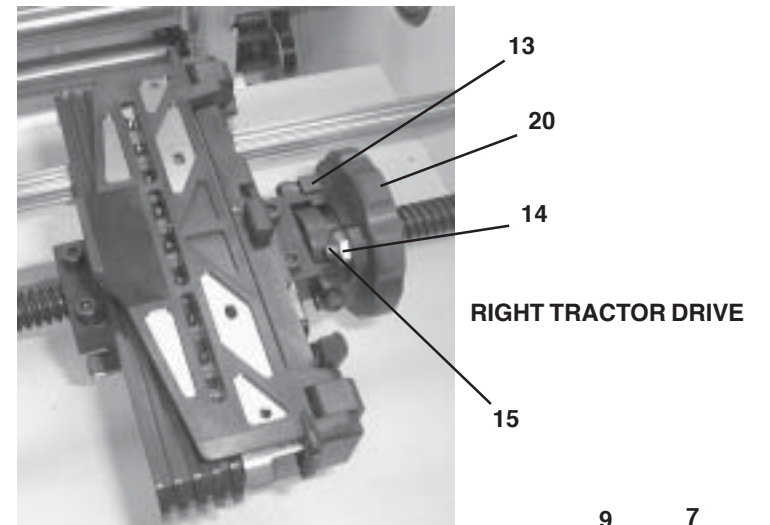
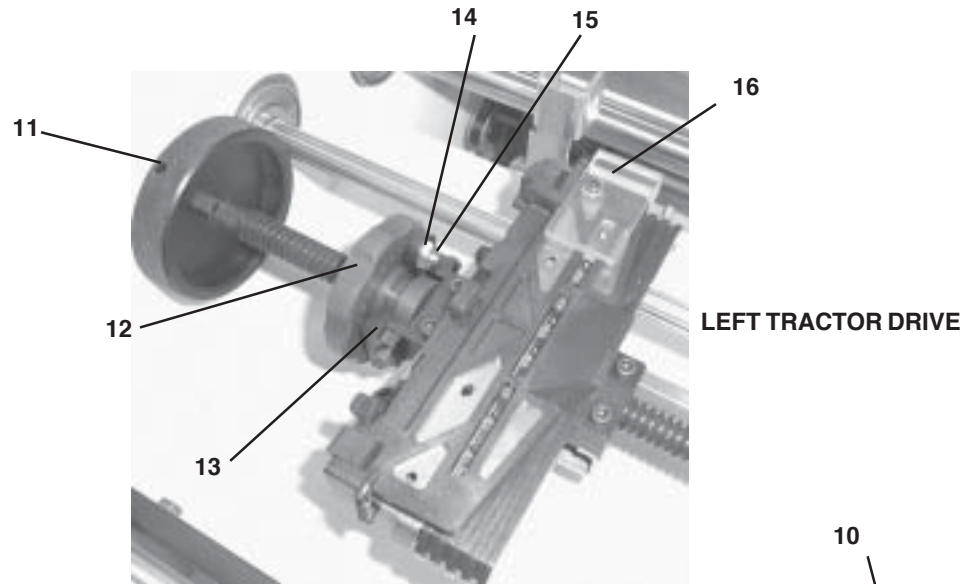
(VIEWED FROM UNDER UNIT)



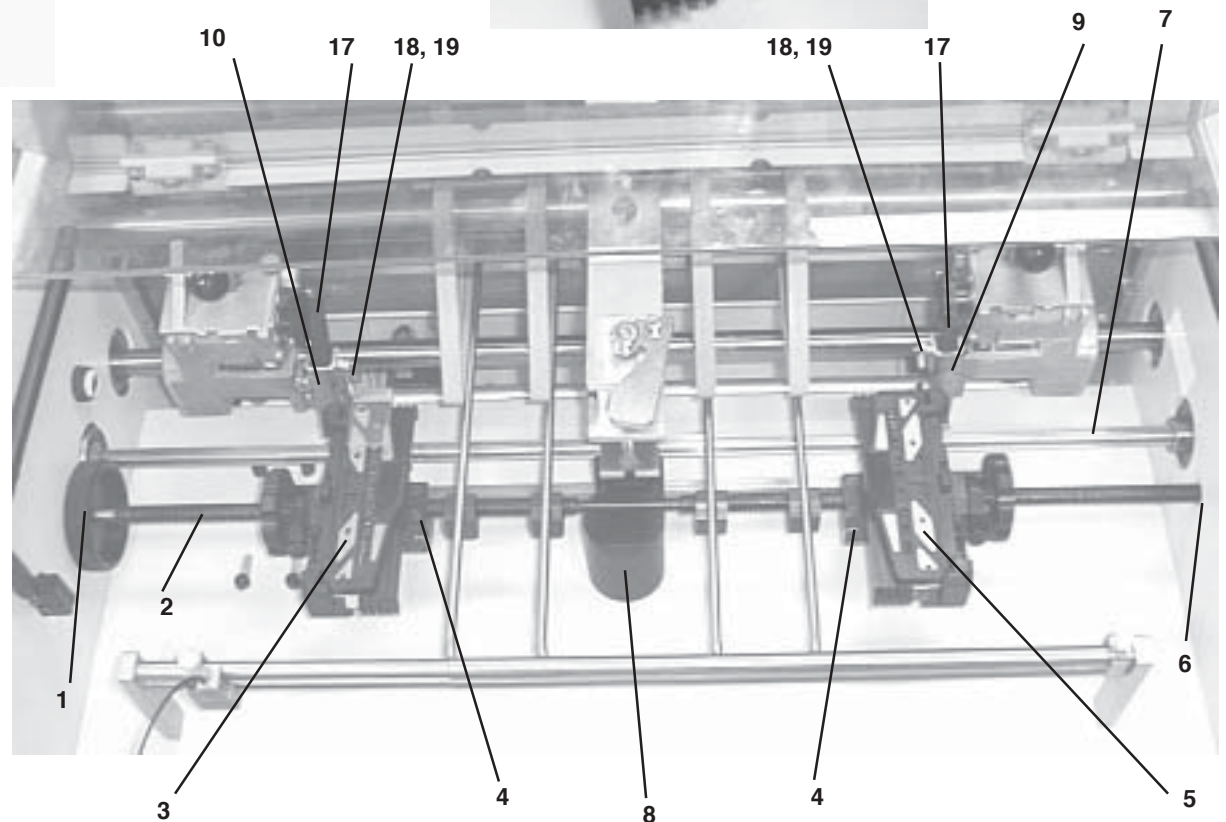
(VIEWED FROM NON-OPERATOR SIDE)



(VIEWED FROM BEHIND OPERATOR PANEL)



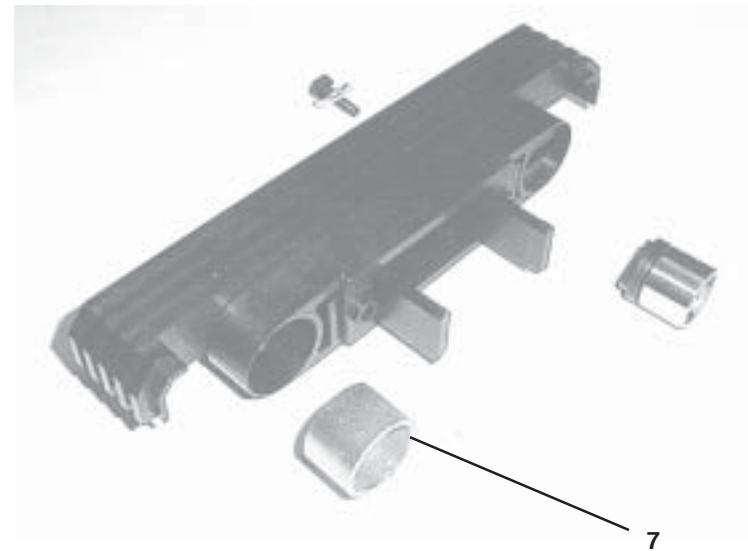
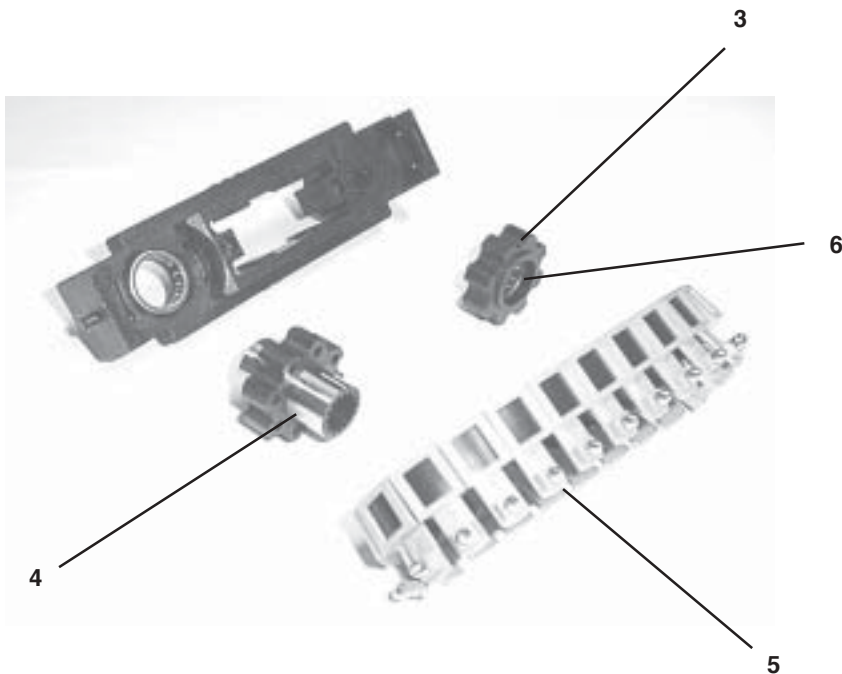
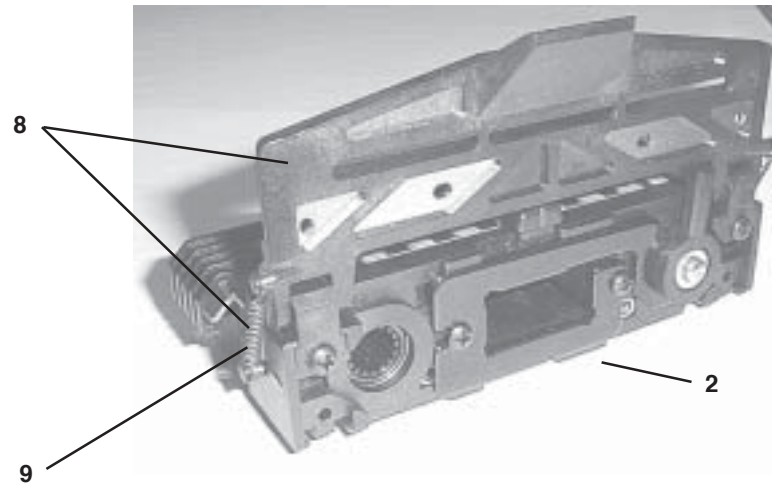
Item	Part	Description
1	310561	Tractor Positioning Knob
2	310375	Tractor Lead Screw
3	305019	Left Tractor
4	310378	Tractor Support Block
5	305020	Right Tractor
6	250437	Right Tractor Nyliner Bearing
7	310394	Splined Paper Drive Shaft
8	310780	Leadscrew Support Block
9	310353	Tractor Guide Arm Bracket(RH)
10	31035301	Tractor Guide Arm Bracket(LH)
11	100731	Setscrews (2)-Positioning Knob
12	310388	Left Tractor Lead Nut & Knob
13	310764	Tractor Lock Bracket
14	251846	Spring Plunger
15	100201	Hex Nut
16	310770	Top of Form Sight
17	310352	Tractor Guide Arm
18	102324	Tractor Guide Shoulder Bolt
19	251802	Tractor Guide spring
20	310379	RH Tractor Lead Nut & Knob



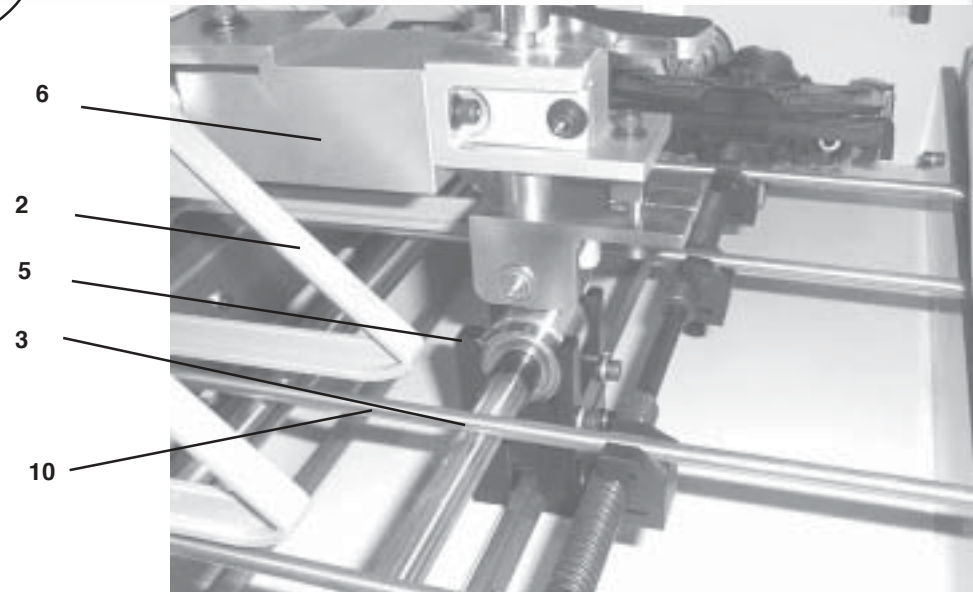
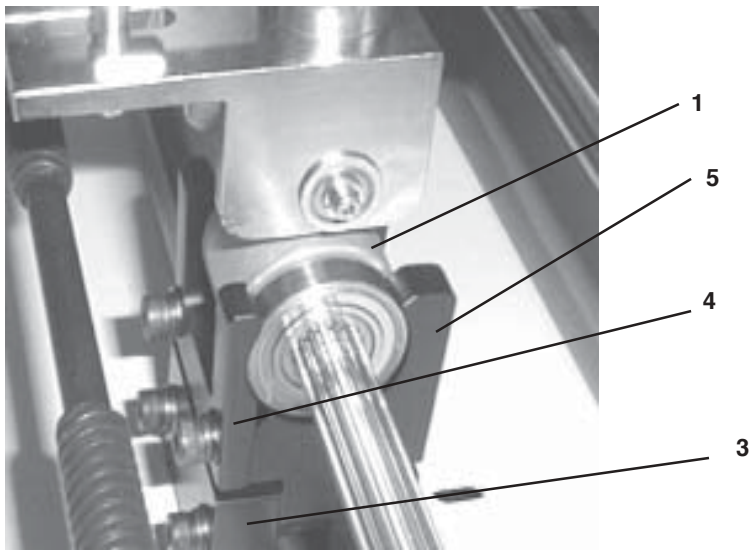
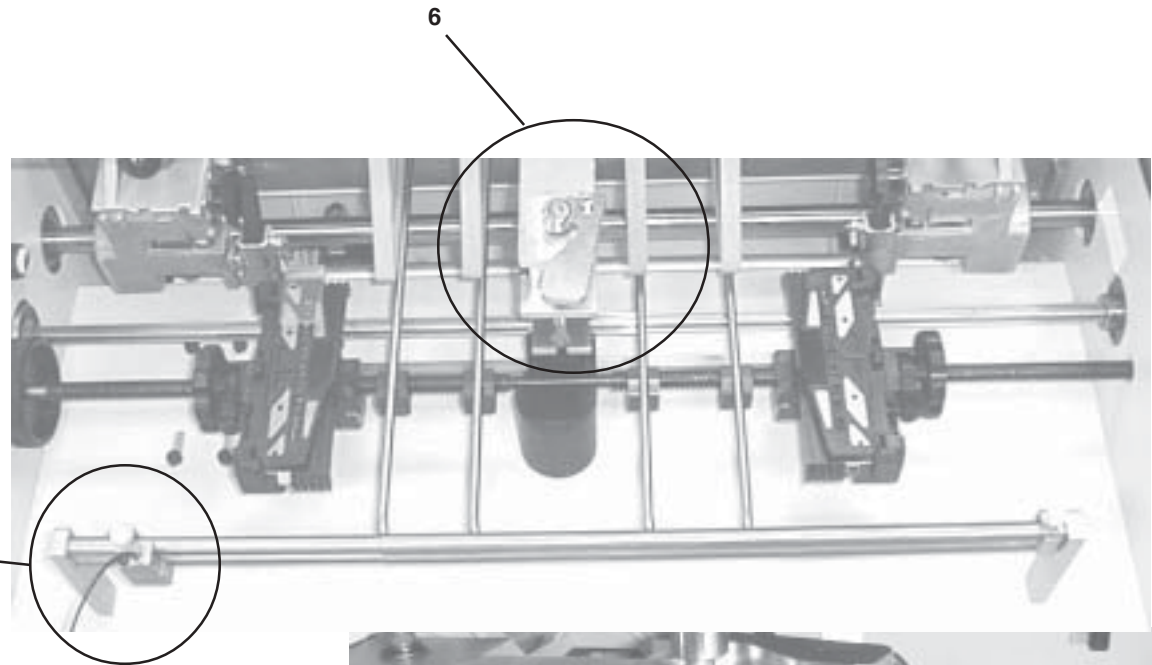
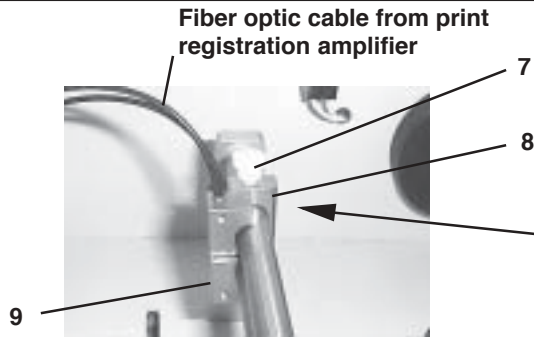
Item	Part	Description
1	305020	Right Hand Tractor (Not Shown)
2	305019	Left Hand Tractor
3	251843	Idler Sprocket
4	251842	Drive Sprocket
5	251841	Belt Assembly
6	251844	Needle Bushing
7	251845	Oilite Bushing
8	251921	Tractor Door and Springs
9	252209	Spring

NOTE: Left and right tractors have identical parts.

NOTE: Items 3 and 6 must be ordered together.

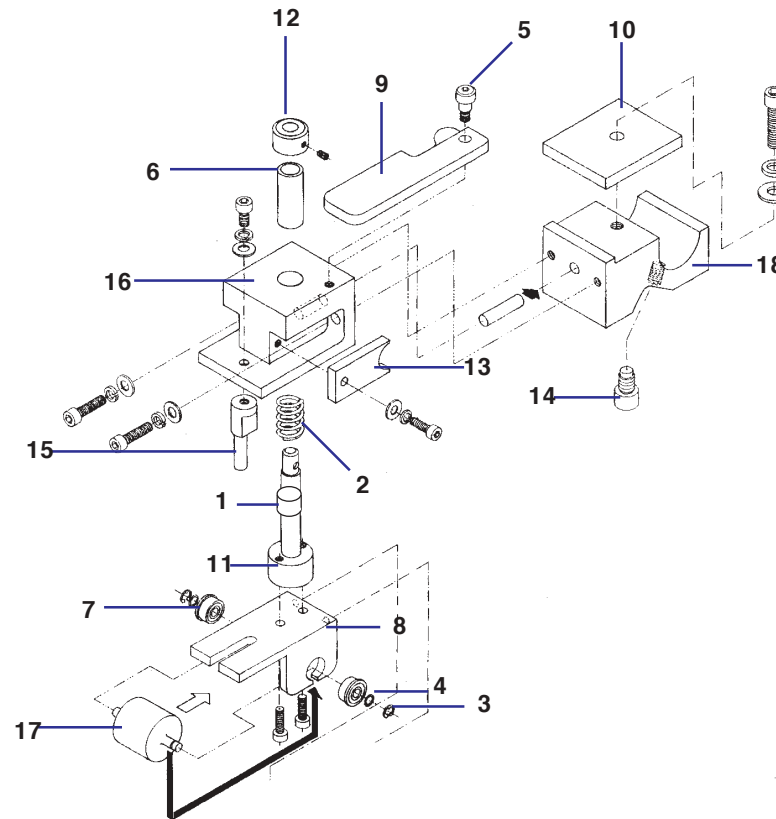


Item	Part	Description
1	503313	Drive Roller Assembly
2	310551	Upper Guide
3	310333	Front Lower Drive Roll Support
4	310662	Back Lower Drive Roll Support
5	310661	Side Drive Roll Support
6	503162	Compression Roll Pinless Assembly
7	101293	Thumbscrew
8	310742	Upper Block Print Registration Sensor
9	310740	Lower Block Print Registration Sensor
10	503274	Form Support Rod Assembly



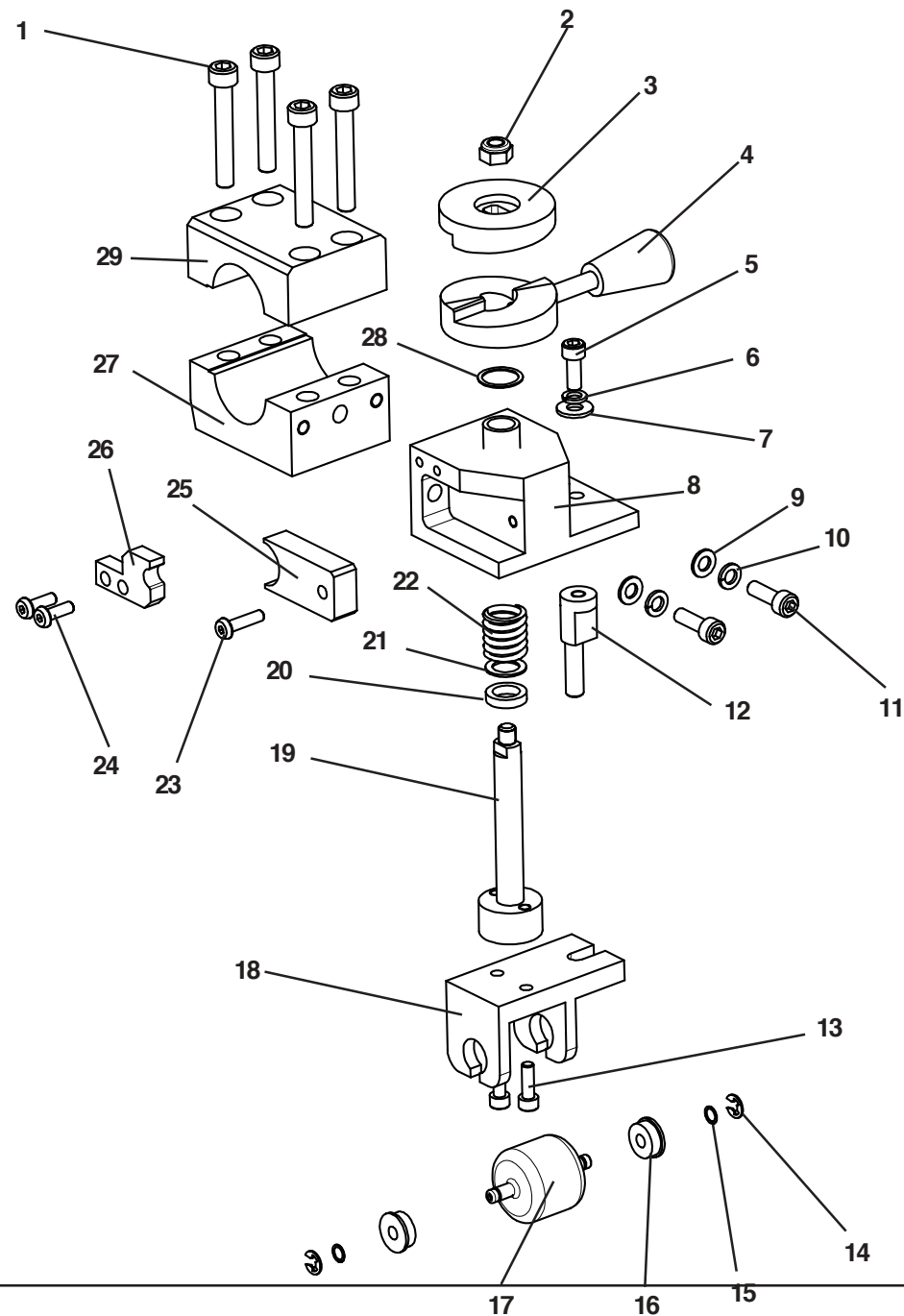
Compression Roll Assembly (Version 1)

Item	Part	Description
1	100432	Post Spacer
2	100509	Pressure Roll Post Compression Spring
3	100686	Pressure Roll Shaft Retaining Ring
4	100839	Thin Spacer
5	101396	Pressure Roll Cam Lever Shoulder Screw
6	250361	Pressure Roll Post Bushing
7	250378	Pressure Roll Ball bearing
8	306962	Pressure Roll Yoke
9	308647	Pressure Roll Cam Lever
10	308648	Pressure Roll Clamp Plate
11	308649	Pressure Roll Post
12	308650	Pressure Roll Post Cap
13	308651	Pressure Roll Gauge
14	308753	Pressure Roll Alignment Screw
15	308873	Pressure Roll Eccentric Pin
16	308874	Pressure Roll Pivot Block
17	309757	Pressure Roller
18	310331	Pressure Roll Mounting Block



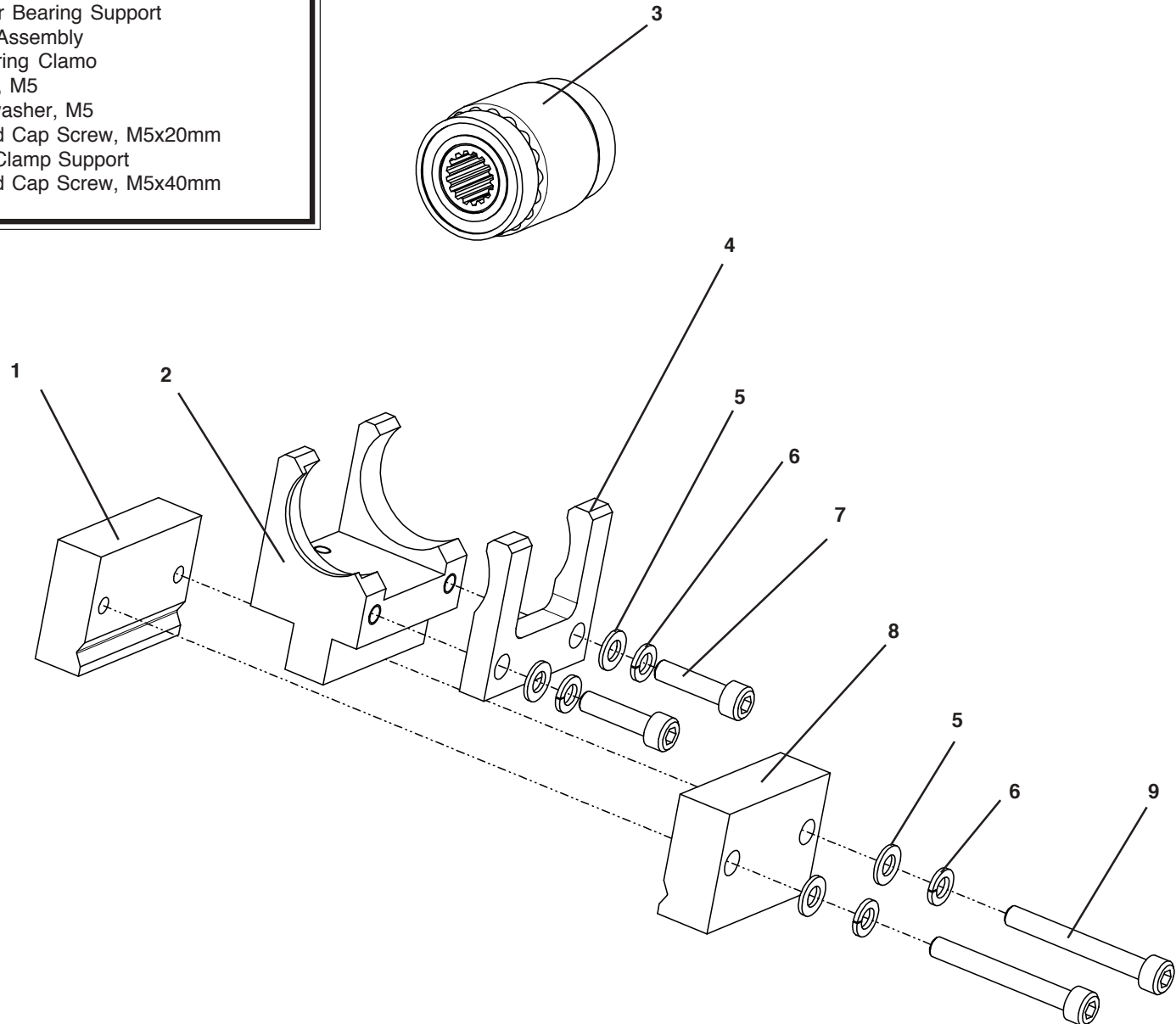
Compression Roll Assembly (Version 2)

Item	Part	Description
1	102376(4)	Screw, SKHDCP M6x40mm
2	102211	Stop Nut
3	314123	Helical Post Ramp
4	504634	Cam Lever Assembly
5	100014	Screw, SKHDCP 10-32x.5
6	100015	Lockwasher #10
7	100110	Flatwasher #10
8	504622	Block, Pivot
9	100815(2)	Screw, SKHDCP, M5X20
10	100766(2)	Split Lockwasher M5
11	101208(2)	Screw, SKHDCP M5x16mm
12	308873	Pin, Adjuster
13	100133(2)	Screw, SKHDCP 8-32x .5
14	100777(2)	Retaining Ring, 3/16
15	100839(2)	Spacer, 3/16 x 1/4
16	250378(2)	Bearing, Ball
17	309757	Roll, Pressure
18	314122	Yoke
19	314006	Post, Pinch Roll
20	100432	Spacer
21	100403	Spacer
22	252311	Spring, Compression
23	102523	Buttonhead screw, M4x16mm
24	102370(2)	Buttonhead screw, M4x12mm
25	314011	Guage, Spring adjust
26	314033	Drive Lever Stop
27	314005	Block, Mounting
28	100262	Spacer
29	314004	Block, Clamp

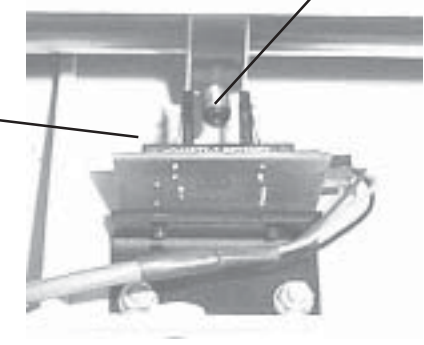
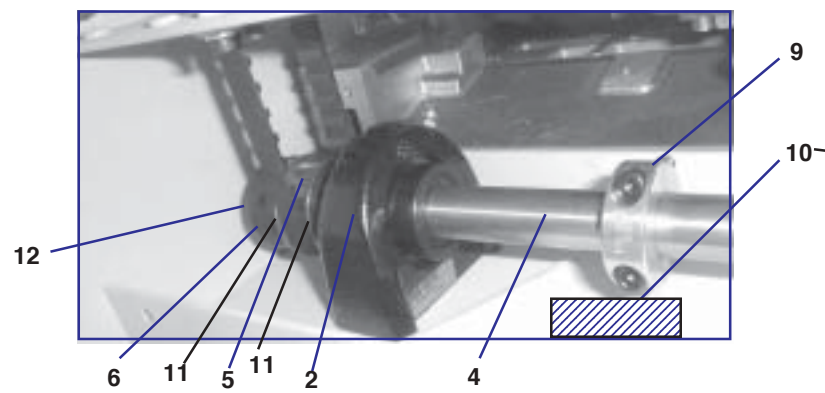
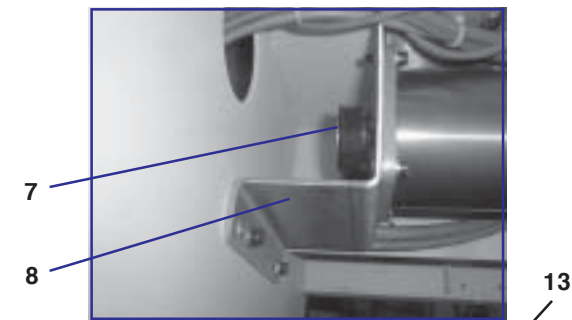
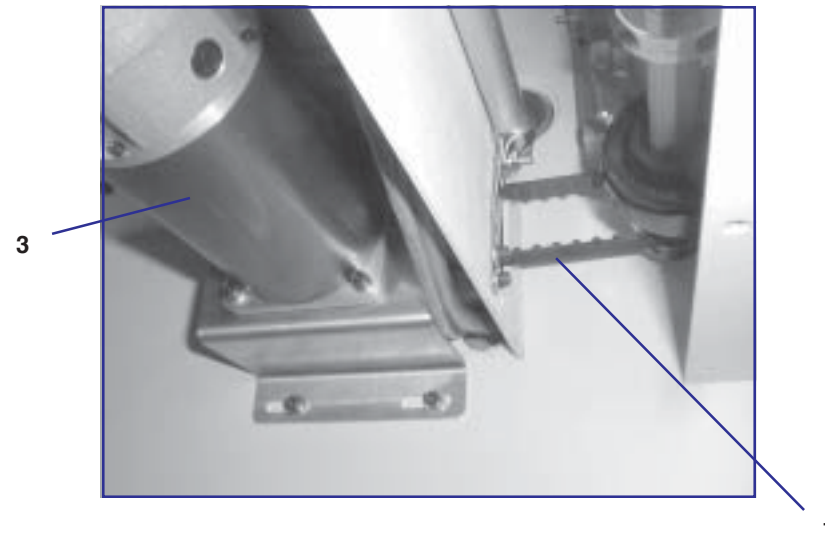


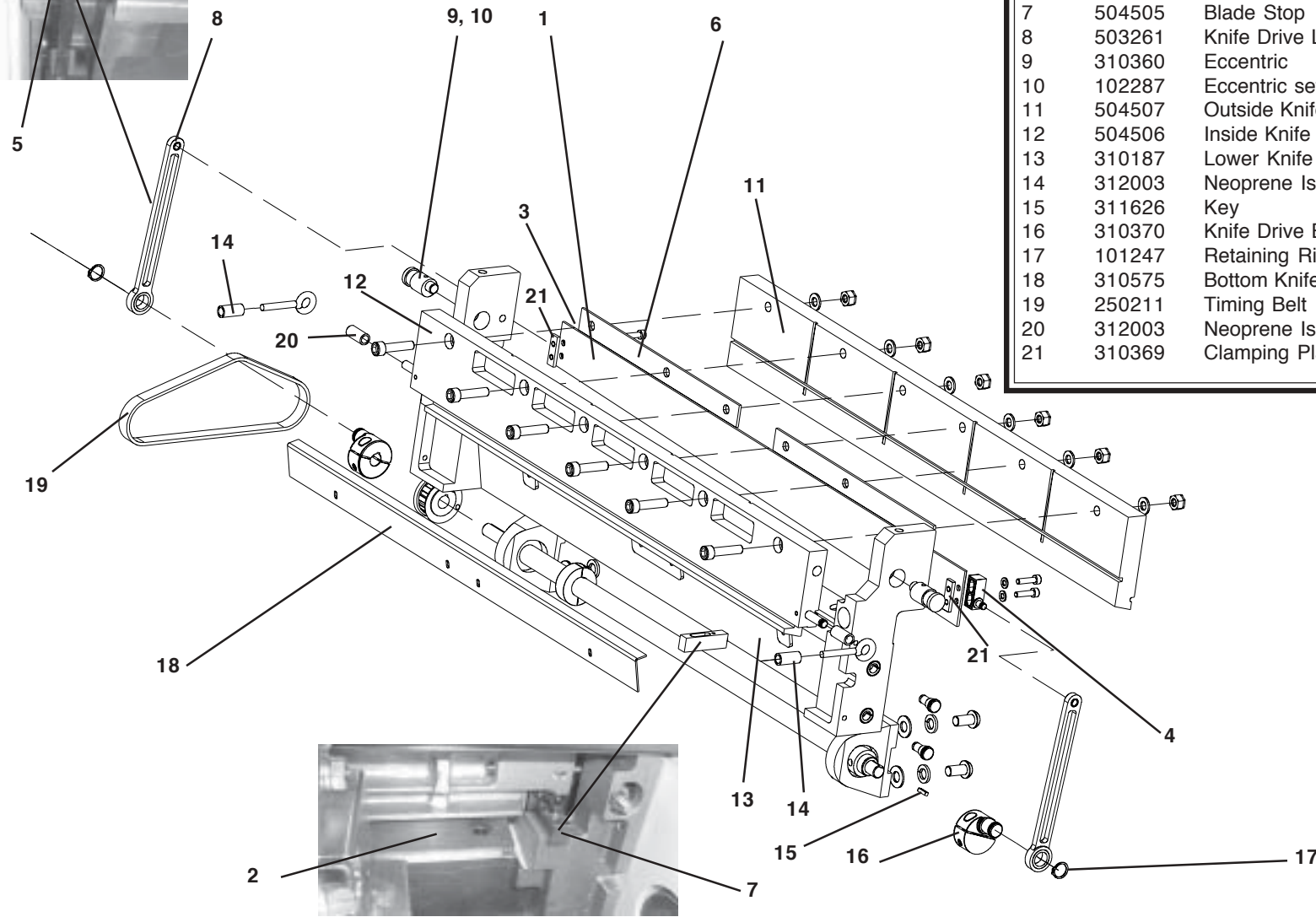
Drive Roll Assembly

Item	Part	Description
1	313999	Roller Bearing Support
2	313997	Wide Roller Bearing Support
3	504604	Drive Roll Assembly
4	313998	Roller Bearing Clamo
5	100767(4)	Flatwasher, M5
6	100766(4)	Split Lockwasher, M5
7	100815(2)	Sockethead Cap Screw, M5x20mm
8	314000	Wide Top Clamp Support
9	100832(2)	Sockethead Cap Screw, M5x40mm

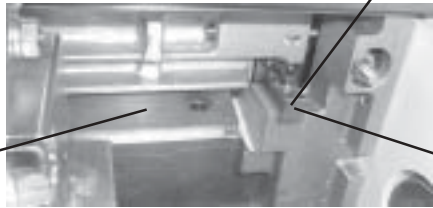


Item	Part	Description
1	250211	Knife Drive Motor Timing Belt
2	250244	Knife Drive Shaft Bearing Assy.
3	251539	Knife Drive Servo Motor
4	310144	Knife Drive Shaft
5	310145	Knife Drive Shaft Pulley
6	310370	Knife Drive Shaft Eccentric
7	310145	Knife Drive Motor Pulley
8	310402	Knife Drive Motor Bracket
9	251798	Knife Home Sensor Clamp Collar
10	504418	Knife Home Sensor Circuit Board
11	251815	Knife Drive Shaft Thrust Bearing
12	101247	Knife Drive Shaft Eccentric Retaining Ring
13	101124	Home sensor flag (screw)



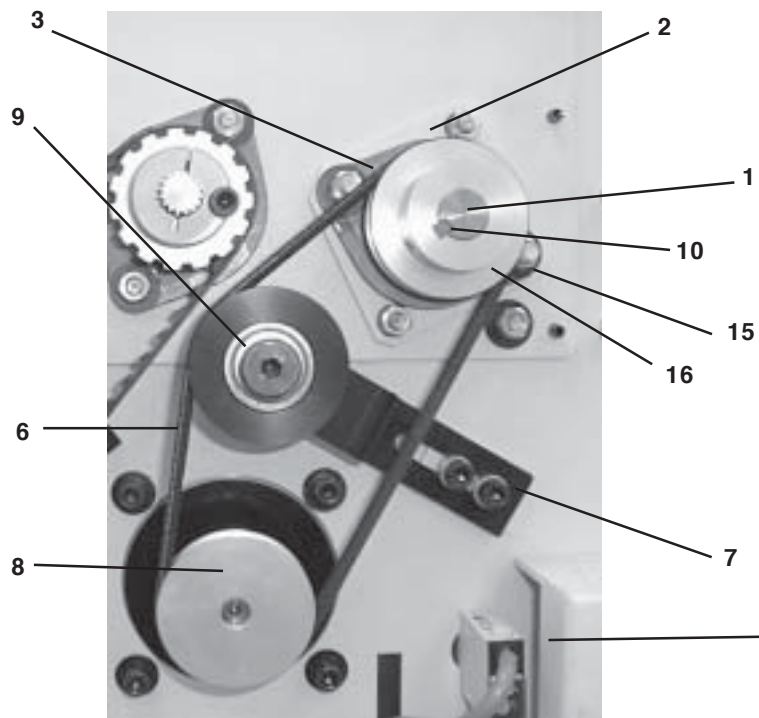
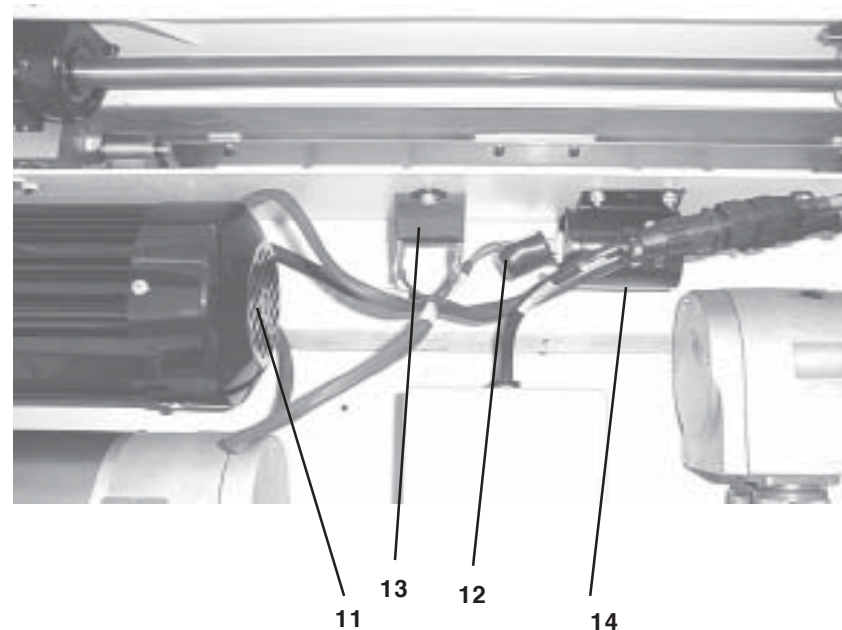


Item	Part	Description
1	310069	Knife Upper Blade
2	310070	Knife Lower Blade
3	310366	Knife Left Blade Clamp (Behind knife)
4	310365	Knife Right Blade Clamp
5	0163	Knife Blade Clamp Retaining Ring
6	310343	Knife spacer (2)
7	504505	Blade Stop
8	503261	Knife Drive Linkage Arm Assembly
9	310360	Eccentric
10	102287	Eccentric setscrew
11	504507	Outside Knife Casting w/felt
12	504506	Inside Knife Casting w/felt
13	310187	Lower Knife Casting
14	312003	Neoprene Isolator (2)
15	311626	Key
16	310370	Knife Drive Eccentric
17	101247	Retaining Ring (2)
18	310575	Bottom Knife Guard
19	250211	Timing Belt
20	312003	Neoprene Isolator Sleeve (2)
21	310369	Clamping Plate (2)

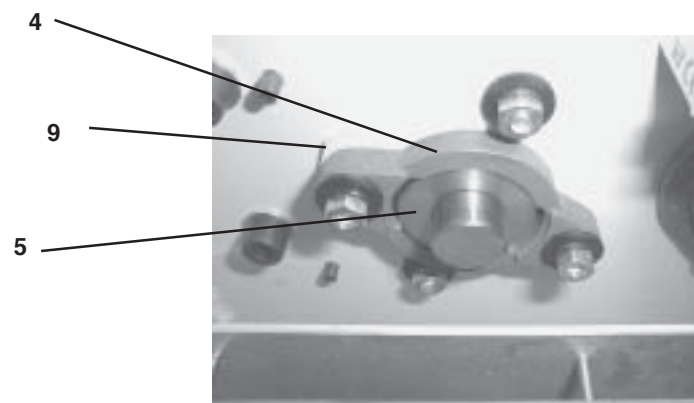


Item	Part	Description
1	503409	Margin Trimmer Drive Shaft and Bearing
2	310549	Adapter Plate
3	251877	Margin Trimmer Drive Shaft Bearing Flange
4	251879	Bearing Flange
5	310951	Brass Bushng
6	251946	Margin Trimmer Drive Belt
7	310405	Margin Trimmer Idler Arm
8	310430	Margin Trimmer Motor Pulley
9	503267	Margin Trimmer Idler Pulley & Bearing
10	102430	Key
11	503244	Margin Trimmer AC Motor
12	140027	Capacitor Boot
13	140373	Motor Start Capacitor
14	141110	Motor Run Capacitor
15	100265	Shim (Under flange)
16	312022	Pulley

(VIEWED FROM UNDER UNIT)



(VIEWED FROM NON-OPERATOR SIDE)



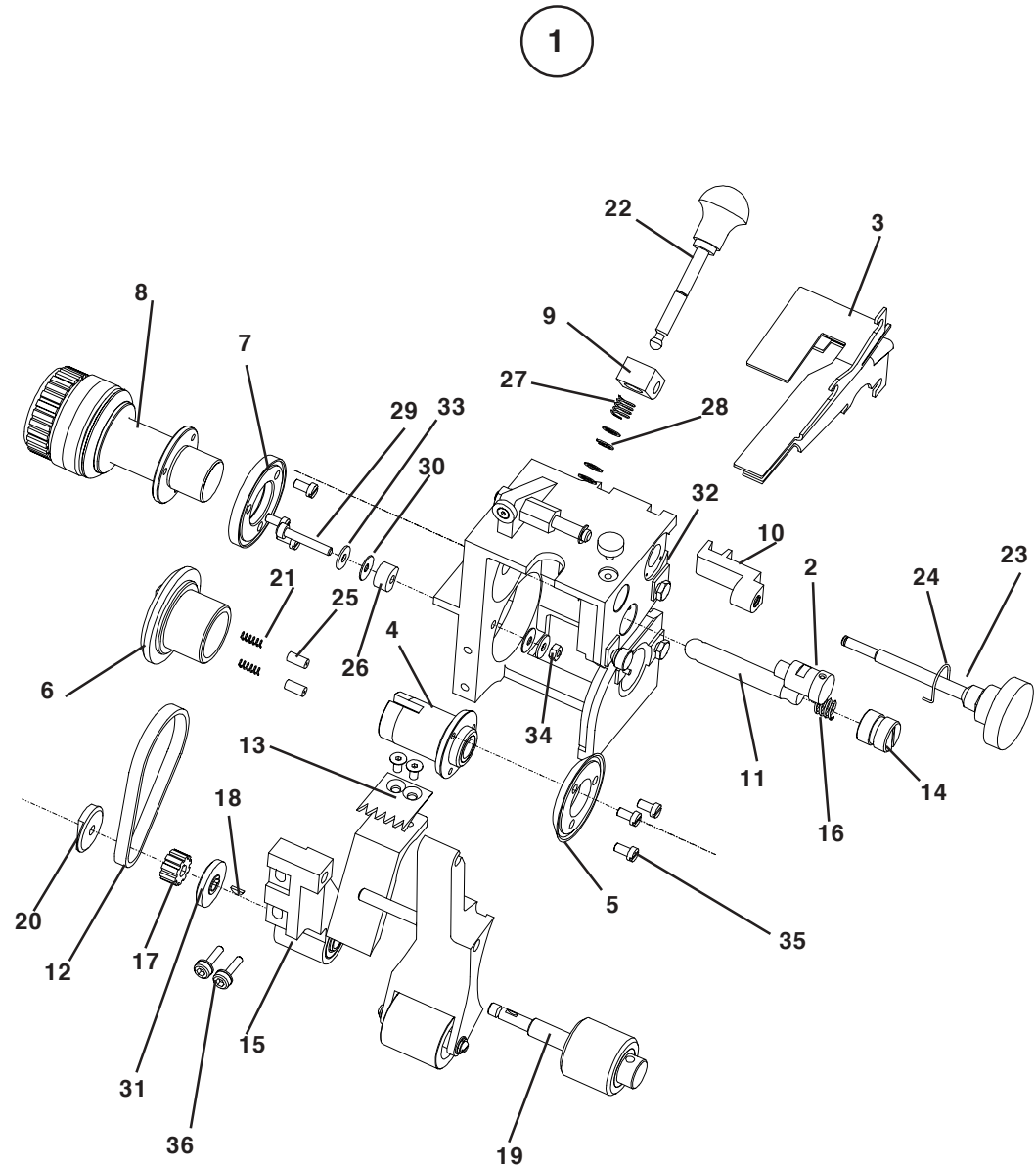
(VIEWED FROM BEHIND OPERATOR PANEL)

BIN FULL SENSOR

PL 1.9 Margin Trimmer Assembly (Right)

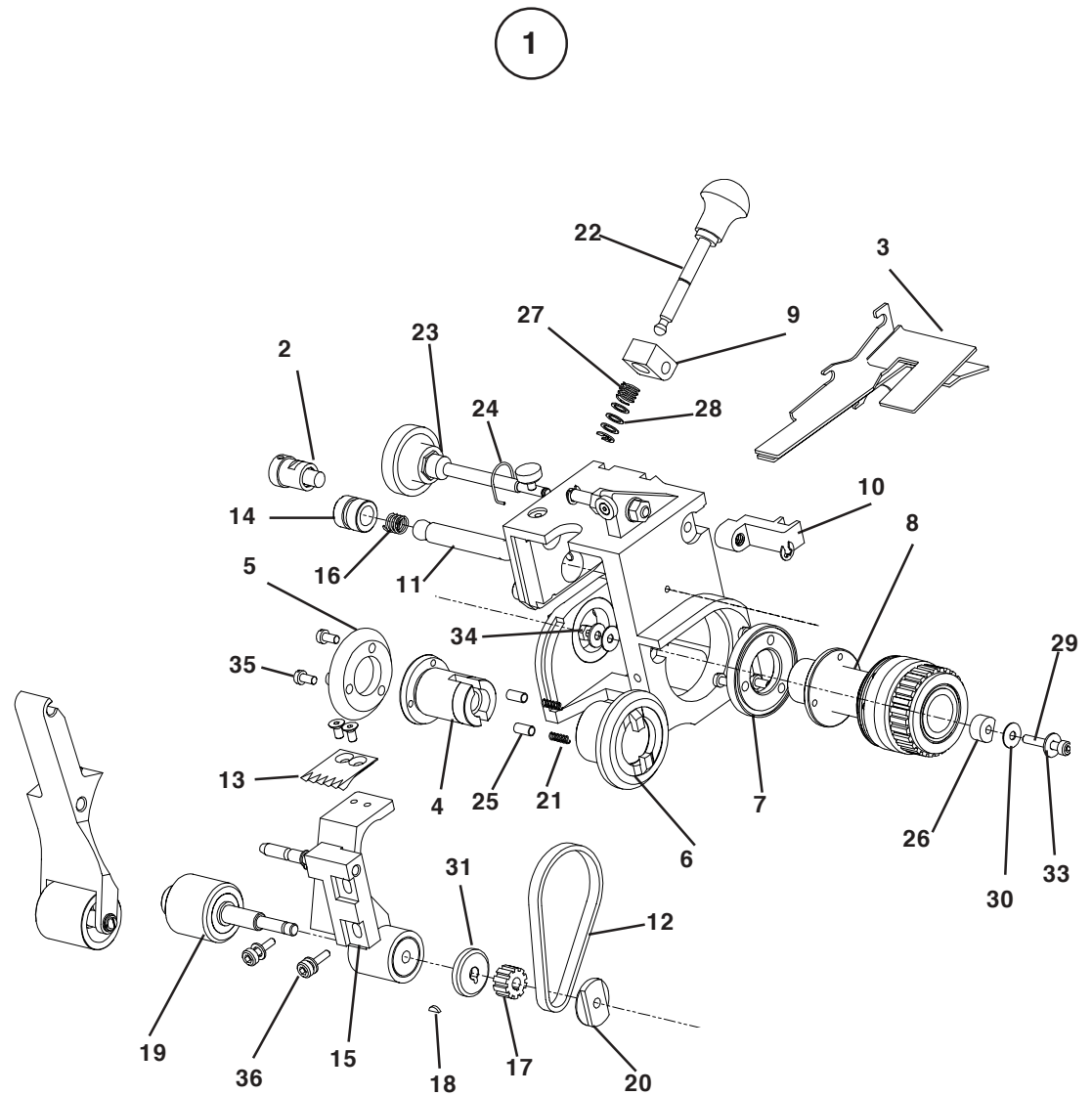
Item	Part	Description
1	504555	Right MarginTrimmer
2	503194	Assembly, oil wick
3	50316101	Right Guide
4	501333	Assembly, Hub Blade Upper
*5	313690	Tapered Slitter Blade
*6	314219	Friction Wheel
*7	313689	Blade, Cylindrical
8	504459	Assy, Right, Lower hub complete
9	310384	Rocker Arm
10	310263	Slide adjuster
11	310253	Shaft, Blade, Upper trim
12	250161	Belt
13	310155	Blade, margin strip
14	310265	Eccentric Cap
15	310553	Right Support Assembly
16	251779	Spring
17	312109	10 Tooth Pulley
18	251744	Key, Woodruff
19	503145	Rubber Drive Roller Assembly
20	310260	Keeper
*21	251823	Spring
22	503346	Trimmer Pin and Knob
23	503181	Lateral Screw Adjuster
24	310264	Spring clip
*25	310692	Bushing, plastic
*26	312095	Spacer
27	251779	Spring, compression
28	101333	Washer, spacer
*29	100869	Screw
*30	251839	Spring washer
31	312110	Retainer
32	102408	Setscrew, Dog Point (not shown)
33	200771	Washer
34	102271	Locknut
35	102566	Cheesehead Screw (6)
36	102409	Socket head LP Screw

* Part included in Margin Trimmer Kit P/N 504557

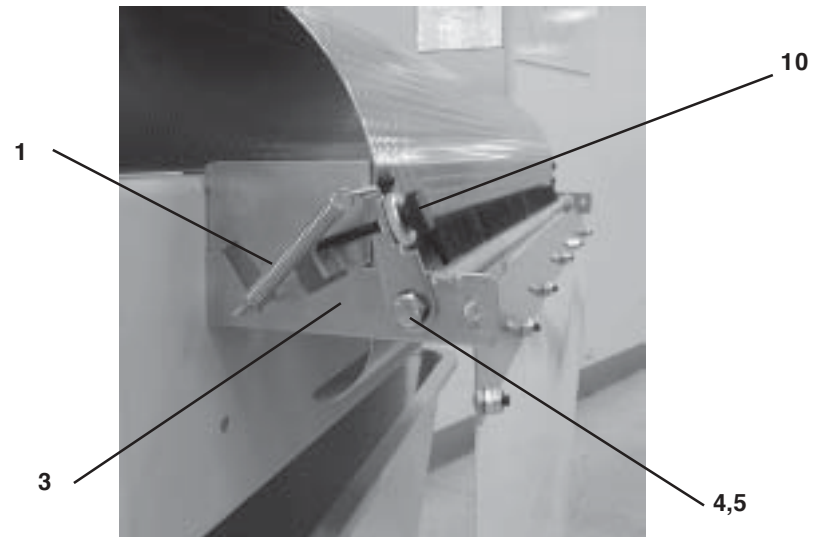
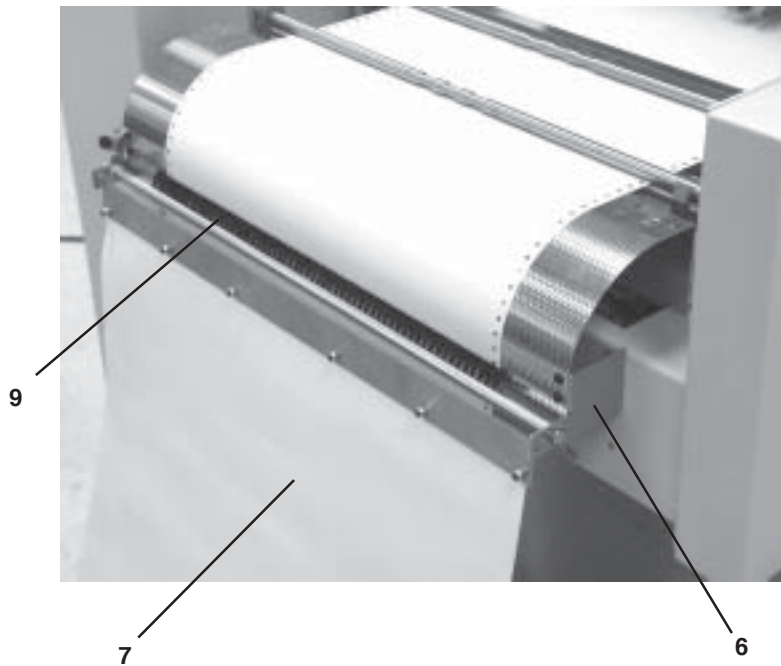
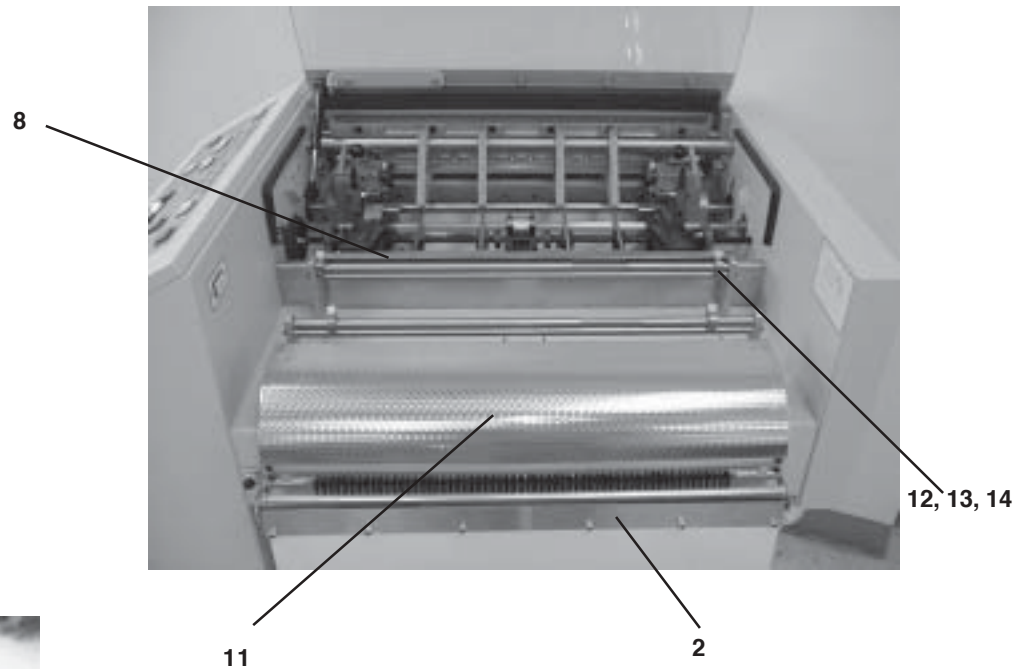


Item	Part	Description
1	503132	Left Margin Trimmer
*2	503194	Assembly, oil wick
3	50316102	Left Guide
*4	501333	Assembly, Hub Blade Upper
*5	310269	Beveled Slitter Blade
*6	503174	Friction Wheel
*7	310270	Blade, Cylindrical
*8	503852	Assy, Left, Lower hub complete
9	310384	Rocker Arm
10	310263	Slide adjuster
11	310253	Shaft, Blade, Upper trim
12	250161	Belt
13	310155	Blade, margin strip
14	310265	Eccentric Cap
15	310552	Left Support Assembly
16	251779	Spring
*17	312109	10 Tooth Pulley
18	251744	Key, Woodruff
*19	503145	Rubber Drive Roller Assembly
20	310260	Keeper
*21	251823	Spring
22	503346	Trimmer Pin and Knob
23	503181	Lateral Screw Adjuster
24	310264	Spring clip
*25	310692	Bushing, Plastic
26	312095	Spacer
27	251779	Spring, Compression
*28	101333	Washer, spacer
*29	100869	Screw
*30	251839	Spring washer
31	312110	Retainer
*32	102408	Dog Point Screw (not shown)
*33	200771	Washer
*34	102271	Locknut
*35	102566	Cheesehead Screw (6)
*36	102409	Socket head LP Screw

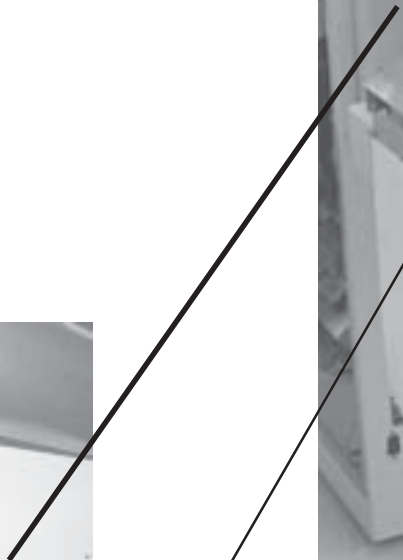
* Part included in Margin Trimmer Kit P/N 504557



Item	Part	Description
1	100854	Brush Extension Spring
2	313125	Flap Hanger
3	313051	Brush Mounting Bracket, LH
4	100726	Brush Mounting Bolt
5	100725	Brush Mounting Washer
6	313050	Brush Mounting Bracket,RH
7	310119	Loop Control Flap
8	310117	Tearbar
9	310409	Brush
10	504261	Thumbscrew Assembly
11	313049	Loop Shoe



Item	Part	Description
1	311806	Turndeck
2	310413	Mount, Turndeck Bracket
3	310416	Frame, 90 Deg. Infeed
4	200415	Leveling Glide
5	310415	Leg
6	Loop Assembly (Not part of 90 Deg. Infeed)	
7	310417	Mount, Infeed Frame



6

3



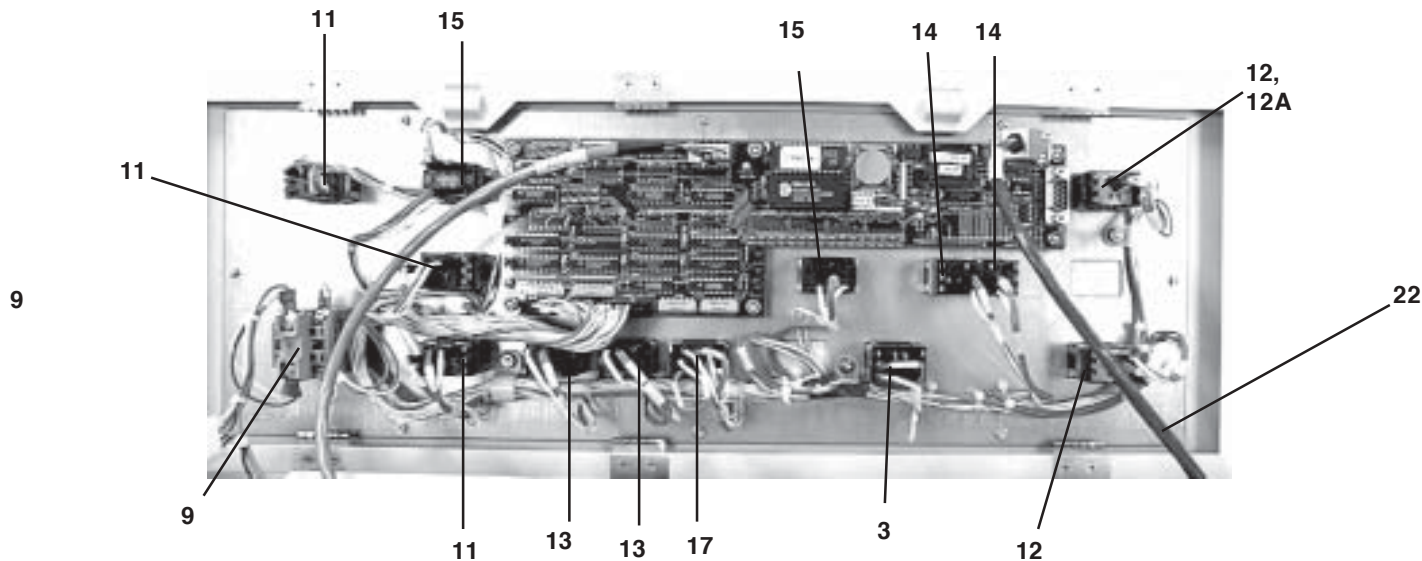
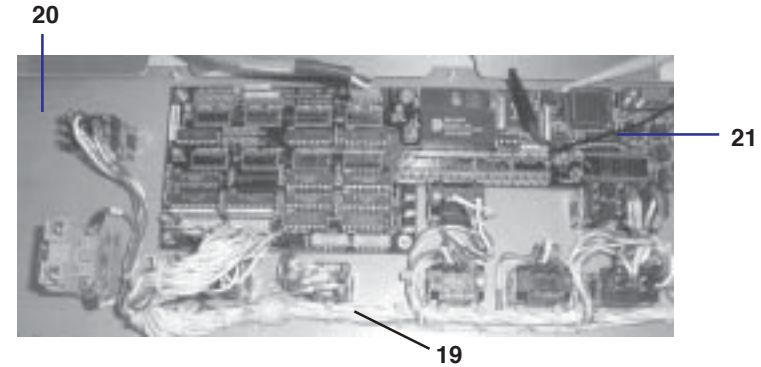
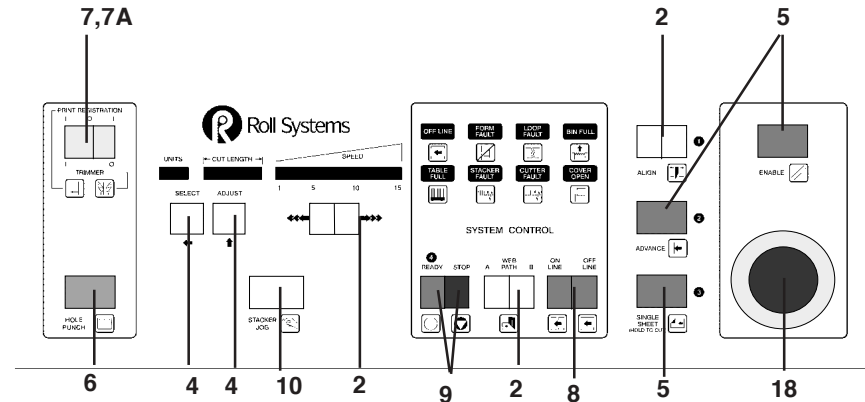
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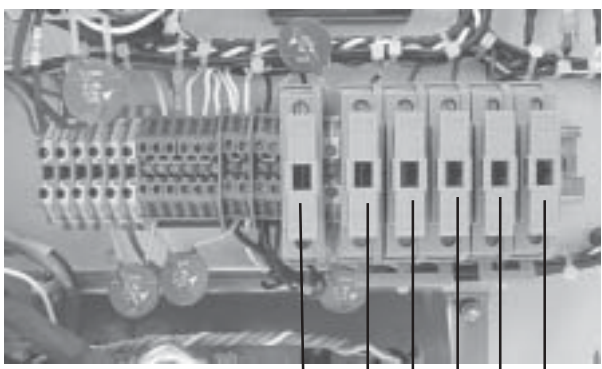
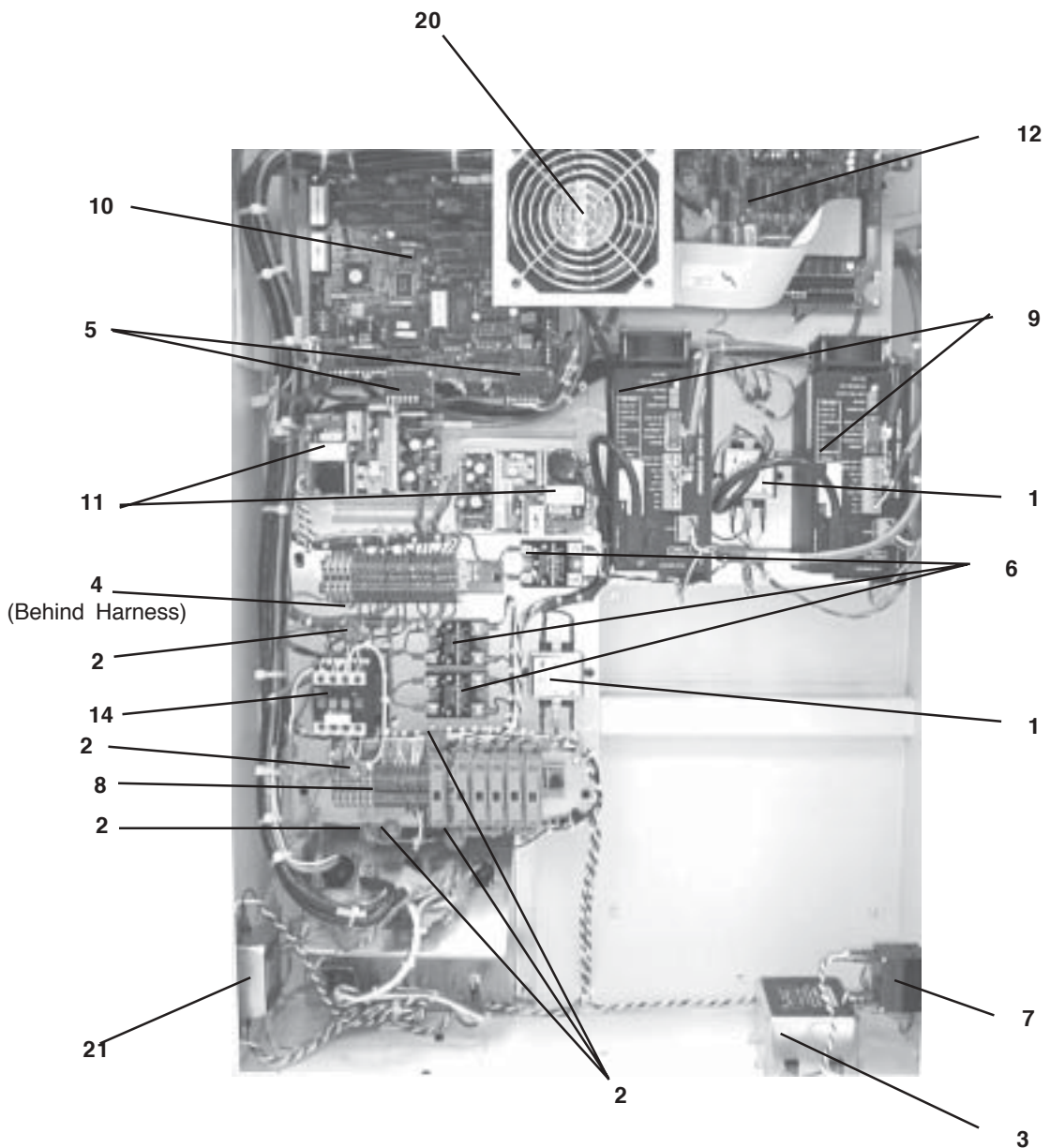
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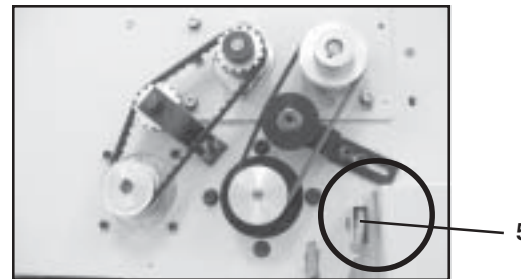
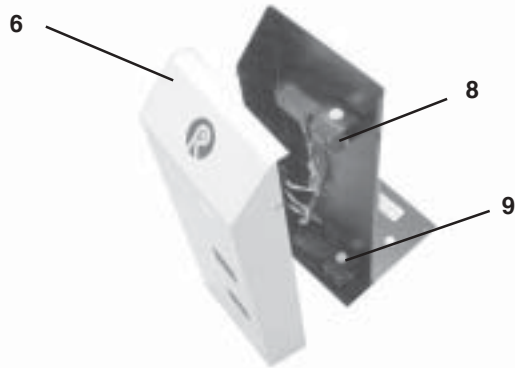
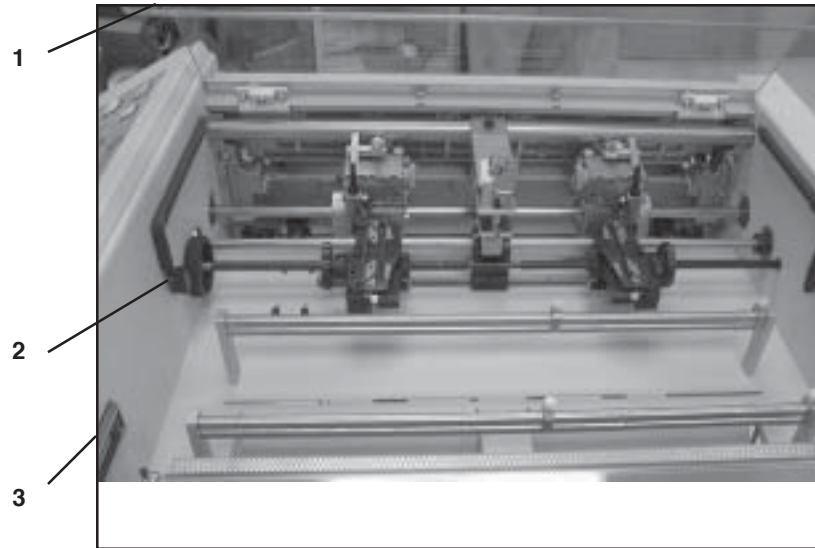
Item	Part	Description
1	140099	Lamp (all illuminated lenses)
2	140051	White Rocker Switch Lenses (3)
3	140200	STACKER JOG Switch
4	140088	SELECT/ADJUST Lens, White
5	140203	ALIGN/ADVANCE/ENABLE Lens, Green
6	140206	HOLE PUNCH Lens, Amber
7	140227	PRINT REGISTRATION ON/OFF lens, Yellow
7A	160209	PRINT REGISTRATION ON/OFF/ON lens, Yellow
8	160032	OFFLINE Black Lens
9	160072	READY/STOP Red/green Lens
10	160187	STACKER JOG Lens, White
11	140198	ALIGN/ADVANCE/ENABLE Switch
12	160028	PRINT REG/Hole Punch Switch
12A	160208	PRINT REG ROCKER Switch
13	160021	WEB PATH/ONLINE-OFFLINE Switch
14	140038	ADJUST/SELECT Switch
15	140199	P. REG POSITION/SPEED Switch
16	160113	SINGLE-SHEET Switch
17	160169	READY-STOP Rocker Switch
18	160189	E-Stop Switch
19	181933	Control Panel Harness
20	310330	Control Panel
21	504173	Display PCB
22	181887	Cable



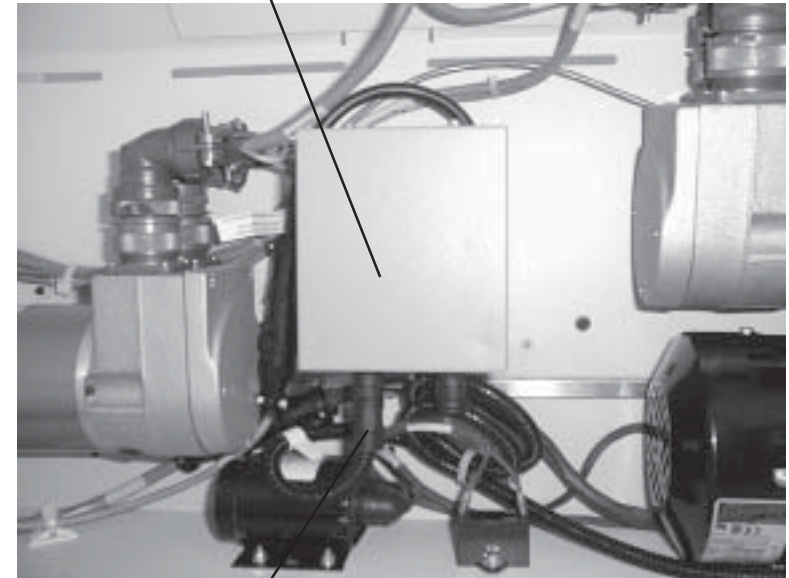
Item	Part	Description
1	140489	5A Noise Suppression Filter
2	140787	Surge Suppressor
3	140715	16A Line Filter
4	141069	4 Ohm, 5W Resistor
5	503989	CPU Relay Board
6	160049	Solid State Relay
7	160179	10A Main Power Switch
	160222	12A Main Power Switch <i>if used with CF 2/3 or CFM</i>
8	160194	Terminal Block Fuseholder
9	503316	Servo Amplifier
10	504171	CPU PWB
11	141135	Power Supply
12	503223	I/O PWB
13	180679	Thumbwheel Cable Assy (not shown)
14	160136	Contactor
15	140781	1.5 A, 250V F1 @ TB2-17
16	160067	0.5A, 250V F3 @ TB2-19
17	160402	1.25A, 250V, SB, F4 @ TB2-20
18	160053	4A, 250V, SB, F5 @ TB2-21
19	160130	5A, 250V, SB, F6 @ TB2-22 and F7 @ TB2-23
	160220	7A, 250V, SB, F6 @ TB2-22 <i>If used in Short Cut Mode</i>
20	501989	Fan
21	140076	6 Amp Line filter



Item	Part	Description
1	0416	Cover Interlock Magnet
2	502702	Cover Interlock Switch Assembly
3	160092	Cut Counter
4	200780	Bin Full Reflector
5	502298	Bin Full Sensor
6	502005	Sensor Tower
7	181483	AC Adapter for Sensor Tower(not shown)
8	502001	Top (Start) Sensor
9	502002	Bottom (Jam) Sensor

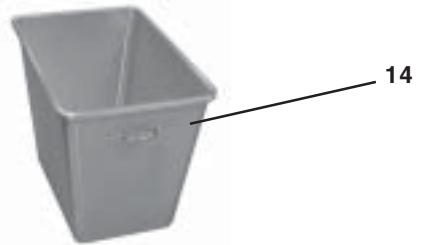
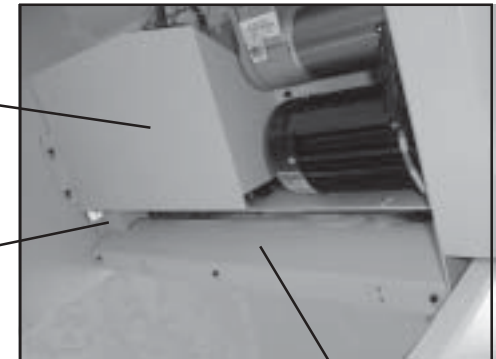
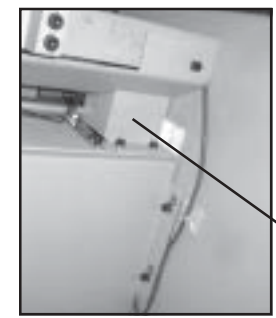
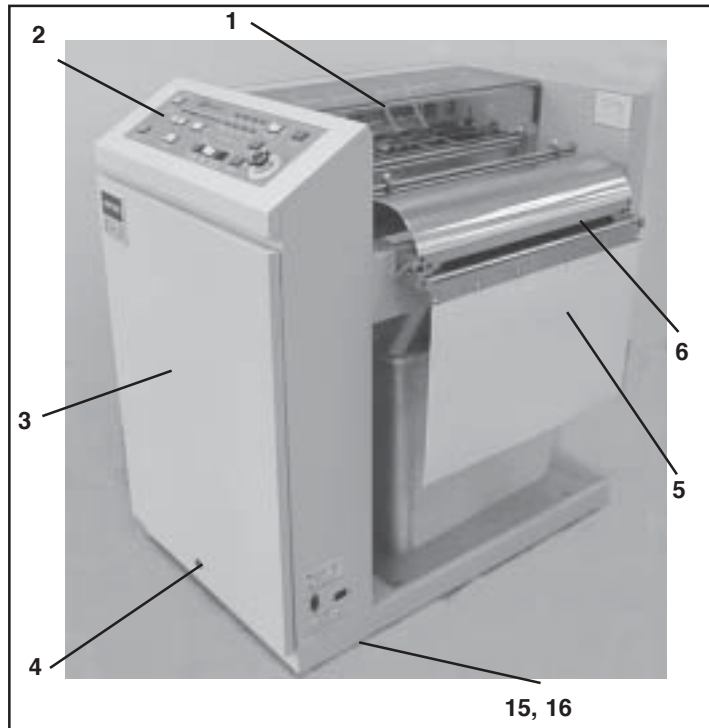
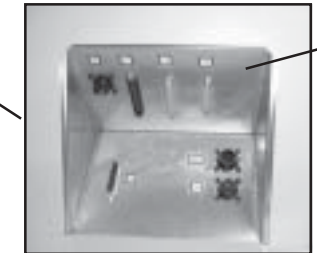
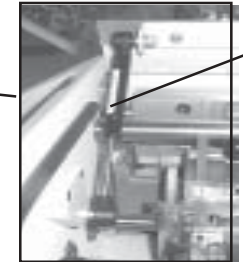
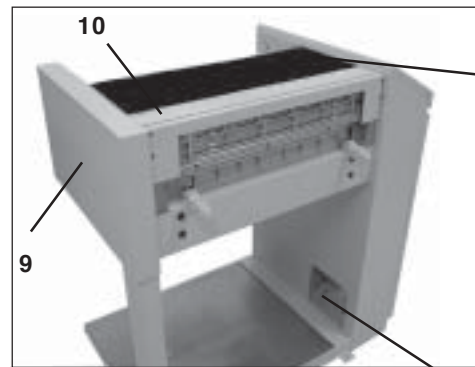


Item	Part	Description
1	141276	Static Bar
2	141279	Static Bar Power Supply
3	141277	Cable



3.1 Covers, Casters

Item	Part	Description
1	310622	Top Cover
2	310328	Operator Control Panel Bezel
3	310340	Electrical Panel Cover
4	251758	Latch
5	310119	Flap
6	310118	Flap Hanger
7	310422	Knife Belt Cover
8	310587	Bottom Cover
9	310350	Drive System Cover
10	31061901	Upper Knife Guard with Hinge
11	251830	Spring, Gas
12	310337	I/O Panel
13	310424	Knife Driveshaft Cover
14	310135	Waste Bin
15	310341	Caster Wheel Mount not shown)
16	250258	Caster Wheel (not shown)



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6.2.0 Theory of Operation	6-3
6.3.0 Cutter Components	6-4
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6.4.1 System Components and Controls	6-5
6.4.2 Operator Maintenance	6-6
6.4.3 Operator Controls	6-9
6.4.4 Fault Indicators	6-12
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6.5.0 Install/Deinstall Procedure	6-15

6.1.0 Specifications

6.1.0 Specifications

ELECTRICAL

100-110 VAC, 12 A, 50/60 Hz
220-240 VAC, 6 A, 50/60 HZ

DIMENSIONS (without infeed)

41" high, 39" wide, 25" long

WEB

PAPER BASIS WEIGHT

The native Roll Systems cutter, Model 503176, is capable of cutting wood fiber based paper stocks in a single layer whose weights are in the range of 40 gsm to 250 gsm, or in two layers up to 200 gsm each layer. This specification is superseded by the system specifications of any system in which the 503176 cutter is used. Operation near the extremes of the cutter's range of basis weights may require installation of optional, system-specific, paper handling features.

WEB WIDTH

6.5" minimum
21" maximum

WEB LENGTH

5.5" minimum cut length at 250 ft/min
4.5" minimum cut length at 230 ft/min
3.5" minimum cut length at 170 ft/min
54" maximum cut length

LENGTH INCREMENTS

Operator selectable in 1/6", 1/8", millimeters, or 10/1000"

ACCURACY

Pinfed - At 18" width sheet length measured at both edges ± 0.015 " of nominal EdgeWise™ - ± 0.010 from top of form as determined by EdgeWise™ mark

SQUARENESS

Cut edge to side angle = $90^\circ \pm 0.10^\circ$

The Model 503176 cutter is a servo-driven, guillotine module to convert continuous web paper into precisely cut and trimmed sheets. It employs tractors to move pin fed webs and a nip roller drive to handle pinless (EdgeWise™) web material. Pinless operation includes an optical mark registration system. Optionally, the cutter can include trimmer modules to trim up to 1-inch from each edge of the web, slitting modules to split the web into multiple parallel streams of sheets, and hole punch modules. The cutter has been designed for easy service access with a minimum number of parts and adjustments.

Operator Interface

The control panel serves as the operator interface to the cutter system.

From the control panel:

- The cut length may be set in inches, millimeters, eighths of an inch or sixths of an inch.
- Cutter speed may be set to match the printer output.
- The cutter may be switched to either off line or on line operation. While off line, single sheets may be cut.
- The cut sheet stream may be switched to either of two additional post-processors such as a BookMaster™ or Stacker system.
- Error conditions are displayed by lights contained on display circuit board beneath the control panel
- When connected to a Stacker or BookMaster™ system, sheets in the stacker tray may be fed to the stack by means of a Stacker Jog switch.
- Available options, including print registration and hole punching are also handled from the control panel.

Sensor Tower

The web loop from the printer is formed in front of a sensor tower which monitors the loop position thereby informing the cutter when the web is available for feeding and cutting. During normal operation, the web loop fluctuates in position above and below the top sensor. If the web drops to the bottom sensor, an error condition is created and the system halts the printer.

Cutter Infeed

A loop control flap keeps the loop from jumping above the top sensor on the sensor tower and a brush provides a slight amount of drag on the web to remove slack as it is pulled toward the cutter knife.

Position Control

The web is positioned and guided by two parallel rod guides which also control the squariness of the web with respect to the knife blades. The web may be center aligned, left edge aligned or right edge aligned.

Web Feeding

Tractor Feed

Two tractors permit feeding of pin holed web. The tractors are adjustable as a pair by means of tractor positioning knob, or individually by means of knobs on each tractor. The tractors are driven by the paper driveshaft which is coupled to a DC motor by belts.

Pinless Feed

Pinless web is fed to the cutter knife by a pair of nip rollers. The lower drive roller is powered by the same motor and driveshaft that drives the tractors. An upper pressure roller applies a predetermined force to the lower drive roller and may be easily opened or closed by raising or lowering the pressure roller.

Web Cutting

The cutter knife consists of a pair of blades, an upper blade that is active and a lower blade that is fixed to the cutter frame. The upper blade is connected eccentrically to the knife driveshaft powered by a DC motor. A home sensor on the upper blade driveshaft detects when the upper knife position reaches its full open (top) condition.

Electrical Panel

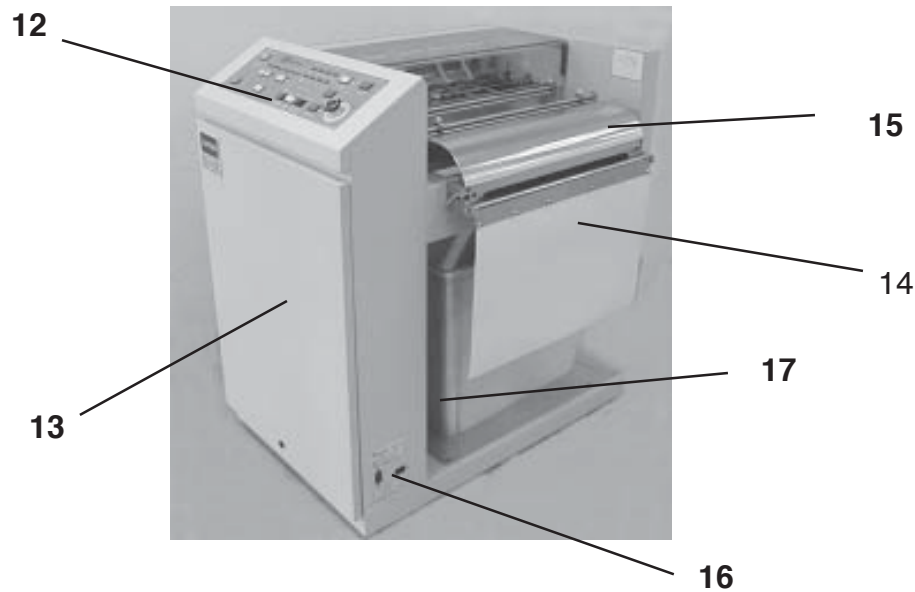
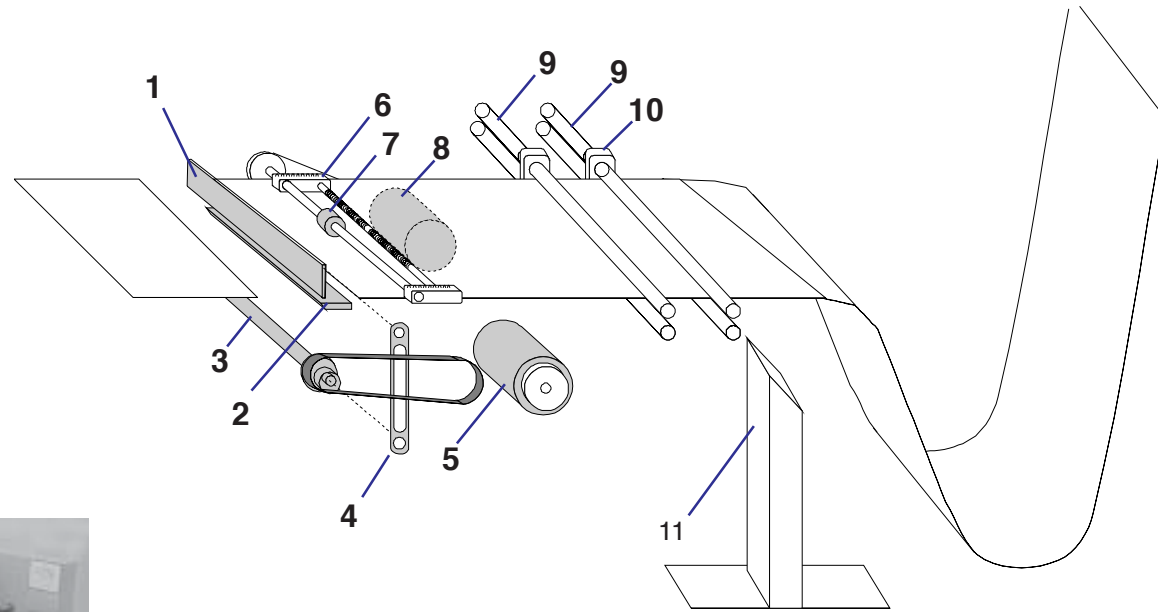
The electrical control panel is housed in the cutter frame below the operator control panel and is easily accessed by loosening a single quarter turn screw at the bottom of the cover. It contains all of the electrical control components.

Interface Panel

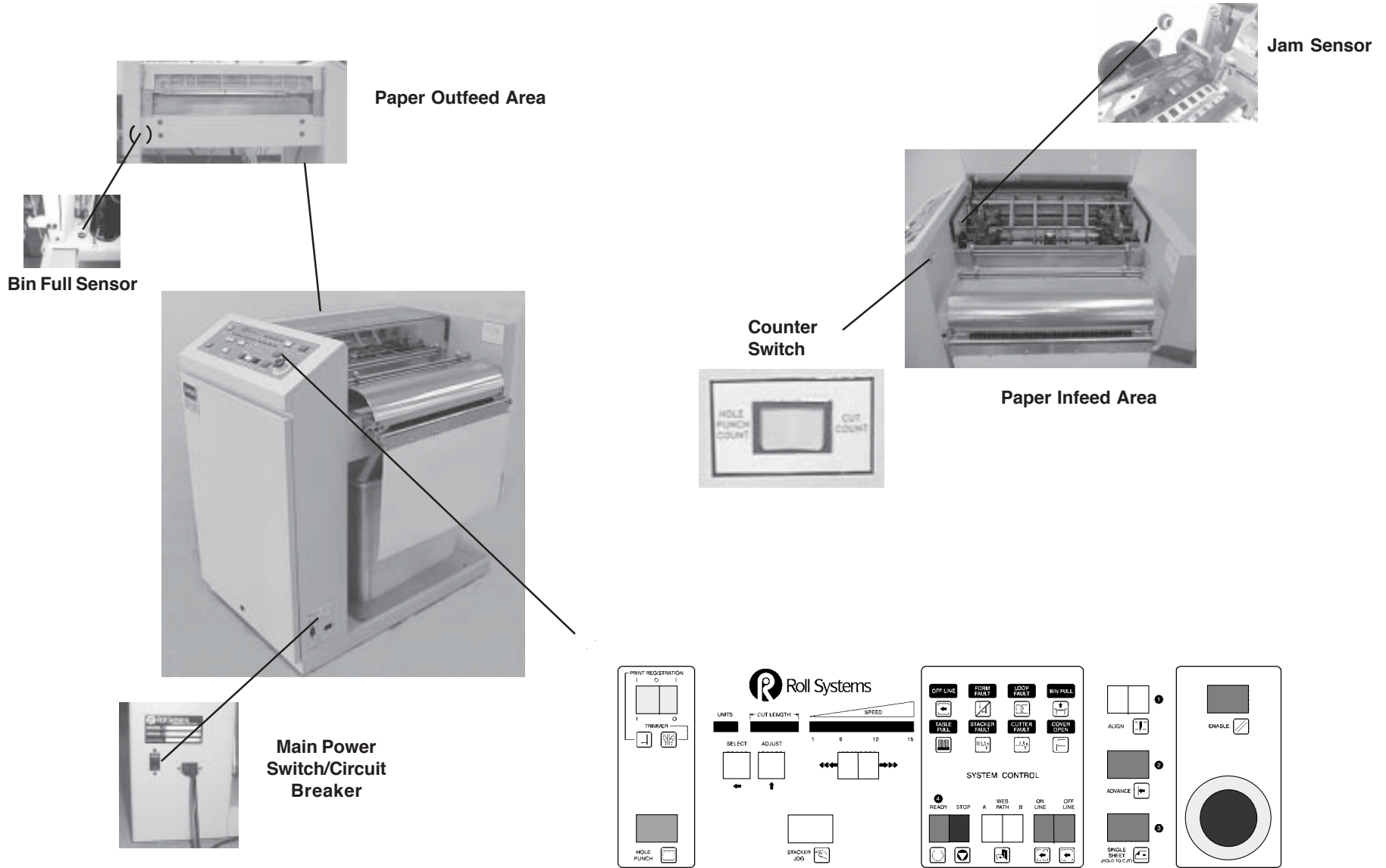
Near the base of the cutter frame is the interface panel which accepts connectors from any of the possible printers, unwinders, or additional post-processors.

6.3.0 Cutter Components

Item	Description
1	Upper Knife Blade
2	Lower Knife Blade
3	Knife Drive Shaft
4	Upper Blade Linkage Arm
5	Knife Drive Motor
6	Tractor (2 places)
7	Paper Feed Roller
8	Paper Feed Motor
9	Parallel Rod Guide
10	Edge Guide (4 places)
11	Sensor Tower
12	Control Panel
13	Electrical Panel
14	Loop Control Flap
15	Infeed Assembly
16	Main Power Switch & AC Socket
17	Interface Panel



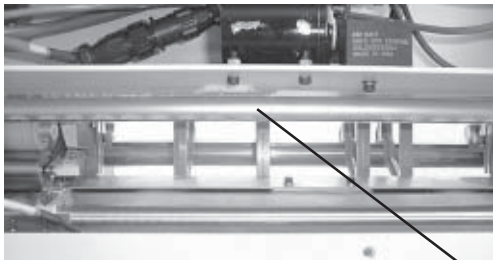
6.4.1 System Components and Controls



6.4.2 Maintenance

Maintenance

The cutter should be cleaned at a frequency of every eight hours of continuous use. Vacuum the entire base of the cutter. Remove all chad and paper debris from the machine. Open the tractor doors and use a soft vacuum brush to remove all paper dust from the tractors. Use a soft vacuum brush to clean the knife casting and exterior of the margin trimmers. Remove the margin trimmer guides and use a vacuum extension with a small tip to remove debris at the margin trimmers housing. Inspect the margin trimmers for loose chad. Use caution when removing debris from margin trimmers as the blades are very sharp. Vacuum the static bar with a soft vacuum brush. Clean and inspect the underside of the cutter and vacuum if necessary. Check for loose chad in the area of the bin full sensor and the jam sensor.



Static Bar

Lubrication

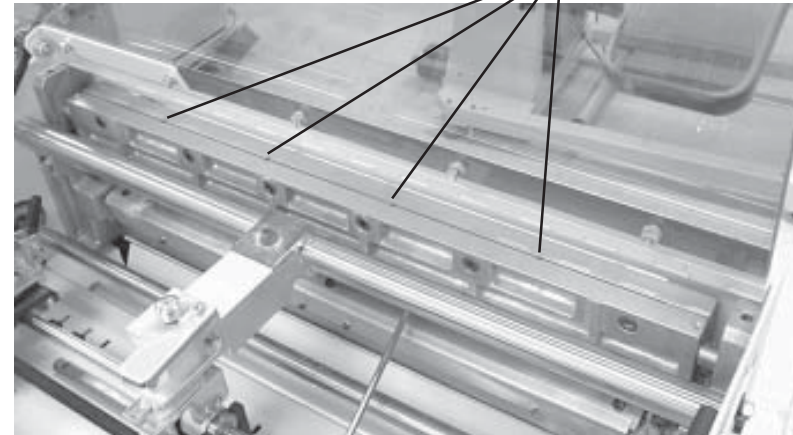
Knife Lubrication

Open the top cover as shown. It is not necessary to remove the top cover to lubricate the knife. Note that there are four knife slots on each face of the knife castings.

The knife should be lubricated with a light oil (Roll Systems P/N 502741). See page 6-7 for frequency.

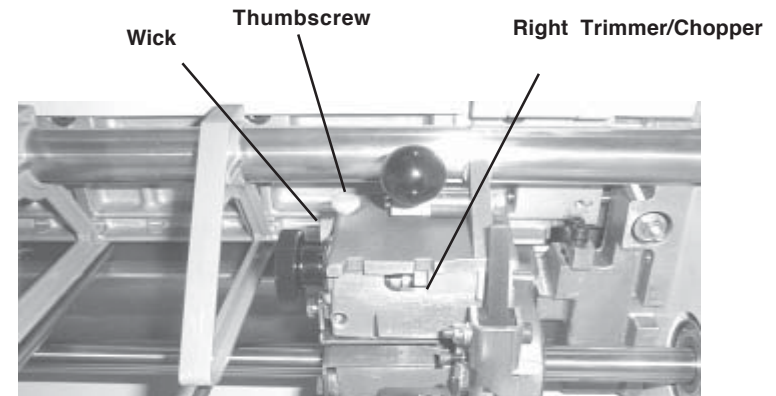
Any paper dust on the knife housing should be vacuumed prior to lubrication. Close the top cover. Run blank paper to absorb excess oil.

Knife Slots
(8)



MARGIN TRIMMERS LUBRICATION

Turn OFF power and open the cover to the cutter. Loosen the thumbscrew securing the margin trimmer oil wick and remove the wick. Remove any paper dust from the wick.



Place oil (Roll Systems P/N 502741) onto each oil wick to saturate. Replace the oil wicks with the oil hole facing up and tighten the thumbscrews. This maintenance should be performed for every four hours of use. Run blank paper to absorb excess oil.

Maintenance Schedule - Daily

Lubrication

Assembly	Lubrication Point	Lubricant	Frequency	Performed By:
Margin trimmer	Oil wick, remove to apply oil to wick	502741, use enough oil to saturate wick	Every four hours or at each roll change	Operator
Slitter	Oil slots on top of slitter upper housing	502741, one drop of oil at each end of slot	Every four hours or at each roll change	Operator

Cleaning

Assembly	Cleaning Area	Method	Frequency	Performed By:
System	Interior and Exterior	Vacuum chad and paper debris	Daily	Operator
Margin trimmer	Paper guide and margin trimmer housing	Remove paper guide and vacuum with a small tipped nozzle	Daily and/or prior to lubrication	Operator
Slitter	Upper and lower blades	Lift upper housing and vacuum with a small tipped nozzle	Daily and/or prior to lubrication	Operator
Tractors	Tractor and margin trimmer	Open tractor door, vacuum with a soft vacuum brush	Daily	Operator

Maintenance Schedule - Weekly

Lubrication

Assembly	Lubrication Point	Lubricant	Frequency	Performed By:
Upper Knife Blade	Eight slots on top of knife casting	502741, three drops of oil in each slot	Twice Weekly	Operator
Blade Stop	Double wick at top of blade stop	502471	Twice weekly	Operator

Cleaning

Assembly	Cleaning Area	Method	Frequency	Performed By:
Upper Knife Blade	Knife Housing	Vacuum or wipe clean with a soft cloth	Weekly, prior to lubrication	Operator
Lower Knife Blade	Knife housing and exit slot	Vacuum or wipe clean with a soft cloth	Weekly, prior to lubrication	Operator

Maintenance Schedule - Monthly and at Printer PM

Cleaning

Assembly	Cleaning Area	Method	Frequency	Performed By:
Upper Knife	Knife castings	Remove knife from castings, wipe clean with a soft cloth. Inspect castings for galling, wick for wear, replace as required.	Every third month	Service Representative
Sensors	Jam sensor Bin Full sensor Strip cut sensor	Clean sensor lens and retroreflective target with a soft cloth	At least monthly or at printer PM	Operator or Service Representative
Static Bar	Cutter exit	Vacuum with a soft vacuum brush	Monthly	Service Representative
Servo-amplifiers	Electrical enclosure	Vacuum top and bottom of servo-amplifiers to ensure maximum air flow through amplifier	Monthly	Service Representative
Fan	Electrical enclosure	Vacuum fan grille	Monthly	Service Representative

Checking

Assembly	Check Area	Look for:	Frequency	Action	Performed By:
Drive Components	Non-operator side cover	Loose or worn belts bearing wear Loose pulleys Lubricant, metal filings, and/or belt fiber	Monthly	Replace belt Replace or tighten bearing Tighten hardware Determine source and replace component	Service Representative
Knife drive	Knife drive shaft	Loose or worn belt Worn drive link	Monthly	Replace belt Replace drive link	Service Representative
Slitter	Slitter knives	Ragged cut	Monthly	Replace defective parts	Service Representative
Tractor	Tractor	Broken belt/loose Excessive "wobble" Broken cover	Printer PM	Tighten belt Rebuild or replace tractor	Service Representative
Margin trimmer	Margin trimmer	Ragged cut Trim jamming in housing Worn NIP roller Excessive noise/vibration	Printer PM	Rebuild trimmer Replace	Service Representative
Home Sensor	Knife drive	Cracked or dirty sensor Loose home flag	Printer PM	Clean or replace	Service Representative
Knife (Upper or Lower)	Upper and lower knife	Nicks or wear areas	Every two months	Replace if interrupted cutting	Service Representative
Knife Castings	Bearing surfaces	Galling	Every two months	Replace if severe or aluminum deposits on blade	Service Representative
Blade stop	Bearing surface	Excessive wear	Every two months	Replace	Service Representative
Rubber spring anchor isolators	Left and right side of inner knife casting	Excessive wear	Every two months	Replace	Service Representative

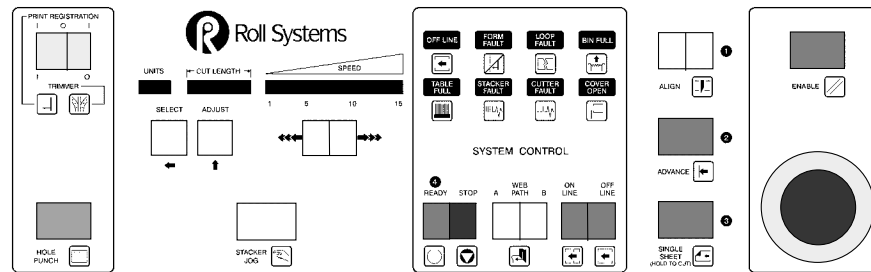
6.4.3 Operator Controls

Off/On Switch

The off/on switch is located on the lower right side of the cutter next to the power cord. The off/on switch also functions as a circuit breaker. When the machine is powered on, if the switch immediately returns to the off position, retry operation again. If the switch fails to remain in the on position a second time do not attempt to power on the machine again. Call for service.



OPERATOR PANEL



Emergency Power Off (EPO) Switch

The EPO switch is a quick action two position switch located on the lower right side of the operator panel. The epo switch functions as a safety switch, allowing the operator to quickly disconnect power from the paper drive and knife drive components. In normal operation this switch is in the up or out position. To disconnect power depress the switch until it illuminates red, indicating power has been removed. To return to normal operation turn the switch in the direction of the arrows until the switch releases and the red light goes out. Next wait until the cutter fault indicator on the operator panel extinguishes and depress the enable switch located directly above the EPO. The machine will now be ready for normal operation.

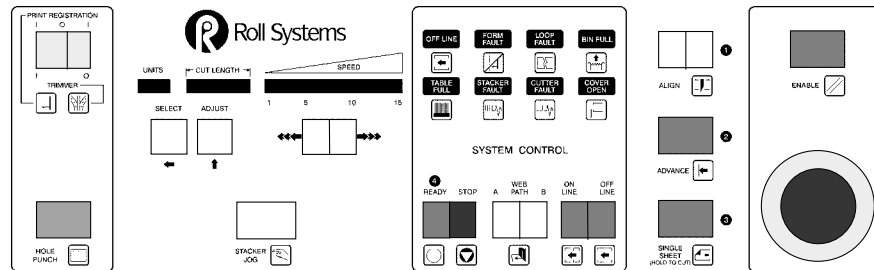
Enable Switch

The enable switch is a momentary push button switch. It is activated by depressing the button and releasing it. It does not latch in the down position but is illuminated when it has been activated. The button is the green switch located directly over the EPO switch. This switch functions as a machine reset. When any faults occur on the cutter, or the EPO switch has been depressed the fault condition must first be cleared and the cutter fault indicator must be extinguished prior to depressing the enable button. By following this procedure the machine will now be ready for normal operation.

System Ready/Stop Switch

The system READY/STOP switch is a two position momentary rocker switch. The switch will not latch in the down position, however, this switch serves two functions determined by which side of the switch is depressed. The switch is located in the center of the operator panel and is identified by having a red half and a green half. By depressing the red half of the switch, the entire system including the printer and unwinder will come to a stop. Depressing the green half, assuming no fault condition exists, the entire system will resume operation. The green ready half also has two other functions; it can also reset some of the fault light indicators on the operator panel after the fault condition has been cleared. Depressing the switch will not reset the machine if the enable switch is not illuminated or after specific faults including mark error, cutter fault, bin full or cover open have occurred. The second function the green side of the switch serves is, when paper is piled up in front of the jam sensor on the sensor tower, the loop fault light indicator will be extinguished for as long as the switch is depressed and four more seconds after release of the switch.

6.4.3 Operator Controls (continued)



Online/Offline Switch

The on-line/off-line switch is a two-position toggle switch. The switch is located next to the system ready/stop switch and can be identified as being white in color. If the switch is placed in the off line position the machine will ignore all fault indicators except cutter fault. Also the machine will run independent of the start/stop sensor. With the switch in the online position any faults will stop the system. On-line is the normal operating position.

Single Sheet Switch

The single sheet switch is a momentary push button. The button is located at the bottom right of the operator panel. This button has two functions. To use the button as a cut feature the manual/on line switch must be in the manual position and with the run switch in the up/off position depress and hold the single sheet button for three seconds, the knife blade will make one revolution. To use this switch to feed paper, the manual/online switch must be in the manual position depress and quickly release the feed switch. The cutter will take up one sheet of paper.

Speed Switch

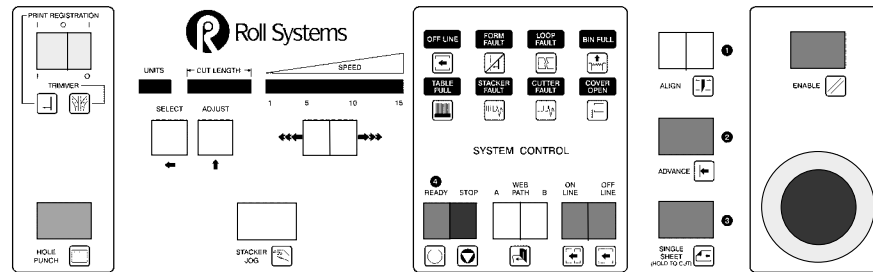
The speed switch is located directly below the speed indicator lights. This switch is active for as long as it is held down. Pressing and holding the left side of the switch will slow the machines operation. Pressing and holding the right side of the switch will increase the machines operation.

The lights on the speed indicator will follow in compliance. Once the switch is depressed the form size indicator will show paper speed in feet per minute. For a period of one second after the switch is active the form size indicator will display the speed with no change. After one second the speed begins to change at a rate of one foot per second after three seconds the speed begins to change at a rate of ten feet per second. To return to a slow change when the speed is changing at a higher rate release and depresses the switch again.

Select and Adjust Buttons

These two buttons are momentary push buttons. The select and adjust buttons are located under the form size indicator. These two buttons are used together to change the form length desired. The operator may decide the form length in one inch, sixth, or eighth inch increments as well as millimeters. To change the form size, first depress and release the select button. The digit in the far right side of the form size indicator will begin to blink indicating this digit is selected for change. If the operator wishes to change another digit keep depressing and releasing the select button until the digit desired for change is blinking. If the digit stops blinking before select or adjust is depressed the digit to the far right will begin blinking once the select button is again depressed. To change a digit depress adjust while the digit intended for change is blinking.

6.4.3 Operator Controls (continued)



Web Path

This switch is located under the ready/stop switch. It is a two position-latching switch and the purpose of this switch is to decide which machine is to be used when there is more than one post processor in the printer configuration.

Hole Punch Button

This is the orange button located next to the web path switch. It is a two position-latching button. This button is used to power on the hole punch option if installed. To power on the hole punch unit depress the button until it latches in the down or on position and the button will illuminate indicating it has been activated. The **HOLE PUNCH** may be turned on while the machine is idle or during operation.

Print Registration Switch

The switch is located in the upper left corner of the operator panel and is yellow in color. The print registration switch is a three position rocker switch. When the switch is depressed on the right, print registration is on and the MARGIN TRIMMERS are off or under software control. When the switch is depressed on the left, print registration is on and the margin trimmers are under software control. The switch is illuminated when print registration is active. When it is in the center position, print registration is off. If the machine is operated in pinless mode the ADVANCE light begins flashing to indicate top of form (TOF) is not set.

Advance Button

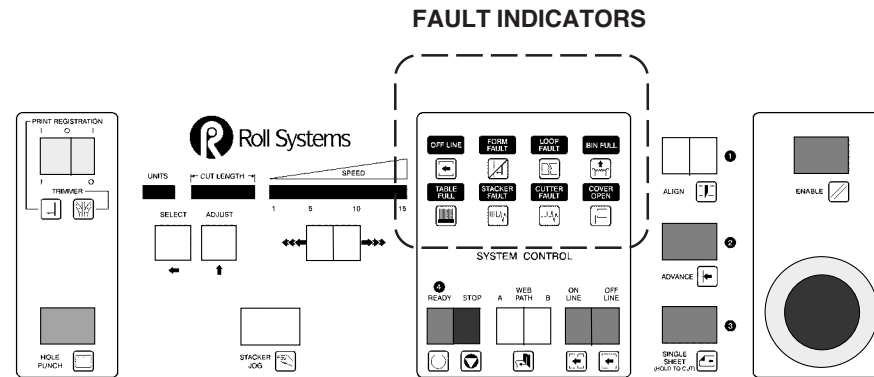
The advance button is a two-position momentary push button. The button is located directly under the align button and is green in color. This switch serves several functions.

The first function of this button is to set top of form (TOF). When print registration is first turned on the advance button will be flashing indicating (TOF) has not been set. To set (TOF) place the online/offline switch in the offline position. Check to see that the registration marks are printed on the form in the specified place. Depress the ADVANCE button. The paper will begin to travel at the rate of one inch per second until the printed mark covers the registration sensor. Once the sensor is covered the knife makes a cut and the mark is quickly advanced to the knife and then the knife makes another cut. The advance light will now stay illuminated indicating (TOF) has been set. The second function this button serves is to set (TOF) in the pin feed mode. The operator will advance the (TOF) to the designated mark on the tractor. Next the advance button will be depressed to advance the (TOF) to the knife subsequently the knife will make a cut. (TOF) is now set. Note to advance the paper to the designated scribe mark on the tractor; the offline/online switch must be in the offline position and print registration should be off.

Align Switch

The align switch is a two-position momentary push switch. This switch is identified as being white in color. The first function of this switch is to advance the top of form in pin feed mode to the designated place on the tractor prior to depressing the advance switch. The switch is also used to correct the top of form setting in both pin feed and pinless mode. (TOF) can be advanced forward or retarded in five thousandth inch increments by quickly depressing and releasing the switch. The paper can also be advanced at a rate of one inch per second by depressing and holding the switch. Note this switch only functions in the offline mode.

6.4.4 Fault Indicators



Bin Full

The bin full fault becomes active at the time when the bin full sensor is blocked for a period of three seconds. If the bin full fault light illuminates and no bin full condition has occurred check to see if a piece of chad is covering the sensor eye. The bin full sensor is located on the non-operator side of the machine toward the lower half of the frame. To reset this error depress the enable switch after the fault condition has been cleared.

Stacker Fault

The stacker fault is used to stop the system if any fault has occurred after the cutter. To clear this fault depress the enable switch or the system ready switch after the fault has been cleared.

Form Fault

There are three conditions which will cause a form fault. The first is if the advance switch is depressed and the paper travels for more than twenty-two inches without reading a printed mark. The second condition for a form error to occur is during normal operation the mark sensor fails to read two marks in a row. The third condition is during normal operation, if the cutter is forced to make twelve consecutive corrections the advance light will begin to blink indicating TOF must be set and the form fault will illuminate.

Loop Fault

The loop fault indicator monitors the state of the jam sensors in the sensor towers. There will be a sensor tower in front of the cutter as there may be another sensor tower used if the system has a powered pedestal. To clear this error, remove paper in front of the sensor and depress the system ready switch.

Cutter Fault

The cutter fault indicator comes on any time the top cover is opened. The fault will also occur if the emergency power off switch is depressed. To clear this fault close the top cover or release the EPO switch wait for the cutter fault light to extinguish and depress the enable switch. If the cutter fault light does not extinguish, turn the machine off then on. If it is still present, place a service call.

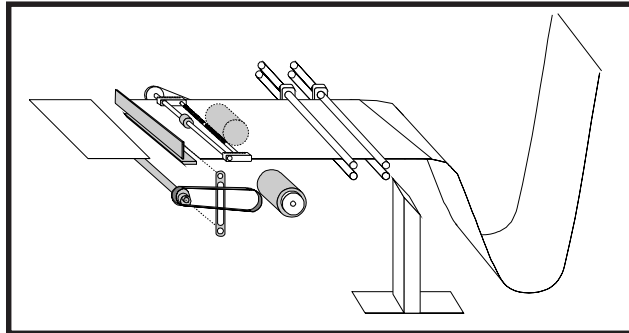
Table Full

The table full light becomes active when the stacker has reached its maximum capacity. To clear this fault empty the stacker table and depress either the enable switch or the ready switch.

Cover Open

The cover open light illuminates any time the top cover is opened. To clear this fault close the top cover wait until the cutter fault light is extinguished then depress the enable switch.

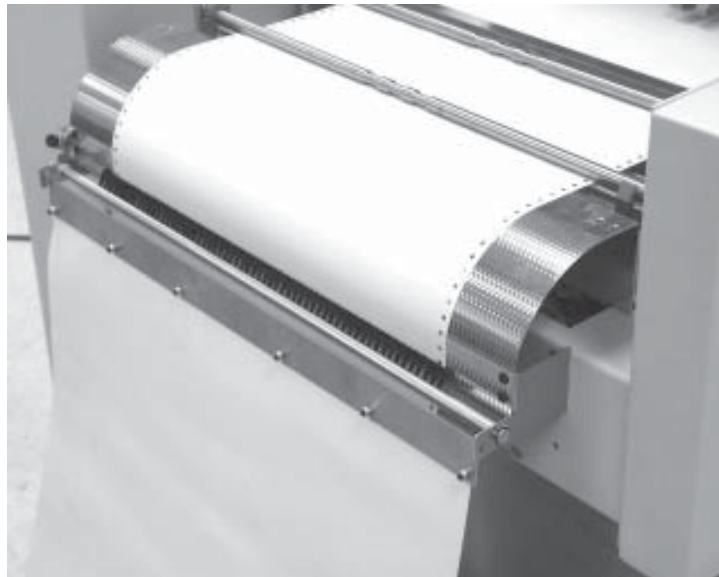
6.4.5 Threading Paper



PAPER PATH

Make sure there is paper on the floor in front of the cutter, a web feed at the printer will accomplish this.

1. Open cutter cover and slide paper under brush assembly.



2. Slide paper under rip bar.

3. Loosen guide bar edge guides and position paper onto both tractors. If necessary, turn wheel to center tractor pins in pinfeed holes to allow slight movement side-to-side. Close tractor covers and reposition guide bar edge guides to the edge of the web.
4. Turn on Main Power switch on frame at lower right. Press the enable switch - AC power will be applied only if all faults have been corrected and can be reset.
5. Set sheet length units and sheet length value by pressing select and adjust switches.
8. Press and hold the jog button. Remove any excess paper on the Stacker table.
7. Adjust form setting.
6. Engage the margin chopper by turning the thumbscrew to the right (clockwise).
9. Press ready/run. Cutter will advance and stop automatically.
10. Press and hold the jog button. This will feed paper through the cutter and onto the stacker table.

Operation of Continuous Cutter

- Stopping/Restarting

Stopping

1. Press stop button (Red light comes on).

Restarting

1. Press ready/run button.
2. The Continuous Cutter will run continuously.

Error Conditions/Recovery

1. Open Cutter. Remove jam.

6.4.6 Preventive Maintenance

Lubrication:

Oil Type: Roll P/N 502741

Interval: Once a week.

Lubrication Procedure:

1. Set the POWER switch on the operator panel to OFF.
2. Open the top cover on the Cutter module to access the knife.
3. Place one drop of oil into each of five slots and in the oil holes in the knife casing.

6.4.7 Software Reset

Purpose - This procedure describes how to perform a software reset. A software reset is required whenever the CPU PWB is replaced.

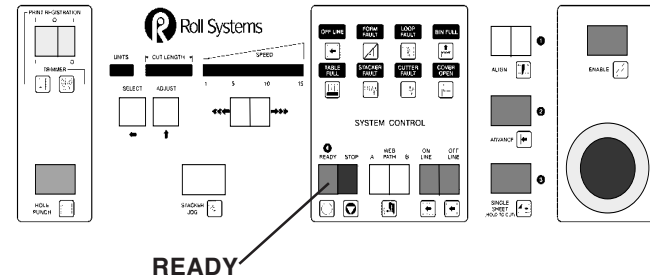
NOTE: Record Print Registration settings before clearing memory.

To perform a software reset (also referred to as Ready/Reset) follow the following procedure exactly:

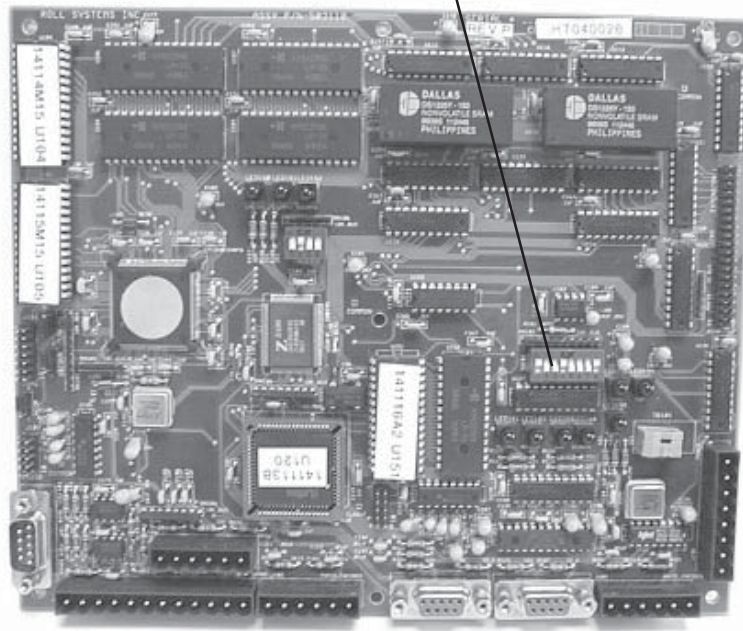
*NOTE: The order of the steps **must** be followed exactly as written.*

1. Set all SW101 switches to the **OFF** position.
2. Set switch SW101-6 to the **ON** position.
3. Set switch SW101-1 to the **ON** position.

4. Press the **READY** button on the cutter operator panel.



SW101



CPU PWB

5. Set switch SW101-1 on the CPU PWB to the **OFF** position.
6. Set switch SW101-6 on the CPU PWB to the **OFF** position.
7. Set switch SW101-4 on the CPU PWB to the **ON** position.



SW101

The software reset has now been completed.

6.5.0 Install/Deinstall Procedure

Installation

- Printers must be installed and running box paper prior to starting Roll Systems install
- Verify availability of floor plan and cabling diagram
- Verify customer has roll paper on site and check for proper core size
- Verify electrical power prepared for both pre- and post-processing equipment (normally 110 VAC 20 Amp for each)
- Depalletize equipment
- Verify packing lists
- Position unwinder according to floor plan
- Cable unwinder according cabling diagram
- Install infeeds and outfeeds
- Position turnbars and floor rollers according to floor plan and adjust to match specific printer web path
- Position post-processor(s) according to floor plan
- Cable post-processor(s) according cabling diagram
- Run paper through system to verify alignments

Deinstallation

- Reverse of above procedure
- Refer to cabling diagram and floor plans to ensure all materials are secured and proper skids are used in repacking.

See Interconnect drawing in back pocket

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8.1 Print Registration

8.1.1 Theory of Operation

The Print Registration option provides precise cutting via detection of a mark printed in a fixed relationship with the printed web. When the CPU PCB receives a signal from the mark sense amplifier, the CPU is able to determine when the cut should be made. The mark detection system consists of a sensor, mounting hardware for the sensing head, mark sense amplifier, and the CPU PCB. The sensor may be mounted either above or below the fixed side of the web guide closest to the knife.

As the web with the pre-printed mark moves into the view of the sensor, there is a drop in reflectance. This signal is sent, via the optical fiber cable, to the mark sense amplifier where it is detected and then sent as a signal to the CPU PCB. The CPU PCB then signals a cut when the servo motor has moved the web into correct position.

The mark sense amplifier is adjusted for the largest difference of reflectance between the unprinted area of the web and the printed mark. When the mark is positioned under the fiber optic sensor end, the reflectance is at a minimum and the output LEDs at the mark sense amplifier indicate a minimum. Conversely, when the unprinted area of the customer's web is beneath the fiber optic sensor end, the mark sense amplifier output LEDs indicate a maximum.

Between these two conditions, as the leading edge of the printed mark is entering the view of the fiber optic sensor end, the mark sense amplifier output is dropping and goes through the middle of the range of output of the mark sense amplifier. The mark sense amplifier output is digital in the sense that it is either present or absent depending upon the level of reflectance detected.

The Cutter Control Panel contains three switches that effect the Print Registration feature. The yellow print registration switch turns print registration on or off. The green advance switch permits the operator to set Top of Form, and the white align switch permits advancement or retardation of the cut position, "on the fly" or as sheets are being cut and the web is moving.

Print Registration Switch



CUTTER CONTROL PANEL

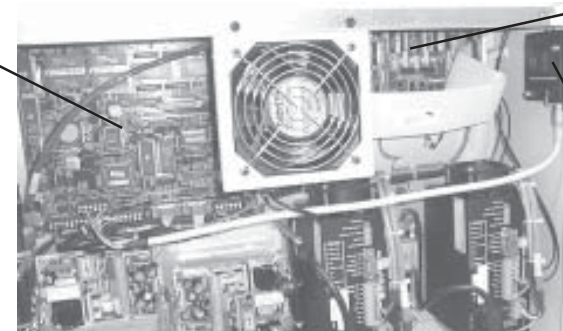
Print Registration Sensor Block



Edge Guide Rod

CUTTER TRANSPORT AREA

CPU PCB



I/O PCB

Amplifier

CUTTER CONTROL BOX

8.1.2 Repair Analysis Procedure (RAP) Print Registration

Theory of Operation

The print registration option uses an optical mark sensor and mark sense amplifier (25) to detect a printed mark on the web that is associated with pre-printed forms. The systems control firmware is informed of the mark detection and computes a position where a cut should be made.

Details

- The mark sensor mark sense amplifier (25) is connected to the CPU board at connector P/J108.
- The mark sense amplifier (25) output is either a logic high or low.
- Print Registration is selected or deselected by a switch on the operator panel. If the switch is depressed, the system operates in pinless mode.
- The advance button is used to set the top of form.

Initial Actions

- Check that the proper form size is set.
- Ensure that the cutter is operating correctly with print registration off.
- Ensure that the web is correctly threaded to have the registration marks pass by the print registration sensor.
- Set the LT/DK switch on the mark sense amplifier to LT.
- Ensure that DIP switch 304 on the I/O board (28) has switches 2 and 7 in the off position.

Procedure

Place the offline/online switch (9) in the offline position. Depress the print registration switch (3).

The advance button flashes.

Y N

- Check connections between the print registration switch (3) and the display board (16).
- Check the offline/online switch (9) and advance switch (1) wiring (REP 36.3).
- Check connectors J402 on the display board (16) and J151 on the CPU board (29) for proper seating.
- Replace the display board (16) (REP 36.4).
- Replace the CPU board (29) (REP 35).

Depress the advance button (1).

The web advances until the mark passes the sensor location and the web is cut and then the mark is advanced to the knife.

Y N

- Check the registration mark passing the sensor for density.
- Verify that registration marks are present and under the sensor.
- Ensure the fiber optic sensor is securely mounted in its holder on the guide rail and the end is against the glass lens.
- Ensure the fiber optic cable is securely inserted into the mark sense amplifier (25).

The fiber optic cable is not kinked or damaged

Y N

- Replace the fiber optic cable (REP 8.1.3.1).

Remove the electrical cabinet cover and observe the mark sense amplifier (25) LEDs.

The mark sense amplifier (25) LEDs are lit when the sensor is covered with white paper.

Y N

- Check the electrical connection between the mark sense amplifier (25) and the CPU board (29).

Place a DC voltmeter across J108, pins 1(+) and 3 (-).

The meter reads +15 VDC.

Y N

- Replace the CPU board (29) (REP 35).
- Replace the mark sense amplifier (25) (REP 8.1.3.2).
- Perform the mark sense amplifier (25) adjustment procedure (ADJ

8.1.3.3).

The adjustment was successful.

Y N

- Replace the mark sense amplifier (25) (REP 8.1.3.2).
- Replace the CPU board (29) (REP 35).

The form fault light stays off.

Y N

The advance switch is not blinking.

Y N (is blinking)

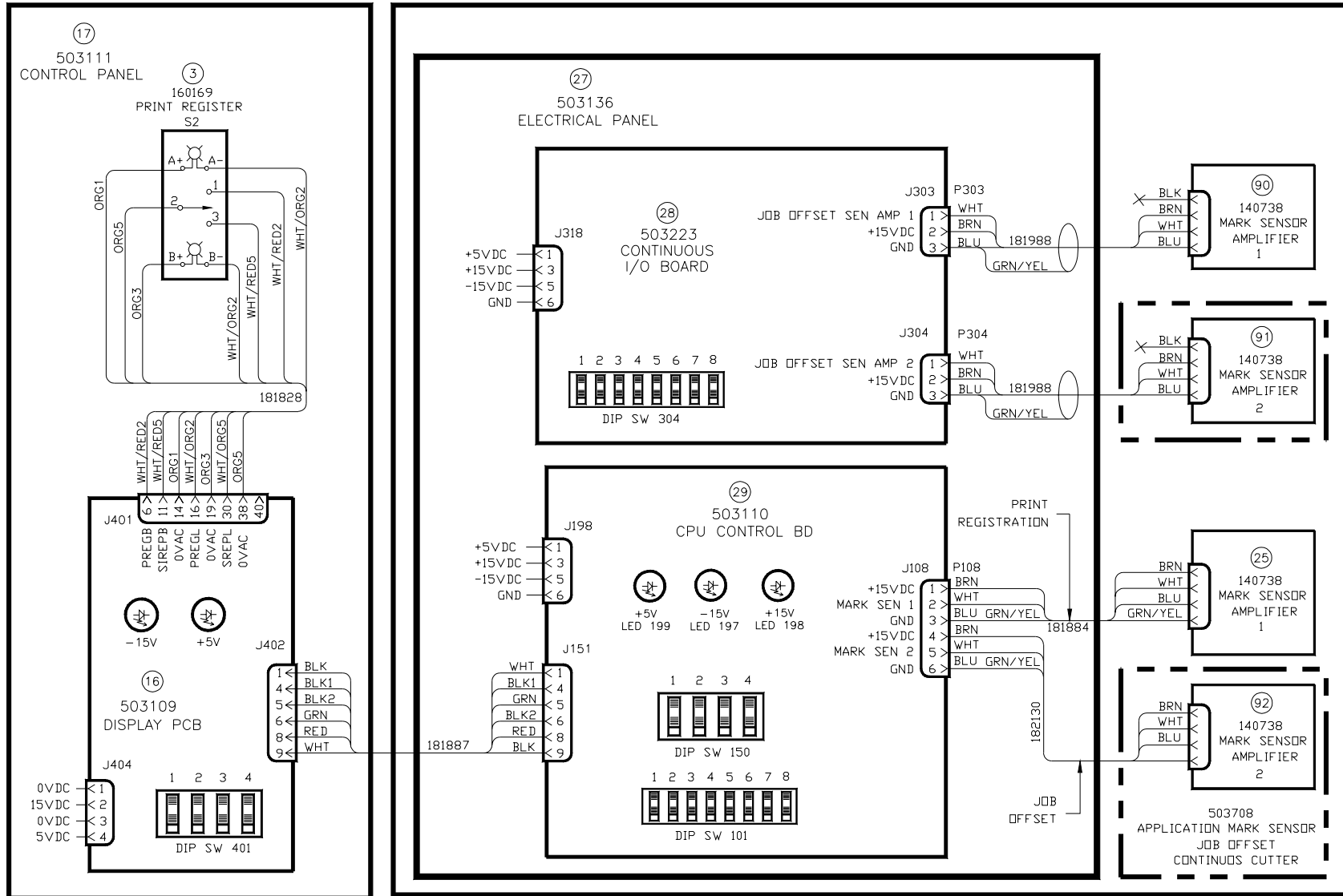
- Check that the mark quality and spacing meets specification.
- Reset top of form.
- Check the mark quality for density or blemishes.
- Perform the top of form procedure, see Section 6.

The Form Fault light stays off.

Y N

- Perform the mark sense amplifier (25) adjustment (ADJ 8.1.3.3).

Go to System Checkout, Section 1



PRINT REGISTRATION DIAGRAM

REP 8.1.3.1 Fiber Optic Cable

Purpose - This procedure describes how to remove and replace the fiber optic cables that are routed between the mark sense amplifier (25) and the print registration block at the parallel edge rod. At the sensing end, both cables are combined into a single unit.

Parts List - See Parts List 8.1.4 in this section.

Tools: 1.5 mm hex key

WARNING

Turn off the cutter; disconnect from electrical source.

Procedure

Removal

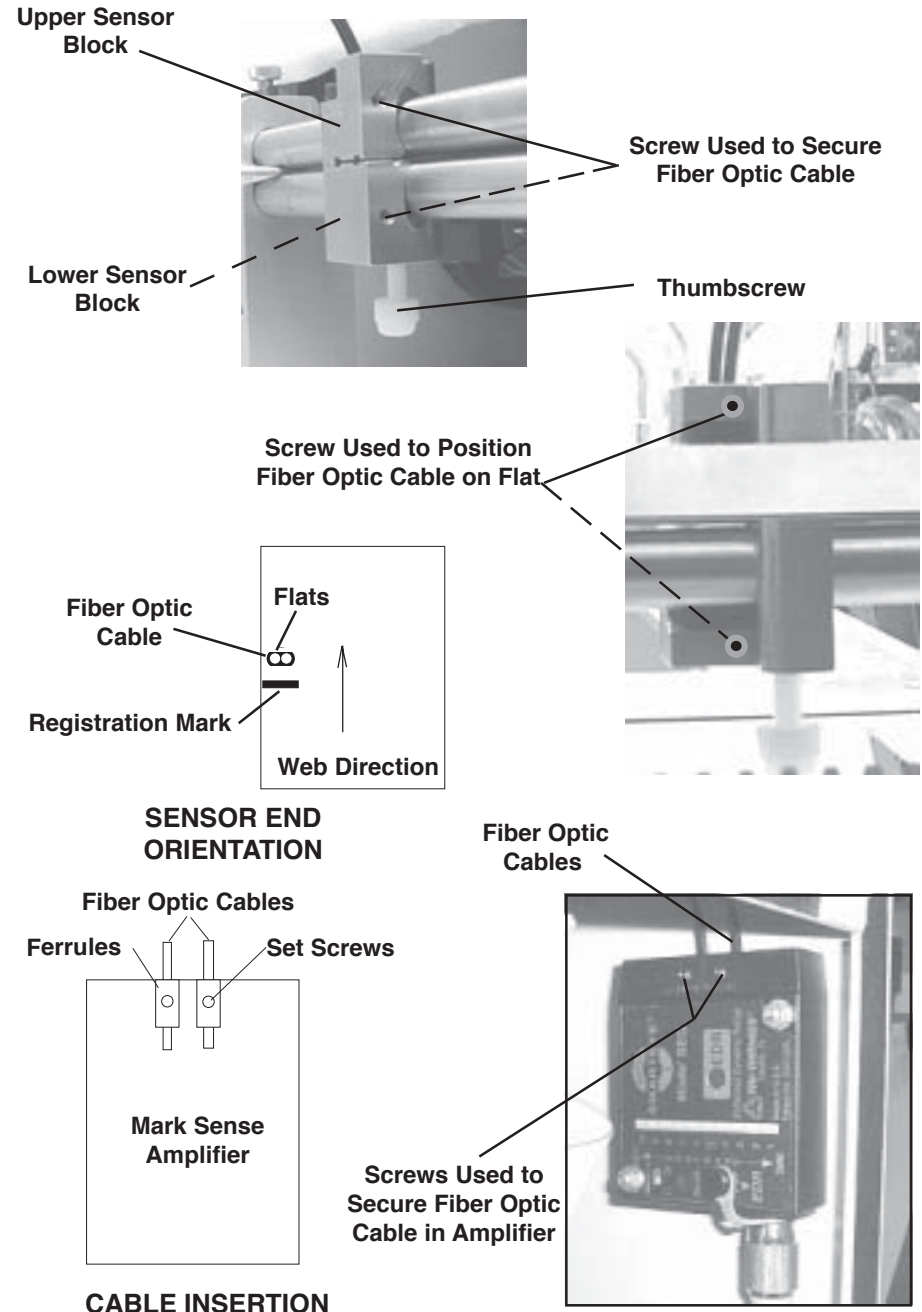
1. Loosen the two set screws securing the two fiber optic cables in the mark sense amplifier (25). Remove the cables and ferrules from the mark sense amplifier (25). Be careful not to lose the ferrules.
2. Loosen the set screw securing the fiber optic cable to the sensor block on the edge guide rod. Pull out the fiber optic cable.

Replacement

1. Insert the fiber optic cable sensing end into the sensor block (either the upper or lower) corresponding to the web surface with the mark until it contacts the sensor block glass. Orient the cable to have the set screw contact a flat on the sensor end. This will ensure that the send and receive ends see the mark edge at the same time.
2. Tighten the screw used to secure the fiber optic cable.
3. Thread the two fiber optic cables through the slot in the Cutter transport area and into the mark sense amplifier (25) area. Cut ends of fiber with knife provided. Slide a ferrule on each fiber optic cable and insert the cables into the holes in the mark sense amplifier (25) as far as they will go. Slide the ferrules into the holes until they are flush with the surface of the mark sense amplifier (25). Tighten the two set screws until they are secure. Do not overtighten which may damage the fiber optic cable.

Adjustment

ADJ 8.1.3.3



REP 8.1.3.2 Print Registration Amplifier

Purpose - This procedure describes how to remove and replace the mark sense amplifier (25).

Parts List - See Parts List 8.1.4 in this section.

Tools: 1.5 mm hex key
7 mm wrench or nut driver

WARNING

Turn off the cutter; disconnect from electrical source.

Procedure

Removal

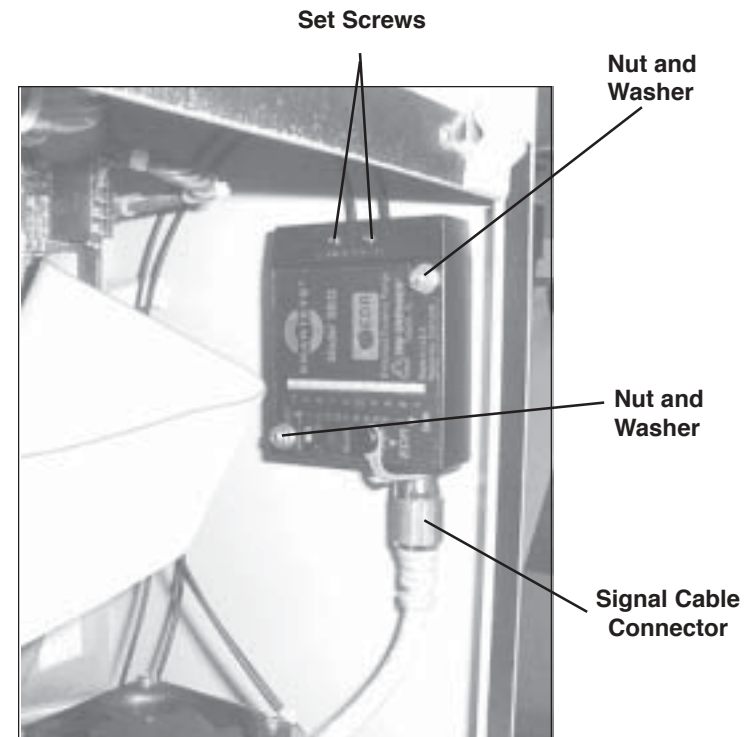
1. Remove the cutter electrical cover **(REP4)**.
2. Using the 1.5 mm hex key, loosen the two set screws securing the fiber optic cables in the mark sense amplifier (25). Do not lose the ferrules.
3. Unscrew the mark sense amplifier (25) signal cable connector .
4. Remove the two nuts and washers securing the mark sense amplifier (25) to the Cutter frame.
5. Slide the mark sense amplifier (25) off the studs in the cutter frame.

Replacement

1. Mount the fiber optic cables to the mark sense amplifier (25) **(REP 8.1.3.2)**.
2. Slide the mark sense amplifier (25) on the studs in the cutter frame and secure it with the nuts and washers removed in step 4 above.
3. Screw on the signal cable connector to the mark sense amplifier (25).

Adjustment

ADJ 8.1.3.3



ADJ 8.1.3.3 Mark Sense Amplifier

Purpose - The purpose of this adjustment is to maximize the amplifier output between a light and dark condition.

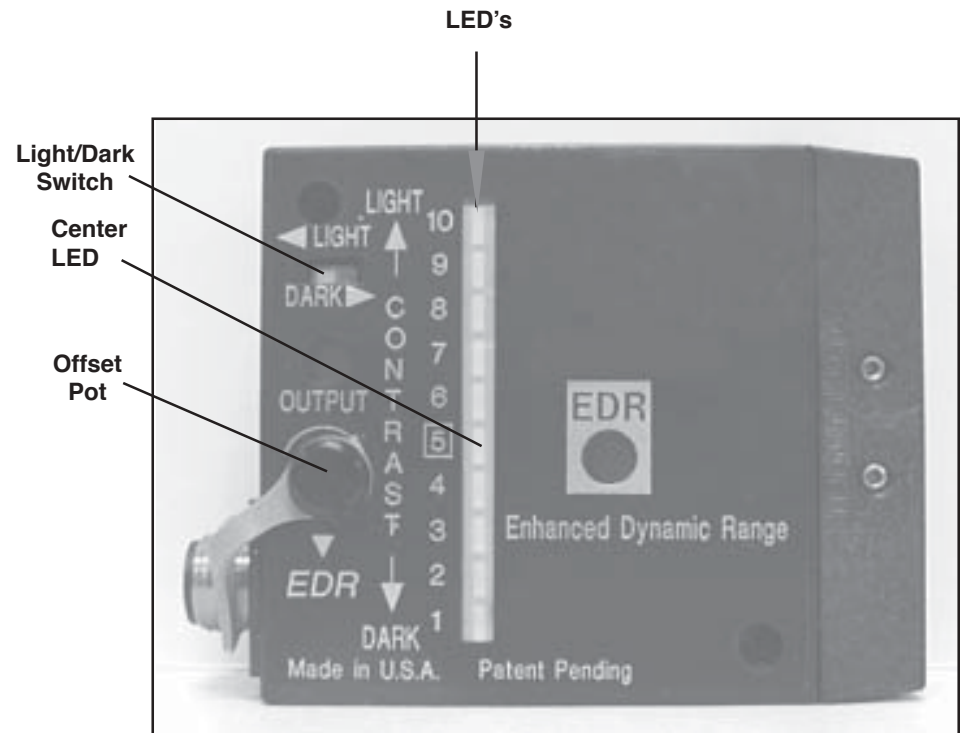
WARNING

Turn off the cutter; disconnect from electrical source.

Tools: Flat blade screwdriver
Potentiometer adjusting tool

Procedure

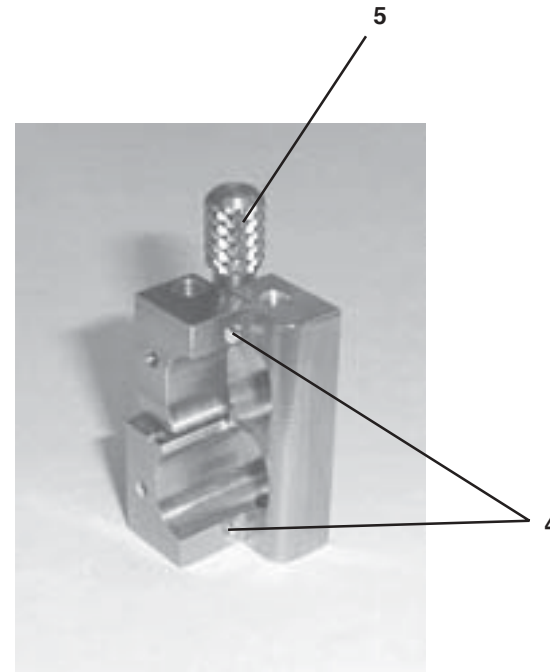
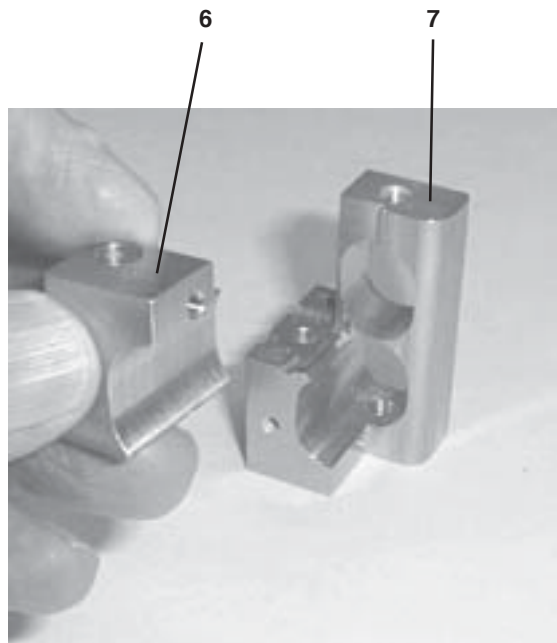
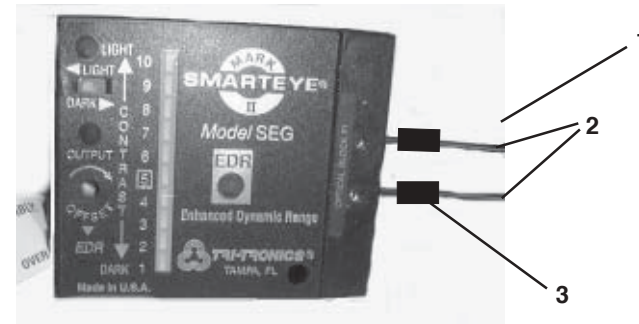
1. Remove the cutter electrical cover **(REP4)**.
2. Ensure that the Light/Dark switch is set to Light. Unscrew the offset pot cover and position the offset pot on the mark sense amplifier (25) to the middle of its range.
3. Place a sample sheet of paper from the customer's web in front of the fiber optic sensor. Adjust the offset pot on the mark sense amplifier (25) carefully such that the top LED just lights and then rotate the offset pot 1/4 turn more.
4. Position the printed mark on the customer's web completely over the fiber optic sensor. All LEDs should be off.
5. If all LEDs were not off in step 4, repeat steps 3 and 4 until the maximum difference is achieved between the light and dark conditions. The center of the difference should be the center LED (with the box around the number 5 LED).



8.1.4 Parts List - Print Registration

8.1.4.1 Print Registration Amplifier and Block

Item	Part #	Description
1	503294	Amplifier
2	180388	Fiber Optic Cable
3	305407	Ferrule
4	100691	Set Screw, M3x6
5	314484	Thumbscrew
6	504079	Print Reg Block, Cap with lens
7	504561	Print Reg Block, Base with lens



8.2 Strip Cut with Airjet

8.2.1 Theory of Operation

The Strip Cut option removes a cross strip from the web. This cut takes place under software control and is activated when the strip cut switch is used to set a different length between form length and cut length. Maximum strip cut length is 0.750" (19 mm) and is the difference of form length minus cut length. Min strip cut is 1/8". The upper knife guard has been extended to direct the cut strip to the floor aided by the airjet.

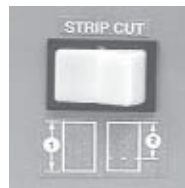
Each time the knife cuts a strip, the air jet injects air into the knife casting. The inlet air supply should be normally set at 30 psi with 100 psi as the application upper limit. A regulator is mounted on the Continuous Cutter leg and there is a solenoid valve PCB mounted on the cutter side frame under the drive components cover. Control to the solenoid valve PCB is from the Continuous Cutter I/O board.

NOTE: The solenoid will only fire if Strip Cut is activated.

Operation

Set up of the strip cut option is as follows:

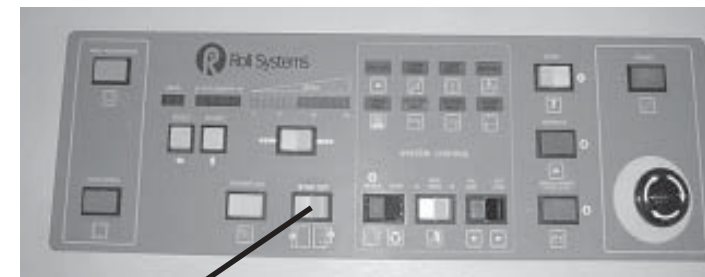
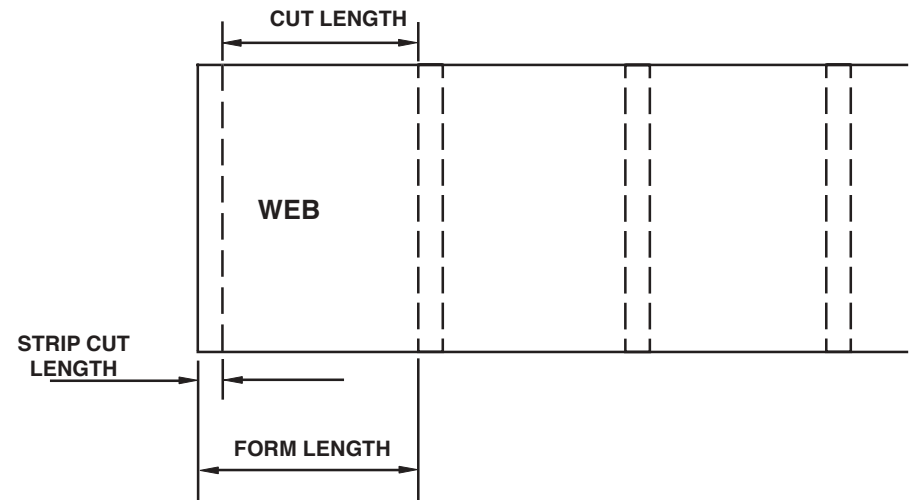
1. Determine the strip cut length, It may be up to 0.75" in length.
2. Calculate the form length by adding the strip cut length to the desired cut length (page plus the strip to be removed).
3. Move the baffle plate all the way toward the blade for 1/8" strip and all the way out for all other widths.
4. With the strip cut switch in position ①, set the form length in the display.



5. With the strip cut switch in position ②, set the cut length (page after strip has been removed) in the display.
6. Proceed with running the job.

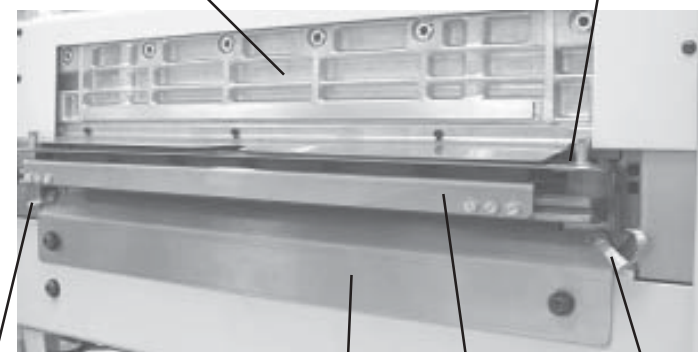
Set up for no strip cut is as follows:

1. Set both strip cut switch positions (① and ②) to the desired form length.



Strip Cut Switch
CUTTER CONTROL PANEL

Upper Knife Guard
Strip Cut Baffle



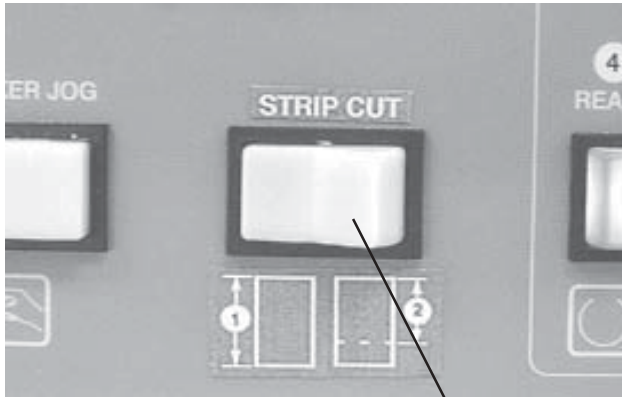
Scrap Deflector
Static Bar
Ground Strap
Ground Strap

CUTTER EXIT AREA

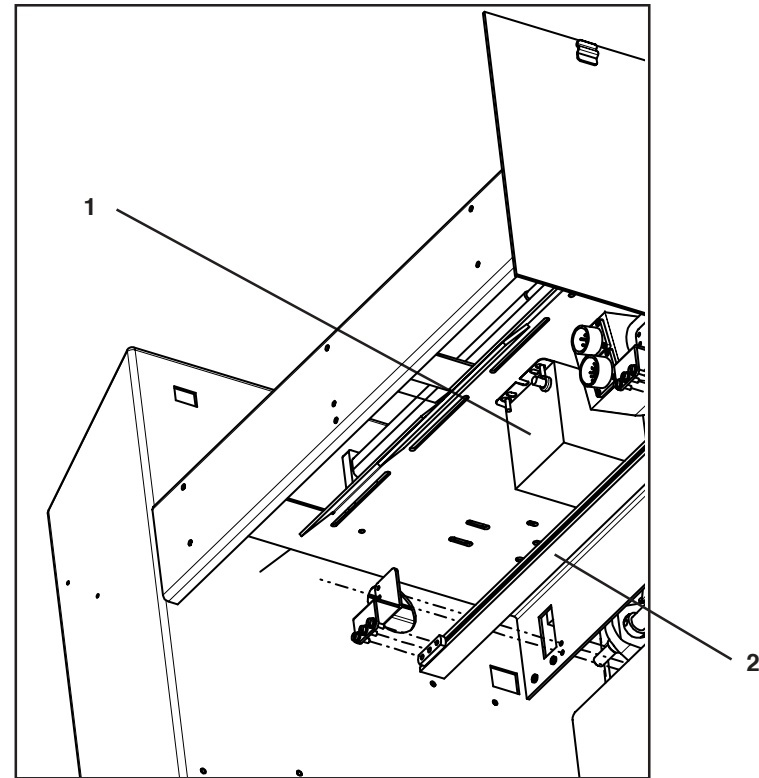
8.2.3 Parts List

PL8.2.3.1 - Strip Cut

Item	Part	Description
1	141279	Static Bar Power Supply
2	141276(2)	Static Bar
3	140051	Lens
4	160021	Switch

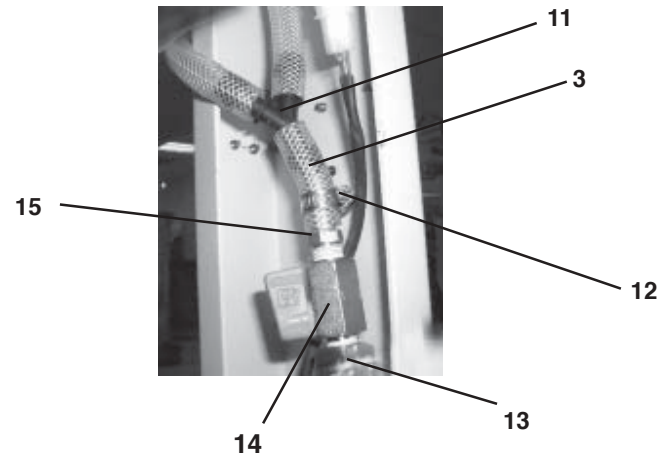
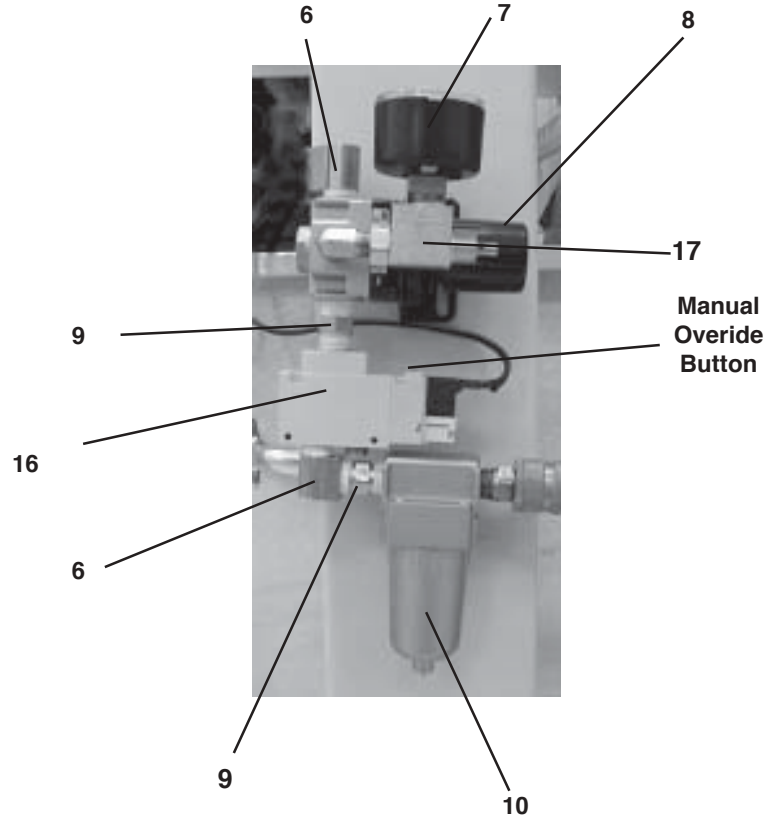
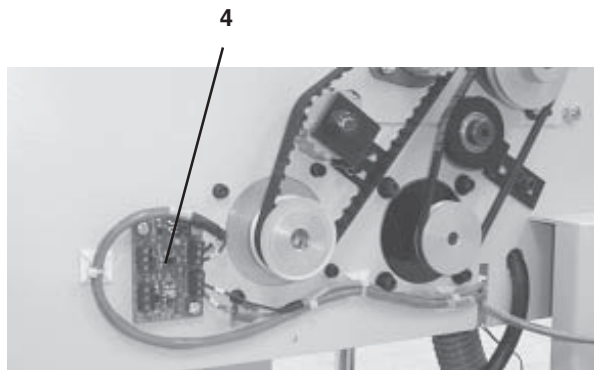
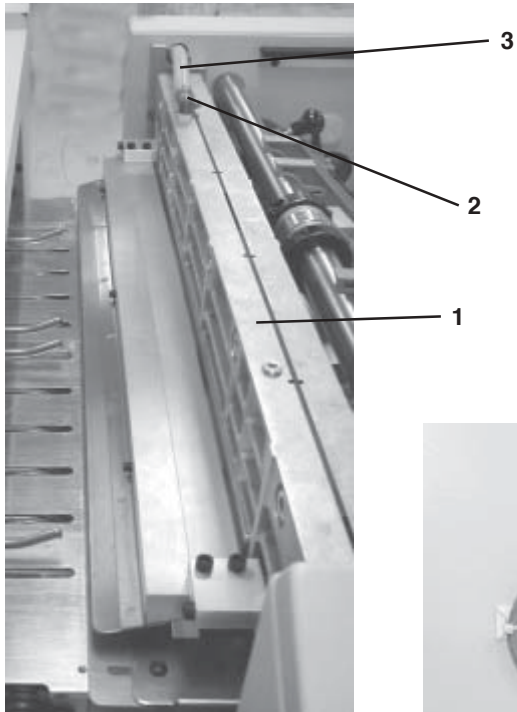


3, 4



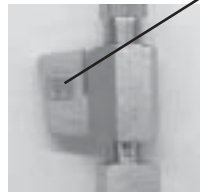
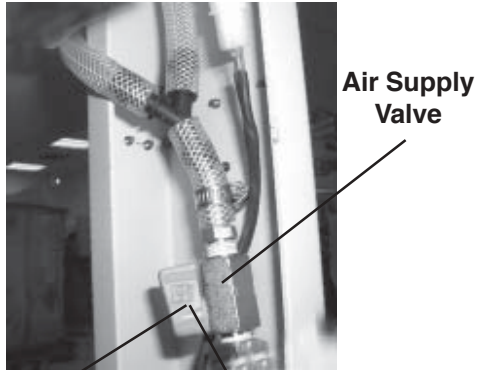
8.2.4 Air Jet

Item	Part	Description
1	311973	Upper Knife Blade Guide
2	200829	90° Barbed 1/8 NPT x 3/8 inch
3	200868	Flexible Tubing
4	504491	Solenoid Valve PCB
5	200889	Nipple, 1/4 x 1 1/2
6	200831(2)	Street Elbow
7	200864	Gauge
8	200834	Regulator
9	200206	Nipple, 1/4 x 1/4
10	200833	Filter
11	200878	"Y" Fitting, 3/8
12	200867	Hose clamp
13	800890	Elbow
14	200881	Mini Ball Valve
15	200835	Straight Barb
16	504195	Valve Assembly
17	200892	Poppet Valve

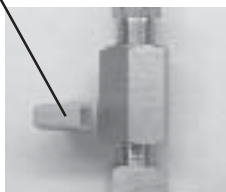


Adjust Pressure

1. Reattach the air supply hose to the air jet and apply power to the cutter.
2. Close the air supply valve located behind the cutter leg.

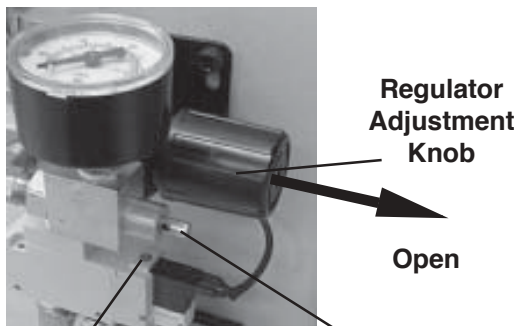


Valve Open



Valve Closed

3. Pull the regulator knob away from the body of the regulator until a “click” is heard. The amount of travel is less than 1/4 inch. This will permit the knob to be turned.

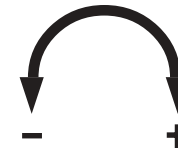


Solenoid Manual
Override Button

Poppet Valve
Stem

4. With one hand, press the poppet valve stem into the poppet valve body until it stops. At the same time, depress the solenoid manual override button and keep it down. With your other hand, rotate the regulator knob to achieve an air pressure reading on the gauge of 30 psi. Turning the regulator knob clockwise increases the air pressure, turning the regulator knob counter clockwise reduces the air pressure.

REGULATOR KNOB



5. Release the solenoid manual override button and the poppet valve stem.
6. Push the regulator knob toward the body of the regulator until a “click” is heard. This will lock the knob in place and maintain the air pressure adjustment setting.
7. Open the air supply valve.

8.3 Light Weight Paper

8.3.1 Theory of Operation

The Light Weight Paper option provides improved web control for paper weights in the 12# to 16# range. It consists of two sets of edgeguide rods, edgeguides, upper knife guard, and, when applicable, a print registration block. The edgeguide rods are set apart a distance of 2 1/2 times the thickness of the web being processed.

8.3.2 Set-up

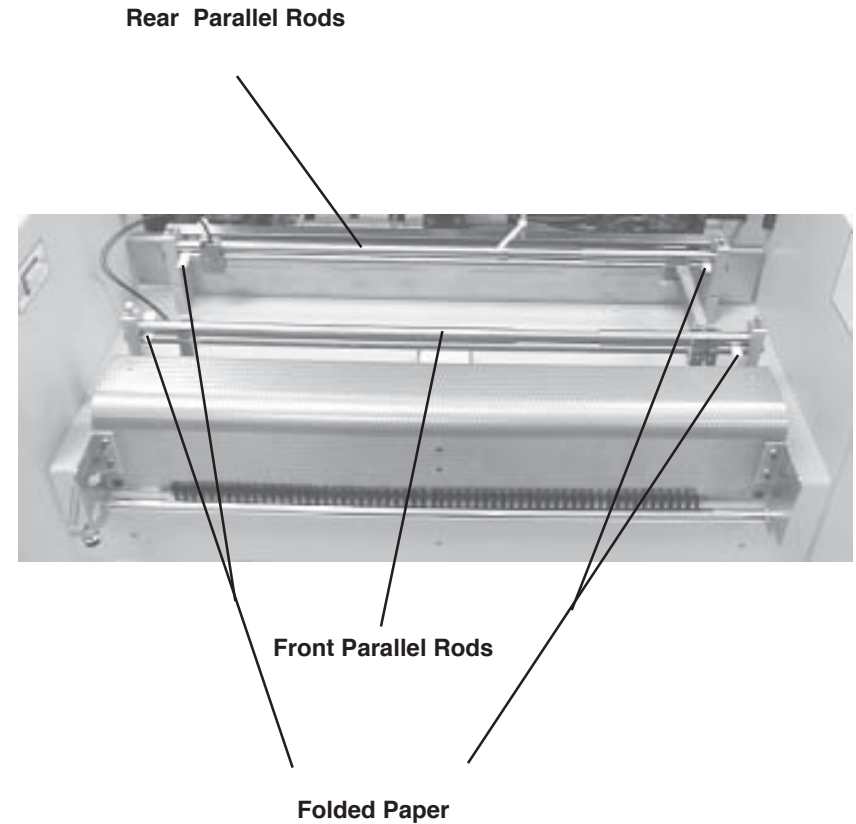
Web Edge Guide Adjustment

Set the edge guides to the web width position. The adjustable edge guide is moved by loosening the thumbscrew and sliding the edge guide along the parallel rod guide.

NOTE: Set the edge guides on both the front and rear parallel rods.

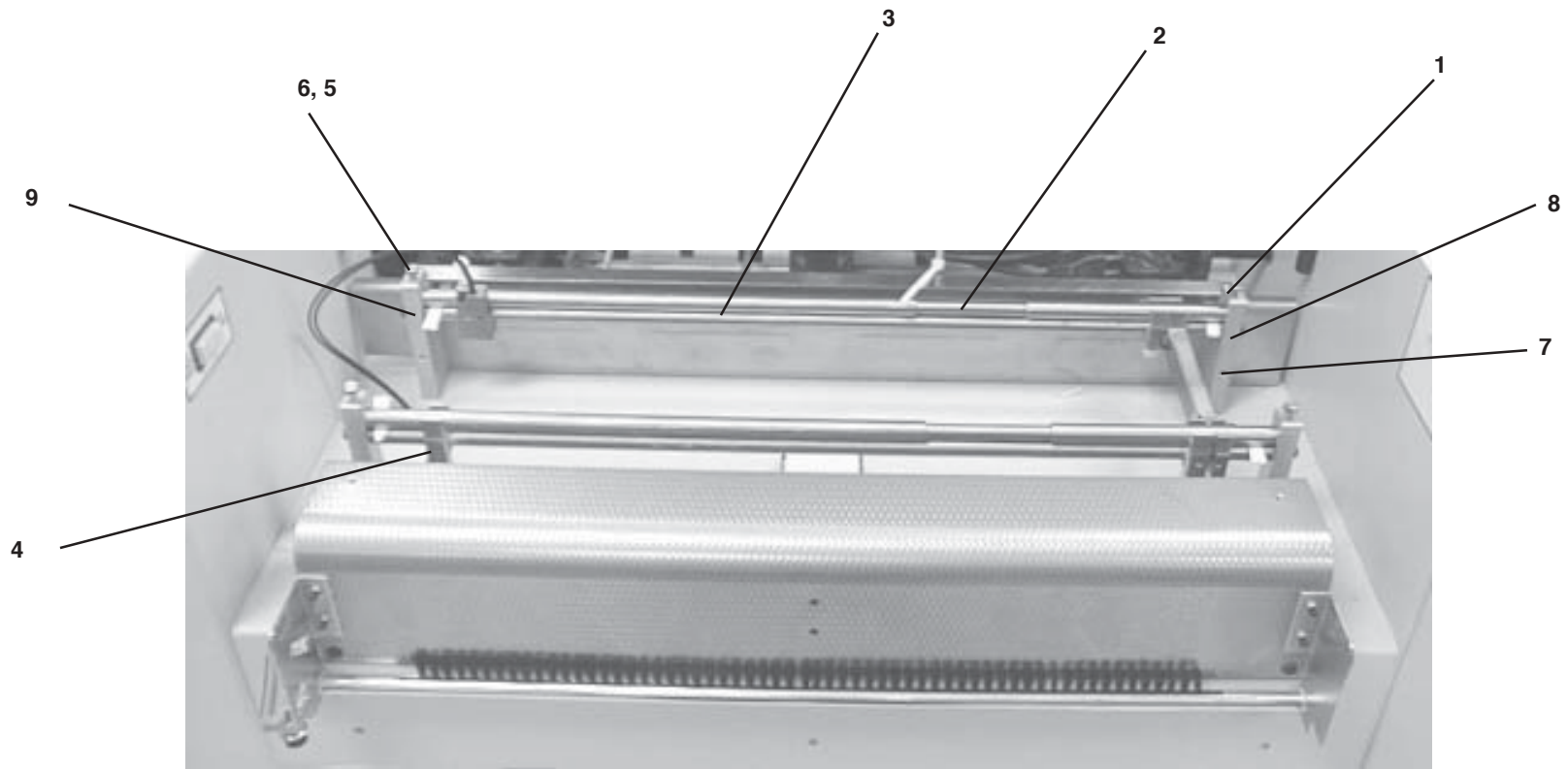
Adjust Parallel Rods

The parallel rods must be separated by three or four times the thickness of the web paper. This is done by folding a 2-inch square piece of web paper in thirds or quarters to produce a strip of paper that is three to four times the thickness of the web paper. Place one folded strip between the upper and lower parallel rod at each end of the parallel rod pair. Do this to both front and rear parallel rod pairs.



8.3.1 Parts List

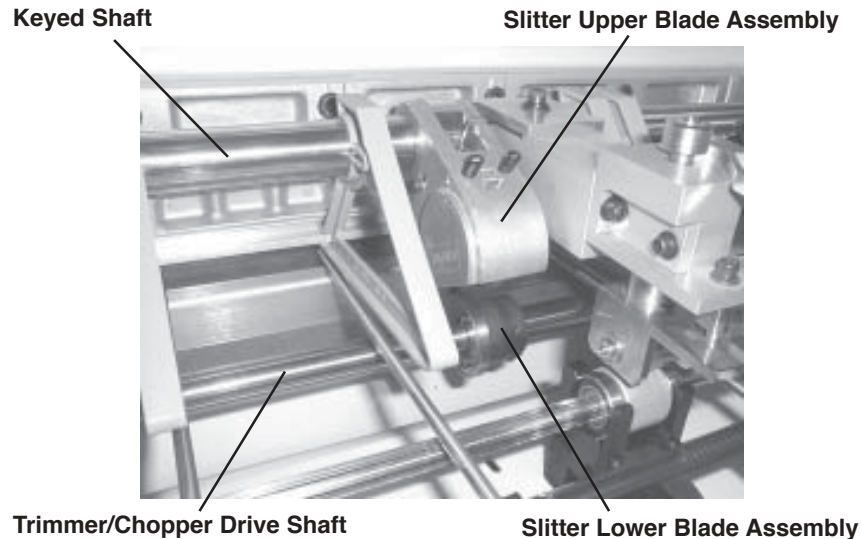
Item	Part	Description
1	310926	Post
2	310927	Rod
3	310925	Bar
4	310763	Edgeguide
5	251840	Ball Plunger
6	101293	Thumbscrew
7	101233	Set Screw
8	311767	RH Edgeguide Post
9	311768	LH Edgeguide Post



8.4 Slitter

8.4.1 Theory of Operation

The Slitter option allows two-up printing to be slit and cut in two parallel streams. It consists of an upper blade assembly and a lower blade assembly located in the cutter infeed deck area between the two trimmer/choppers. The lower blade assembly is mounted on the trimmer/chopper drive shaft and rotates at the same speed as the trimmer/chopper blades. The upper blade assembly is mounted on the keyed shaft and may be locked into one of two positions. In the "up" position, no slitting takes place. In the "down" position, the upper and lower blades are in side contact and slitting takes place. The web is forced between the blades and the cut is made with a "scissors" action.

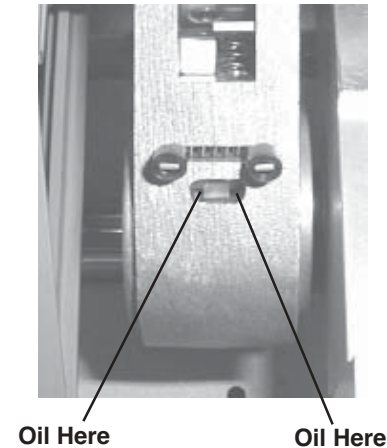


The lateral location of the cut is adjustable by sliding the upper and lower blade assemblies along their respective mounting shafts. Both the upper and lower blade are identical and each has two cutting edges.

8.4.2 Preventive Maintenance

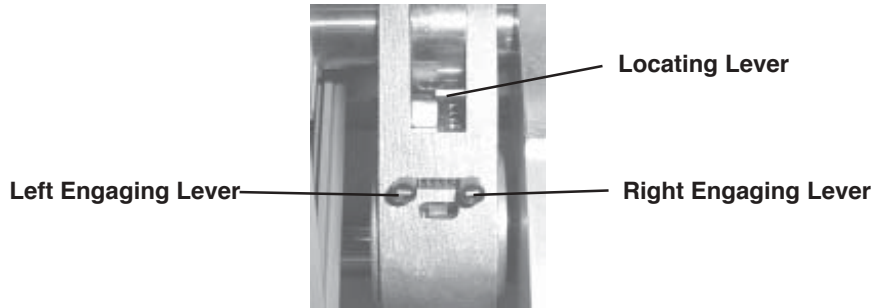
The slitter upper blade assembly requires a routine oiling schedule. There are two oil wick assemblies located within the upper blade housing that must be oiled every shift change or roll change. Place one drop of Roll Systems oil (P/N 502741) into each side of the slot in the upper blade housing as shown.

NOTE: Place a paper towel under the slitter upper blade assembly during the oiling process to catch any oil that might drip down.



8.4.3 Operation

Operation of the slitter consists of lowering or raising the upper blade assembly. To lower or raise the upper blade assembly, push the appropriate (left or right) engaging lever towards the opposite side of the slot while pushing down on the locating lever.



While holding the levers in position, start to rotate the upper blade assembly and then release the locating lever. Continue to rotate the upper blade assembly until the locating lever snaps into the lower slot.



Push the left engaging lever to the right if the upper blade is positioned to the right of the lower blade. Push the right engaging lever to the left if the upper blade is positioned to the left of the lower blade. This is necessary to prevent damage to the blades when engaging or disengaging the upper blade to/from the lower blade.

8.4.4 Repair Analysis Procedure

Initial Actions

Enter RAP only if a problem is observed with the Slitter option.

Procedure

Rotate the upper blade assembly. The upper blade “clicks” into position.

Y N

- Rotate the upper blade assembly slightly to engage the locating lever.
- Check adjustment of slitter blade assemblies (**ADJ 8.4.5.3**).
The lower center slit blade shaft spins when the Cutter power switch is turned on.

Y N

- Check that cutter top cover is closed.
- Check trimmer/chopper drive motor (**REP 21**).
- Verify lower blade assembly is not loose on trimmer chopper drive shaft. Tighten if loose.

The cut sheets exit the cutter area without any jams.

Y N

- Trimmer/choppers are jammed with paper.
- Tractors are too tight or loose (**ADJ 2**).
- Paper not aligned evenly on tractors.
- Check pinless drive and pressure rollers (**REP 18, REP19, ADJ 7, ADJ 8, ADJ9, and ADJ 10**).

Stacks are even, square, and cuts are not ragged.

Y N

- Check Upper/Lower Blade Adjustment (**ADJ 8.4.5.3**).
- Replace Upper/Lower Blade (**REP 8.4.5.1 or REP 8.4.5.2**).

Go to System Checkout.

8.4.5 Replacement/Adjustment Procedures (REP/ADJ)

REP 8.4.5.1 Upper Blade Assembly

Purpose - This procedure describes how to remove the upper blade assembly and to replace or reverse the upper slitter blade.

Parts List - See Parts List 8.4.7.

Tools: 2.5 mm hex key
3 mm hex key

WARNING

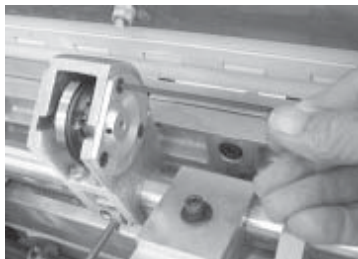
Turn off the Cutter and disconnect from electrical source.

Removal

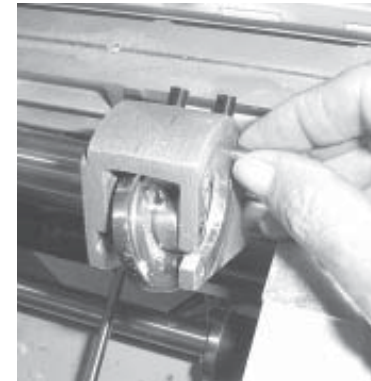
1. Push the locating lever down to disengage the upper slitter blade assembly from the keyed shaft collar and rotate the assembly to a vertical position.



2. Use the 2.5 mm hex key to remove the three flat head screws holding the slitter end cap to the casting.



3. Remove the oil assembly and spring, then pull out the blade assembly.



4. Use the 3 mm hex key to remove the three screws holding the slitter blade to the hub.

WARNING

The slitter blade is very sharp.

Replacement

1. Mount the slitter blade to the hub with the three screws removed in step 4 above.
2. Push and hold the left oil assembly (the one remaining in the casting) completely into its casting cavity and then place the blade assembly into the casting. The screw heads should be on the right.
3. Place the right oil assembly and spring into the casting and mount the slitter end cap to the casting with the three flat head screws.
4. Return the upper blade assembly to its engaged position with the lower blade assembly.

Adjustment

ADJ 8.4.5.3

REP 8.4.5.2 Lower Blade Assembly

Purpose - This procedure describes how to remove the lower blade assembly and to replace or reverse the lower slitter blade.

Parts List - See Parts List 8.4.7

Tools: 3 mm hex key
4 mm hex key

WARNING

Turn off the Cutter and disconnect from electrical source.

Removal

1. Push the locating lever down to disengage the upper slitter blade assembly from the keyed shaft collar and rotate the assembly to its up position.

WARNING

The slitter blade is very sharp.

2. Loosen the lower slitter blade assembly with a 4 mm hex key.



3. Partially remove the trimmer/chopper drive shaft (REP 22).

NOTE: It is only necessary to pull out the trimmer/chopper drive shaft far enough to remove the left trimmer/chopper and the lower slitter blade assembly.

4. Use a 3 mm hex key to remove the three screws holding the slitter blade to the blade collar.

Replacement

1. Slide the lower hub assembly on the trimmer/chopper shaft.
2. Reinstall the trimmer/chopper shaft (REP 22) and position the lower slitter blade assembly along the shaft.
3. Use the 4 mm hex key to tighten the lower slitter blade assembly to the trimmer/chopper shaft.
4. Lower the upper slitter blade assembly to engage the lower slitter blade assembly.

Adjustment

ADJ 8.4.5.3

ADJ 8.4.5.3 Upper/Lower Slitter Blades

Tools: 3 mm hex key
4 mm hex key
metric ruler

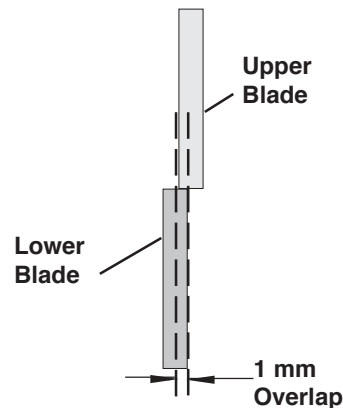
Procedure

Horizontal (Pressure) Adjustment

1. Loosen the lower slitter blade assembly with the 4 mm hex key, and move it to the desired cutting position along the trimmer/chopper shaft. Choose which cutting edge (left or right) on the blade will be used to slit the web. Assume the right side for this adjustment description. Tighten the lower slitter blade assembly to the trimmer/chopper shaft.



2. Carefully lower the upper blade assembly so that the upper blade just touches the top of the lower blade.
3. Loosen the set screw in the upper slitter blade assembly shaft collar with the 4 mm hex key.



4. Slide the upper slitter blade assembly along the keyed shaft until there is a 1 mm overlap of the upper and lower slitter blades. In this description the left side of the upper blade will overlap the right side of the lower blade. Tighten the set screw using a 4 mm hex key.

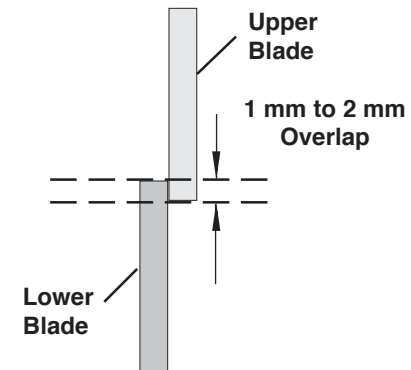
Vertical Overlap Adjustment

1. Push the upper blade sideways with appropriate engagement lever and rotate the upper blade assembly downward to the engaged (cutting) position.
2. The upper blade should overlap the lower blade vertically by 1 - 2 mm.



Loosen the side screw with a 3 mm hex key.

3. Grasp the upper slitter blade assembly casting and pull/push it while



observing the vertical overlap.

4. Tighten the side screw when the vertical overlap is 1-2 mm.

ADJ 8.4.5.4 Upper/Lower Slitter Blades Cutting Angle Adjustment.

Tools: 2 mm hex key
 4 mm hex key
 metric scale
 blade screwdriver
 punch card or equivalent

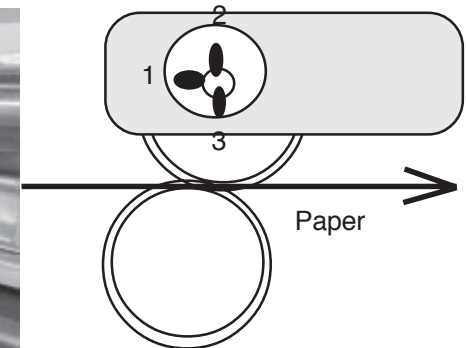
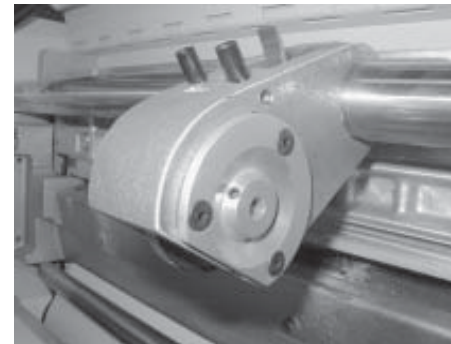
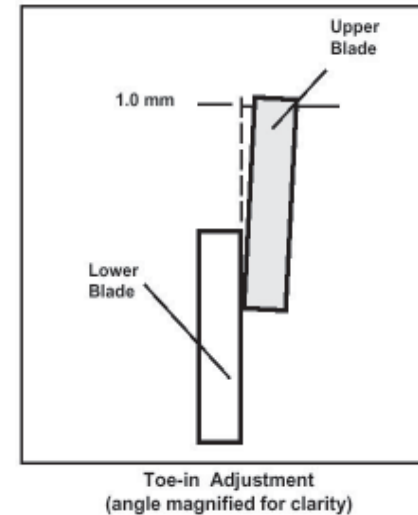
Procedure:

1. Adjust cutting angle;

Adjust the axial position of the upper blade shaft. The object is to “toe in” the blade very slightly to provide a clean cut. If the blade were "toed out", the cut edge of the paper would be ragged .

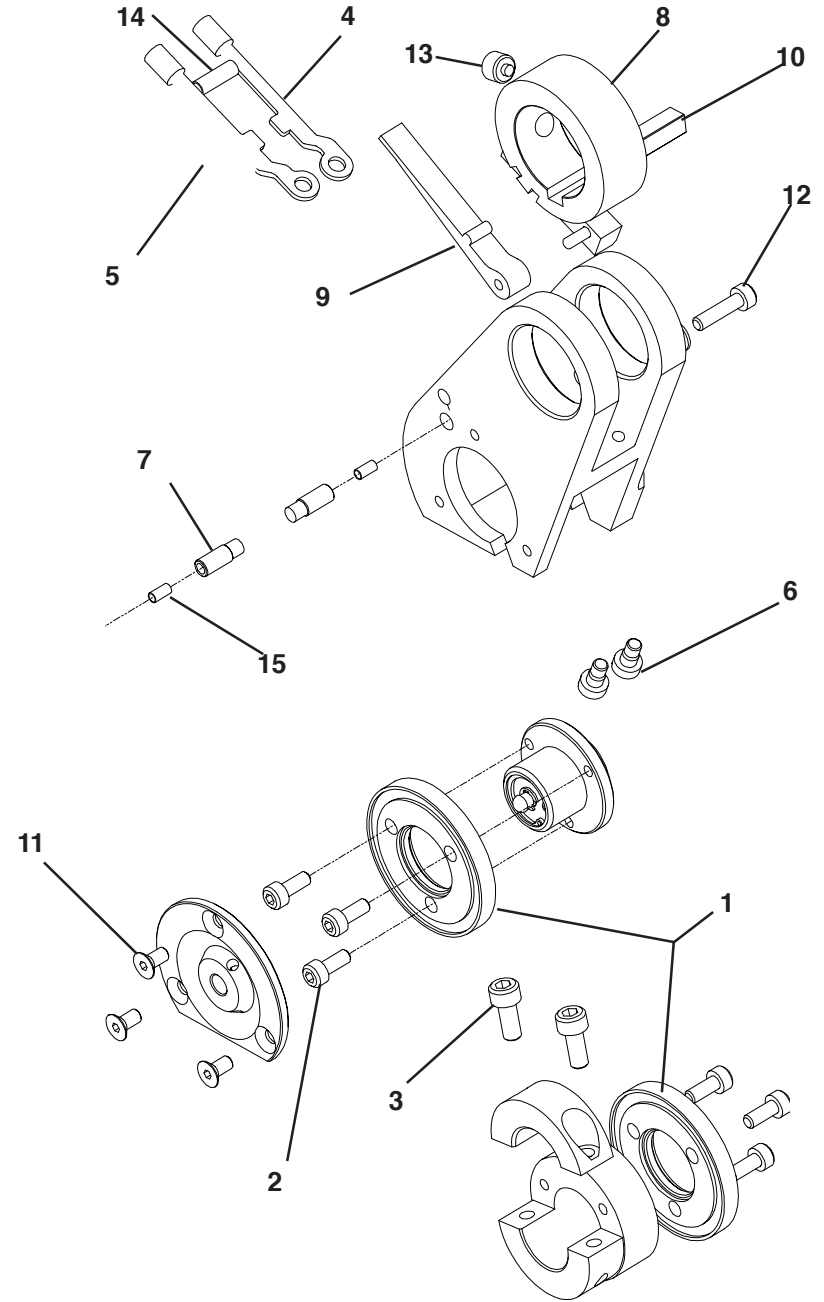
2. The adjustment is made using the three set screws on the right side of the upper blade holder. This adjustment is quite sensitive. Normally the end of the shaft will appear to be well centered in the retainer, even after adjustment.
3. The controlling setscrew is #1. Any adjustment of this setscrew should be done in 1/4 turn increments. In no case should the setscrews be more than 1 turn away from the central location. Turning the blade too far will cause it to wear prematurely. Screws 2 and 3 should be moved in tandem to compensate and keep the shaft bushing snug.

The intent is to toe in the upper blade very slightly to create a NIP point and have the front edge make a point contact with the lower blade. The upper and lower blades must be arranged as shown, with the paper moving from left to right. In such a case, loosening screw #1 while tightening screws 2 and 3 will toe in the upper blade.



8.4.4 Parts List

Item	Part	Description
1	310539	Blade, Slitter (Upper and Lower)
2	100734	Screw, Socket Head, M4x10mm
3	100761	Screw, Socket Head, M5x12mm
4	310528	Lever, Engaging, (RH)
5	310529	Lever, Engaging, (LH)
6	102354	Screw, Shoulder, 3/16"x0.125"
7	503245	Oiler Assembly
8	310516	Collar, Shaft
9	310525	Locating Lever
10	102345	Key, M6x6x16
11	101021	Screw, Flat Head, M4x8mm
12	100690	Screw, Socket Head, M4x16mm
13	102386	Set Screw, Soft Tip, M8x7.5mm
14	251811	Spring, Compression
15	251976	Spring, Compression



8.5 Vacuum Hole Punch

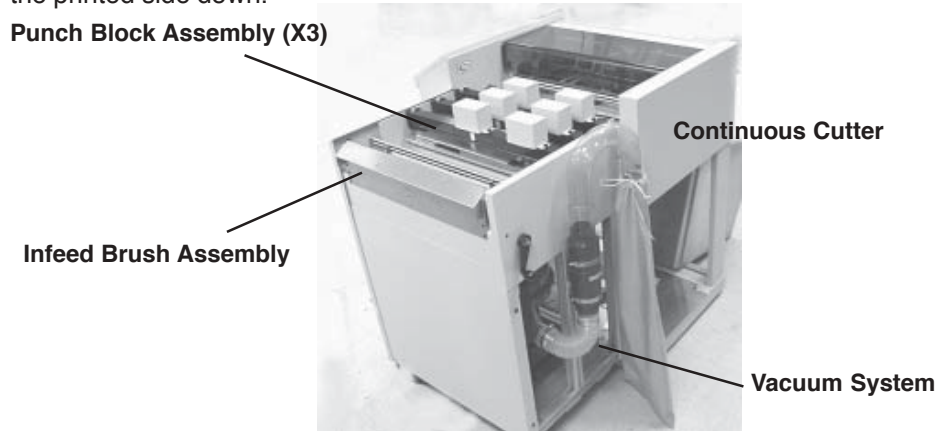
The information in this section applies to the following hole punch assemblies:

50402201	5/16 inch	50402202	9/32 inch
50402203	5 mm	50402204	5.55 mm

8.5.1 Theory of Operation

The Vacuum Hole Punch is a Continuous Cutter option. It will accommodate both pinless and pin-fed webs including webs that are printed 2-up. Slitting and merging occur after hole punching. The web is threaded with the printed side down.

Punch Block Assembly (X3)



VACUUM HOLE PUNCH MODULE

A vacuum system removes all punched chad via a plenum located under the punch block assemblies and directs the chad into a collection bag. There are three punch block assemblies and each punch block assembly has two punch assemblies. The three hole pattern may be shifted along the web by means of a crank on the non-operator side of the punch module. Intra hole spacing is not adjustable.

Control of the Vacuum Hole Punch module, including the vacuum assembly, comes from the Continuous Cutter. A latching pushbutton on the Continuous Cutter operator panel turns the punch function on and off. The vacuum motor shuts off when the Continuous Cutter is shut off or after a time-out when there is no paper drive movement. Power from the Continuous Cutter activates the punch bar assemblies. Power to the vacuum motor is from an independent source via a control module under Continuous Cutter control.

8.5.2 Installation

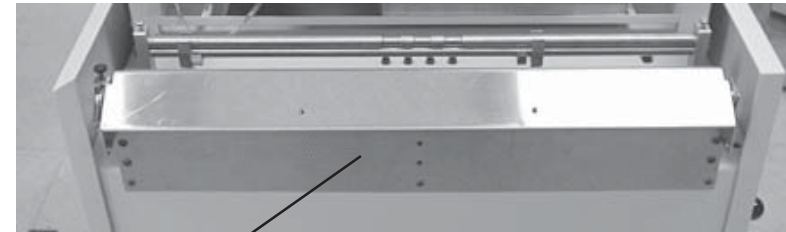
8.5.2.1 Mechanical Infeed Brush Assembly

1. Remove the existing Continuous Cutter infeed brush assembly. Save all hardware to be used on the Vacuum Hole Punch module.



Remove these six screws

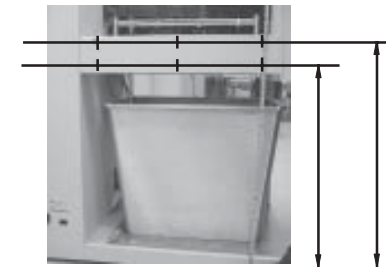
2. Attach the infeed brush assembly to the Vacuum Hole Punch module using the six screws removed above. The hole pattern on the Vacuum Hole Punch module matches the hole pattern on the Continuous Cutter.



Infeed brush assembly mounted on the Vacuum Hole Punch module

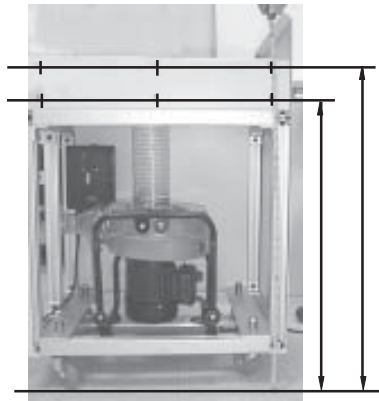
Attach the Vacuum Hole Punch Module to the Continuous Cutter

1. Measure the distance from the floor to each mounting hole in the Continuous Cutter infeed deck frame. Record these measurements.



Hole Punch Mechanical Installation (Continued)

2. Measure the distance from the floor to the mounting holes on the Vacuum Hole Punch module frame and adjust the casters on the module until these distances match the distances for the Continuous Cutter.



Measure Distance

NOTE: All four casters may need to be adjusted to attain the same floor to mounting hole distance as the Continuous Cutter and to keep the Vacuum Hole Punch level.

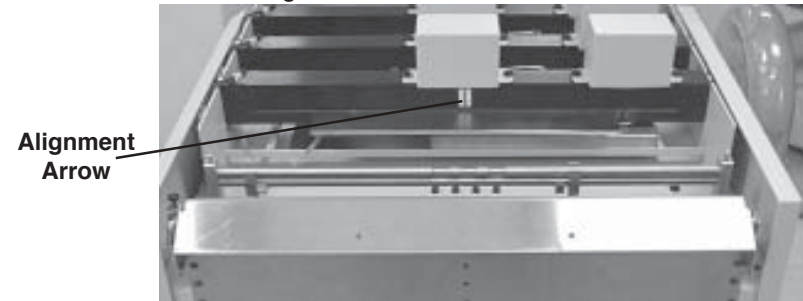
3. Push the Vacuum Hole Punch up to the Continuous Cutter and loosely thread the six sets of hardware through the Vacuum Hole Punch frame into the Continuous Cutter frame.



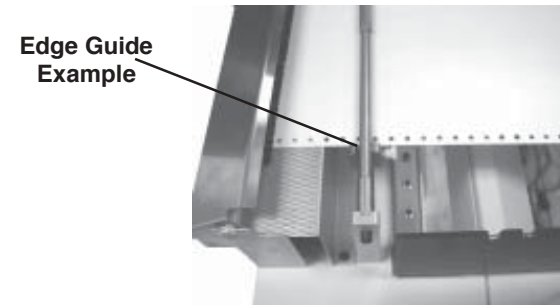
Adjust Casters

Punch Alignment

1. Thread the web through the infeed brush assembly, parallel rod assembly on the Vacuum Hole Punch module, punch block assemblies, parallel rod assemblies on the Continuous Cutter, and up to the pinless drive rollers.
2. Align the arrow on the punch block assemblies to the center of the web by shifting the Vacuum Hole Punch module left/right. Tighten the six screws when this alignment has been achieved.

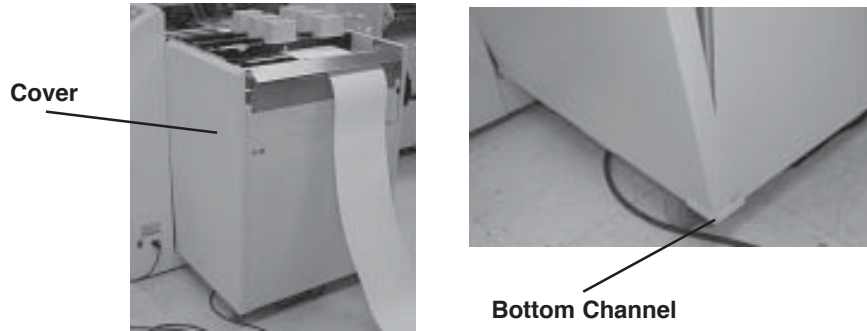


3. Adjust all parallel rod edge guides and tractors for the web width.



Punch Block Assemblies

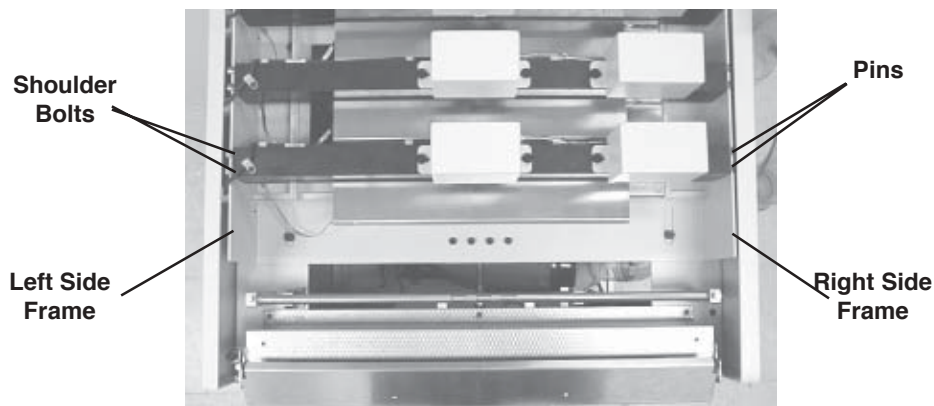
1. Remove the Vacuum Hole Punch module left side cover by pulling it outward and lifting it up out of the bottom channel.



2. The punch block assemblies are shipped in separate containers and must be mounted to the upper frame of the Vacuum Hole Punch assembly. Carefully place each punch block assembly into the frame with the pins of the punch block assembly in the right slots and the shoulder bolts of the punch block assembly on the left.

CAUTION

The punch block assemblies weigh approximately 26 pounds each.

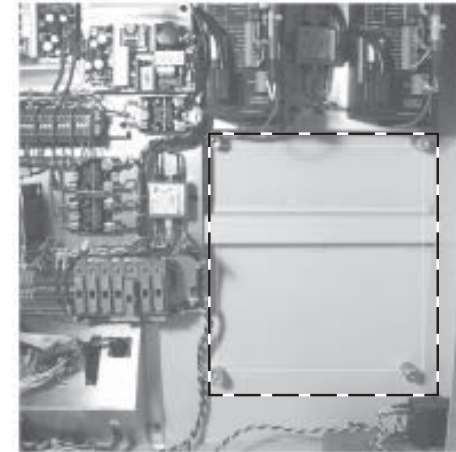


Vacuum Hole Punch Control Assembly

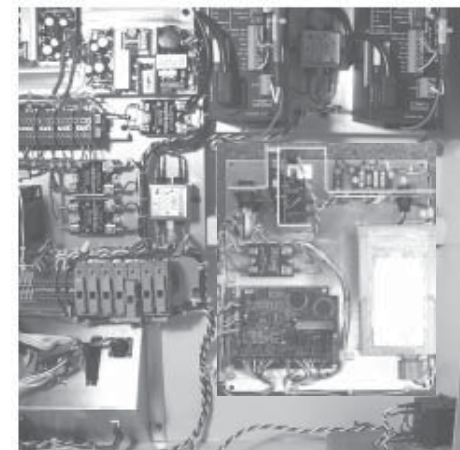
WARNING

Turn off the cutter; disconnect from electrical source.

1. The Vacuum Hole Punch control assembly mounts in the Continuous Cutter in the area outlined below. Attach the four standoffs to the four studs on the Continuous Cutter frame.



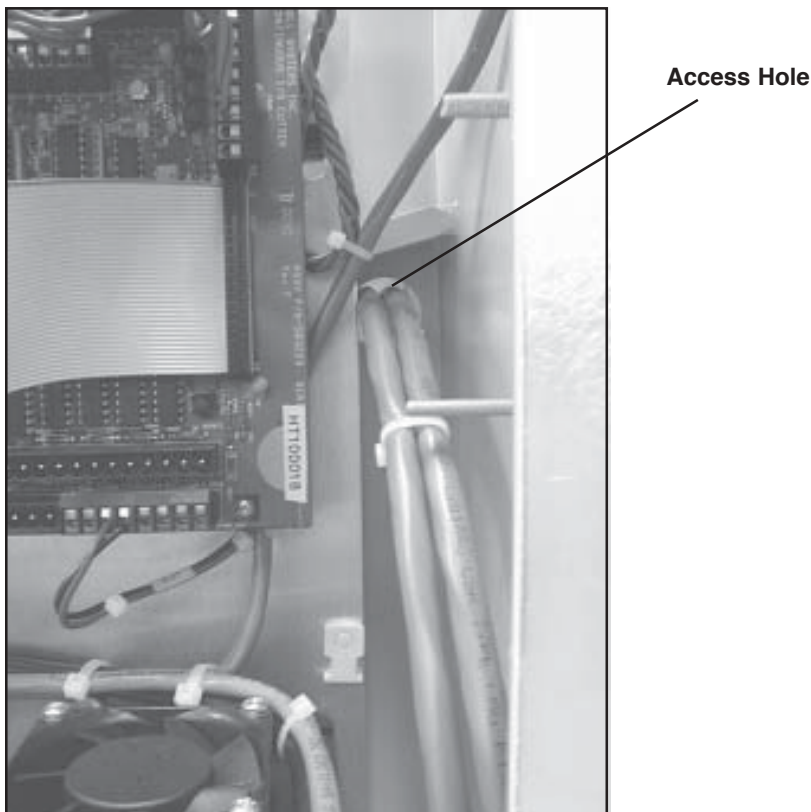
2. Mount the vacuum control assembly to the four standoffs in the orientation shown below.



**8.5.2.2 Electrical
Punch Block Assemblies**

The punch block assemblies are connected to the punch control assembly in the Continuous Cutter with cable assembly P/N 182128. Installation of this assembly begins in the Continuous Cutter.

1. Feed the three white solenoid connectors through the access hole at the upper right area of the Continuous Cutter electrical cabinet, to the right of the I/O board. Feed only one connector at a time.



2. Attach the cable assembly to the vacuum hole punch control assembly as defined below:



VACUUM HOLE PUNCH CONTROL ASSEMBLY

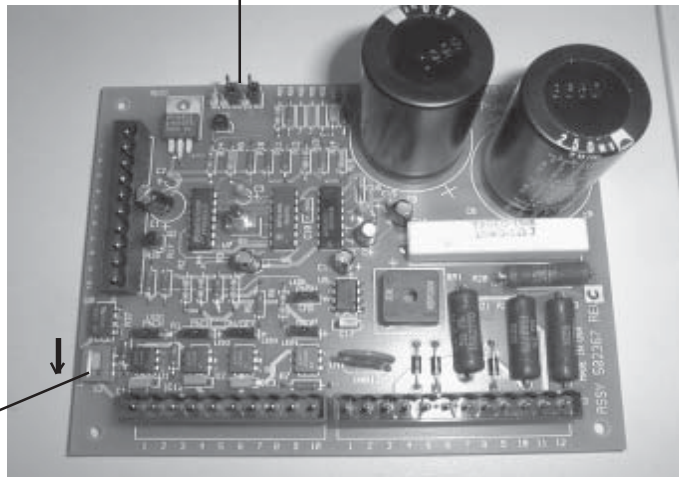
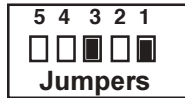
- a) Connect cable assembly connector P21 to control assembly connector J21.
- b) Connect cable assembly connector P22 to control assembly connector J22.
- c) Connect cable assembly connector P20 to control assembly connector J20.
- d) Connect the Green/Yellow wire to TB2-A6
- e) Connect the White wire to TB2-7.
- f) Connect the Black wire to TB2-19.
- g) Plug connector P308 into J308 of the I/O board.
- h) Route the three white connectors, that had previously been pushed through the access hole, up to the left side frame of the punch block assemblies.



- i) Press the three solenoid connectors into their respective holes in the "L" bracket and plug the three punch block cable assemblies into their respective mating connector.

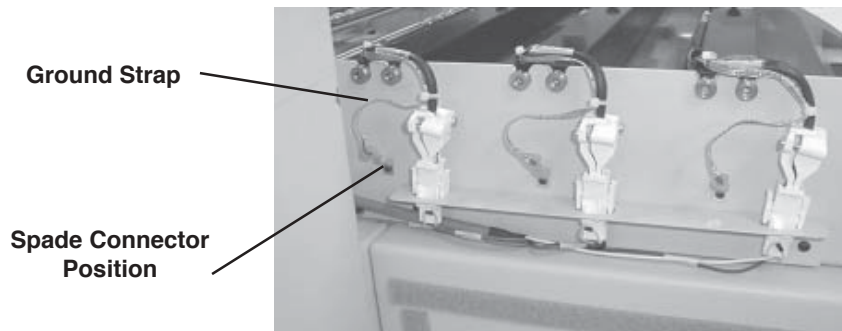
Punch Block Assemblies (Continued)

- j) Ensure that the continuous/cut sheet switch on the Punch Control PCB is set to "CONT".
- k) Make sure that positions 1 & 3 are jumpered on the Punch Control PCB.

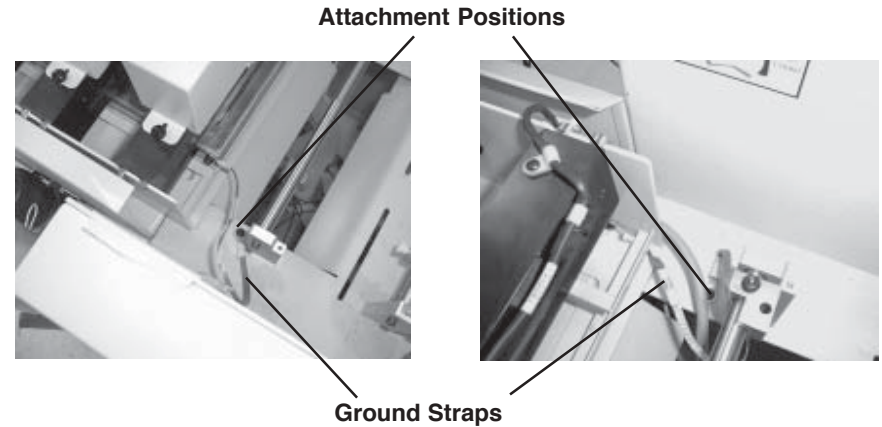


PUNCH CONTROL PCB

- 3. Push on the punch block ground straps to the punch block frame spade connectors. There is one ground strap for each punch block assembly.



- 4. Attach the two Vacuum Hole Punch module ground straps to the Continuous Cutter as shown.



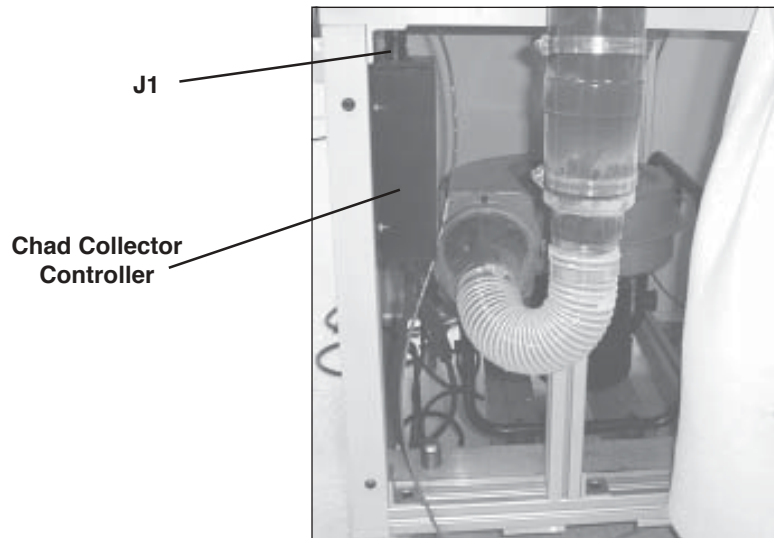
Vacuum Control Assembly

There are two cable assemblies that need to be installed for the vacuum control. The first cable assembly is P/N 182132 and it is connected to the I/O board as follows:

1. Plug connector P314 into J314 on the I/O board.
2. Unplug connector P318 from the I/O board and insert the gray wire from connector P314 into position 2 of connector P318.
3. Insert the red wire from cable assembly P/N 182132 into position 1 of connector P318. Plug connector P318 into connector J318 on the I/O board.
4. Securely attach the shield (black wire) of cable assembly P/N 182132 to the ground stud located between the cutter servo amplifiers.
5. Route the J30 connector of cable assembly through the same access hole used before of the Continuous Cutter electrical cabinet rear panel.

The second cable assembly is P/N 182062. It connects from cable assembly P/N 182132 to the chad collector control assembly P/N 503840 at connector J1.

Vacuum Control Assembly (Continued)



8.5.3 Preventive Maintenance

Punch Assemblies

If paper jams occur, check that the slot in the punch block is clean and free of paper pieces before resuming punching operations.

Disassemble and clean the die and punch sleeves on all six punch assemblies with alcohol. Allow the cleaning fluid to completely evaporate before re-assembling.

CAUTION

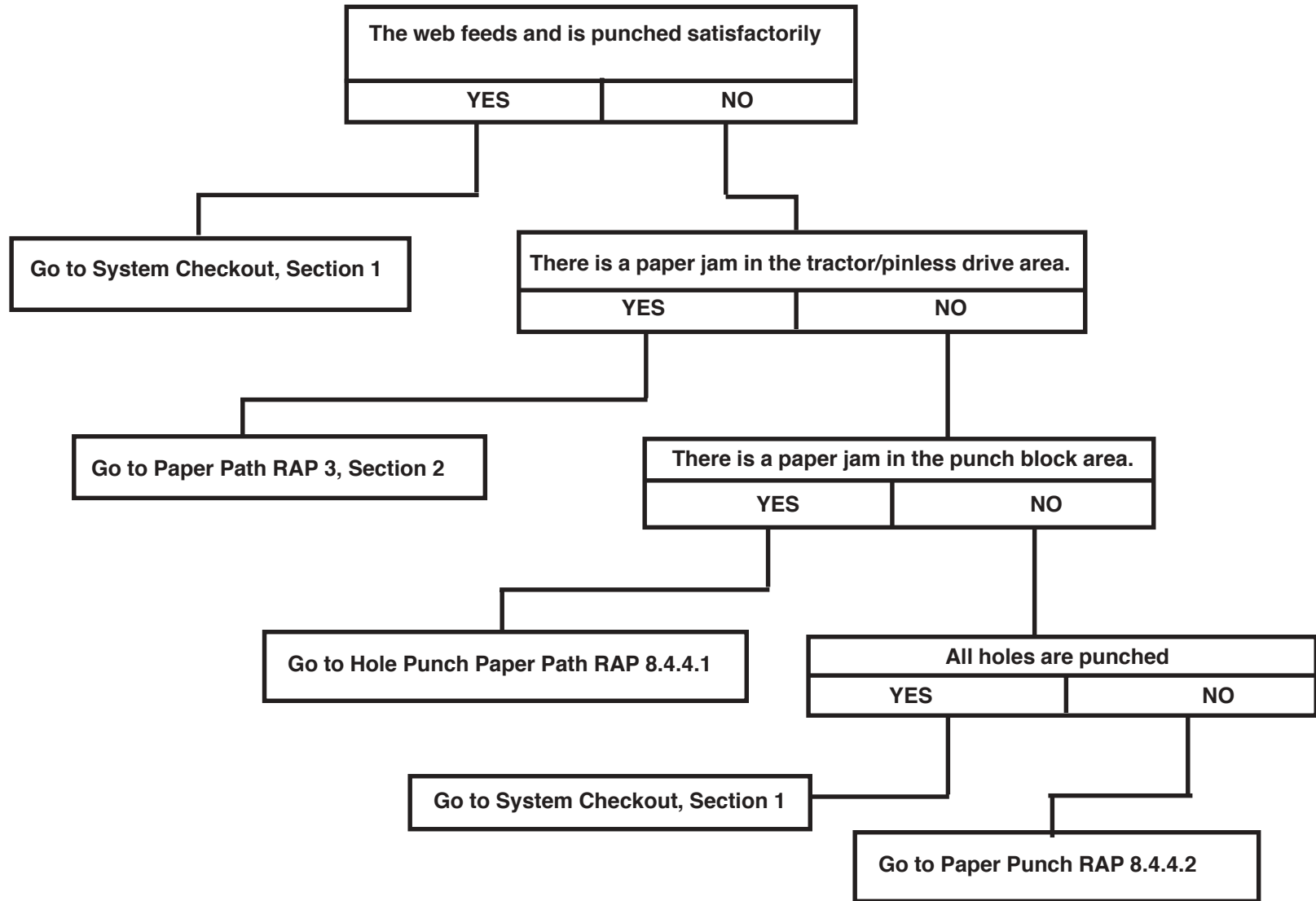
The punch assemblies must not be lubricated

Vacuum Bag

Empty the vacuum bag daily.

8.5.4 Repair Analysis Procedures (RAPs)

System Fault Analysis (SFA) Diagram



RAP 8.5.4.1 - Paper Path

Theory of Operation

The web is thread through a slot in each of the punch block assemblies and then into the tractor/pinless drive area. Moving the web to the Continuous Cutter knife is done by either the tractors or the pinless drive, the vacuum hole punch module does not move the web. Paper punching occurs when the web is stopped and at the same time as the knife cuts.

Details of Operation

- All six punch solenoids fire at the same time.
- A vacuum system removes paper chad from the six punch block assembly dies.
- The punches return to their home (or up) position before the web is moved.

Initial Actions

- Ensure that the vacuum system is running and that the chad collection bag is not full.
- Ensure that each punch block assembly slot is clean and free of chad.

Procedure

The web feeds satisfactorily through each punch block assembly.

Y N

- Clear the paper jam and rethread the web. Be sure to remove any torn paper and/or chad from each punch block assembly. Resume normal operation.

The problem is resolved.

Y N

- Remove the web from the punch block assemblies and slide a sheet of paper into the punch block slots to determine if a punch is stuck down.

The punches are free (not stuck)

Y N

- Remove the punch block assembly cover from the punch block assembly located after the paper jam.
- Manually push the solenoid plunger a few times to free motion.
- Check the punch spring for failure and replace if broken. (REP 8.5.5.2) (PL 8.5.6.2)

A B C D

A B C

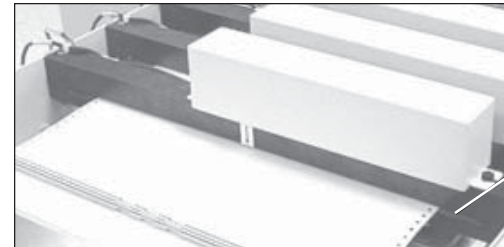
- Remove the punch block assembly cover from the punch block assembly after the paper jam.

WARNING

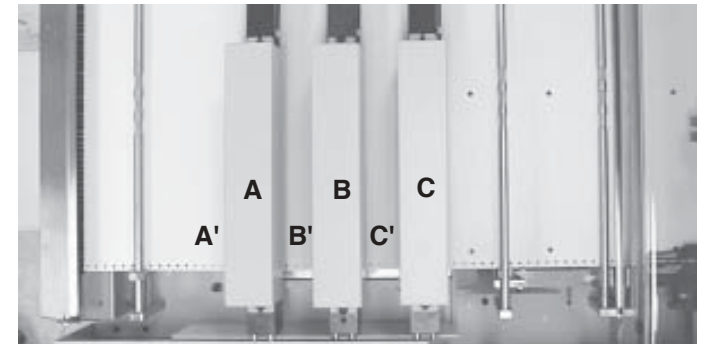
Turn off the cutter; disconnect from electrical source.

- Clean the punch and die in each assembly.

Return to SFA



Punch Block Assembly Slot



Jam Area	Probable Faulty Punch Block Assembly
A'	A
B'	B
C'	C



Punch Block Assembly Cover Removal

RAP 8.5.4.2 - Hole Punch

Theory of Operation

The vacuum hole punch receives 115 VAC power from the Continuous Cutter. AC power is supplied to the 12 VDC power supply which provides power to the hole punch controller PCB (73). AC power is also supplied to the transformer.

AC power from the transformer(69) is rectified and stored in capacitors on the hole punch controller PCB (73) at approximately 170 VDC. When a signal from the Continuous Cutter CPU PCB initiates a web cut, the punch solenoids are fired by a low voltage signal to the hole punch controller PCB (73). The hole punch controller PCB (73) turns on the Solid State Relay permitting power from the capacitors (and Isolation Transformer) to flow through all of the Punch solenoids.

Details:

- The hole punch switch on the Cutter Control Panel provides a signal to the Continuous Cutter CPU PCB to enable/disable punching.
- Five LED's on the hole punch controller PCB (73) provide information regarding the status of punching as follows:

- LED 1 Punch signal received from Continuous Cutter CPU PCB
- LED 2 Inhibit punching
- LED 3 Indicates Operator Panel switch condition ON/OFF
- LED 4 Always ON
- LED 5 Punch command received-actual punch signal to

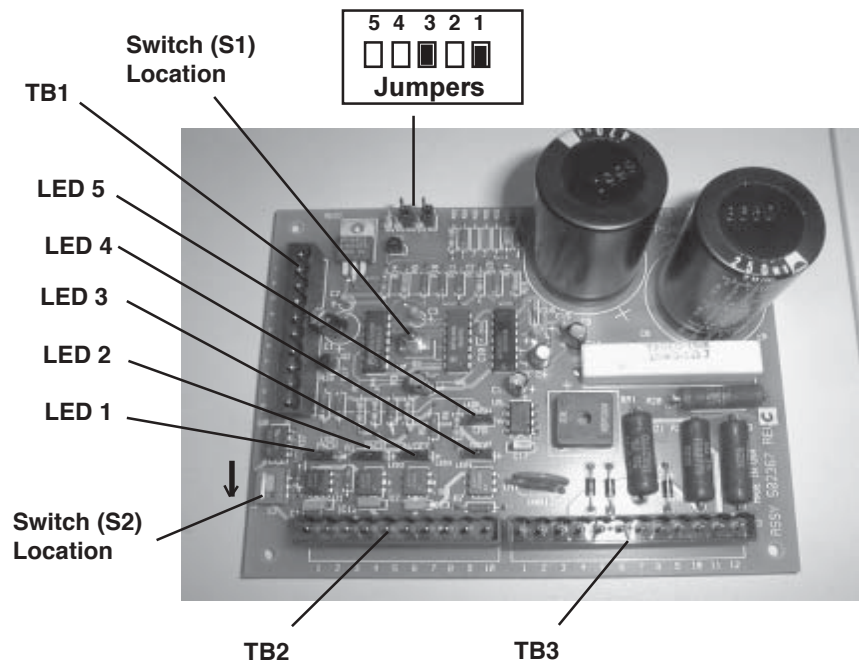
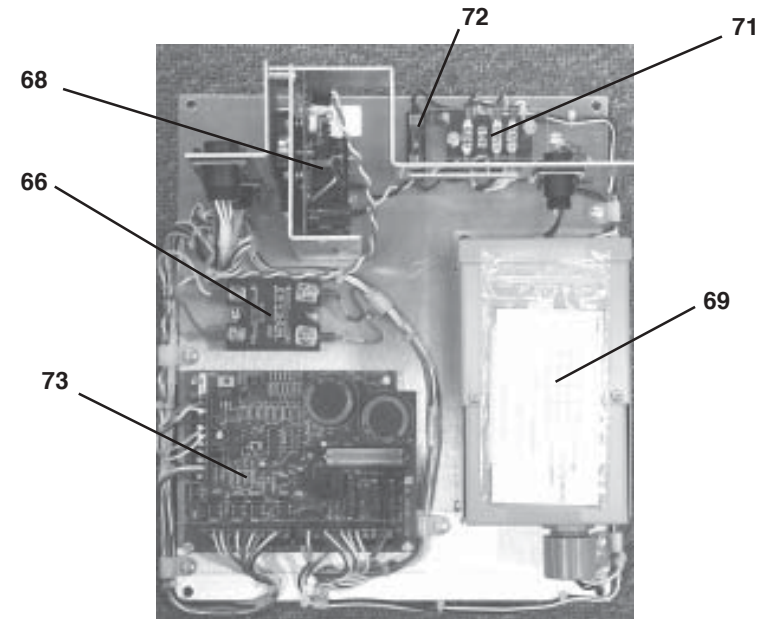
SSR

- A pushbutton on the hole punch controller PCB (73) permits manual firing of the punch assembly.

Initial Actions

- Ensure that the Continuous Cutter is operating properly.
- Ensure that the Punch ON/OFF Switch is ON
- Ensure that the Continuous /Sheet switch is correctly positioned

NOTE: The Vacuum Hole Punch Interconnect drawing is on page 8-37, remove that page to permit easier reference when following this RAP.



RAP 8.5.4.2 - Hole Punch (continued)

WARNING

Turn off the cutter; disconnect from electrical

Procedure:

The Continuous Cutter is operating normally, sheets are being cut and all holes are being punched.

Y N
Only some holes are being punched

Y N
The hole punch switch is ON (lit)

Y N
Push the hole punch switch (5)
The button latches down & lights

- Y N
• Replace the hole punch switch (5)(REP 36.3)(PL 2.1)

Remove the electrical panel cover of the Cutter and locate the hole punch controller PCB (73)

Press the manual punch button S1

The punch block assemblies fire and punch the web.

Y N
LED #5 is lit momentarily as button is pushed

- Y N
• Replace the hole punch controller PCB (73)
(REP 8.5.4.4)(PL 8.5.5.3)

Place a DC Voltmeter across pins TB1-1(+) and TB1-2(-) of the hole punch controller PCB (73)

The meter reads +12 VDC

- Y N
• Check fuse F1 (72) for continuity.
- Place an AC voltmeter across the DC power supply (68) input transformer terminals T1-3 and T1-4.

The meter measures 115 VAC

- Y N
• Repair connections between TB2-3 (33) and TB4(71).
- Replace power supply (68). (REP 8.5.5.5)(PL 8.5.6.3)
- Place an AC voltmeter across TB3-1 and TB3-2 on the punch control board. (73)

A B C D

A B C D

The meter measures 115 VAC

- Y N
• Check connections between TB3 and the transformer (69).
Place an AC Voltmeter across between TB4-3(73) and TB4-4(73)

The meter measures 115 VAC

- Y N
• Check connections between TB2(33) and TB4(71)
• Replace transformer(69)

Place a DC Voltmeter across TB3-11(-) and TB3-12(+)

Meter reads more than 160 and less than 185 VDC

- Y N
• Replace hole punch controller PCB(73) (REP 8.5.4.4)
(PL 8.5.5.3)

Remove the wire from TB1-10 on the hole punch controller PCB (73) and touch it momentarily to TB1-1

The punch assembly punches

- Y N
• Replace SSR1(66)
• Replace hole punch controller PCB (73)
(REP 8.5.5.4)(PL8.5.6.3)

LED #3 is ON on hole punch controller PCB (73)

- Y N
• Check connection at TB2 on hole punch controller PCB(73)
• Check connection at J22/P22 on hole punch control panel
• Check connection at J308/P308 on I/O PCB(28)

Press the manual knife switch (SW1) and observe LED #1 on the hole punch controller PCB (73)

LED #1 lights momentarily each time the button is pressed

- Y N
Short across P308-2(-) and P308-3(+) on the I/O PCB(28)

A B C D E

Vacuum Hole Punch

RAP 8.5.4.2 - Hole Punch (continued)

A B C D E

LED #1 lights momentarily

Y N

- Replace the I/O PCB(28)(**REP 35**)(**PL 2.2**)
- Check connector at TB2 on hole punch controller PCB (73)
- Check connector J22/P22 on hole punch panel
- Check connector at P308/J308 on I/O PCB(28)
- Replace hole punch controller PCB (73)(**REP 8.5.5.4**)
(**PL8.5.6.3**)

LED #5 blinks ON when the cut occurs

Y N

- Replace hole punch controller PCB (73)(**REP 8.5.5.4**)
(**PL8.5.6.3**)

Position a fresh portion of web into the punch assembly and press the manual punch switch on the hole punch controller PCB (73).

Observe which punch module(s) failed to fire. Remove the Punch Assy. top cover.

Switch the connectors between a module that punches and one that doesn't. Place a fresh sheet of paper into the punch assy.

Press the manual fire button on the hole punch controller PCB(73).

The previously non-firing module punches

Y N

- Replace the punch module solenoid (REP 8.5.4.3) (PL 8.5.5.2)

The previously firing module punches

Y N

- Repair the harness connection
- Replace the hole punch controller PCB(73)(**REP 8.5.5.4**)
(**PL 8.5.6.2**)

The Punched holes are clean and burr-free

Y N

- Replace the punch, bushing and die set for the defective module.
(**REP 8.5.5.1**) (**REP 8.5.5.2**)(**PL 8.5.6.2**)

Return to SFA

8.5.5 Replacement/Adjustment Procedures (REP/ADJ)

REP 8.5.5.1 Die Replacement

The punch and die combination is used to punch holes on a sheet-by-sheet basis when the hole punch option is activated.

Tool: 5 mm hex key

Removal

WARNING

Turn off the cutter; disconnect from electrical source.

1. Unplug the punch bar assembly and remove it from the frame.

CAUTION

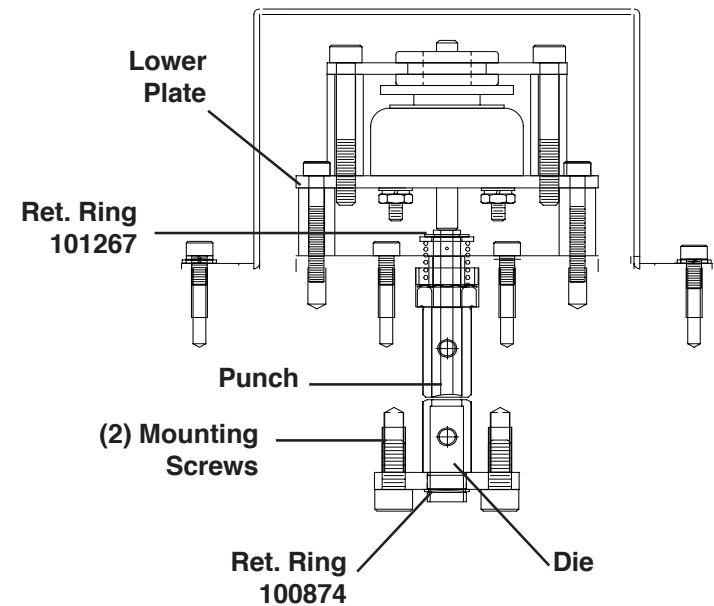
The punch block assemblies weigh approximately 26 pounds each.

2. Remove the solenoid mounting plate and remove the punch and spring.
3. Remove the die from the bottom of the lower mounting block.
4. Remove the retaining ring (100874) from the crossbar underside and discard. Replace with new during re-assembly.

Replacement

To replace, reverse the above procedure.

Note: Verify the retaining ring installation by ensuring that the ring does not spin freely.



REP 8.5.5.2 Punch Replacement

The punch and die combination is used to punch holes on a sheet-by-sheet basis when the hole punch option is activated.

Tool: 4 mm hex key

Removal

WARNING

Turn off the cutter; disconnect from electrical source.

1. Unplug the punch bar assembly and remove it from the frame.

CAUTION

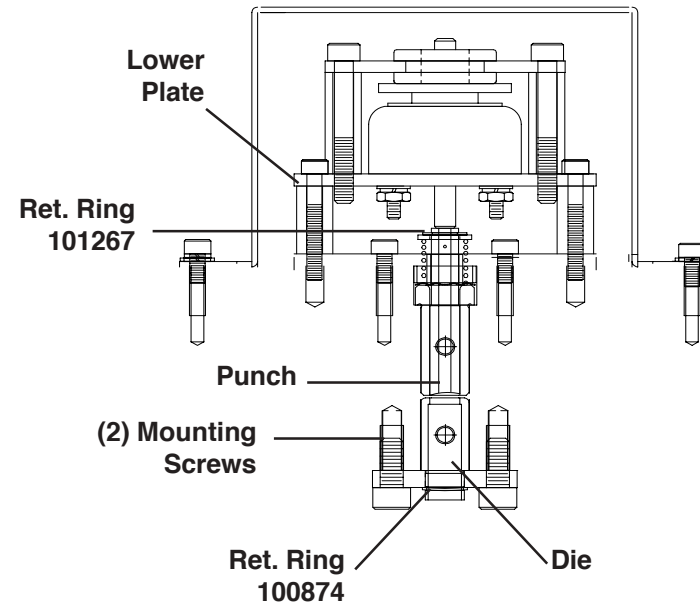
The punch block assemblies weigh approximately 26 pounds each.

2. Remove the solenoid mounting plate and remove the punch and spring.
3. Using a 4 MM Hex Key, remove the M5X20 solenoid mounting screws.
4. Using a 3 MM Hex Key, remove the (2) Lower Plate solenoid mount screws.
5. Using retaining ring pliers, remove the retaining ring (101267) and discard. Replace with new at re-assembly.
6. Using a 3 MM Hex Key, remove the lower plate mounting screws. Remove the punch from the cross bar assembly.

Replacement

To replace, reverse the above procedure.

Note: Verify the retaining ring installation by ensuring that the ring does not spin freely.



REP 8.5.5.3 Solenoid Replacement

The punch solenoid is used to drive the punch through the die.

Tools: 2.5 mm hex key
1/4" open end wrench

Removal

WARNING

Turn off the cutter; disconnect from electrical source.

1. Unplug the punch bar assembly and remove it from the frame.

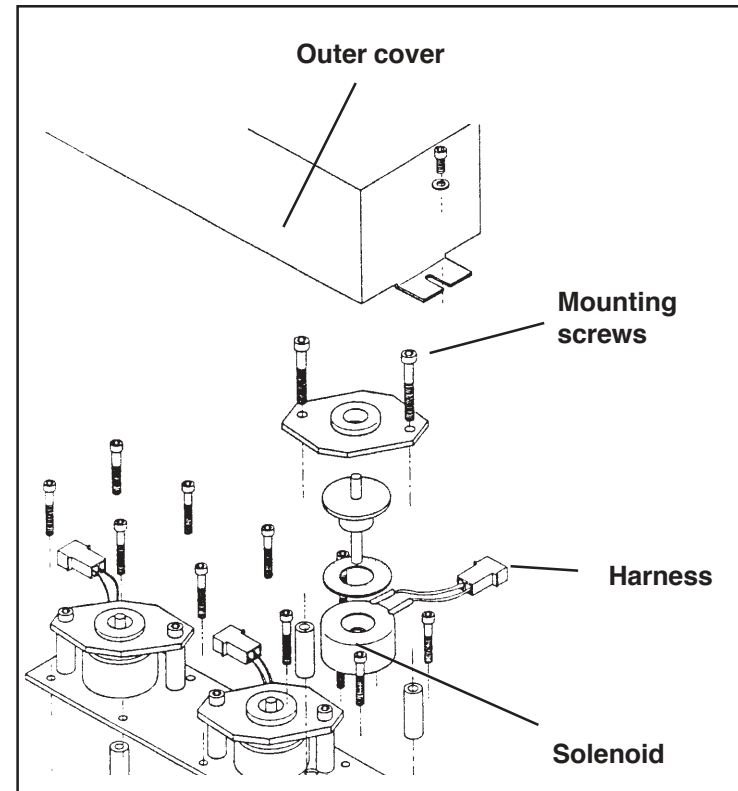
CAUTION

The punch block assemblies weigh approximately 26 pounds each

2. Remove the outer cover.
2. Disconnect the solenoid harness.
3. Remove the mounting screws.
4. Remove the solenoid.

Replacement

To replace, reverse the above procedure.



REP 8.5.5.4 Punch Control Board

The punch control PCB is located in the Continuous Cutter electrical cabinet. Box.

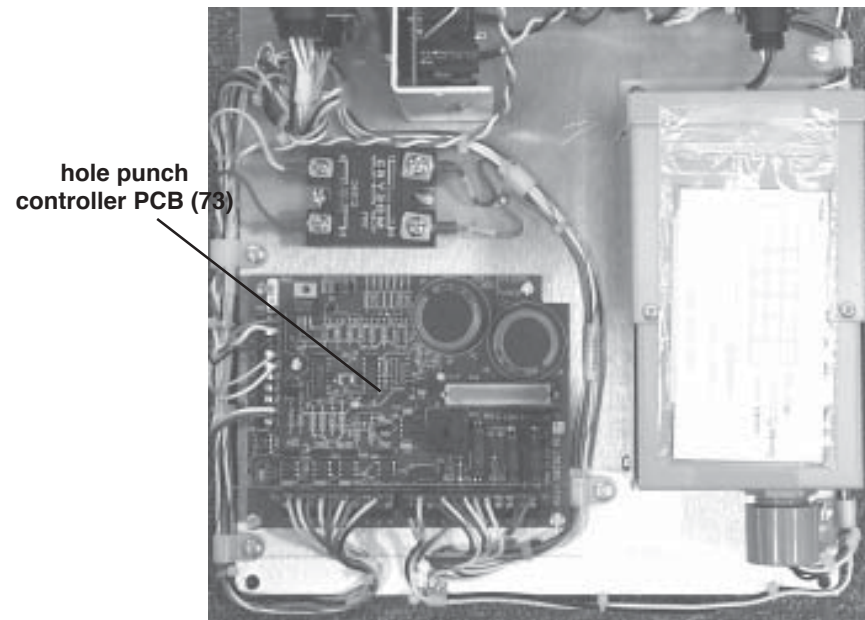
Tool: Blade screwdriver

Removal

WARNING

Turn off the cutter; disconnect from electrical source.

1. Locate the PCB and disconnect all three connectors to the board.
2. Remove the four mounting screws using the blade screwdriver.



3. Remove the PCB from the plate.

Replacement

Reverse procedure for installation.

REP 8.5.5.5 Power Supply

The power supply is located in the Continuous Cutter electrical cabinet.

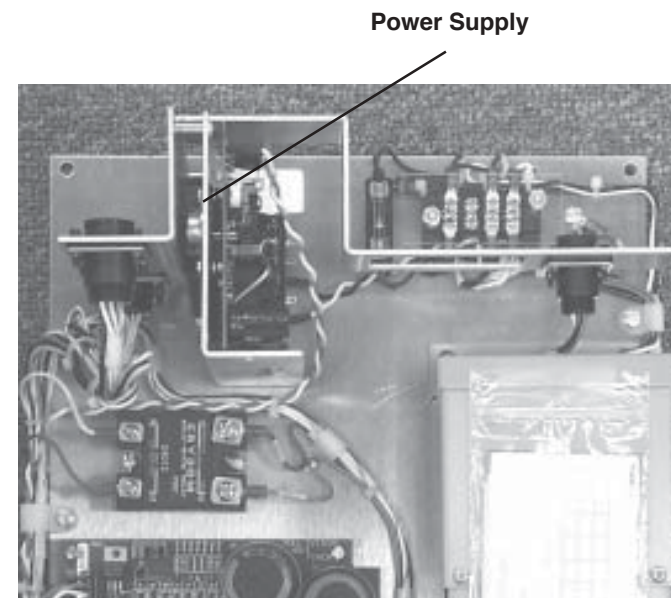
Tool: Blade screwdriver

Removal

WARNING

Turn off the cutter; disconnect from electrical source.

1. Locate the power supply and disconnect all wires to the board, noting the wire connections.



2. Remove the supply using a blade screwdriver.

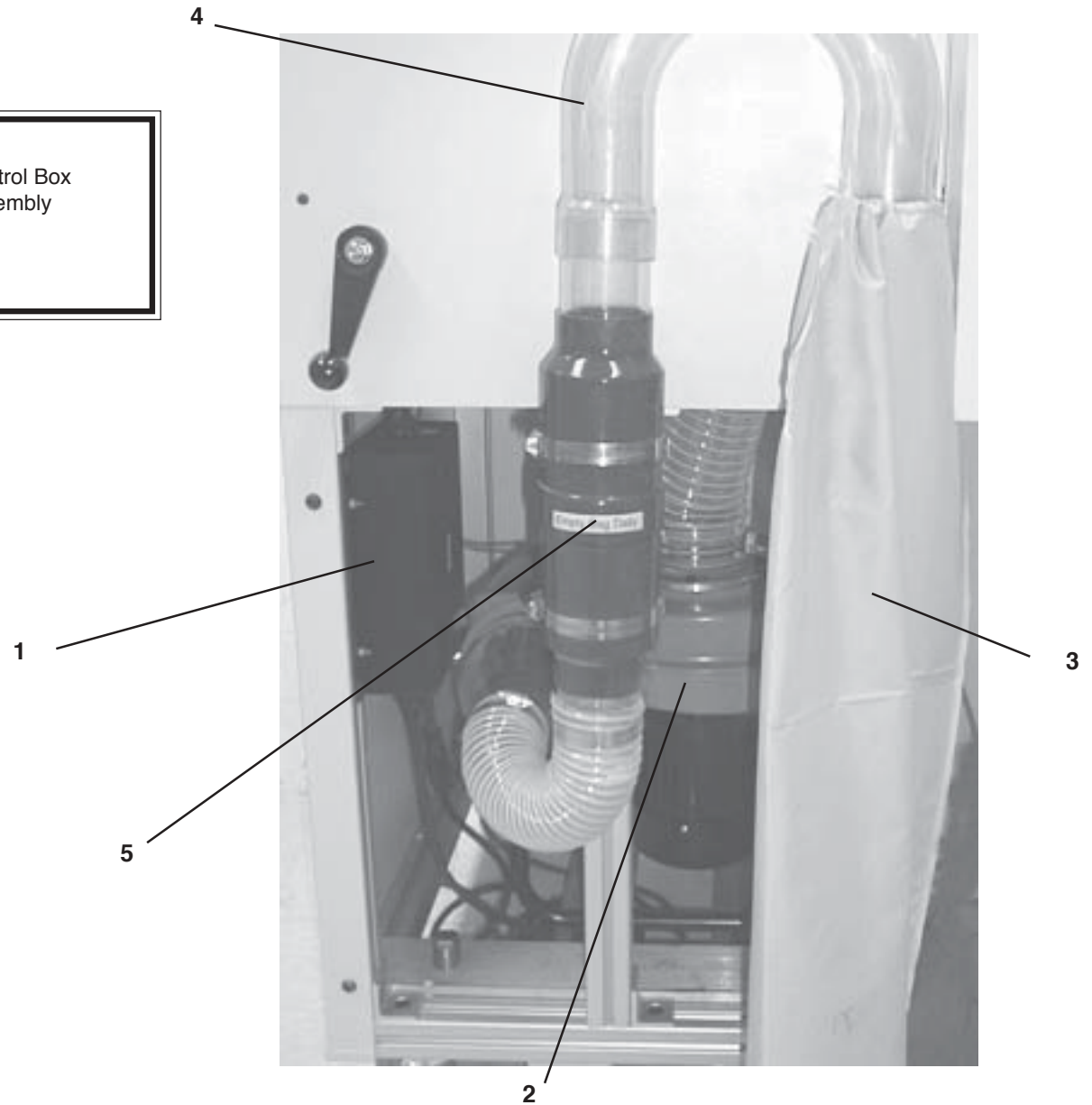
Replacement

1. Reverse procedure for installation.

8.5.6 Part Lists

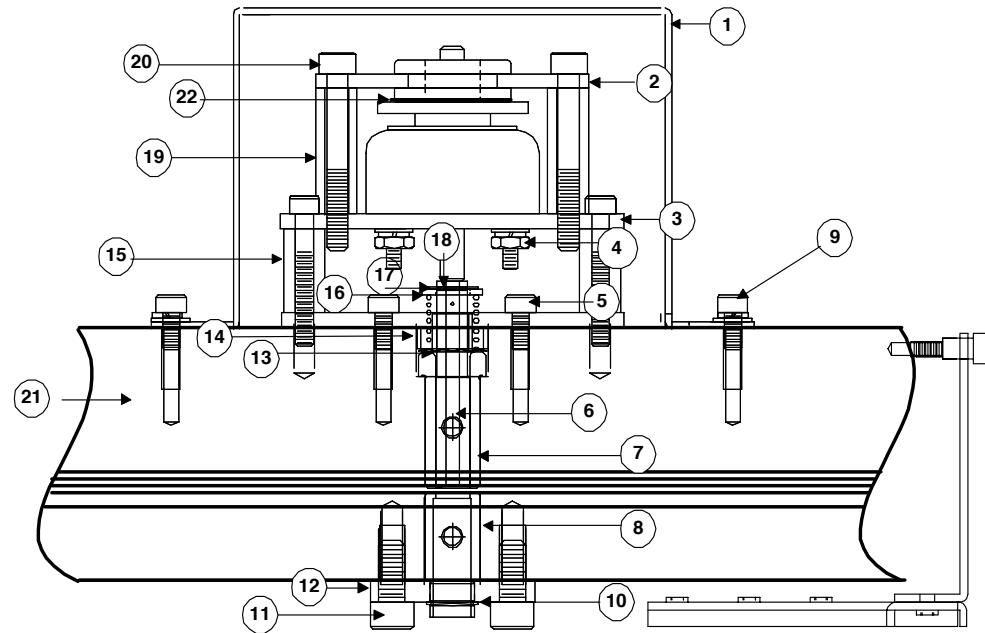
8.5.6.1 Chad Collection Assembly

Item	Part	Description
1	503840	Vacuum Blower Control Box
2	504074	Vacuum Blower Assembly
3	312737	Chad Collection Bag
4	200814	Tube, U-bend
5	200815	Muffler



8.5.6.2 Punch Assembly

Item #	Part Number	Description
1	311843	Solenoid Cover
2	500642	Solenoid Assembly
3	310682	Lower Plate
4	100100	6-32 Hex Nut
4	100101	# 6 Split Washer
4	100199	# 6 Flat Washer
5	100733	M4X8
6*	See kit below	Punch
7	309952	Bushing (for 5/16 only).
7	305070	Bushing (for all others)
8*	See kit below	Die
9	102282	Thumbscrew
10*	100874	Ret Ring
11	100762	M6X12
12	303323	Die Mt Disk
13*	100873	Wavy Washer
14*	309647	Sleeve
15	102584	Spacer
16*	251920	Spring
17*	309941	Washer (5/16 inch only)
18*	101267	Ret Ring (5/16 inch only)
19	102585	Spacer
20	100832	Top Mtg Screws M5X40
21	Reference Only	Punch Bar
22	102539	Plastic Washer

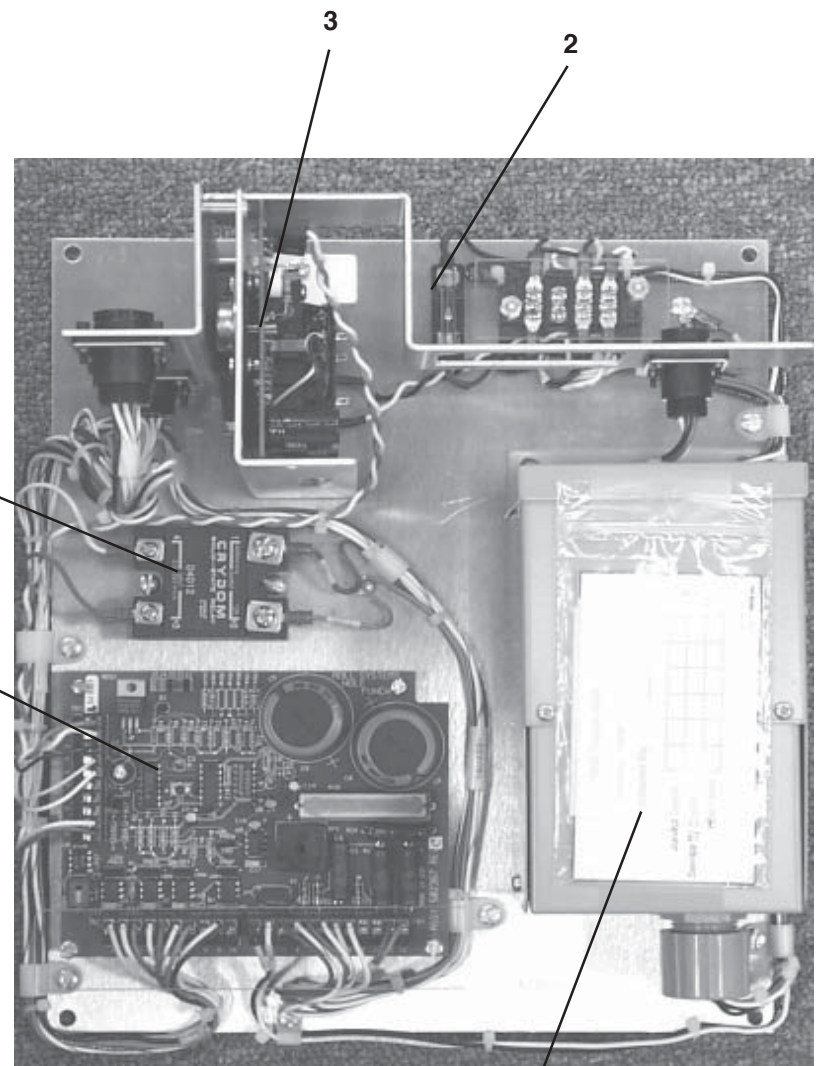
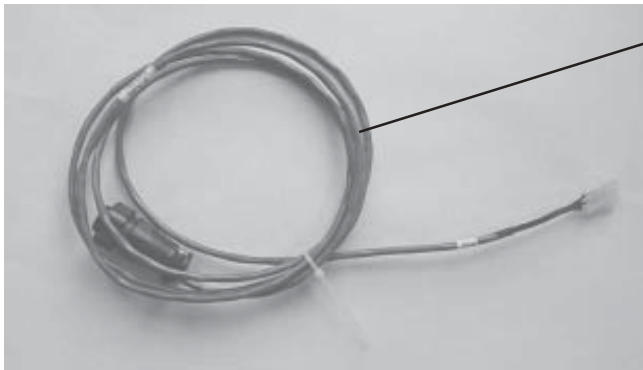


* These items are included in spares kits. The contents of each kit is listed below.

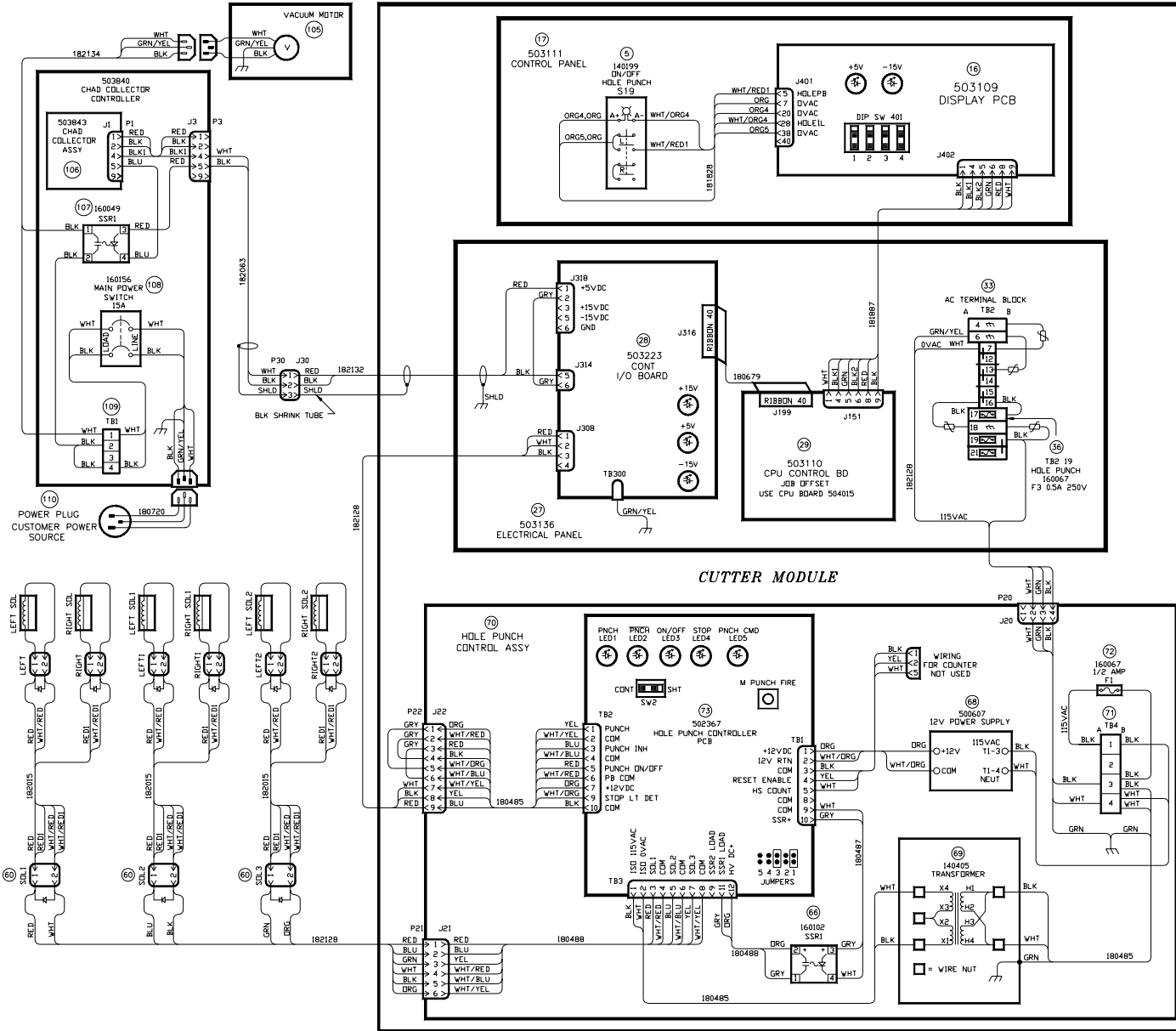
Item#	Description	5/16 Diameter Punch Kit P/N 50307601	9/32 Diameter Punch Kit P/N 50307602	5 mm Diameter Punch Kit P/N 50307603	5.5 mm Diameter Punch Kit P/N 50307604
6	Punch	305438	303322	304749	308444
8	Die	308752	303310	304750	308445
10	Ret. Ring	100874	100874	100874	100874
13	Wavy Washer	100873	100873	100873	100873
14	Sleeve, Wear	309647	309647	309647	309647
16	Spring	251920	251920	251920	251920
17	Washer	309941	N/A	N/A	N/A
18	Ret. Ring	101267	N/A	N/A	N/A

8.5.6.3 Control Assembly

Item #	Part Number	Description
1	140405	Isolation Transformer
2	160067	Fuse, F1, 1/2 A, 250 V
3	500607	+ 12 VDC Power Supply
4	160102	Solid State Relay
5	502367	Punch Control PWB
6	182063	Chad collector cable
7	182132	Vacuum Control cable
8	182128	Punch Control cable



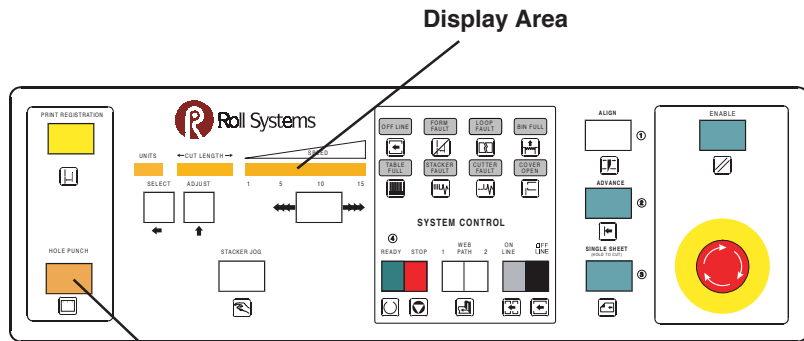
8.5.7 Vacuum Hole Punch Interconnect



8.5.8 Count Display

Count Display

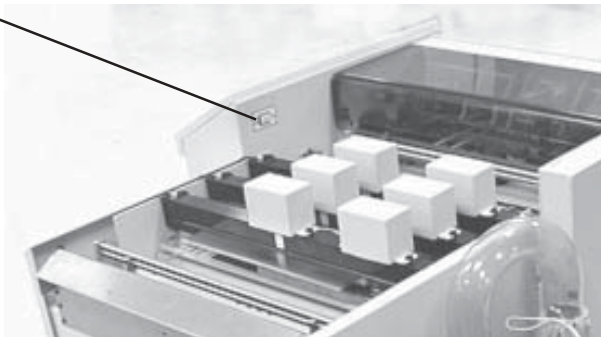
The number of hole punches is displayed in the display area of the Cutter Control Panel. On the Cutter Control Panel press the hole punch button. This switch enables the Punch Control PCB.



Hole Punch Switch

To display punch counts, press the momentary selector switch on the left wall of the cutter to the desired count and monitor the scrolling display area for the results.

Count Switch



8.6 Short Cut Application

8.6.1 Theory of Operation

A Continuous Cutter with the Short Cut Application installed can cut forms 3 1/2" long at 233 feet per minute. Because this puts a higher demand on the paper drive components, the Continuous Cutter has additional cooling components for improved thermal characteristics. AC power components have been changed to handle the additional current requirements. Lower inertia paper drive components include three modified pulleys.

The additional or changed components are:

- Three low inertia paper drive pulleys
- A higher rated servo amplifier fuse
- An additional cabinet fan assembly
- A higher current rated circuit breaker (15 Amp)
- A higher current rated line filter (16 Amp)
- A higher current rated AC receptacle and power cord
- A paper drive servo motor fan assembly
- A paper drive servo amplifier with a heatsink

8.6.2 Preventive Maintenance

Clean all fan assemblies whenever the Continuous Cutter is scheduled for normal preventive maintenance. This is usually at the same time the printer is serviced.

8.6.3 Replacement/Adjustment Procedures (REP/ADJs)

REP 8.6.3.1 Cabinet Fan Assembly

Purpose - This procedure describes how to remove and replace the cabinet fan assembly.

Parts List - See Parts List 8.6.5.1 in this section.

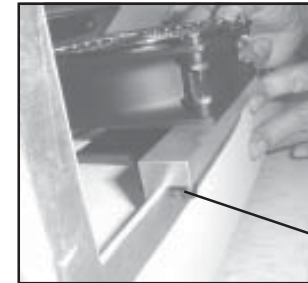
Tools: 8 mm open end wrench

WARNING

AC voltage is present in the Continuous Cutter whenever the AC power cord is connected to the Continuous Cutter.

Procedure

1. Remove the nut and lockwasher from the M5 socket head cap screw with an 8mm open end wrench.



Socket Head Cap Screw 5mm x 2mm lg

2. Slide the fan assembly (including the bracket) off the socket head cap screw and unplug the fan power cord. The fan assembly may now be removed from the cabinet.



Replacement

Reverse the above procedure to replace the fan assembly.

REP 8.6.3.2 Paper Drive Servo Motor Fan Assembly

Purpose - This procedure describes how to remove and replace the cabinet fan assembly. The fan and bracket assembly are mounted in the area in front of the paper drive servo motor and secured to the infeed deck with two screws.

Parts List - See Parts List 8.6.5.1 in this section.

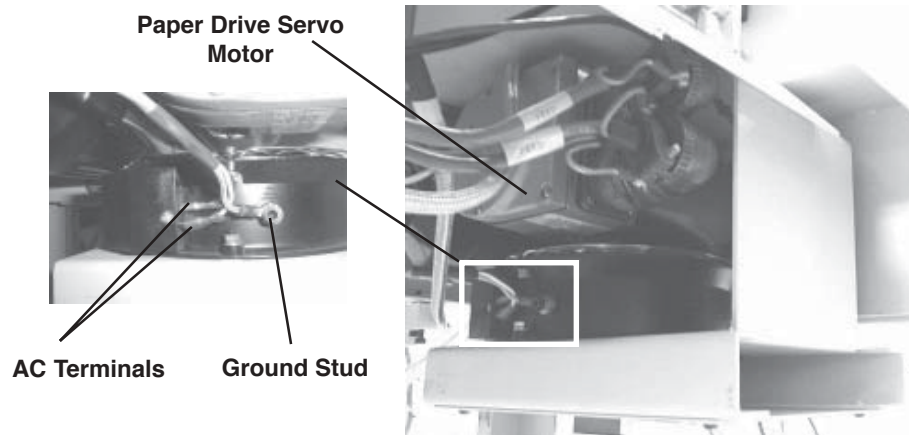
Tools: 4 mm Hex key
Needle nose pliers

WARNING

Turn off the cutter; disconnect from electrical source.

Removal

1. Remove the AC power cord from the fan assembly by pulling off the two AC connectors using a pair of needle nose pliers.

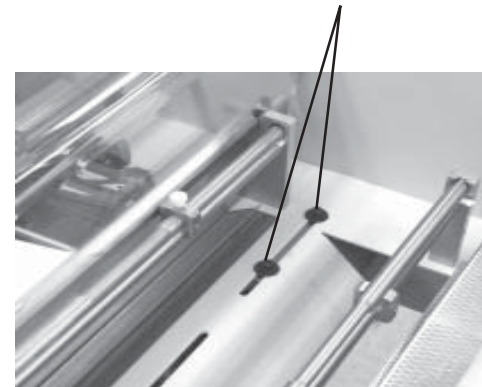


PAPER DRIVE FAN AND BRACKET ASSEMBLY

2. Remove the ground wire from the stud on the fan body with a 4mm Hex key.

3. Remove the two mounting screws, lockwashers, and oversize flat washers from the top of the cutter with a 4mm hex key.

Mounting Screws



Replacement

Replacement is the reverse procedure from removal.

Adjustment

None.

ADJ 8.6.3.3 Paper Servo Amplifier Adjustments

Purpose:

Servo amplifiers are operated in current mode. The amplifier must be matched to the DC servo motor it is driving. This requires a gain adjustment change for high speed applications.

Initial steps:

- Power on the cutter.
- Release the E-Stop button.
- Remove the paper from the cutter and engage the pinless drive roller (if equipped).
- Close the top cover.

Do not enable the cutter.

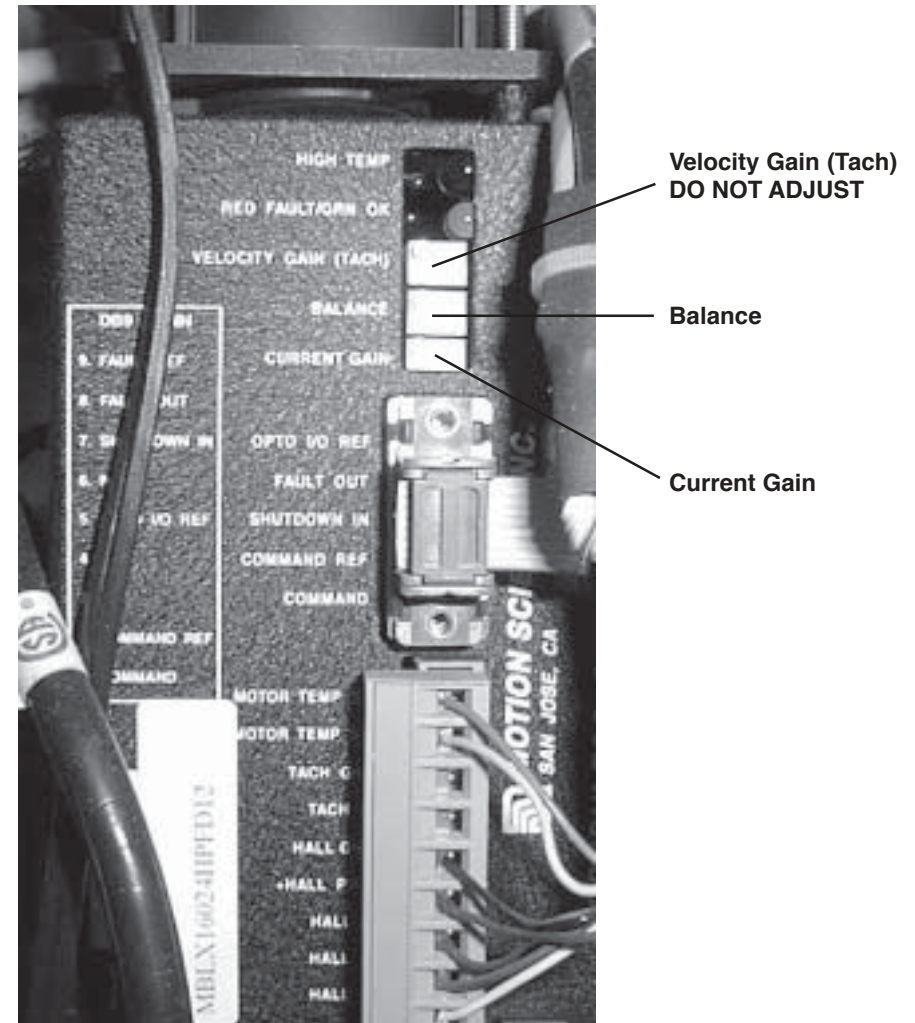
- Put the mode switch in the offline position.

Procedure:

Current Gain Adjustment:

1. On the CPU PCB switch 101, turn DIP switches 2 through 7 on, then turn DIP switch 8 on, then turn DIP switch 1 on. The paper feed tractors will drive forward continuously. Wait 10 seconds before making any adjustments or taking any readings from the speed display. Adjust the current gain pot counterclockwise on the paper drive servo amp until the servo amplifier begins to chatter. Observe the number displayed in the form length display while turning the current gain potentiometer. Note the number in the form length display **JUST PRIOR** to the servo amplifier starting to chatter.
2. Add 400 to the number noted in the form length display.
3. Adjust the current gain pot clockwise on the paper drive servo amp until the number displayed in the form length display is equal to the calculated number in step 2 above.
4. Turn DIP switch 1 off then turn DIP switches 2 through 7, and 8 off.

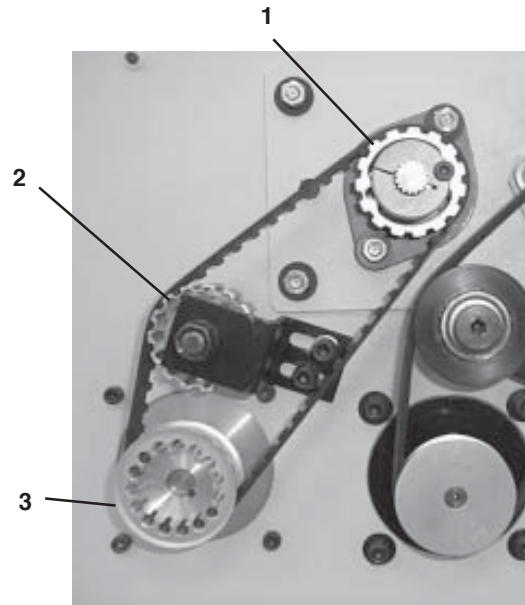
NOTE: For most applications, turn DIP switches 4 and then 1 to the ON position upon completion of adjustments.



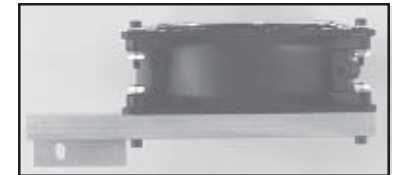
PAPER DRIVE SERVO AMPLIFIER

8.6.4 Parts List - Short Cut Application

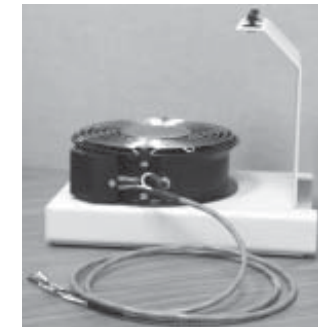
Item	Part Number	Description
1	312579	Paper Drive Shaft Pulley
2	503992	Paper Drive Idler Pulley
3	312581	Paper Drive Motor Pulley
4	503999	Cabinet Fan Assembly
5	504125	Paper Drive Servo Motor Fan Assembly
6	313063	Inlet Power Connector, 20A
7	160180	Circuit Breaker, 15A
8.	140715	Line Filter, 16A
9	504124	Servo Amplifier with Heatsink
10	504173	Operator Panel PWB/FRU
11	504171	CPU PWB/FRU
12	160220	Fuse, 7 Amp, Slo-blo
13	181788	Cutter Power Cord, 20A* (Not shown)



PAPER DRIVE COMPONENTS



CABINET FAN ASSEMBLY (4)



PAPER DRIVE SERVO MOTOR
FAN ASSEMBLY (5)

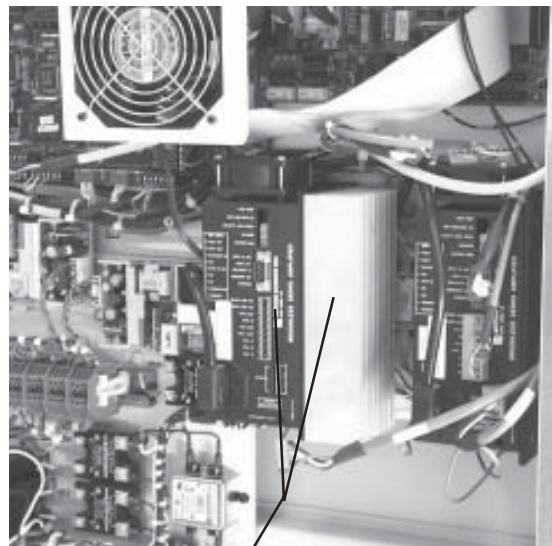


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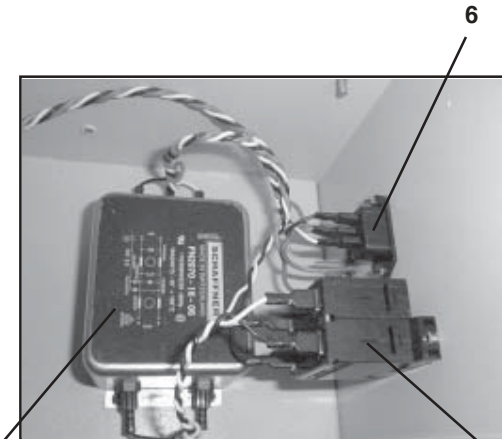


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10



9



AC INPUT COMPONENTS

8

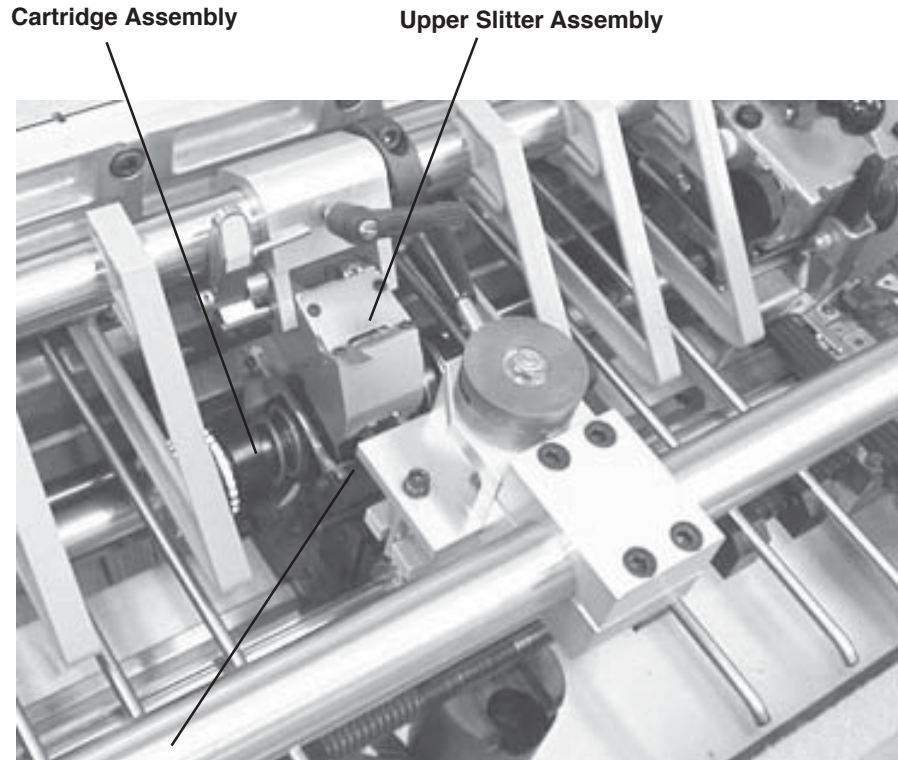
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8.7 Gutter Cut

8.7.1 Theory of Operation

The Gutter Cut option can remove a 1/4" strip from the center of the web or it can slit the web into two parallel streams. Gutter Cut consists of an upper slitter assembly, a cartridge assembly containing two lower blades, and a lower housing assembly located in the cutter infeed deck area between the two margin trimmers. The cartridge assembly is mounted on the margin trimmer drive shaft and rotates at the same speed as the margin trimmer blades. The upper slitter assembly is mounted on the keyed shaft and may be locked into the up or down position. In the "up" position, no slitting takes place. In the "down" position, if the upper blade is positioned between the two lower blades and in side contact with each blade, a 1/4" strip is cut from the web. When the upper slitter assembly is in side contact with only one of the two lower blades, then only slitting takes place. In both cases the web is forced between the blades and the cut is made with a "scissors" action.

When the 1/4" strip is cut from the web, it must be removed from the web path prior to the cutter knife area. This is accomplished in the lower housing assembly. As the strip is removed from the web, it is directed downward by the cutting action of the upper and lower blades as the web continues its forward motion. The inside curvature of the lower housing assembly guides the strip into the nip rollers. When the strip is pinched by the nip rollers, the strip is pulled across the stripper knife and removed from the web.



Stripper Knife Assembly

GUTTER CUT MAIN COMPONENTS

8.7.2 Operation

8.7.2.1 Upper Slitter Assembly

The upper slitter assembly may be set in the raised position or the lowered position by the operator.

Before engaging or disengaging the upper slitter assembly from the cartridge blades, side contact pressure on the upper slitter assembly by the two cartridge blades must be removed. This is necessary to prevent damage to the blades



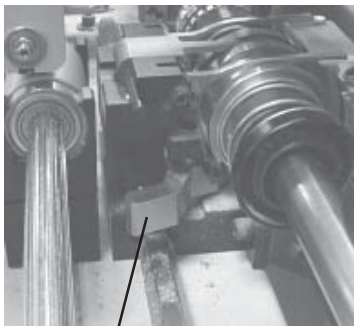
Raised Position



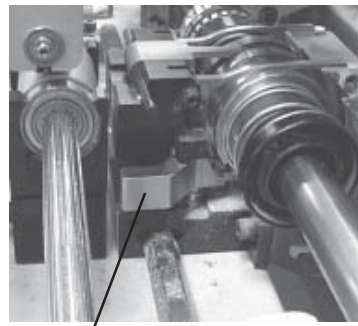
Lowered Position

when engaging or disengaging the upper blade to/from the lower blades.

Remove any paper guides or rods from the right side of the gutter cut assembly to permit access to the cartridge assembly. Engage release lever to cartridge assembly by releasing lever from its RUN position. This is done by pivoting the lever to the left.

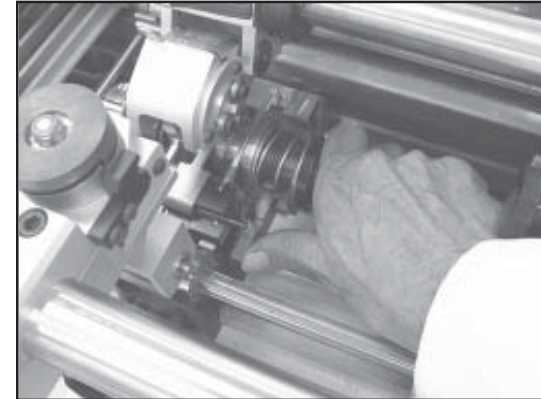


Release Lever in RUN Position



Release Lever in RELEASE Position

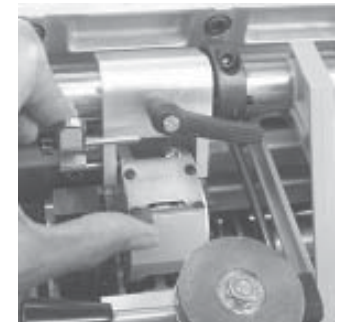
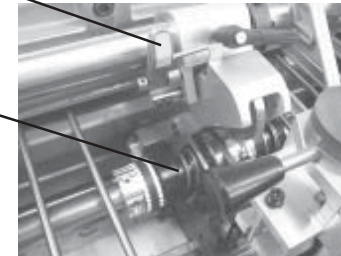
Push the release lever in to remove the right lower blade from contacting the right side of the upper slitter assembly. Maintain that pressure and at the same time push the cartridge assembly to the left. This will remove the left lower blade from contacting the left side of the upper slitter assembly. The upper slitter assembly can now be raised or lowered.



To raise the upper slitter assembly, push down on the locating lever of the upper slitter assembly and rotate the upper slitter assembly up and then release the locating lever. To lower the upper slitter assembly, spread the lower blades apart as previously explained, push down on the locating lever of the upper slitter assembly and rotate the upper slitter assembly down. Release the locating lever. Release the lower blades.

Locating Lever

Cartridge Assembly

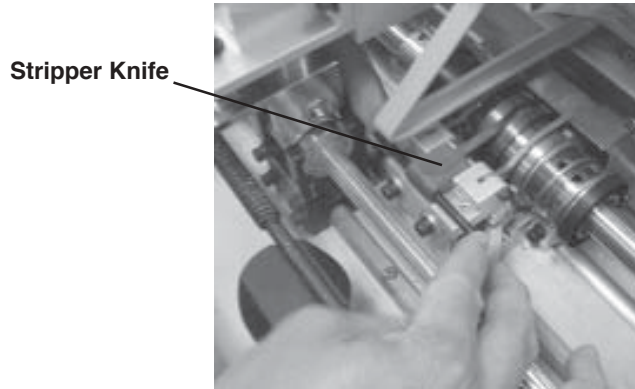


UPPER SLITTER ASSEMBLY

8.7.2.2 Stripper Knife Assembly

The stripper knife assembly is only used for Gutter Cut operation. To remove the stripper knife assembly for slitter operation, use both hands to push each side of the knife pivot rod directly back away from the cutter knife.

NOTE: The stripper knife should only be removed or installed when the upper slitter assembly is in the lowered position.

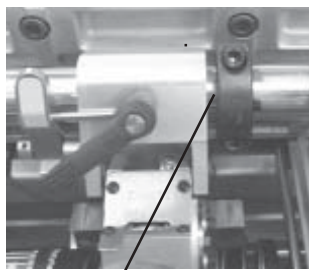


The stripper knife may be stored in the round support block when not in use.

8.7.2.3 Slitter Operation

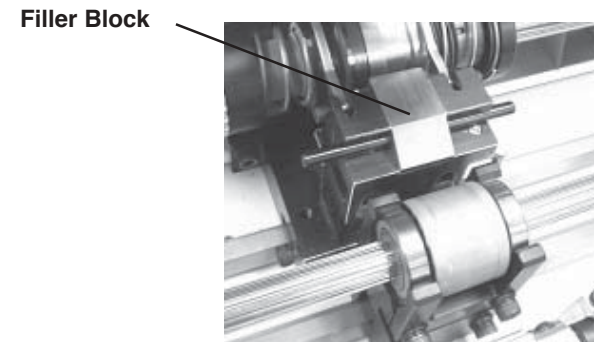
When the gutter cut option is used as a slitter only, the left side of the upper blade is in side contact with the right side of the right hand lower blade.

1. Disengage the upper slitter assembly from the lower cartridge assembly by rotating it up.
2. Rotate the handle counter clockwise in the upper slitter assembly.

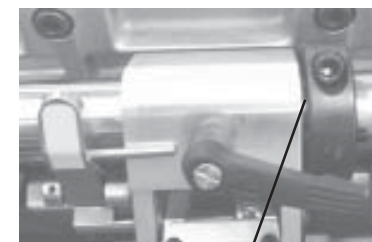


GUTTER CUT POSITION

3. Slide the upper slitter blade assembly from gutter cut position to slitter operation by sliding the upper slitter blade assembly along the keyed shaft until it contacts the right stop collar.
4. Rotate the handle clockwise to lock the upper slitter assembly in place
5. In place of the stripper knife, use the filler block provided (P/N 504680).



6. Rotate the upper slitter assembly down while pushing the cartridge assembly to the left to prevent the upper and lower blades from damage.



CENTER SLIT POSITION

8.7.3 Repair Procedure

This procedure describes how to remove and repair the Gutter Cut assembly P/N 504145.

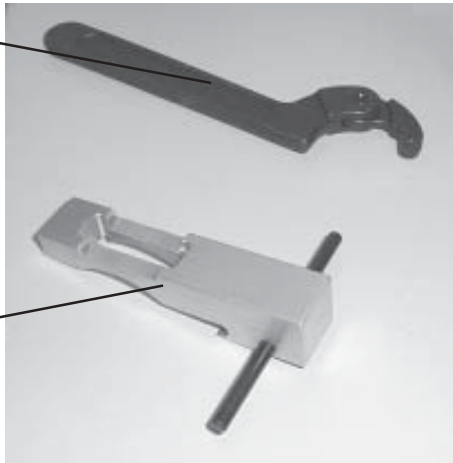
WARNING

Turn off the cutter; remove from electrical source.

Tools:

- | | |
|----------------|-------------------------|
| 2.5 mm Hex Key | 10 mm Open end wrench |
| 3 mm Hex Key | 13 mm Open end wrench |
| 4 mm Hex Key | 3/16 inch Hex Key |
| 5 mm Hex Key | Grip ring pliers |
| 8mm Hex Key | Small blade screwdriver |

Spanner Wrench
P/N 200832



Alignment Tool
P/N 504813

Remove the top cover, the non-operator side cover, and the upper and lower paper guides for better access. Refer to the Continuous Cutter Service manual (P/N 961263) for removal procedures.

8.7.3.1 Lower Cartridge Removal

The lower blade cartridge will need to be removed for the following reasons:

- To facilitate the removal of the trimmer choppers
- As the first step in the removal of the front chopper housing
- To replace the gutter cut drive belt
- To replace either of the lower gutter cut blades
- To replace inner hub assembly

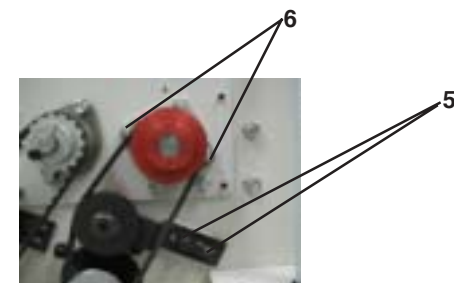
Procedure

1. Lift upper splitter housing into the non-operating position.
2. Remove stripper blade and put the cartridge release lever into the locked position.
3. Use a 3mm hex wrench to loosen the two screws holding the drive pulley to the trimmer shaft. Slide pulley towards operator side of cutter releasing belt.



4. Use a 5mm hex wrench to loosen the two screws on the two-piece clamp used to lock the lower blade cartridge when not in use so that it slides freely on the trimmer shaft.
5. Use a 5mm hex wrench to loosen the two screws that hold the V belt tensioner and slide tensioner to relieve belt tension. Remove V belt.
6. Locate the bearing flange that supports the trimmer shaft on the non-operator side of the cutter.
7. Use a 10 mm open-end wrench remove the two nuts that hold the flange.

NOTE: There are two, thin spacers on the mounting studs between the two flanges. They need to be reassembled the same way for proper bearing alignment. (flange-spacer-flange)

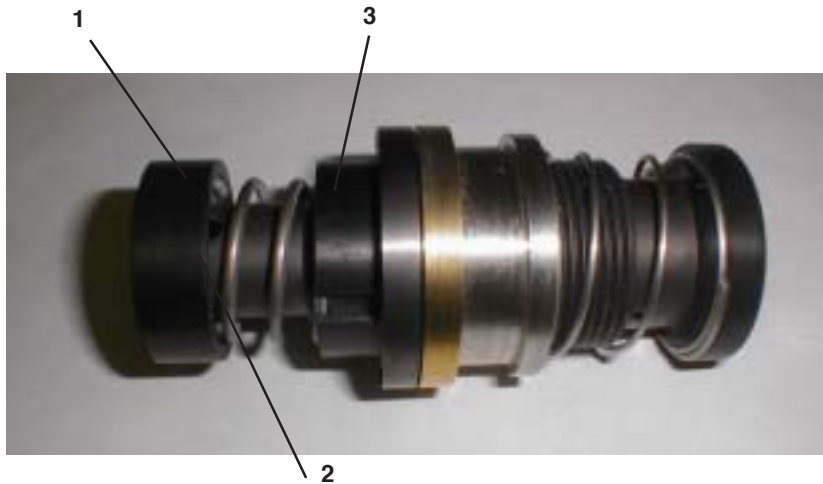


- Start sliding the trimmer shaft out of the cutter, removing components from the shaft as it is pulled out (the left margin trimmer, pulley, belt, lower blade cartridge, clamp and right margin trimmer) until the shaft is clear of the machine. At this point the margin trimmers and the lower blade cartridge are out of the machine and ready to be serviced. The next section will describe the steps to service the lower blade cartridge (refer to the cutter service manual for margin trimmer servicing)

8.7.3.2 Lower Blade Cartridge Disassembly

Procedure:

- Locate the cap on the lower blade cartridge that holds the shorter of the two springs. Using grip ring pliers, remove the grip ring holding the cap, and then remove the cap and spring.



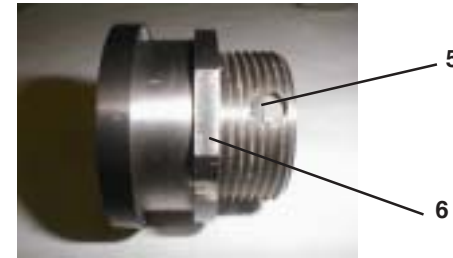
- Insert the blade of a small screwdriver through the hole in the blade hub (This is to hold the hub and keep it from spinning as you remove the nut holding the blade)

WARNING

Wear gloves when handling blades, they are very sharp!

- Using the spanner wrench provided (Roll part# 200832), loosen and remove the nut that secures the left side blade to the hub. **THIS IS A LEFT HANDED THREAD, ROTATE CLOCKWISE TO LOOSEN!** Remove the left blade.
- The right side blade with the outer hub will now slide off to the left of the main hub. Remove the outer hub (with the right blade attached) and the larger spring.

- To remove right blade from outer hub, insert the blade of a small screwdriver through the hole in the outer hub.

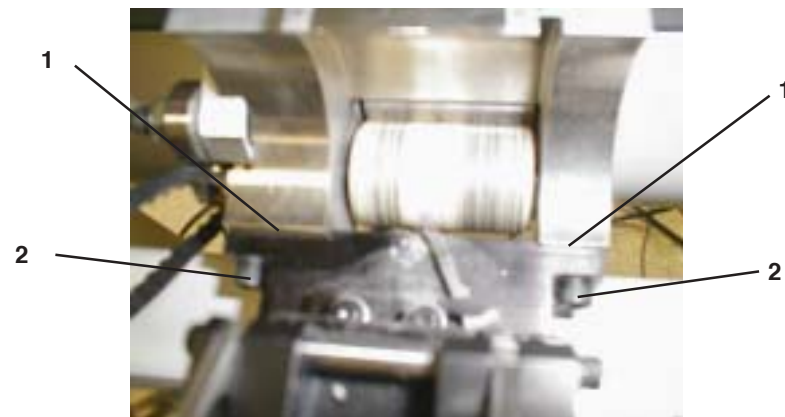


- Using the spanner wrench, loosen and remove the nut holding the blade to the outer hub then slide the blade from the hub. At this point the blades (or any other part) of the lower blade cartridge may be replaced and then reassembled. Reassembly is the reverse of the above procedure.
NOTE: To replace inner hub assembly finish disassembly by removing the remaining grip ring. The blades are not interchangeable left to right but can be mounted with either surface facing out.

Procedure:

With lower blade cartridge removed:

- Use a 4mm hex wrench, remove the two screws holding the front chopper housing to the rear housing.



2. With the front chopper housing now free, drop it down while rotating it forward and when it is clear of the rear housing slide it to the right side of the cutter and then up and out.
3. With the front chopper housing removed you can now repair or replace any components by referring to the following disassembly procedure.

8.7.3.3 Front Chopper Housing

Lower Nip Roller

1. Use a 3/16" hex wrench to remove the two setscrews from the front of the chopper housing. Remove the two compression springs that were held in place by the setscrews.

CAUTION

These screws MUST be flush with the housing when reassembled. Do not overtighten.

2. Use a 4mm hex wrench to remove the screw locking the lower nip roller assembly to the housing and slide the roller assembly out of the housing.



3. Using grip ring pliers, remove the grip ring holding the nip roller assembly to the shaft and slide the roller assembly off the shaft. The lower nip roller assembly may now be replaced. Reassembly is the reverse of the above procedure.



Upper Nip Roller

1. Insert the blade of a small screwdriver through the hole at the end of the nip roller shaft to hold the shaft from spinning as you loosen the keeper nut from the opposite side.
 2. Use a 13mm open-end wrench to remove the keeper nut.
 3. Slide the pulley off of the shaft.
 4. Slide the retainer off of the shaft. (Be careful not to lose the small woodruff key.)
 5. Remove the woodruff key. Now slide the nip roller out of the housing assembly from the opposite side.
- Reassemble using the alignment tool.

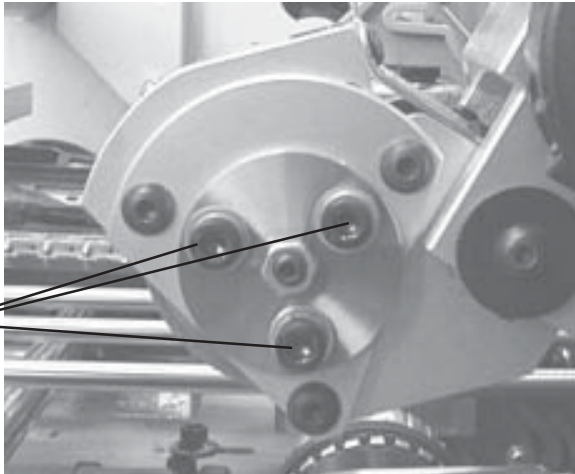
NOTE: There are two bearings pressed into the housing that cannot be replaced in the field. If either bearing should fail you must remove any remaining components from the housing assembly and replace the housing itself.



8.7.3.4 Upper Slitter Blade and Hub

WARNING

Do not remove, loosen or adjust these screws, setscrew or locking nut.

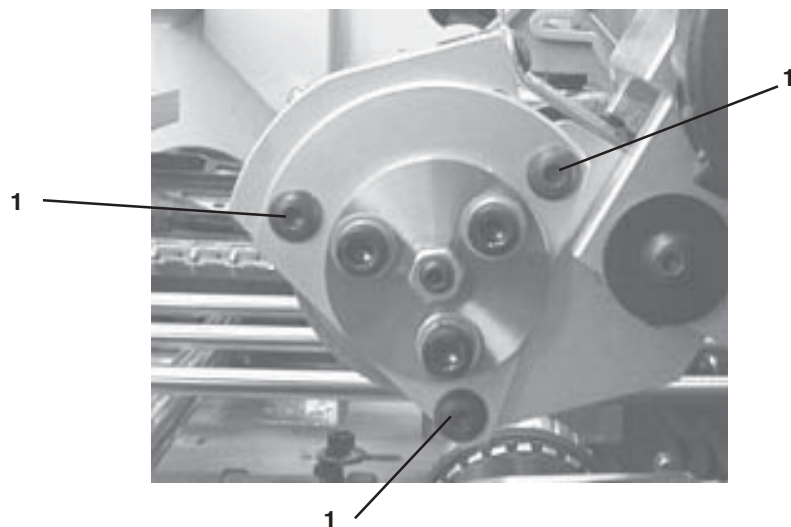


DO NOT REMOVE

Procedure:

Move the upper slitter housing into the non-operating position:

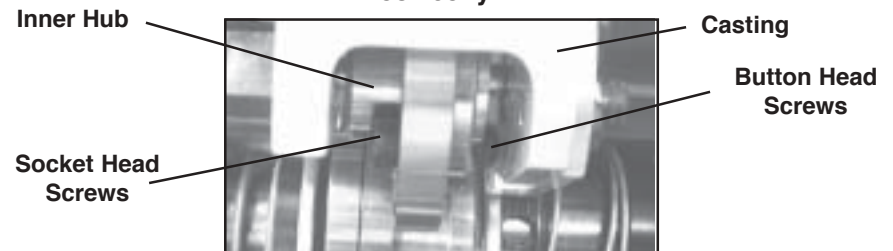
1. Use a 3mm hex wrench remove the three screws that hold the end cap to the housing. As you remove the end cap take care to recover the spring that pressures the oiler assembly, held in place by the end cap.



2. With the end cap removed, remove the slitter blade and blade hub from between the two oilers and out of the housing. When reassembled the blade must be replaced between the two oilers with the hub facing in the same direction as when removed.

WARNING

When reassembled, the hub must be replaced facing the same direction as it was installed at the factory. The blade is not centered on the hub and will be out of alignment with the lower blades if not reassembled correctly.



Slitter Blade

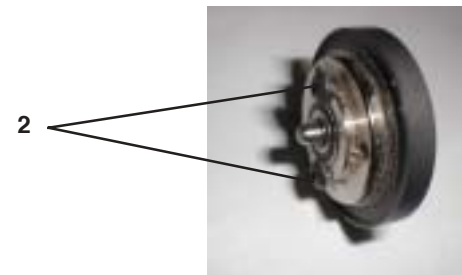
Procedure:

1. Use a 3mm hex key to remove the three screws securing the slitter blade to the inner hub.



2. Use a 2.5mm hex wrench remove the two screws securing the bearing /shaft assembly to the inner hub and slide the bearing/shaft assembly out of the hub.

NOTE: The bearing/shaft assembly must be replaced as a single unit as they are pressed together and not field removable.

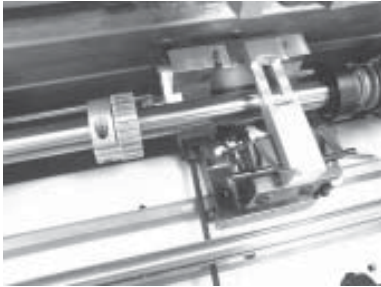


8.7.4 Adjustment and Alignment

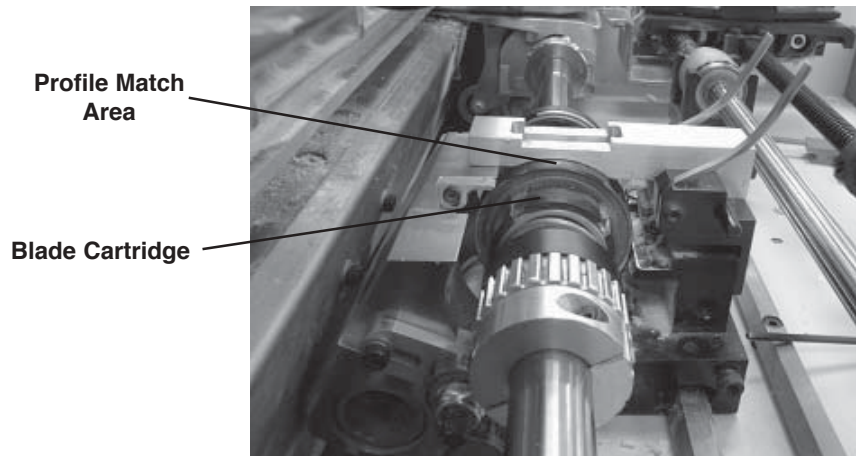
8.7.4.1 Margin Trimmer Drive Shaft

This procedure is necessary whenever the margin trimmer drive shaft has been removed from the cutter. It is assumed that the upper slitter has not been moved and that the gutter cut housing has not been moved. Unlike replacement of the paper driveshaft in a non-gutter cut cutter, alignment of the paper drive shaft requires use of the gutter cut alignment tool (P/N 504813).

1. Shut off power, remove power cord and web.
2. Place the alignment tool in the upper mounting block as shown with the gutter cut cartridge out of the housing.



3. Locate the lower blade cartridge in profile of gutter cut alignment tool by moving the margin trimmer shaft..

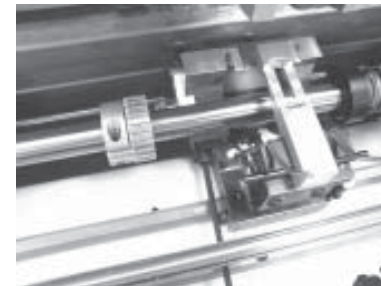


4. Replace the bearing flange nuts (two) on the drive side margin trimmer shaft bearings with a 10 mm wrench. Note spacers between flanges.
5. Tighten the margin trimmer drive belt tensioner using a 5 mm hex key.
6. Slide the margin trimmers back into their original position.

8.7.4.2 Setting the Upper Slitter Blade Engagement

This adjustment sets the depth of the upper blade into the lower cartridge.

1. Raise the upper slitter and remove the lower cartridge from the gutter cut housing.
2. Install the alignment tool in the upper mounting block and rotate the upper slitter into the run position with the upper slitter blade in the slot of the alignment tool.



3. Remove the drive system cover and the operator panel. Loosen the two screws securing the keyed shaft to the side frames with an 8 mm hex key.



4. Rotate the keyed shaft until the upper slitter assembly “bottoms out” on the alignment tool.



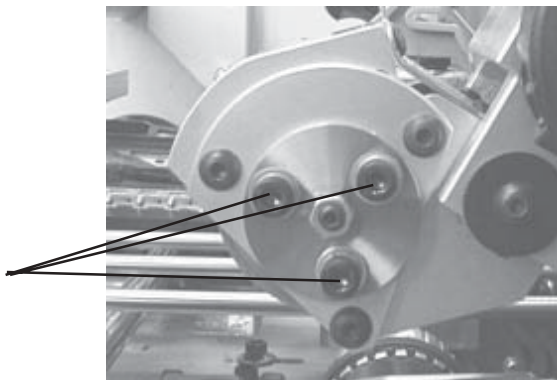
3. Open the lower cartridge blades.
4. Lower the slitter to the RUN position.
5. Release the lower cartridge , thereby clamping the blades together.
6. Rotate the margin trimmers 2-3 rotations.
7. Tighten the inner socket head cap screws by tightening each screw one turn and move to the next screw until each is tight.

5. Tighten the screw on the operator panel side first and then tighten the screw on the non-operator side. Replace covers, remove the alignment tool, and replace the stripper knife.

8.7.4.3 Aligning the Upper Slitter Blade

This procedure is necessary if the upper slitter blade is removed and replaced.

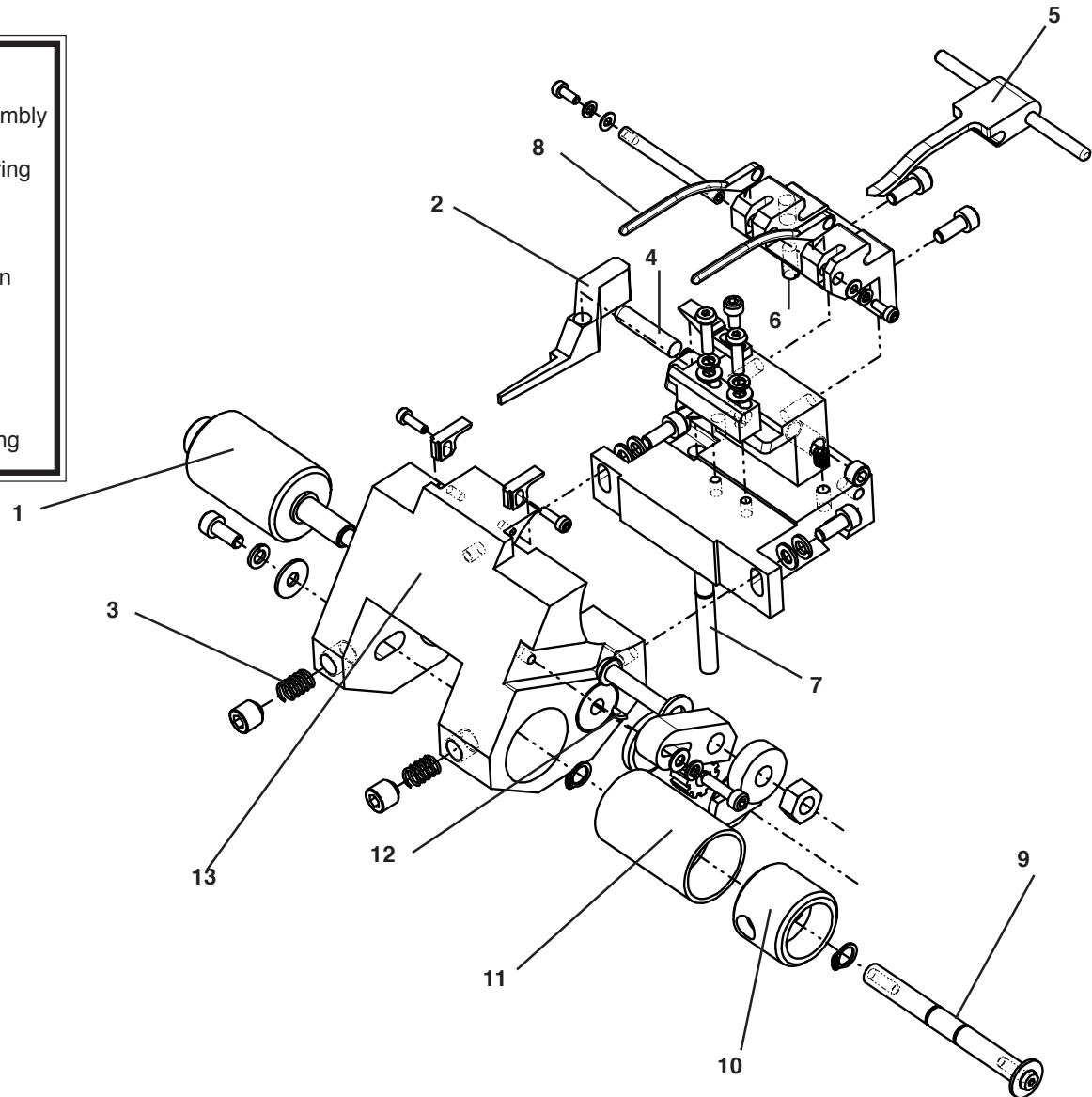
1. Rotate the slitter housing to the up position
2. Loosen the three socket head cap screws.



8.7.5 Parts

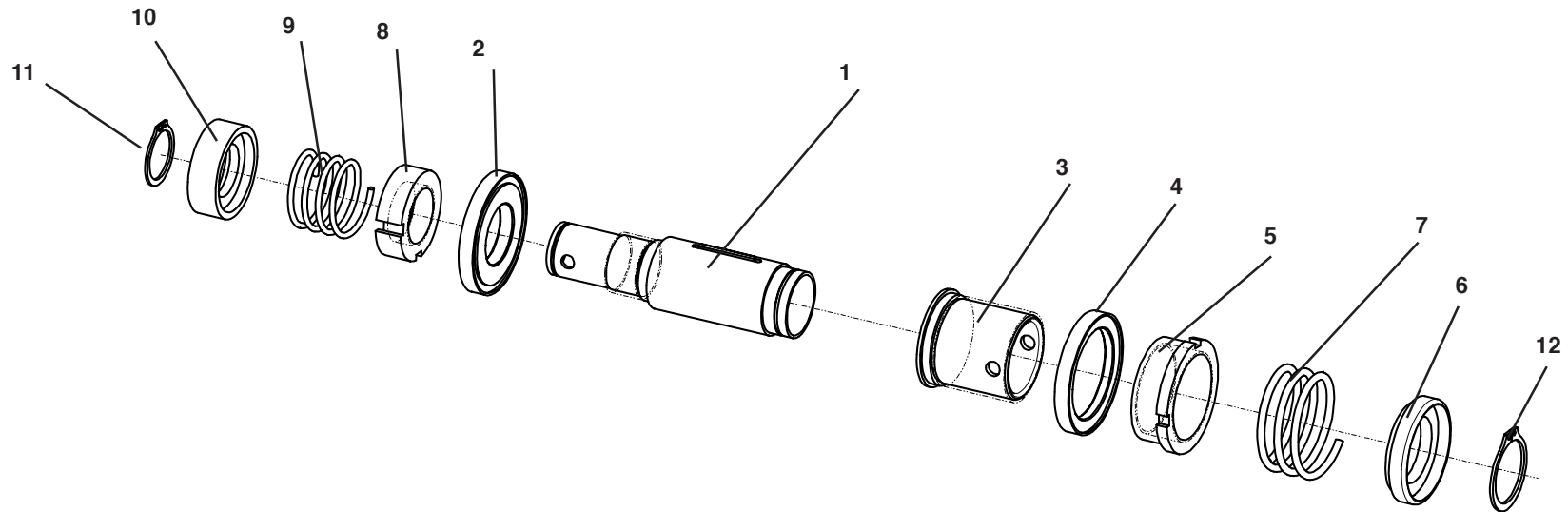
8.7.5.1 Housing Assembly Part List

Item	Part	Description
1	311816	Wide Roller Assembly
2	312907	Release Lever
3	252088	Compression Spring
4	312975	Release Plunger
5	504149	Stripper Knife
6	102613	Ball Plunger, M6
7	313019	Release Lever Pin
8	312905	Paper Guide
9	504629	Nip Roller Shaft
10	312892	Nip Roller Plug
11	504628	Wide Trim Roller
12	251744	Key
13	504627	Gutter Cut Housing



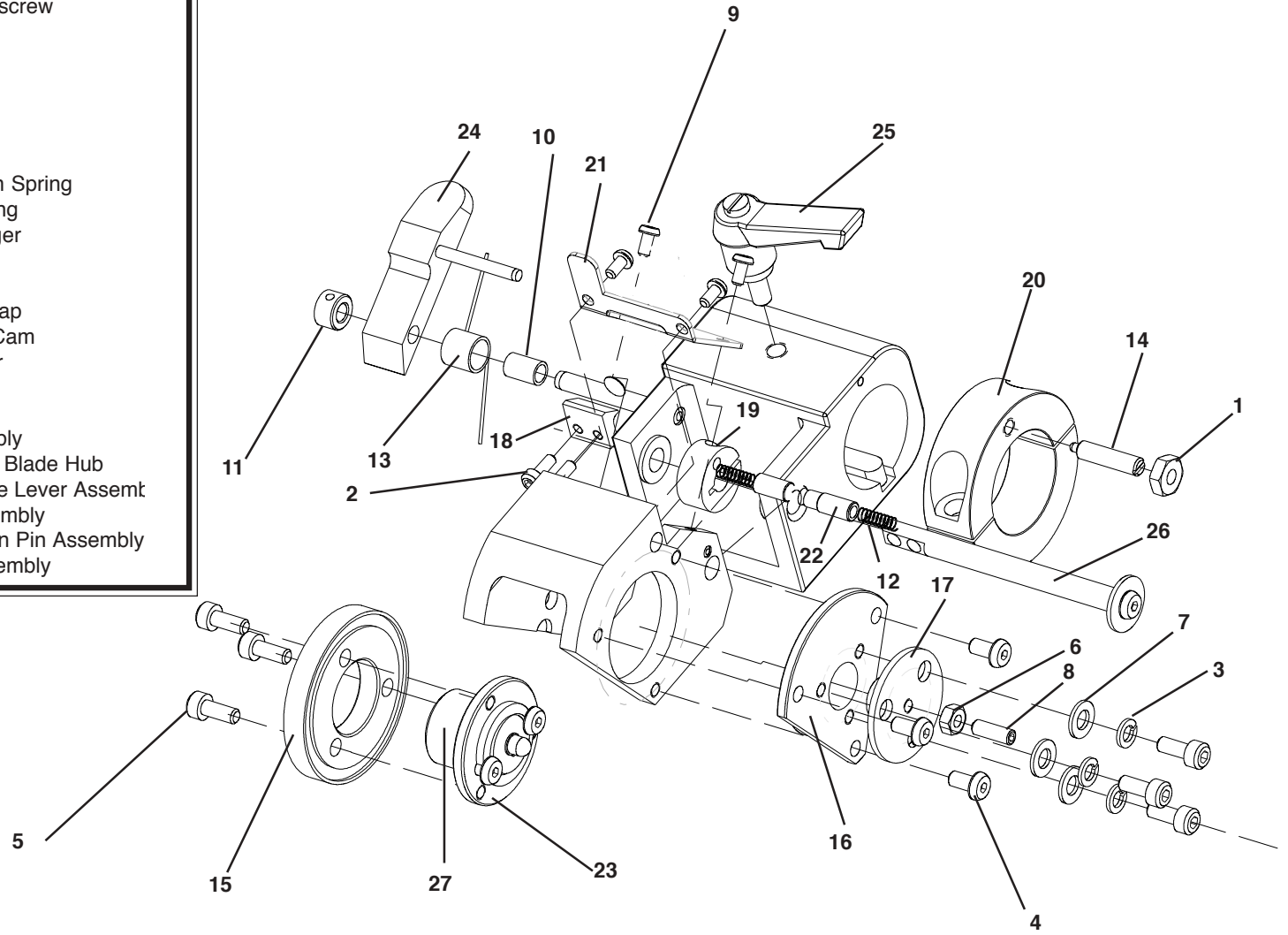
8.7.5.2 Cartridge Assembly Part List

Item	Part	Description
1	504147	Slitter Drive Hub Assembly
2	312908	Lower Blade
3	312897	Outer Hub Blade Retainer
4	312909	Lower Blade
5	312901	Blade Retaining Nut (RH)
6	312902	Spring Retainer
7	252087	Compression Spring
8	312895	Blade Retaining Nut (LH)
9	252086	Compression Spring
10	312896	Spring Cap
11	102610	External Retaining Ring, 1.125 in
12	102611	External Retaining Ring, 0.875 in



8.7.5.3 Upper Slitter Part List

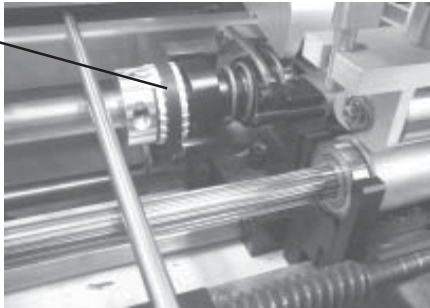
Item	Part	Description
1	100201	Nut
2	100674	Screw, Socket Head, M3x8mm
3	100728	Split Lockwasher
4	100732	BHC Screw
5	100734	Sockethead screw
6	100735	Hex nut
7	100767	Flat Washer
8	101316	Setscrew
9	102503	BHC Screw
10	102804	Spacer
11	250154	Collar
12	251976	Compression Spring
13	252371	Torsion Spring
14	252372	Spring Plunger
15	312904	Upper Blade
16	312989	End Cap
17	314167	Blade Adj. Cap
18	314609	Pivot Block Cam
19	314614	Clamp Collar
20	314611	Collar
21	314612	Blade Cover </td
22	503245	Oiler Assembly
23	312984	Upper Slitter Blade Hub
24	504862	Cam Release Lever Assemt
25	504863	Handle Assembly
26	504866	Cam Rotation Pin Assembly
27	504631	Bearing Assembly



8.7.6 Gutter Cut Preventive Maintenance

1. Check the cut strip and the cut sheets for ragged edges. Replace the upper slitter blade and replace (or rotate) the lower gutter cut blades if required.
2. Check the drive belt for wear and tension. Proper tension is when there is no more than 1/4 inch deflection at the mid point of the belt.

Belt



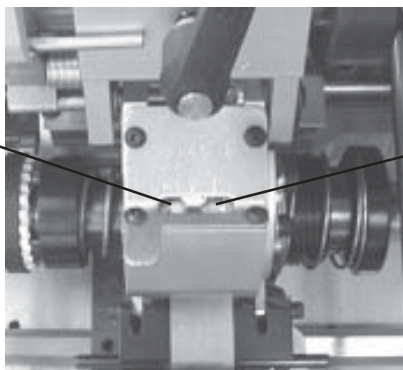
3. Remove dust and debris from the upper slitter and the lower gutter cut housing.

NOTE: The entire infeed area of the cutter should be free of dust and debris at all times. This may be done with a vacuum or air hose.

4. Place one drop of Roll Systems oil (P/N 502741) into each side of the slot in the upper slitter housing

NOTE: Must be oiled every shift change or roll change.

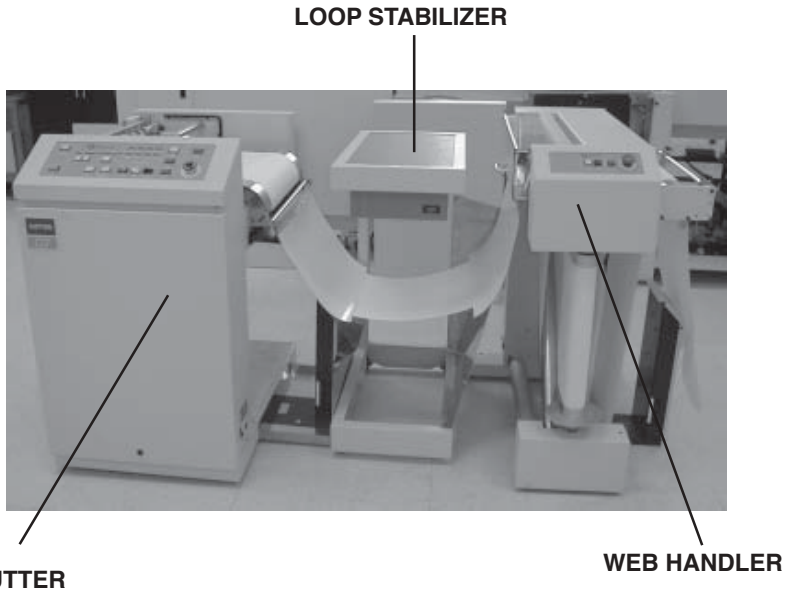
Oil Here



Oil Here

8.8 High Speed Option (250 fpm to 300 fpm)

8.8.1 Theory of Operation



The High speed option includes the following:

1. Web Handler
2. Loop Stabilizer
3. Loop Control kit
4. Short Cut Kit
5. Wide drive rollers (if pinless operation)
6. Margin Trimmer pulleys

Form sizes

As short as 8 inches at 300 ft/min

Basis Weights

16 to 32 lb bond

Other weights subject to factory tests

Pin-fed/Pinless

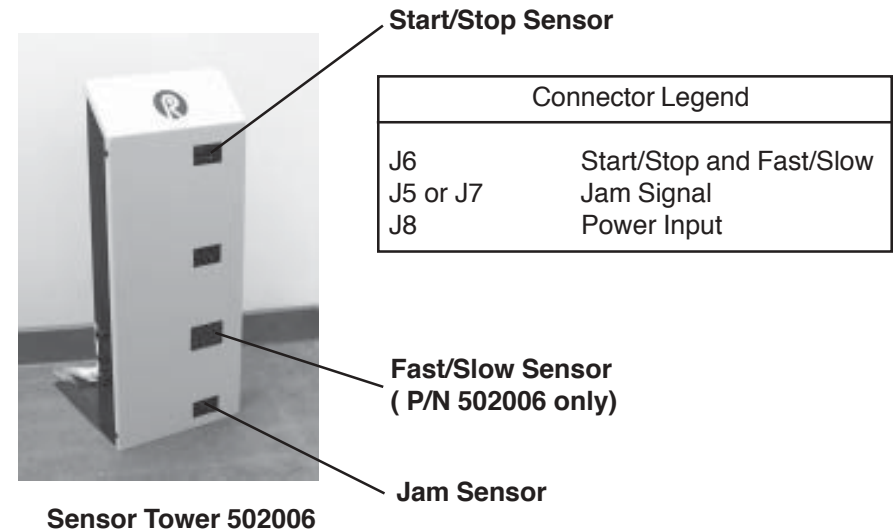
NOTE: The strip cut option and the dual 3-hole punch option are not available with the high speed option.

8.8.2 Cutter Setup for Speeds Over 250 ft/min

The cutter control panel internal switch settings must be changed. The instructions below cover all of these setups.

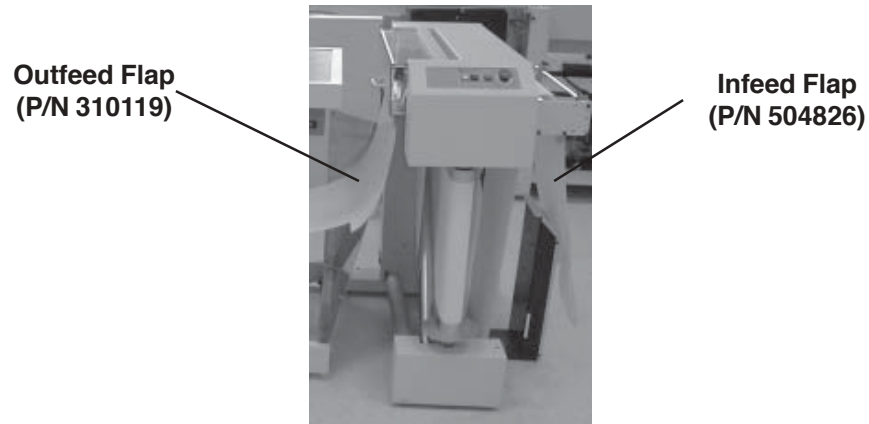
1. Turn power off
2. Remove control panel to access control panel pc bd.
3. On the four position dip switch, set switch two to off (all others remain on)
4. Replace control panel
5. Turn power back on
6. Then do a memory reset by setting dip switches one and six of sw101 on the CPU board (8 position switch) to On (up) - all others down.
7. Then press the Ready button on the control panel (display should blink once)
8. Reset CPU board dip to previous setting (four up for M2)
9. Check to see that the range of the speed control is now doubled.

NOTE: The sensor tower contains three optical sensors which control paper movement into a post-processor module by starting, stopping, or altering the speed of the paper stream. The Fast/Slow sensor MUST be in the lower middle opening.

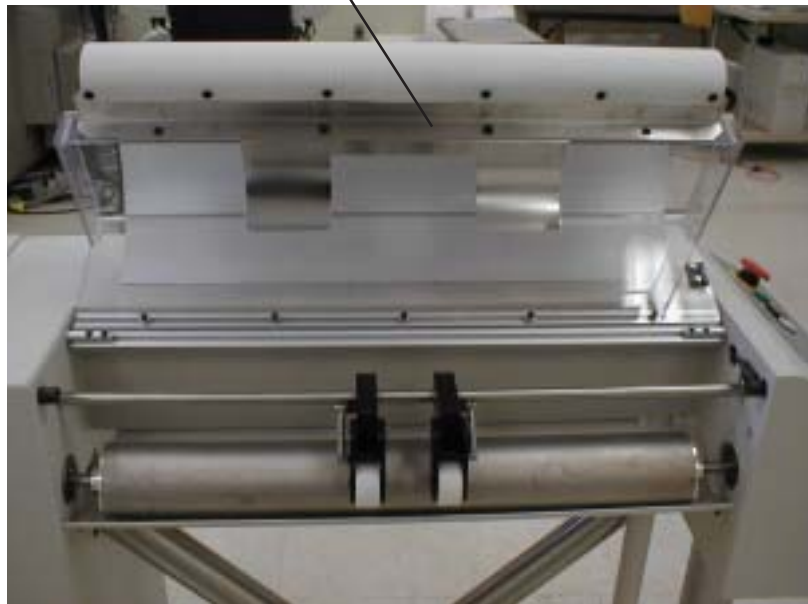


8.8.3 Web Handler

The Web Handler requires an input flap and an outfeed flap. These flaps are part of the Loop Control Kit (P/N 504702).



Outfeed Flap Mounting

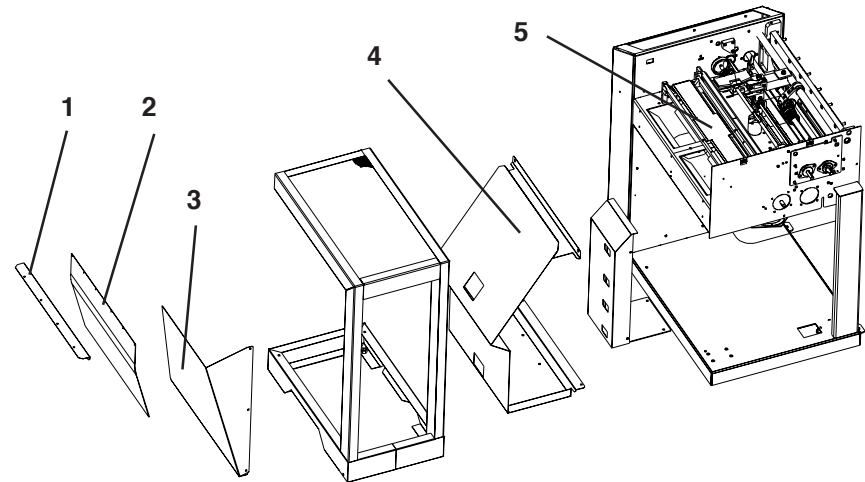


8.8.4 Loop Stabilizer

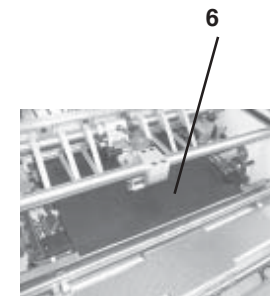
The loop stabilizer employs fans that direct airflow downward toward the paper stream. This airflow prevents paper damage by smoothing and stabilizing paper movement as the paper stream travels between adjacent equipment modules. It is also used to provide a mounting medium for the infeed loop baffle (P/N 314356).

8.8.5 Loop Control Kit

There are four parts to the Loop Control Kit (P/N 504702), an added deck in the cutter, two large sheet metal guides that help hold the loop in a “V”, additional flaps to cover the infeed and outfeed side of the loop as it comes out of the Web Handler.



Item	Part	Description
1	314423	Flap Mounting Bracket
2	310119	Wide Flap
3	314356	Infeed Loop Guide
4	314355	Infeed Loop Baffle
5	314533	Paper Support
6	504832	Cutter Drive Flap



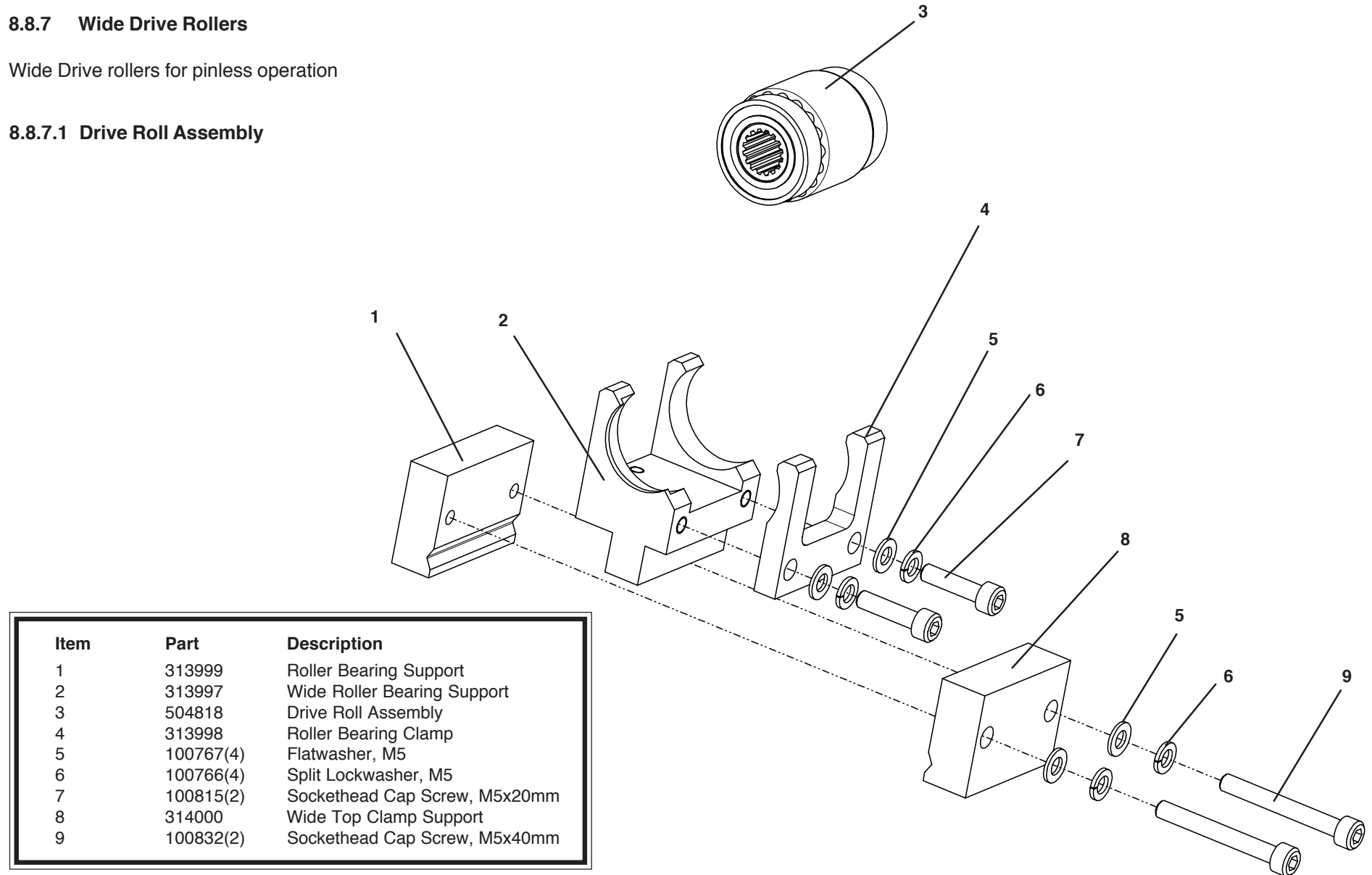
8.8.6 Short Cut Kit

The Short Cut Kit is described in Section 8.6.1 of this manual.

8.8.7 Wide Drive Rollers

Wide Drive rollers for pinless operation

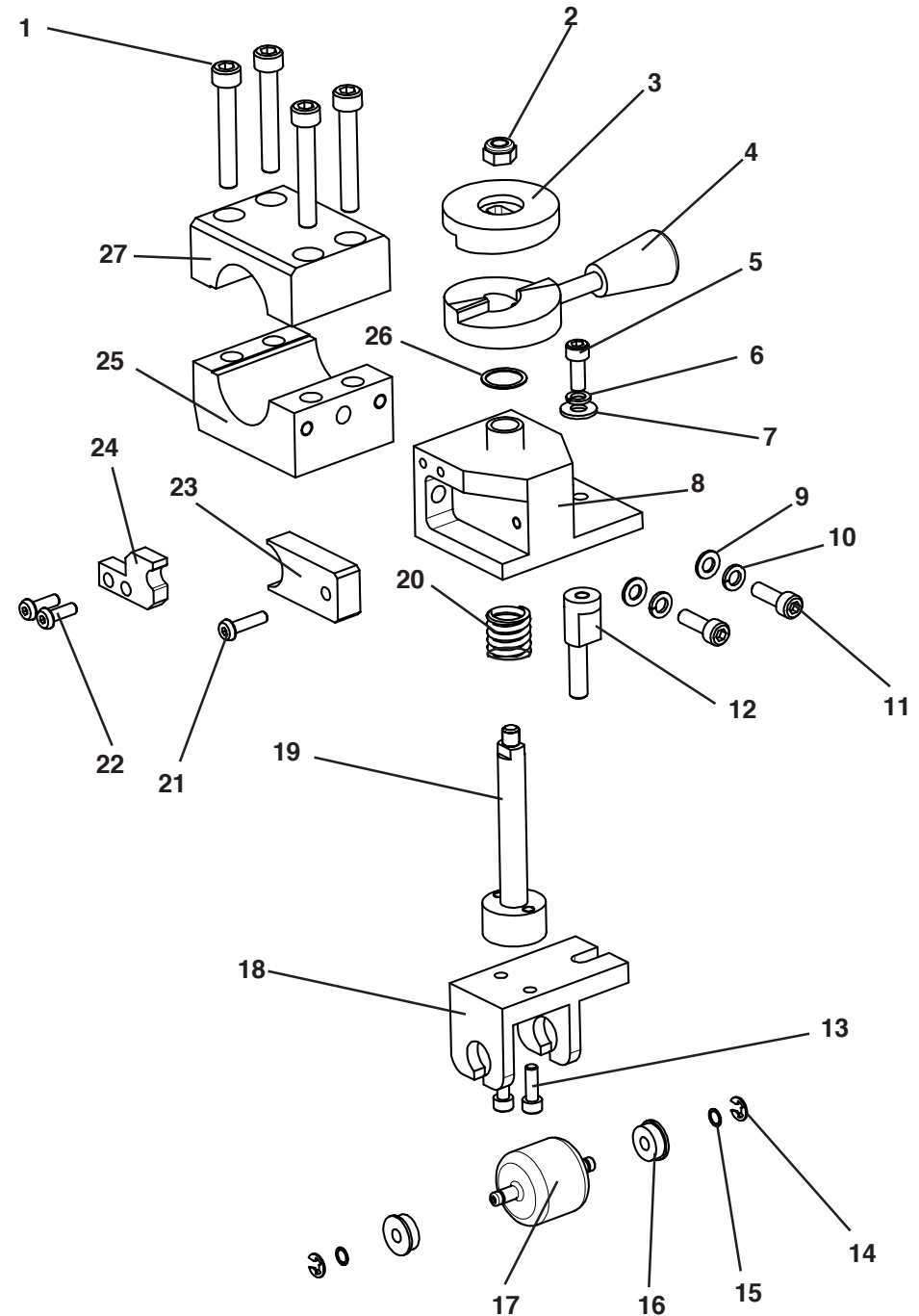
8.8.7.1 Drive Roll Assembly



Item	Part	Description
1	313999	Roller Bearing Support
2	313997	Wide Roller Bearing Support
3	504818	Drive Roll Assembly
4	313998	Roller Bearing Clamp
5	100767(4)	Flatwasher, M5
6	100766(4)	Split Lockwasher, M5
7	100815(2)	Sockethead Cap Screw, M5x20mm
8	314000	Wide Top Clamp Support
9	100832(2)	Sockethead Cap Screw, M5x40mm

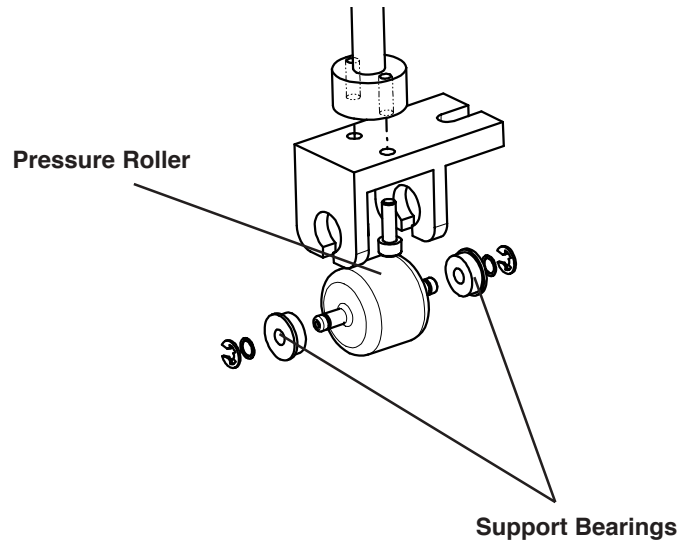
8.8.7.2 Compression Roll Assembly

Item	Part	Description
1	102376(4)	Screw, SKHDCP M6x40mm
2	102211	Stop Nut
3	314123	Helical Post Ramp
4	504634	Cam Lever Assembly
5	100014	Screw, SKHDCP 10-32x.5
6	100015	Lockwasher #10
7	100110	Flatwasher #10
8	504622	Block, Pivot
9	100767(2)	Washer
10	100766(2)	Split Lockwasher M5
11	101208(2)	Screw, SKHDCP M5x16mm
12	308873	Pin, Adjuster
13	100133(2)	Screw, SKHDCP 8-32x .5
14	100777(2)	Retaining Ring, 3/16
15	100839(2)	Spacer, 3/16 x 1/4
16	250378(2)	Bearing, Ball
17	314003	Roll, Pressure
18	314002	Yoke
19	314006	Post, Pinch Roll
20	252358	Spring, Compression
21	102523	Buttonhead screw, M4x16mm
22	102370(2)	Buttonhead screw, M4x12mm
23	314011	Guage, Spring adjust
24	314033	Drive Lever Stop
25	314005	Block, Mounting
26	102793	Spacer
27	314004	Block, Clamp

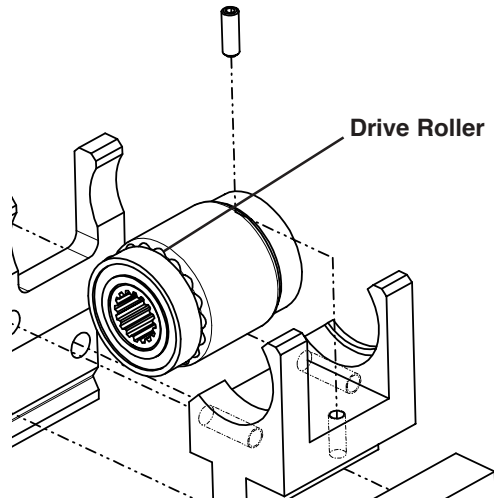


8.8.8 Maintenance

1. Check the pressure roller for binding or wobble. It should spin freely with no side play. Replace the support bearings if required.



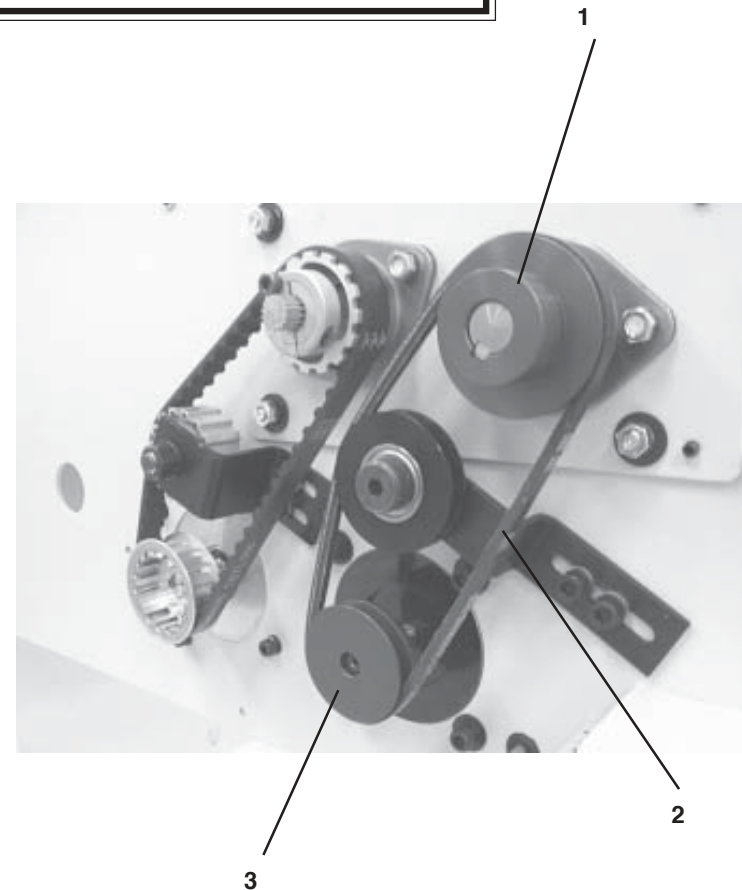
2. Check the drive roller for any sign of wear.



8.8.9 Margin Trimmer Pulleys

1. It is necessary to increase the speed of the margin trimmer because the paper drive speed has been increased. This is done by changing the margin trimmer pulleys and belt.

Item	Part	Description
1	312020	Trimmer Shaft Pulley
2	251771	Paper Drive Belt
3	312021	Trimmer Motor Pulley



Date: March, 2004

Bulletin Number: TB961263-E-001

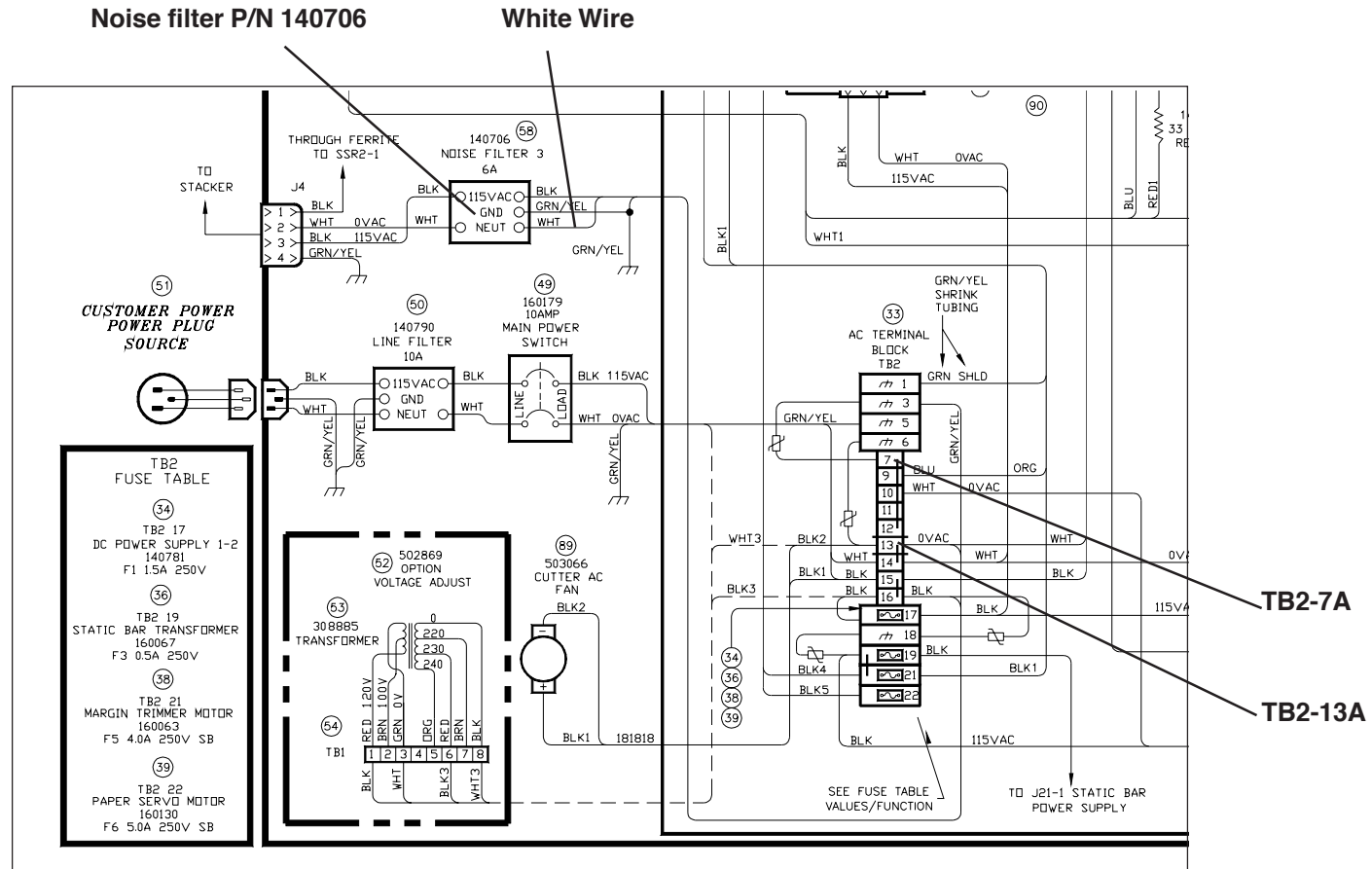
This Technical Bulletin describes a correction to Section 4 (**Repairs/Adjustments**) of the *Continuous Cutter Service Manual P/N 961623*, Revision E. This correction effects **ADJ 5 - Upper Knife Blade**, page 4-61 and specifically changes step 3. Changes are in bold type. **CURRENT** **CORRECTED**

ADJ 5 - Upper Knife Blade	ADJ 5 - Upper Knife Blade
<p>· · · · ·</p> <p>Procedure</p> <ol style="list-style-type: none"> 1. Ensure that the lower knife blade has been correctly adjusted before proceeding (ADJ 4). 2. If not already accomplished from the previous procedure, remove the top cover, (REP 1) upper knife blade cover, (REP 5) knife driveshaft cover, (REP 7) and both knife guards. (REP 6). 3. Verify that there are eight grooves visible from the top of the blade to the top of the clamping blocks. 4. Verify that there is 0.12 mm - 0.13 mm (.005 in.) between the upper blade casting and the clamping brackets. Adjust if necessary by loosening two screws on either of the clamping brackets. <p>· · · ·</p>	<p>· · · · ·</p> <p>Procedure</p> <ol style="list-style-type: none"> 1. Ensure that the lower knife blade has been correctly adjusted before proceeding (ADJ 4). 2. If not already accomplished from the previous procedure, remove the top cover, (REP 1) upper knife blade cover, (REP 5) knife driveshaft cover, (REP 7) and both knife guards. (REP 6). 3. Verify that there are ten grooves visible from the top of the blade to the top of the clamping blocks. 4. Verify that there is 0.12 mm - 0.13 mm (.005 in.) between the upper blade casting and the clamping brackets. Adjust if necessary by loosening two screws on either of the clamping brackets. <p>· · · ·</p>

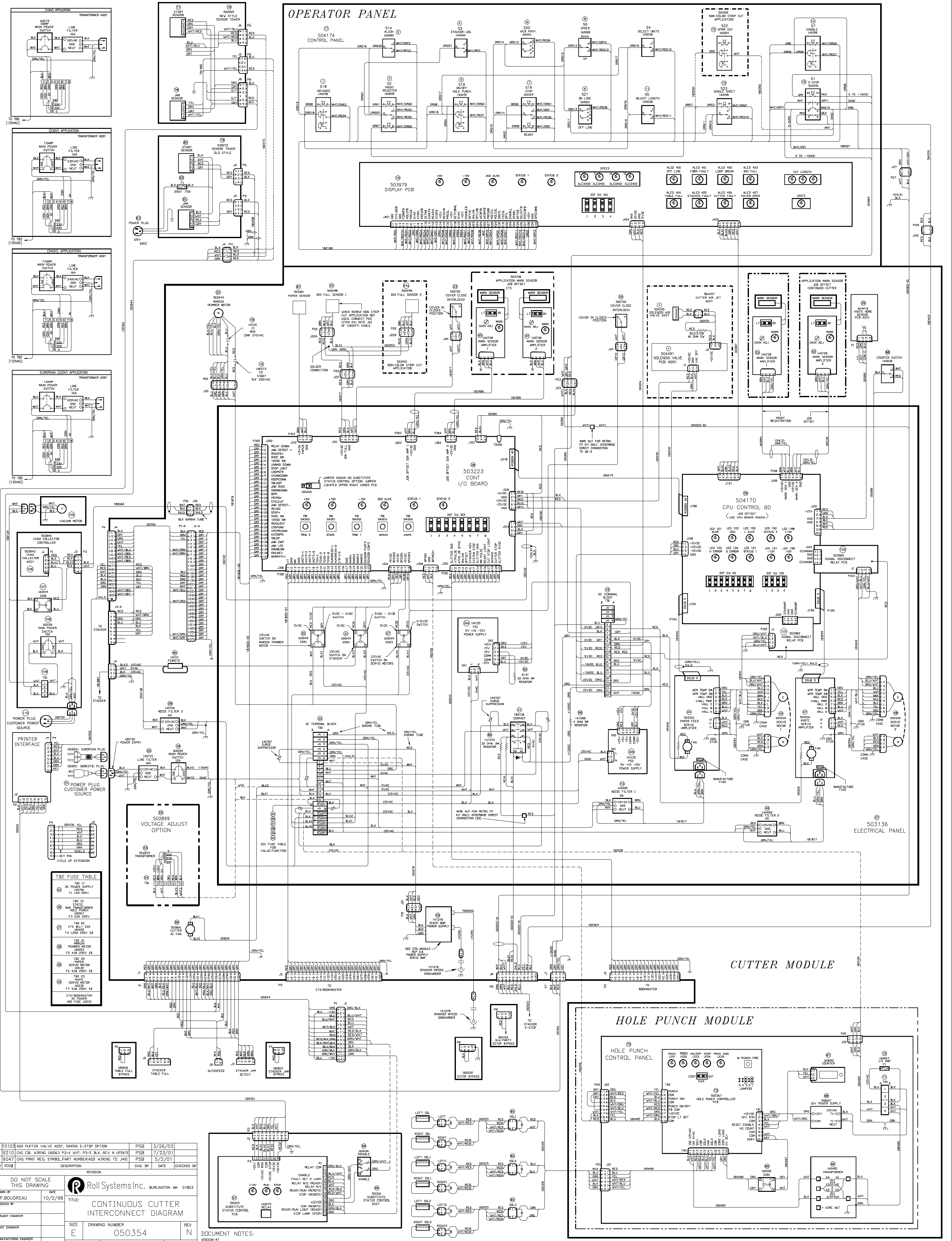
Date: September, 2004

Bulletin Number: TB961263-E-002

This Technical Bulletin describes a wiring change in the Continuous Cutter. The change effects RAPs 1.0, 4.0, 5.0 and the interconnect (S-050354) in the *Continuous Cutter Service Manual P/N 961263*, Revision E. This change put the neutral wire for the Stacker/Merger AC power output on the disconnect side of the Continuous Cutter contactor. The white wire coming from the 6A AC filter (P/N 140706, Item 58) was removed from TB2-13A and moved to terminal TB2-7A. **No** other white wires connected at TB2-13A were moved. Continuous Cutters with this change began shipping in early September 2004.



OPERATOR PANEL



FUSE TABLE

NO.	DESCRIPTION	REVISION
1	DC POWER SUPPLY	
2	BAR TRANSFORMER	
3	CT5 REL	
4	CUTTER FAN	
5	TRIMMER MOTOR	
6	SERVO MOTOR	
7	TRIMMER MOTOR	
8	SERVO MOTOR	
9	CT5/BRODMASTER	

NO. 10103	ADD PUFFER VALVE ASSY, 504699 E-STOP OPTION	PSB	3/26/03
NO. 10104	CHG. WIRING 180893 P5-4 WHT, P5-5 BLK, REV. N UPDATE	PSB	7/23/01
NO. 10047	CHG. PRINT REC. SYMBOL, PART NUMBER, WIRING TO J401	PSB	5/2/01

DO NOT SCALE THIS DRAWING

Roll Systems Inc. BURLINGTON, MA 01803

DATE: 10/2/98

TITLE: CONTINUOUS CUTTER INTERCONNECT DIAGRAM

SIZE: DRAWING NUMBER: 050354

SCALE: NONE

MANUAL # 961263

SHEET 1 OF 1

CUTTER MODULE

HOLE PUNCH MODULE

DOCUMENT NOTES:

1. SUBSTITUTION OF STATUS CONTROL PCB

2. SUBSTITUTION OF STATUS CONTROL PCB