

**U.S. PAPER COUNTERS
COUNT-WISE 1, COUNT-WISE M & BANTAM**

Table of Contents

SECTION #1: WARRANTY3 & 4

SECTION #1: TECHNICAL DETAIL & INSTALLATION INSTRUCTIONS5

 INSTALLATION INSTRUCTIONS

MAX-BANTAM SHEET COUNTER6

DIAGRAM-MAX-BANTAM7

COUNT-WISE I SHEET COUNTER8

DIAGRAM-RECEPTACLE GUARD9

COUNT-WISE M SHEET COUNTER10

AIR FLOTATION SYSTEM10

DIAGRAM- COUNT-WISE M11

 COUNT-WISE 1, M & BANTAM TECHNICAL DETAILS

SUCTION BLADE GUIDE FOR RANGE OF PAPER TO BE COUNTED12

SECTION #3: OPERATION INSTRUCTIONS & SEQUENCE OF EVENTS DURING OPERATION13

 OPERATING INSTRUCTIONS

DIAGRAM-BREATHERS14

BREATHERS15

OPERATING INSTRUCTIONS.....16

DIAGRAM-SELF DIAGNOSTIC LEADS17

 SEQUENCE OF EVENTS-LOGIC BOARD S-317018

DIAGRAM-LOGIC BOARD19

SECTION #4: COUNTING HEAD & MAINTENANCE SCHEDULE21

 LOADING OF INSERT TAPE22

 DIAGRAM-TAPE LOADING23

 RESET ADJUSTMENT W/DIAGRAM24

 COUNT ADJUSTMENT W/DIAGRAM24

 COUNTING HEAD INSTALLATION AND ALIGNMENT25

 COUNTING HEAD REMOVAL26

 REMOVING COUNTING HEAD CENTER PLATE26

 REPLACING COUNTING HEAD CENTERPLATE26

 REPLACING COUNTING HEAD26

 COUNTING HEAD REMOVAL – PHOTO27

 HOW TO CHANGE A SUCTION BLADE28

 SETTING VERTICAL RISE SWITCH28

 SETTING THE COUNTER POISE SPRING28

 DIAGRAM-ORBIT ADJUSTMENT29

 ORBIT ADJUSTMENT30

 DRAWING: COUNTING HEAD CENTER PLATE/TAPE CHUTE31

 HOW TO REMOVE A TAPE JAM32

 TAPE CHUTE REMOVAL33

 REPLACING TAPE CHUTE33

 CHANGING THE TAPE SOLENOID34

 REMOVAL OF KNIFE ASSEMBLY34

 REPLACING KNIFE ASSEMBLY34

 PHOTO-COUNTING HEAD, RIGHT SIDE36

PHOTO-COUNTING HEAD, LEFT SIDE	37
MAINTENANCE SCHEDULE	38
SECTION #5: TROUBLE SHOOTING	39-45
CONTACT INFORMATION	40
TROUBLE SHOOTING	41-45
SECTION #6: ELECTRICAL SYSTEM	47
LOGIC CONTROLLER	48
<i>PHOTO & PARTS LIST-REAR & TOP OF MACHINE</i>	49
<i>COUNT-WISE SPEED CONTROL 15DV PARTS PLACEMENT & LIST</i>	50
<i>PHOTO & PARTS LIST-FACEPLATE COUNTWISE-M</i>	51
BANTAM CONTROL PANEL 2001 TO PRESENT	52
<i>DIAGRAM OF MAX BANTAM CONTROL PANEL, 2001 & AFTER</i>	53
SECTION #7: BASIC ADJUSTMENTS	55
VACUUM SYSTEM	56
<i>PHOTO & PARTS LIST: POWER SUPPLY & VACUUM AREA</i>	57
<i>SETTING VACUUM SWITCHES</i>	58
<i>VACUUM SWITCH ADJUSTMENT</i>	59
<i>SPEED CONTROL ADJUSTMENT SEQUENCE</i>	60
<i>ACE MICRO CUSHION ADJUSTMENT</i>	61
SECTION #8: WIRING DIAGRAMS	63
LOGIC BOARD WIRE CONNECTIONS	64-65
DIAGRAM-LOGIC BOARD PLUGS	66
DIAGRAM-COUNTING HEAD	67
VERTICAL RISE MOTOR	68
DIAGRAM-LOGIC CONTROLLER	69
ELECTRONIC COUNTING UNIT (ECU) BASIC COMPONENTS	71
ELECTRONIC COUNTING UNIT (ECU)	72-73
POWER SUPPLY ASSEMBLY ON ECU	74
COMPUTER ECU	76-77
SECTION #9: PARTS LISTS, PHOTOS & DIAGRAMS	79
TAPE RETAINING BLOCK	80
RECOMMENDED SPARE PARTS	81
PHOTO-COUNTING HEAD	82
<i>PARTS LIST-COUNTING HEAD</i>	83
<i>PHOTO-FRONT VIEW COUNTING HEAD</i>	84
<i>PHOTO & PARTS LIST-PRE-SELECT & START SWITCH AREA</i>	85
<i>PHOTO & PARTS LIST-POWER SUPPLY & VACUUM AREA</i>	86
<i>PHOTO & PARTS LIST-INSIDE CONTROL PANEL</i>	87
<i>LASER SYSTEM OPERATION, DIAGRAM & PARTS LIST</i>	88
INDEX	89-92
DIAGRAMS & PHOTO LISTINGS	93-94

NOTE: U.S. Paper Counters reserves the right to change the price, appearance, specifications or design of its products at any time without notice or incurring the obligation either to modify units previously manufactured or to furnish products with previously published specifications. Revised: February 2012.

SECTION #1: WARRANTY

**MUST BE RETURNED WITHIN
10 DAYS AFTER RECEIPT OF MACHINE
OR WARRANTY CAN BE DISPUTED**

**SECTION #2: TECHNICAL DETAILS &
INSTALLATIONS INSTRUCTIONS**

INSTALLATION INSTRUCTIONS

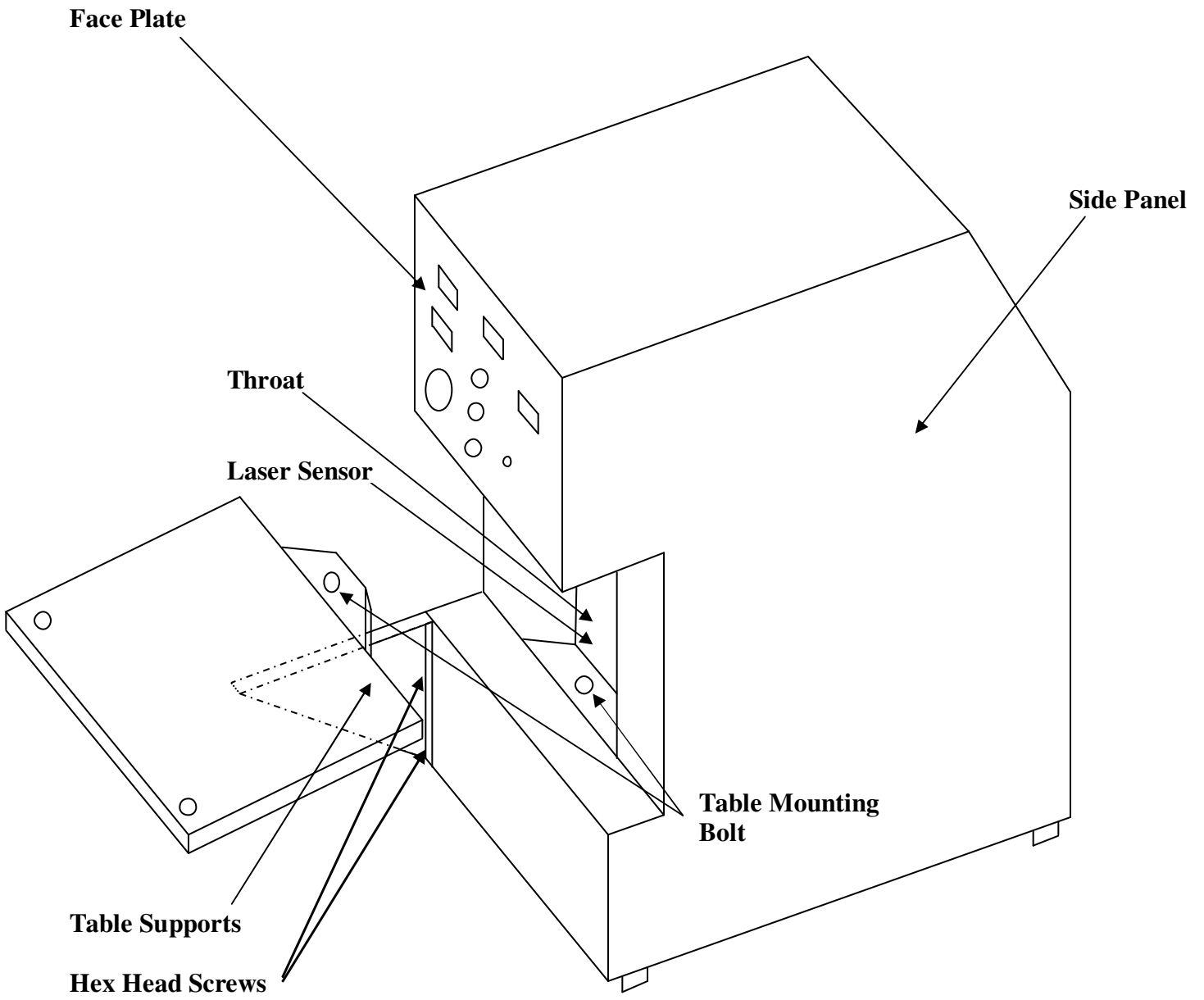
MAX-BANTAM SHEET COUNTER (REFER TO PAGE 7, DIAGRAM #1)

1. Remove carton containing mount bolts, table supports, insert tape, power cord, receptacle guard, bag of hardware and manual.
2. Place machine on workstation, or optional base cabinet.
3. Remove hex head screws from left and right sides of front panel and install table support brackets using same screws.
4. Place table onto brackets and into the “throat” of the counter.
5. Place the small silver hex-bolt through the table at the “point” nearest the throat of the counter. Tighten the bolt so that the table is approximately 1/32” above the table flap.
6. Install the remaining two (2) small silver hex-bolts through the table and the brackets. You may have to move the brackets into position.
7. Open back panel access door by pulling out, then lifting up. There are two (2) white plastic holders on the side panels that the access door slides into.
8. Remove all packing material from interior of machine. This includes:
A) cardboard under counting head; B) two rubber bands holding tape cover closed and counting head down; and C) white plastic wire ties holding counting head down.
9. Install receptacle guard to rear of machine (Refer to Diagram #2, Page 9).
10. Remove shipping bands from the counting head. Plug power cord securely into the socket located on the rear panel. **MUST BE INSERTED FIRMLY.**

NOTE: REAR BACK PANEL MUST BE CLOSED FOR MACHINE TO OPERATE.

*******SEE OPERATING INSTRUCTIONS******* (Page 13)

(DIAGRAM #1 – MAX BANTAM)



INSTALLATION INSTRUCTIONS

COUNT-WISE I SHEET COUNTER

1. Remove carton containing mount bolts, jogging plates, table supports, insert tape, breathers (wood inserts), power cord, receptacle guard, bag of hardware and manual.
2. Place machine on workstation, or optional base cabinet.

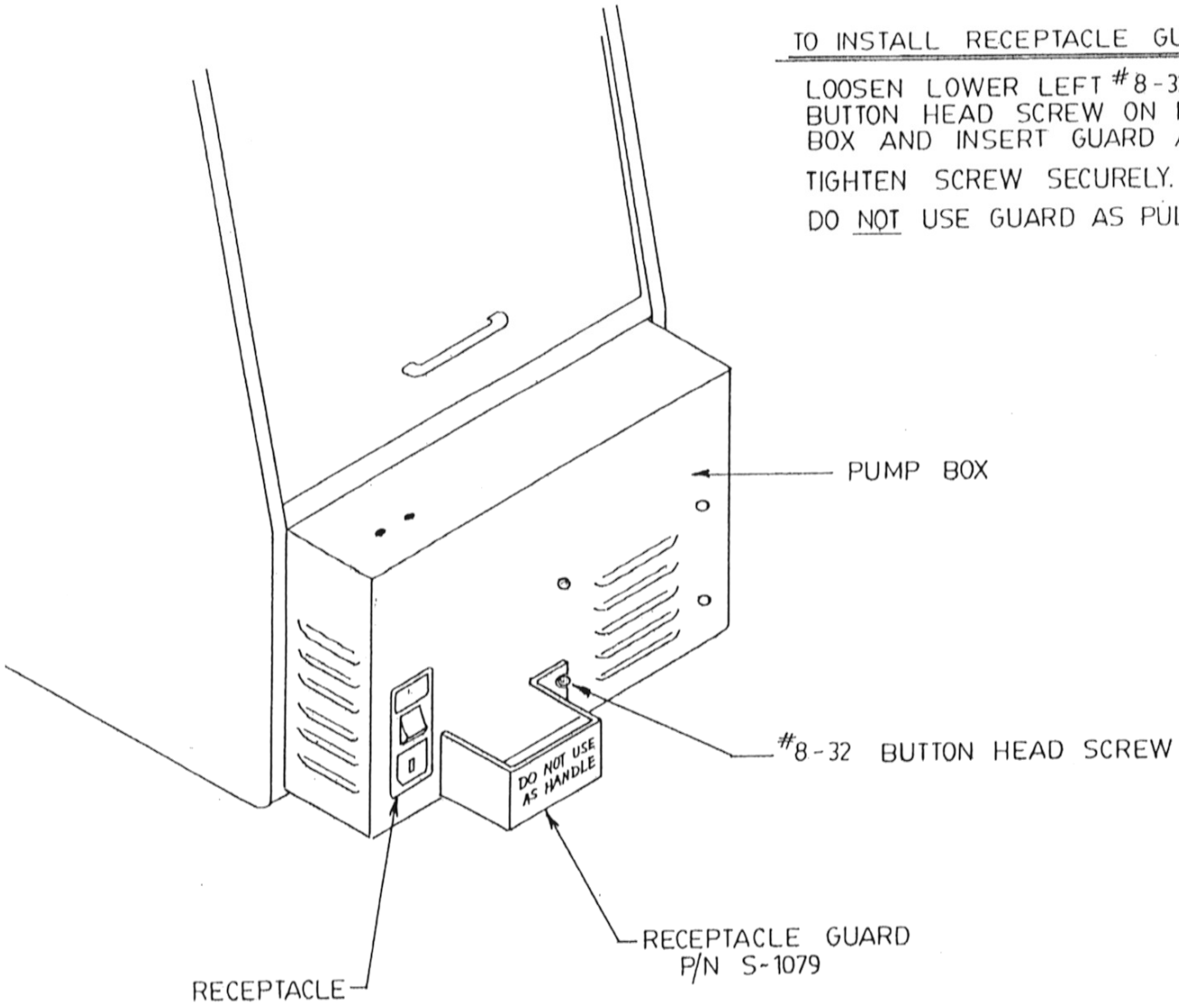
WARNING: PROPER ASSEMBLY OF COUNTER IS ESSENTIAL TO ELIMINATE TIPPING OF THE MACHINE.

3. Remove hex head screws from left and right sides of front panel and install table support brackets using same screws.
4. Place table onto brackets and into the “throat” of the counter.
5. Place the small silver hex-bolt through the table at the “point” nearest the throat of the counter. Tighten the bolt so that the table is approximately 1/32” above the table flap.
6. Install the remaining two (2) long silver hex-bolts through the table and the brackets. You may have to move the brackets into position so they support the table.
7. Open back panel access door.
8. Remove all packing material from interior of machine. This includes:
A) cardboard under counting head; B) two rubber bands holding tape cover closed and counting head down; and C) white plastic wire ties holding counting head down
9. Install receptacle guard to rear of machine (Refer to Diagram #2, Page 9).
10. Remove shipping bands from the counting head. Plug power cord securely into the socket located on the rear panel. **MUST BE INSERTED FIRMLY.**

NOTE: REAR BACK PANEL MUST BE CLOSED FOR MACHINE TO OPERATE.

*******SEE OPERATING INSTRUCTIONS***** (Page 13)**

(DIAGRAM #2 RECEPTACLE GUARD)



TO INSTALL RECEPTACLE GUARD

LOOSEN LOWER LEFT #8-32
BUTTON HEAD SCREW ON PUMP
BOX AND INSERT GUARD AS SHOWN.
TIGHTEN SCREW SECURELY.
DO NOT USE GUARD AS PULL HANDLE.

INSTALLATION INSTRUCTIONS

COUNT-WISE M SHEET COUNTER (Diagram #3, Page 11)

1. Remove carton containing mount bolts, jogging plates, table supports, insert tape, breathers (wood inserts), power cord, receptacle guard, bag of hardware and manual.
2. Open wings on the cabinet until each wing wedges into its corner of the cabinet.
3. Lift counter and place it into the cups on the base cabinet. Slide the counter all the way forward into the wings.
4. Place table onto the wings and into the “throat” of the counter.
5. Place the small silver hex-bolt through the table at the “point” nearest the throat of the counter. Tighten the bolt so that the table is approximately 1/32” above the table flap.
6. Install the remaining four (4) long silver hex-bolts through the table and the wings. You may have to move the wings into position so they support the table.
7. Install the two (2) jogging plates (available on Count-Wise M only) insuring the plates are parallel with the throat of the machine.
8. Open back panel access door.
9. Remove all packing material from interior of machine. This includes: **A)** cardboard under counting head; **B)** two rubber bands holding tape cover closed and counting head down; and **C)** white plastic wire ties holding counting head down.
10. Install receptacle guard to rear of machine (Refer to Diagram #2, Page 9).
11. Remove shipping bands from the counting head. Plug power cord securely into the socket located on the rear panel. **MUST BE INSERTED FIRMLY.**

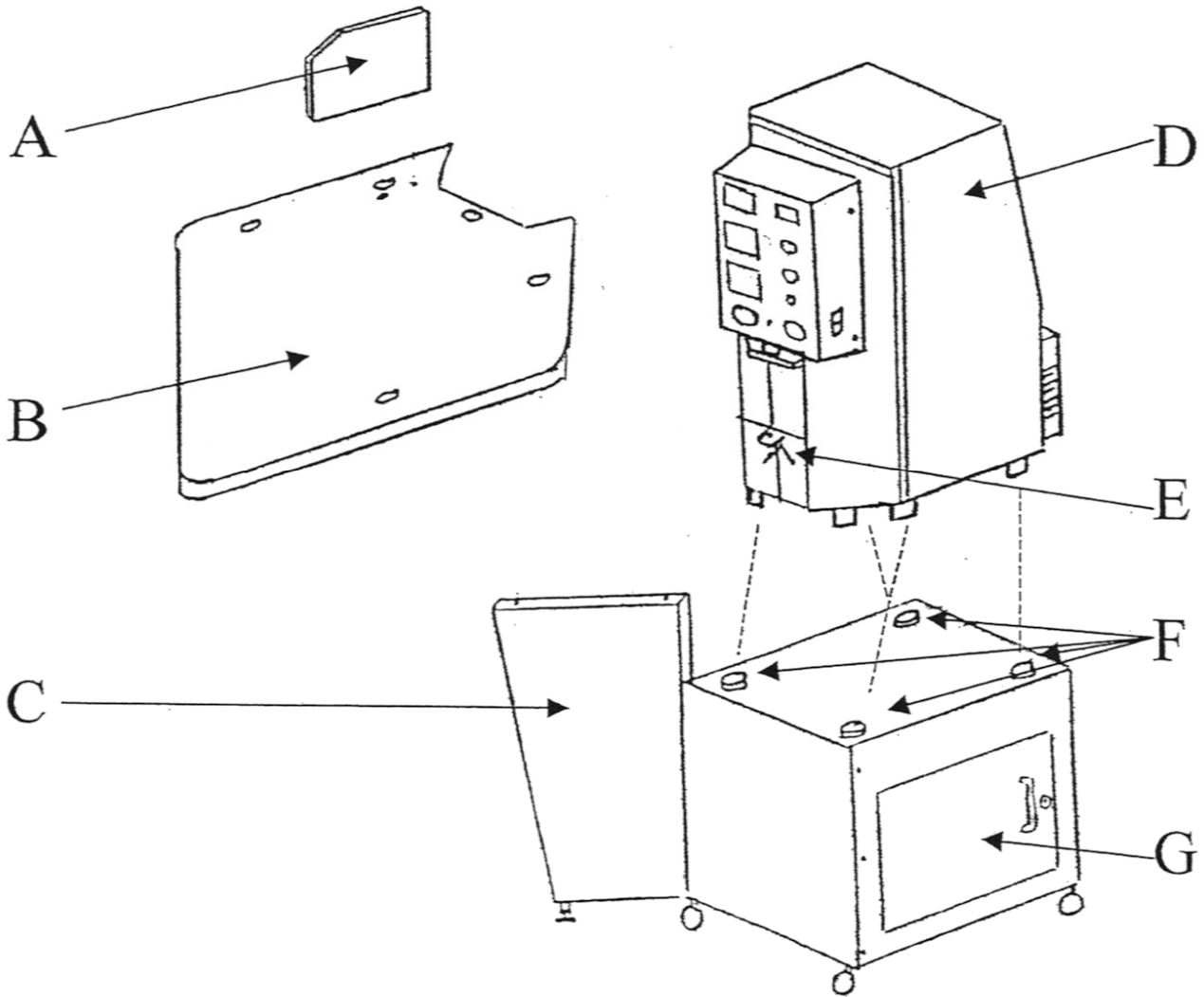
AIR FLOTATION SYSTEM

1. Connect the plug coming out of the top of the case to the receptacle coming out of the bottom of the machine.
2. Install the hose connector to the underside of the table. Connect the hose coming from the base cabinet to this connector and tighten.

NOTE: REAR BACK PANEL MUST BE CLOSED FOR MACHINE TO OPERATE.

*******SEE OPERATING INSTRUCTIONS***** (Page 13)**

(DIAGRAM #3 – COUNT-WISE M)



A. Jogging Plate	E. Table Mounting Bolt
B. Table	F. Bumper Cups
C. Table Support	G. Base Cabinet w/ Locking Storage Compartment
D. Side Panel	

COUNT-WISE 1, M & BANTAM TECHNICAL DETAILS

<u>DIMENSIONS</u>	<u>COUNT-WISE 1</u>	<u>COUNT-WISE M</u>	<u>MAX-BANTAM</u>
Weight :	185 lbs / 84 kg	275 lbs / 125 kg	160 lbs / 72 kg
Height:	30" / 75cm	55" / 138cm	28" / 70cm
Width:	38" / 95cm	42" / 105cm	18" / 45cm
Depth:	54" / 135cm	56" / 140cm	36" / 90cm
*Stack Size:	8" / 20cm	8" / 20cm	6" / 15cm
Table Dimensions:	27" X 27" 68cm X 68cm	32" X 32" 80cm X 80cm	15" X 18" 38cm X 45cm

(unless special order)

SHEET SIZE:

Minimum:	2 ¼" x 5" 5.5cm x 13cm	2 ¼" x 5" 5.5cm x 13cm	2 ¼" x 5" 5.5cm x 13cm
Maximum:	Limited only by size of table selected. Smaller sheets can be counted using optional coupon tray (2 ¼" x 2 ¾") (57mm x 70mm)		

***PAPER RANGE:** 20 up to 250 G/M²
20 lb Book up to .010 Stock
4 lb Bond up to .010 Stock

SUCTION BLADE GUIDE FOR RANGE OF PAPER TO BE COUNTED

(Choice of 2 with the purchase of any of these three counters.)

<u>Blade #70:</u>	30 – 75 G/M ² 20 – 50 lbs Books 8 – 20 lbs Bond	<u>Blade #71:</u>	50 – 90 G/M ² 33 – 60 lbs Book 13 – 24 lbs Bond
<u>Blade #72:</u>	75 – 110 G/M ² 50 – 73 lbs Book 20 – 30 lbs Bond	<u>Blade #73:</u>	110 – 220 G/M ² 73 – 113 lbs Book 29 – 45 lbs Bond
<u>Blade #74:</u>	20 – 30 G/M ² Tissue thru onion skin	<u>*Blade #75:</u>	110 up to 250 G/M ² 006" up to .010

COUNTING SPEED: CW-1 & M: Variable up to 2500 sheets per minute according to texture of paper.
Bantam: Variable up to 2000 sheets per minute according to texture of paper.

***TAB INSERTION:** CW-1 & M: 3 TO 9999 Bantam: 5 TO 999

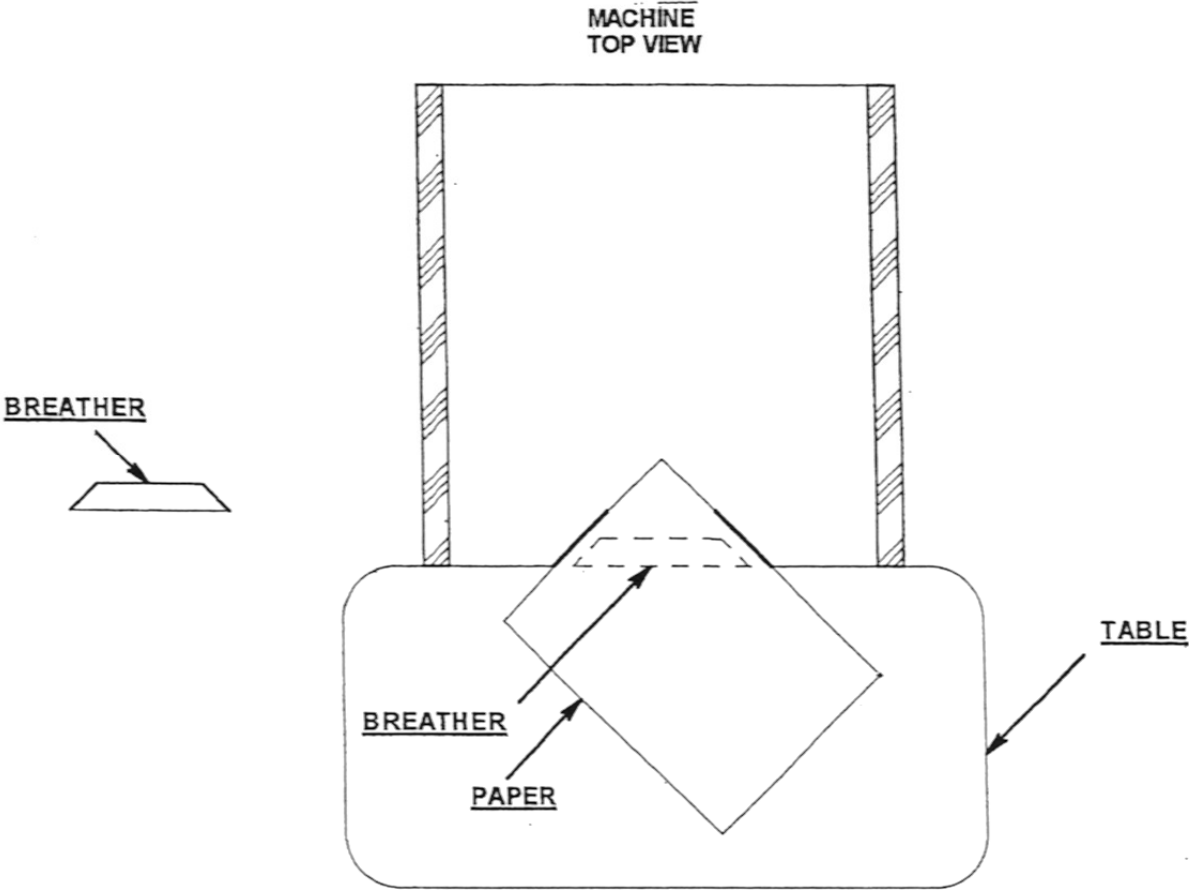
ELECTRICAL: 120v AC 60 Cycle, 15 Amps or 230V AC 15 Amps @50/60 Hz
(If you cannot maintain a steady power source, please call us to purchase an optional line conditioner to insure accuracy.)

CE: Standards to which conformity is declared: CW-1 & M: EN 55022 Class A, EN 55024:1998 & EN 60950 (1992).
BANTAM: EN 55011, EN 50082-1 & EN 60204-1.

***NOTE: DEPENDING UPON THE PAPER TO BE COUNTED, BREATHERS (WOOD INSERTS) MAY BE NECESSARY ON THE CW-1 OR CW-M (SEE PAGES 14 & 15). STACK SIZE AND COUNTING ABILITY MAY VARY DUE TO THE SUBSTANCE AND TEXTURE OF THE PAPER BEING COUNTED AND THE TABBING RANGE SELECTED. A CURL OF THE CORNER COUNTED IS TO BE EXPECTED DUE TO THE MECHANICAL OPERATION THAT SEPARATES THE SHEETS.**

**SECTION #3: OPERATING
INSTRUCTIONS & SEQUENCE OF
EVENTS DURING OPERATION**

(DIAGRAM #4 - BREATHERS)



BREATHERS-WOOD INSERTS
(Refer to Diagram Page 14)

“Breathers” (wood inserts) are specially shaped lengths of wood inserted into the stack at intervals (as shown in figure on Page 14) to “loosen” the corner by creating an air space. This space allows the counting head to operate without damaging the paper or the machine.

The intervals at which breathers (wood inserts) should be inserted in the stack follow no hard and fast rule. Papers vary in weight, texture and finish which will effect the breather spacing. Through experience, it will be found that, while spacing at 3” (76mm) intervals for one type of paper gives excellent results, another type will require spacing at 4-6” (100-150mm), and yet another type will only be counted with the spacing closer at the bottom than at the top.

Overuse of breathers (wood inserts) must be avoided. An excessive number inserted in the stock will loosen the corner so much that the “FOLLOW-UP” of the counting head will bend them back and give erratic counting.

On thin paper, care should be taken not to damage the sheets when inserting breathers.

OPERATING INSTRUCTIONS

CAUTION: PRE-SELECT SHOULD NEVER BE SET LOWER THAN 005 ON BANTAM AND 0003 ON COUNT-WISE!!! Check that reset on-off switch is in your desired position. In the “ON” position overage will be displayed on the electronic counting unit and will zero when Start Switch is pushed. In the “OFF” position display will maintain number from previous batch and continue from that number. Set Tape Length and Speed Control knobs to desired settings. Tape lengths should be between 2 ¼” and 2 ½”. Depending on speed of machine, length of tape may need to be adjusted.

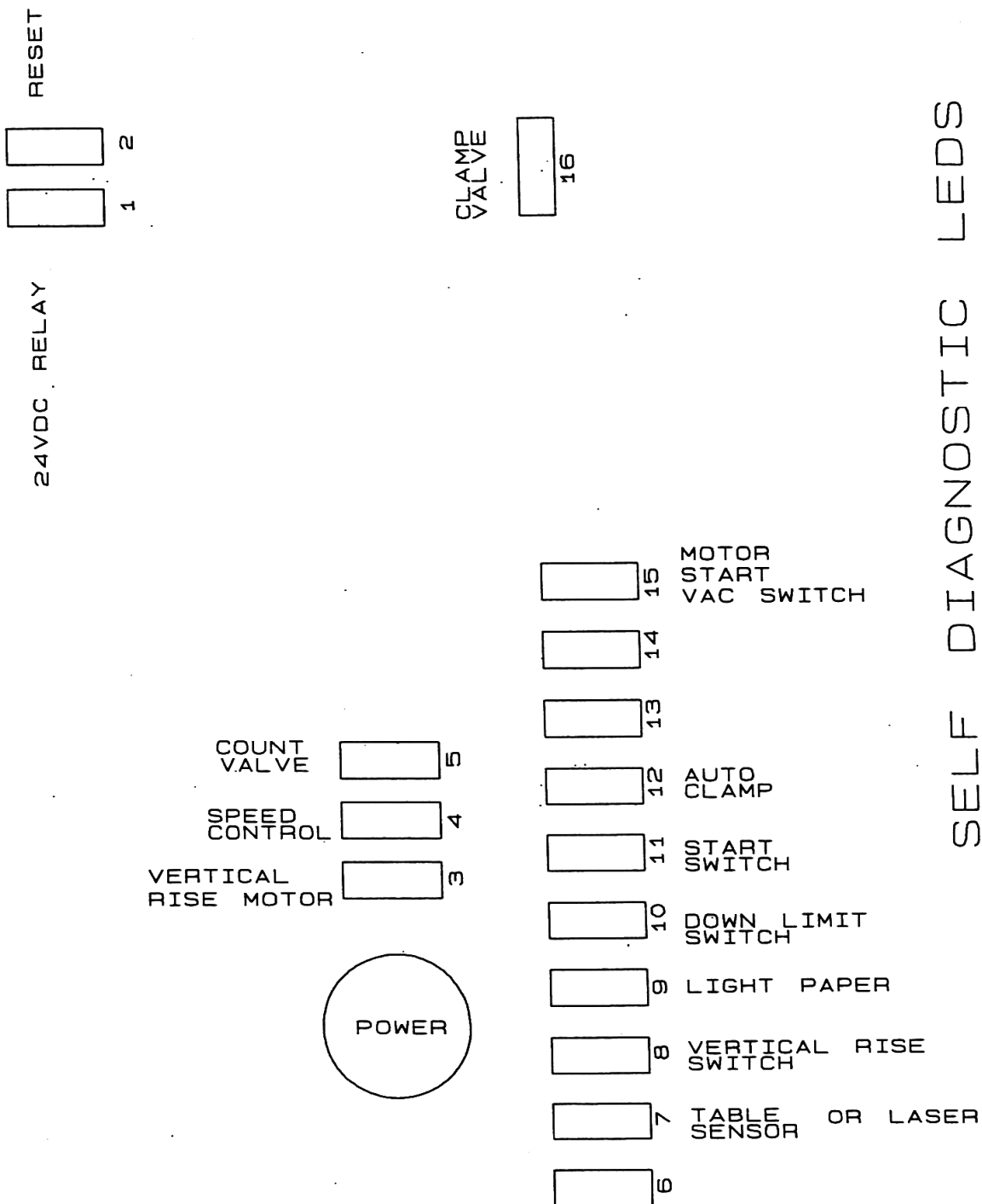
NOTE: Batch and totalizer counters reset manually by pressing their individual buttons.

1. Counting head should be set up with a suction blade suitable for the paper. Suction blade chart located on Page 12. (Refer to Page 28 for how to change a suction blade.)
2. Be sure that “**Emergency Stop Switch**” is not activated (should be in “OUT” position).
3. Activate “Main Switch” at rear of machine to “ON” position.
4. Turn “Pre-Select” (tabbing selector) to the required number of tab insertions.
5. Load paper on table, locating it firmly against guides; insert breather (wood inserts) if necessary.
6. Press “**Start Switch**” when lit.
7. At completion of count, clamp will release. Remove paper; counters will reset automatically.

IMPORTANT

- **Count-Wise 1 & M:** According to the *height of the paper* to be counted, “breathers” (wood inserts) may be necessary. (Page 14,15).
- **Stack size, counting speed and counting ability** may vary due to the substance and texture of the paper being counted and the tabbing range selected.
- **A slight curl of the corner counted is normal.** The thickness of the stock determines the amount of curl that is produced.
- When *increasing counting speed, tape length should be lowered by equal amounts.*
- When *decreasing counting speed, tape length should be increased by the same.*

DIAGRAM #5 - SELF DIAGNOSTIC LEDS



SEQUENCE OF EVENTS

LOGIC BOARD S-3170

1. Plug machine into AC service.
2. Turn main switch to “ON” position with cover down (Safety Switch engaged).
 - a. Power applied to all circuits.
 - b. Red Power LED activated on Logic Board.
3. Material inserted, green Table Sensor/Laser LED #7 activated, and Vacuum Pump turns “ON”. Green Vertical Rise Switch LED #8 needs to be on. Red Count Valve LED #5 activates momentarily to bleed vacuum off system.
4. Pressing Start Switch:
 - a. Green Start Switch LED #11 activates on Logic Board.
 - b. Red Clamp Valve LED #16 activates.
 - c. Red 24V DC Relay LED #1 activates.
5. Clamp comes down:
 - a. Red Vertical Rise LED #3 lights.
 - b. Counting Head rises to meet paper.
 - c. LED #10 lights.
 - d. When Head tips off Vertical Rise Switch, RED Count Valve LED #5 activates and vacuum is applied to Suction Blade.
 - e. When vacuum reaches 19” HG, GREEN Motor Start Vacuum Switch LED #15 turns, activating the RED Speed Control LED #4; AC is applied to Speed Control via SSRI. Counting Head counts as long as a minimum of 20” HG is maintained.
6. At completion of count, vacuum breaks and AC is turned off to Speed Control. The Counting Head will rise 2” – 3” above the stack of paper and stop.
7. Removing paper from Table Sensor/Laser deactivates Pump Control Relay and the Counting Head lowers to bottom position.
8. Upon reaching bottom position, the Reset Circuit is energized; the RED Reset LED #2 activates until the Counting Head is in the reset position.

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**SECTION #4: COUNTING HEAD &
MAINTENANCE SCHEDULE**

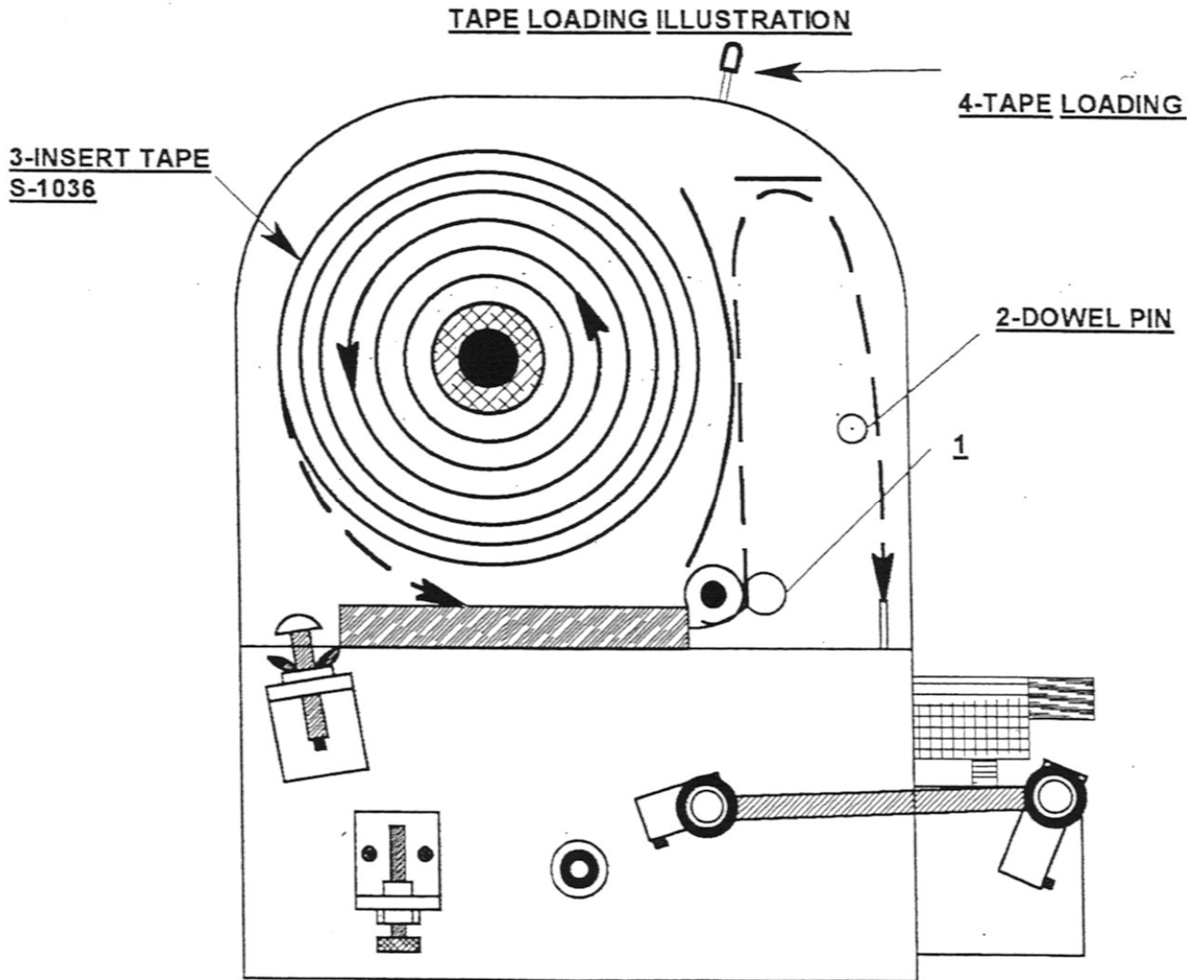
LOADING INSERT TAPE

(Video available on Web Site, “Service & Support”)

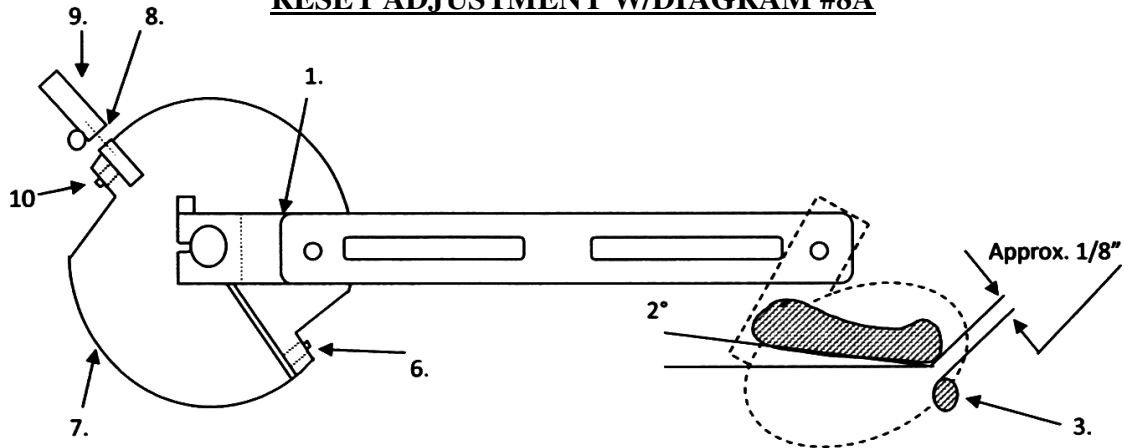
CAUTION: Use extreme care when installing tape so as **not** to bend or distort the looper wire. After loading tape, make sure looper switch wire has not been distorted out of shape and that it is not rubbing against the tape reel cover when closed. Switch wire **must** operate freely for proper loop follow-up when tabbing, or the loop will not keep up and will cause a tape jam or no tape will come out.

1. **NOTE:** When back access door is open, power is automatically turned off.
2. Loading insert tape:
 - a. Be sure that tape roll is **flat (not coned)** and center cardboard core is not “egg shaped”. Spool must *spin and float freely* when cover is closed.
 - b. Place a roll of insert tape on the counting head, as shown in the illustration on Page 23.
 - c. Close magnetic tape cover.
 - d. Pull out a 12” to 14” length of tape.
 - e. Spread tape loop rollers using tape-loading lever.
 - f. Place tape between looper rollers.
 - g. Push end of tape through the chute until it exits the front of the counting head.
 - h. Open tape cover; place remaining loop inside. Close cover.
 - i. Close back access door; turn on power.
3. To cut the excess tape, press the Cut Tape button located on the front panel.

(DIAGRAM #7 - LOADING INSERT TAPE)

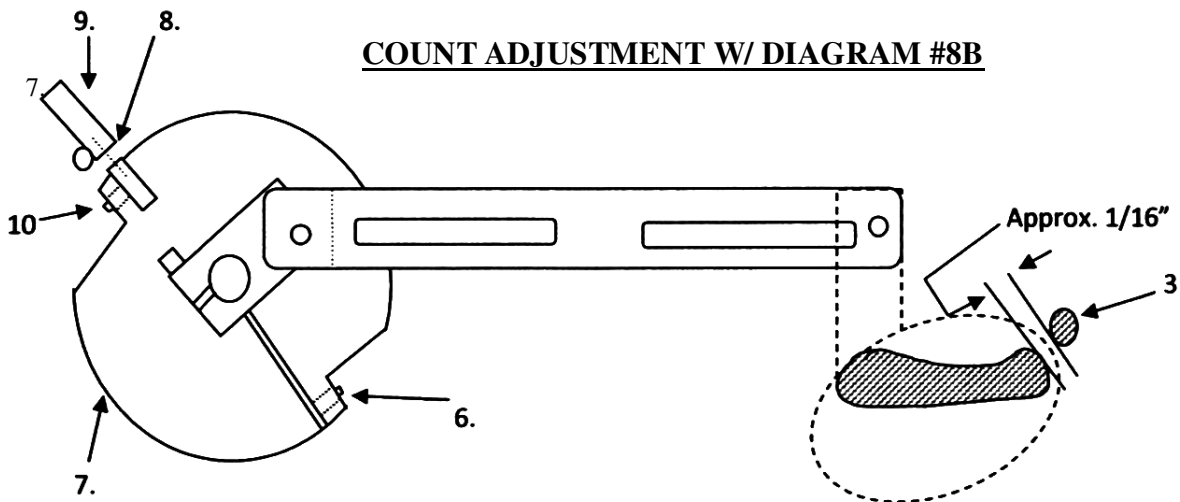


RESET ADJUSTMENT W/DIAGRAM #8A



1. Remove counting head from machine. (See instructions, page 26.)
2. Remove both counting head covers.
3. Place ohmmeter on #9 reset leads with Magnet, #8 away from switch. Meter should register closed.
4. Position wiper pin #3 as shown above.
5. Loosen allen screw #6, turn magnet carrier #7 until meter registers “open”. See Figure above.
6. Tighten screw #6. Check tightness – allen screw #10

COUNT ADJUSTMENT W/ DIAGRAM #8B



1. Remove counting head from machine. (See instructions, page 26.)
2. Remove both counting head covers.
3. Place ohmmeter on #9 on count switch leads (with magnet (#8) away from switch, meter should register “open”).
4. Position wiper pin #3 as shown above.
5. Loosen allen screw #6, turn count magnet carrier #7 until meter registers “closed”. See Figure above.
6. Tighten screw #6. Check tightness – allen screw #10
7. Verify meter readings after rotating counting head one full turn clockwise.

COUNTING HEAD INSTALLATION AND ALIGNMENT**

****Refer to photos on Pages 27, 82, & 84**

1. Raise carriage assembly approximately halfway. Loosen pivot block bolts (**p.27, #4 & 9**) from carriage base plate.
2. With a marker, indicate center of suction blade directly behind hole in suction blade.
3. Lower carriage assembly and stop when suction blade is level with tabletop surface.
4. Insert paper squarely into throat or jog of machine over suction blade.
5. Viewing from top of machine, adjust counting head until corner of paper is on centerline mark on blade and approximately 1/16" (1.59mm) from back edge of blade.
6. Move right pivot block 1/16 to 1/4 of an inch forward, causing right side of head to be closer to paper.
7. Raise counting head again approximately halfway and tighten pivot blocks to carriage base plate.
8. Hook counter poise (**p.84, #2**) spring to dash pot bracket.
9. Insert a 3/8" (9.54mm) spacer block between carriage base bracket and counting head base to level head.
10. Loosen set screw on dash pot assembly (setting to be a #5 or mid-range) and adjust dash pot plunger so that a 1/16" to 1/8" gap exists between the plunger and suction blade housing. Tighten nuts.
11. Remove 3/8" (9.54mm) spacer and lower counting head leveling bolt on rear of dash pot bracket to give approximately 1/16" (1.59mm) gap between dash pot plunger tip and base of suction blade housing. Tighten.
12. To set vertical rise setting: Turn mushroom cap bolt into vertical rise switch button until you hear a click. When it clicks, adjust approximately 1/16th of a turn into vertical rise switch, hold and tighten.
13. Adjust counter poise spring tension to lightly pull counting head down. Approximately half the length of the bolt or less is satisfactory.

****ADJUSTMENT IS CRITICAL FOR PROPER FOLLOW-UP THROUGH PAPER**

COUNTING HEAD REMOVAL (Refer to Pages #27, 82, 84)
(Video available on Web Site, “Service & Support”)

1. Pull off “Vacuum Hose” (p.27, #1).
2. Pull “15 Pin head Plug” (p. 27, #2) from counting head (**NOTE:** Grasp *plug (not wires)* when unplugging cable) and hook into white clip on side of counting head (p.82, #8).
3. Loosen wing nuts on left and right pivot blocks, and lift hinged top from bearing.
4. Remove Counter Poise Spring (p.84, #2) by unhooking ”S” clip (p.27, # 10) from dash pot bracket.
5. Grasp front of counting head by vacuum shaft housing and the back of counting head. Carefully lift head out.

REPLACING COUNTING HEAD

1. Place counting head into pivot blocks. Take care to position left side bearing squarely between guide pins located in left side housing. Close hinged top onto pivot bearing and tighten wing nuts.
2. Connect counter poise spring “S” clip into hole provided in rear of dash pot bracket.
3. Plug cable into counting head and reconnect vacuum hose.

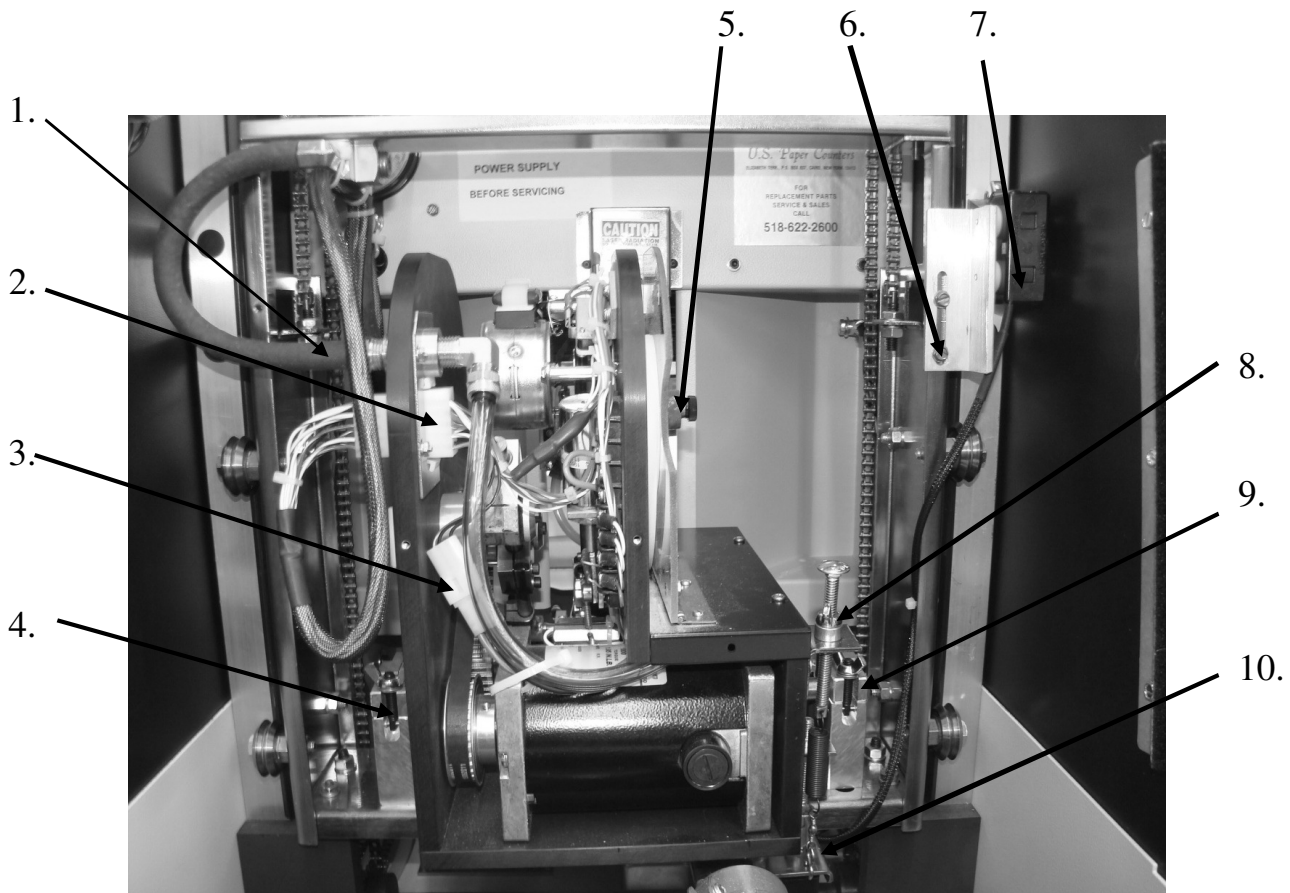
REMOVING COUNTING HEAD CENTER PLATE
(Video available on Web Site, “Service & Support”)

1. Remove counting head from machine; remove counting head covers and insert tape.
2. Unscrew vacuum hose from suction blade housing.
3. Place screwdriver on the outer side top of 15-pin plug. Press down and in. Plug will disconnect from plate. (Plug should hang free inside counting head.)
4. Disconnect 3-pin motor plug.
5. Remove 2 allen screws from the bottom of Counting Head base plate connecting center plate. Carefully lift center plate out.

NOTE: When replacing center plate, position on steel guide pin and gently push into position. Take care that drive gears are properly meshed before tightening allen head screws.

COUNTING HEAD REMOVAL

PHOTO/DIAGRAM



1) Vacuum Hose (S-4033)	6) Down limit adjustment plate (S-2247)
2) 15 Pin head plug (S-3032)	7) Down limit switch (S-3112)
3) 3 Pin counting head motor plug (S-3037)	8) Counter poise spring adj. bolt. (S-6171)
4) Left side pivot block (S-2221)	9) Right side pivot block (S-2222)
5) Tape reel cover (S-6162)	10) "S" Clip (S-6174)

Note: Photo above shows counting head with center cover removed. Do not run machine without center cover installed.

HOW TO CHANGE A SUCTION BLADE**
(Video available on Web Site, “Service & Support)

1. **Turn off power receptacle (main power, rear of machine) and disconnect cord.**
2. Remove counting head from machine (refer to “**Counting Head Removal**”, page 26).
3. Holding the link arm, loosen the allen cap screw in the center of the blade and remove the blade from the holder.
4. Take the blade required, line up the locator pin with the slot in the holder, and install the blade.
5. Again, holding the link arm, tighten the allen cap screw in the blade.
6. Reinstall and connect counting head.
7. Reconnect cord and turn on power. The machine is ready to count.

SETTING VERTICAL RISE SWITCH**

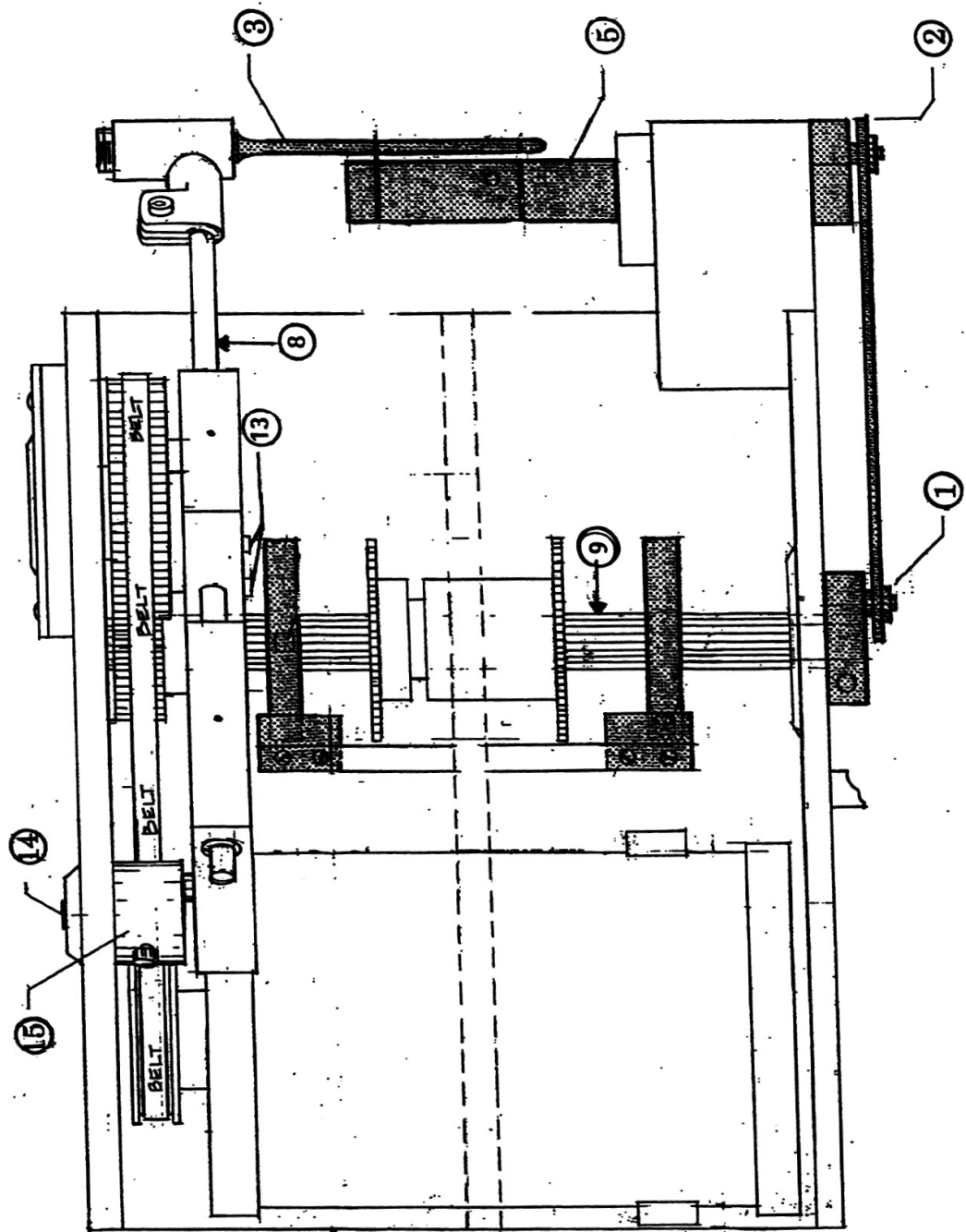
1. With counting head in machine, loosen “locking nut” on vertical rise actuator.
2. Adjust the vertical rise actuator so it lifts off the vertical rise switch.
3. Screw the vertical rise actuator onto the vertical rise switch until you hear the switch click or switch close.
4. Turn the vertical rise actuator no more than 1/16” (1.59mm).
5. Tighten the “locking nut”.

SETTING THE COUNTER POISE SPRING**

1. Loosen wing nut on counter poise spring bolt.
2. Adjust tension of spring by turning the counter poise spring bolt so that there is sufficient tension on counter poise spring to ensure that the head of the vertical rise actuator will engage into the vertical rise switch.
3. Secure bolt by locking wing nut.

****Refer to photos on Pages 82 & 84.**

(DIAGRAM #9 - ORBIT ADJUSTMENT)



ORBIT ADJUSTMENT (REFER TO DIAGRAM ON PAGE #29)

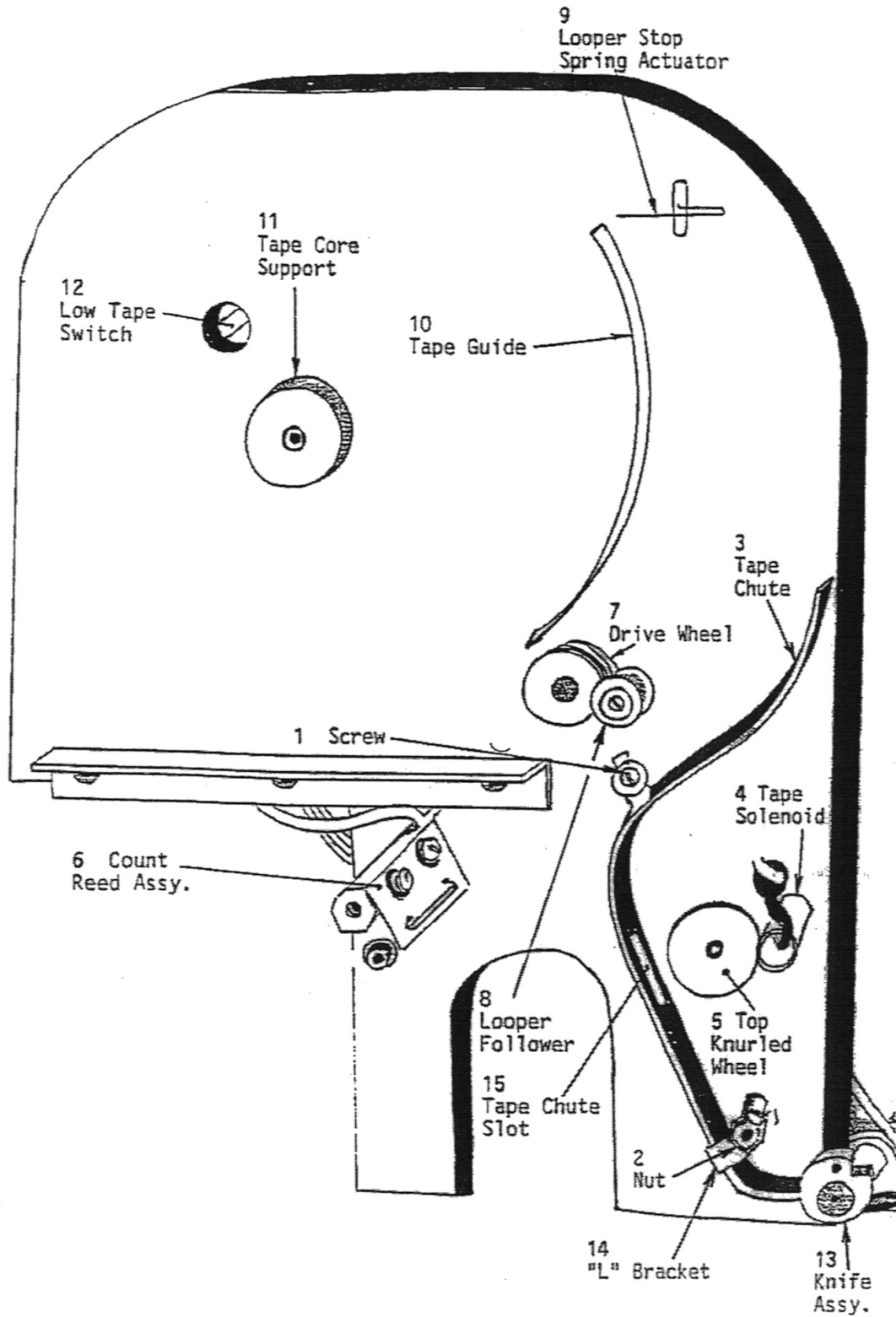
CAUTION: Read and understand all instructions before attempting this adjustment.

1. Remove counting head from machine. (Refer to procedures on Page 26.)
2. Remove both covers and tape spool.
3. Disconnect small vacuum line from suction blade housing, 15-pin plug from side plate and disconnect 3-pin motor plug.
4. Remove 2 screws from bottom of base connecting center plate and carefully lift plate out.
5. Loosen allen screw on **small crank arm #1**. Rotate and hold crank arm at maximum forward position so that allen screws are facing downward.
6. Loosen allen screw on **large crank arm #2** and raise back edge of suction blade #5 approximately 2 degrees above level. Lightly tighten screw.
7. While holding **small crank arm #1** at maximum forward position, rotate **main shaft #9** until top of **wiper pin #3** is flush and parallel with front surface of **suction blade #5** and approximately 1/8" (3.18mm) away from front edge.

NOTE: Adjustment of **push rod #8** may be required to obtain this setting. Loosen 2 **screws #13** on orbitor assembly to adjust.

8. Lightly tighten all screws.
9. Continue rotating **wiper pin #3** under **suction blade #5** and around back edge. Set clearance of approximately 1/8" (3.18mm) between **wiper pin #3** and back edge of **suction blade #5** by loosening **screw #14** and rotating **rocker arm adjustor #15**. Lightly tighten screw.
10. Continue rotating **wiper pin #3** across top surface of **suction blade #5** to achieve approximately 1/16" (1.59mm) clearance. Set this by adjusting **push rod #8** length. (Refer to note in Step 7).
11. Rotate **wiper pin #3** around **suction blade #5** observing all clearances. Repeat procedures 5 through 10 if necessary to obtain uniform orbit.
12. Tighten all screws securely.

(DIAGRAM #10 - COUNTING HEAD, CENTER PLATE / TAPE CHUTE)



HOW TO REMOVE A TAPE JAM (REFER TO DIAGRAM ON PGS. 36 & 37)
(Video available on Web Site, “Service & Support”)

1. Remove head from machine. (Refer to **Counting Head Removal, Page 26 & 27**).
2. Remove both head covers.
3. Push small knurled wheel against large knurled wheel and rotate the main shaft to “back-out” the jam in the chute.

NOTE: On 2000+ models, the internal size of the chute has been increased and the slot has been extended for easier removal of tape jam.

4. If step 3 doesn't work, use a small pair of needle-nose pliers or tweezers, grasp the tape and pull the jam from the chute. Do not damage knurled wheels by “picking” at the tape with a screwdriver and be careful **not** to damage the tape chute by scoring or burring where the tape travels.
5. If step 4 did not work, removal of knife assembly is necessary. **Do not pick at tape through knife or serious damage will result to knife assembly.**
 - a. Unhook black **Connecting Link Arm (R-11, S-6283)** from **teardrop (R-14)**
 - b. Loosen the **#10-32 nut** and remove **#10-32 allen cap screw (#1)**.
 - c. Carefully lift **knife assembly (#13) from tape chute (#3)**.
 - d. You will now see the tape protruding from end of chute. Grab tape with small needle-nose pliers and pull out straight.
 - e. While you have knife assembly out, this is an excellent time to internally clean the knife. Remove anvil from barrel and clean both pieces with a Q-tip and acetone. **DO NOT OIL THIS ASSEMBLY.**
 - f. Reassemble knife and carefully place back onto tape chute.
 - g. Replace **#10-32 allen cap screw** until it “bottoms out” in knife. **DO NOT OVER TIGHTEN OR DAMAGE WILL RESULT TO END OF TAPE CHUTE.**
 - h. Adjust screw so the tape will exit from center of slot. Hold and tighten nut securely.
 - i. Reattach connecting link S-6283.
6. If step 5 did not work, the tape chute will have to be removed (Tape Chute Removal, Page 33). Using a small torch, heat area of tape to “burn out” the tape jam. Pass a new piece of tape through the chute to clear or you may order a new **Tape Chute, S-6056-1**, if necessary.

TAPE CHUTE REMOVAL

(REFER TO DRAWING #10, PAGE 31)

1. Remove **screw (#1)**.
2. **Loosen nut (#2)**. **DO NOT “REMOVE”**.
3. Slide tape chute carefully out of knife assembly and **“L” bracket (#14)**.

REPLACING TAPE CHUTE

1. Replace chute carefully into knife and **“L” bracket (#14)**.
2. Replace **screw #1- DO NOT TIGHTEN**.
3. Insert tape into chute until tape comes through knife assembly smoothly. If restrictions are felt, move the chute out of the knife assembly slightly until the tape passes smoothly through the knife. Tighten **nut (#2)**.
4. Re-insert tape into **tape chute (#3)** and push tape through to the **tape chute slot(#15)**.
5. Position chute so that tape lightly brushes bottom knurled drive wheel (not shown) while passing over **tape chute slot (#15)**.
6. Secure **screw (#1)**.

CHANGING TAPE SOLENOID (S-3103)

These instructions reference photo and parts on Pages 36 & 37.

1. Remove center plate (**Refer to instructions, Page 26**).
2. Remove **tape drive (#R9)** by removing 2 allen screws.
3. Using ½” (12.7mm) socket, remove nut holding the tape solenoid to the center plate.
4. Push back the sleeve over the solenoid wires and cut the wires.
5. Take the wires of the new solenoid and solder them to the cut wires. **Use shrink tube or electrical tape to cover solder connections.**
6. Replace the ½” nut that holds the solenoid to the center plate.
7. Replace the tape drive with the 2 allen screws. Before tightening, make sure the gear of the top tape drive is engaged with the gear of the bottom tape drive.
8. Push the top tape drive so that both knurled wheels touch.
9. Turn the solenoid plunger into the solenoid while holding down the top tape drive until you feel the top tape drive being pushed away.
10. At this point, turn the plunger one full turn **away** from the tape solenoid.

REMOVAL OF KNIFE ASSEMBLY (S-6285-1) –Refer to Page 36

1. Remove **connecting link arm (#R11)** from **tear drop (#R14)** of knife.
2. Loosen locking nut and remove allen screw.
3. Remove knife assembly from the end of tape chute and adjusting plate.

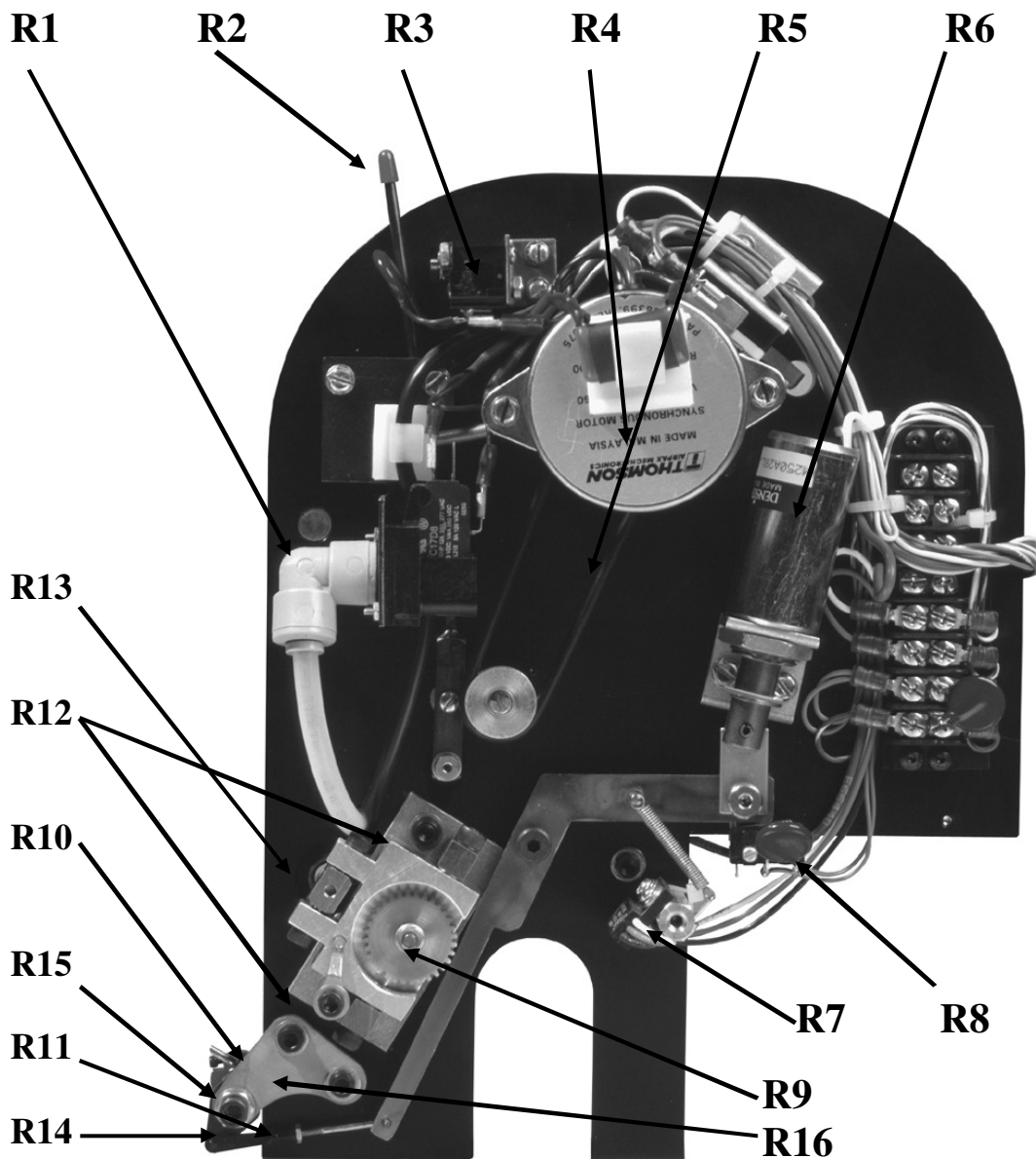
****DO NOT USE OIL ON KNIFE ASSEMBLY****

REPLACING KNIFE ASSEMBLY (S-6285-1)

1. Position knife on tape chute. Turn allen head screw into knife adjusting plate until screw “bottoms out”.
2. Attach knife **Connecting Link Arm (#R11)** to **tear drop (#R14)**.
3. Push tape through until it comes through the knife anvil. Tape must travel smoothly through anvil. Slightly turn the allen head screw clockwise or counter-clockwise until tape flows smoothly.
4. Lock down the **locking nut (#R15)**.
5. Depress knife solenoid and ascertain knife blade completely passes over anvil slot with over travel not to exceed 1/32” (.79mm). This adjustment is made via the **connecting link arm (#R11)**.
6. Place counting head in a flat position. Push tape through chute until tape hits bottom of blade, approximately mid-way. Adjust the angle of the of the knife anvil using the allen head screw.

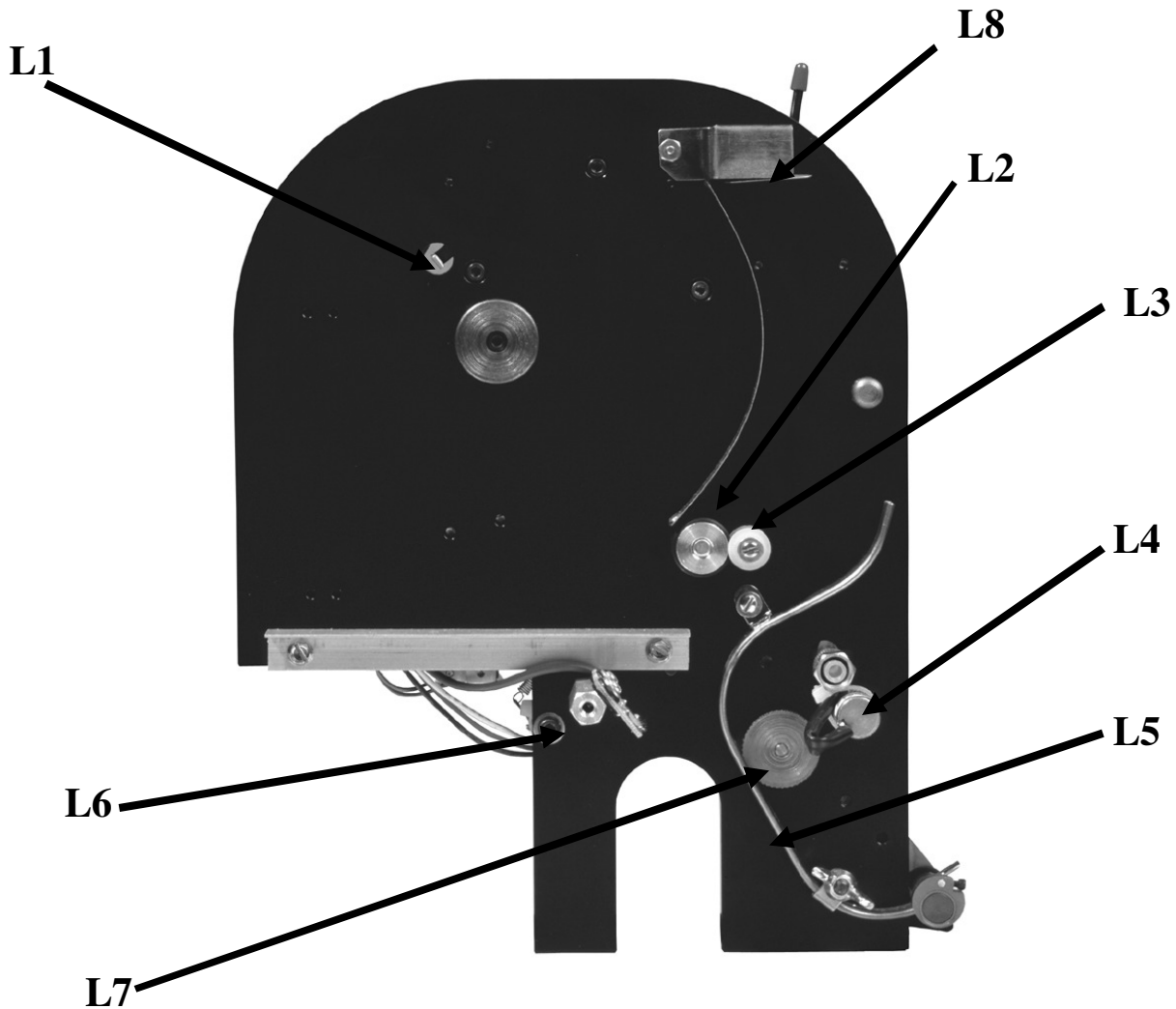
****DO NOT USE OIL ON KNIFE ASSEMBLY****

COUNTING HEAD, CENTER PLATE – RIGHT SIDE (PHOTO / DIAGRAM # 11)



R1- Vacuum Switch (S-3043-1)	R9 – Tape Drive (S-6250)
R2- Tape Loading Lever (Ass’y S-6045)	R10- Knife Assembly (S-6285-1)
R3- Looper Stop Switch (S-3105)	R11- Connecting Link Arm (S-6283)
R4- Looper Driver Motor (S-3106-1)	R12- Allen Screw
R5- Looper Drive Belt (S-6062)	R13- Nut
R6- Knife Solenoid (S-3102)	R14- Tear Drop
R7 – Reset Reed Switch (S-3107)	R15 – Locking Nut (H-154)
R8- Tape On / Off Switch (S-3140)	R16 - Knife Adjusting Plate (S-6287)

COUNTING HEAD CENTER PLATE LEFT SIDE
(PHOTO / DIAGRAM # 12)



L1- Low Tape Actuator (S-3110)	L5- Tape Chute (S-6056-1)
L2- Loop Drive Assembly (S-6040) (O-Ring = S-6054)	6- Count Reed Switch (S-3108)
L3- Looper Follower (S-6050)	L7- Knurled Wheels (S6250-E, S-6021(plated)... not shown)
L4- Tape Solenoid (S-3103)	L8- Looper Stop Actuator (S-3105-A)

MAINTENANCE SCHEDULE

1. **Filter assemblies (vacuum manifold and counting head):** Remove jars and clean filters **daily**. Depending on dust and paper material, more frequent cleaning or replacement of filters may be necessary. Be sure jars are tight to avoid vacuum leaks.
2. **Wiper pin bearing (critical):** Due to the extreme load placed on the wiper pin assembly, it must be checked **daily**. For free spinning and **no** excessive up and down movement. To lubricate. Remove brass end cap using a large tipped flat screwdriver and push assembly through housing. Use either Teflon based oil, any high-grade motor oil or lithium or Teflon grease and place directly into bearings. It is **not** recommended to use multi-oil or light household oil because it will not adhere to the ball bearings. **Lubricate weekly or every 40 hours of operation.**
3. **Knife assembly (critical):** The knife assembly should be checked **daily** for free movement. If knife appears sluggish, use a high-pressure contact cleaner and spray directly into knife. Disassembling the knife may be required to clear barrels internally if sluggishness persists. **Do not** use any oil on knife assembly. This will attract dust and cause knife malfunction.
4. **Tape Loop Drive (critical):** To ensure proper tape loop and tabbing, the tape loop drive must always spin freely. Check that all o-rings are in place. If tape loop drive is binding, it may have to be disassembled and lubricated using a light oil. When reinstalling, **do not** sandwich pieces together tightly. Remember that it must move freely. **Inspect and check monthly (every 30 days).**
5. **Counting blade:** The wiper pin must orbit the blade without coming in contact with it. Any scoring of the blade can cause tearing, miscounts or marking of the stock being counted. If blade shows signs of wear, it must be replaced. If paper chips or dust becomes lodged in blade, it must be removed and cleaned. When reinstalling, make sure housing seat and bottom of suction blade are clean and be sure blade is tight to avoid vacuum leaks.
6. Additional lubrication points (**lubricate weekly or every 40 hours of operation, using a light oil**):
 - Pivot bearings (on sides of head)
 - Connecting link bearings (dog bone assembly)
 - Rocker arm assembly (in head; remove covers)
 - Tape drive assembly (in head; remove covers)

Note: Do not spray lubricant inside mechanical parts on head. This can and **will cause head failure**. If you have any questions, contact the factory. (See page 40 for contact information.)
7. Inspect upper and lower knurled wheels and gears. (**Refer to Diagram on Page #37**) Check all mechanical and electrical connections for tightness.
8. **Machine:** General cleaning of machine may be done using a store bought glass cleaner or all-purpose cleaner.

Note: Remove any tabs from bottom of machine that could block the laser pick-up assembly.

SECTION #5: TROUBLE SHOOTING

CONTACT INFORMATION

CALL U.S. PAPER COUNTERS

SERVICE DEPARTMENT

PHONE: 518-622-2600

FROM 8:30 A.M. TO 5:00 P.M. EST.

MONDAY THRU FRIDAY

YOU CAN ALSO:

FAX TO: 518-622-2695

OR

E-MAIL TO: uspc@wecount.com

**Shipping Address:
138 Elizabeth Terrace, Cairo, NY 12413**

**Mailing Address:
P.O. Box 837, Cairo, NY 12413**

TROUBLE SHOOTING

1. No Power	Power switch in off position	Turn power switch to on position
2. Power LED on logic not lit	a. Main power fuse blown.	a. Replace fuse.
	b. Emergency Stop Switch not set/reset.	b. Set Emergency Stop Switch to correct position.
	c. Bad interlock	c. Close rear cover, check Cover Safety Switch. Check AC pins 3 & 4 on interlock. If no AC, check plug 1 pins 8 & 9 on logic board.
	d. Bad logic	d. Check for broken wire or replace logic board.
3. Vacuum Pump does not start.	a. No power.	a. Check procedures for “No power” #1 above
	b. LED #7 on logic board not lit	b. Check plug on receiver.
	c. Solid state relay (SSR) on pump plate not turning on (LED #7 is lit).	c. Check for DC voltage on SSR pin 1 & 2. If you have voltage, jump relay or if no voltage, replace SSR
	d. Lower laser receiver bad.	d. Replace receiver.
4. Vacuum pump does not stop.	a. Obstruction (tabs) over lower laser receiver	a. Clean lower laser of obstructions.
	b. Laser not aligned.	b. Check alignment.
	c. Laser dim or not lit.	c. Replace laser diode assembly (test with flashlight).
	d. Bad logic board.	Check DC voltage on plug 4 pins 6 & 7 on logic or replace logic board.
5. Decade (overage) not lit.	a. F2 fuse blown.	a. Replace fuse
	b. No voltage going to ECU.	b. Check ECU 9-pin plug, pins 8 & 9 for AC.
	c. Bad ECU	c. Replace ECU
6. Counts fail to register while machine is running	a. Broken wire.	a. Check continuity of coax cable from ECU 9-pin plug, pins 1 & 2 to head cable.
	b. Bad count reed switch	b. Replace switch
	c. Vacuum switch out of adjustment or bad.	c. Check vacuum switch settings (17 ½”hg). Jump vacuum switch. If counts register, replace.
	d. Defective ECU.	With power on, jump between 9-pin plug on ECU pins 1 & 2 or replace ECU.

7. Count registers but no tabs in stack	a. Tape length too short	a. Adjust length.
	b. Knife sticking.	b. Clean knife**
	c. No tape loop.	c. Check loop follow up, o-rings, looper switch and motor.
	d. Loose connection on ECU/broken wire.	d. On 9-pin plug, check pin 3 & 6.
	e. Tape chute out of adjustment or jammed.	e. Adjust chute or clean.
	f. Bad solenoid/ECU	f. Check continuity from ECU pins 3 & 6 to counting head cable. Jump pins 3 & 6. Listen for click from knife.
	g. Bad totalizer board.	g. Replace ECU. Unplug totalizer board. If decade runs and tabs, replace total board.
	h. Bad in-line fuse/blown F3 fuse.	h. Replace fuse.
8. Count registers but no knife or batch counts	a. Sticky knife. b. Loose connection of ECU c. Broken wire. d. Bad ECU	Refer to steps under “Count registers, but no tabs in stack” (#7 above).
9. Decade and batch counter register but no knife.	a. Sticky knife	a. Clean knife**
	b. Broken wire	b. Check connections of white/brown wire in head cable.
	c. Broken knife linkage	c. Check knife linkage from knife to solenoid. a-c. Replace parts as needed.
10. Tape and/or knife operate continuously	Bad ECU.	Replace ECU. (May need to replace solenoid.)
11. Miscounts, undercounts or overcounts.	a. Wrong suction blade for stock being counted.	a. Refer to counting blade chart for correct blade.
	b. Bad count reed switch	b. Test count reed switch for proper function. Replace if needed.
	c. Vacuum switch bad, clogged or out of adjustment	c. Clean, adjust or replace vacuum switch.
	d. Bad pre-select.	d. Test 4 corner of the stack without tabbing. If all corners are the same, replace pre-select.
	e. Vertical rise out of adjustment	e. Check VR switch settings.

****USE A NON-RESIDUE ELECTRONIC CLEANER (DO NOT USE A SILICONE SPRAY)**

12. Decade fails to reset	a. Reset switch in “Off” position.	a. Move switch to correct position or replace.
	b. Broken wire on “Start Switch”.	b. Test blue wire from start switch to reset switch.
13. Insert tape not entering stack or falling out.	a. Tape length too short.	a. Adjust tape to 2 ¼” to 2 ½” length.
14. Knife partial cutting or half cuts	a. Sticky knife.	a. Clean knife and linkage**
	b. Linkage sticking	b. Check for binding or worn parts.
	c. Weak pulse from ECU	c. Adjust “K” pot on ECU
	d. Bad ECU	d. Replace ECU
	e. Bad cutting edge on knife	e. Replace knife.
15. Clamp not lowering	a. Laser out of alignment or blocked by tables	a. Align laser
	b. Vertical rise switch out of adjustment.	b. Set VR switch.
	c. Bad start switch	c. If LED #11 does not light when start switch is pressed, replace switch.
	d. Blown fuse.	d. Replace F3 fuse on logic board. Refer to Sequence of Events Page 18.
16. Clamp lowers as soon as paper is placed in throat of counter.	a. Bad start switch	Replace parts as needed.
	b. Bad clamp valve.	
	c. Bad logic board.	
17. Counting head does not rise.	a. If logic board was replaced, check VR jumper settings on board.	a. Move jumpers to match VR motor in machine.
	b. VR switch out of adjustment.	b. LED #8 on logic must be lit. Check and adjust VR switch
	c. Blow F1 or F3 fuse.	c. Check fuses; replace if needed.
	d. Bad 24 VDC directional relay.	d. Led #1 should be lit when relay is energized. Replace if needed.
	e. VR sprocket loose.	d. Tighten setscrew or replace roll pin.
	f. Bad logic board.	Replace logic board.

****USE A NON-RESIDUE ELECTRONIC CLEANER (DO NOT USE A SILICONE SPRAY)**

18. Counting head does not lower.	a. Laser obstructed, out of alignment or dim.	a. Clear, adjust or replace
	b. Down limit switch out of adjustment.	b. Check 24 VDC relay on logic board. Check LED #10 on logic. Must be in up position (adjust switch).
	c. Blown F1 fuse.	c. Replace fuse.
19. Counting head fails to stop after counting is complete.	a. Filters, counting head or vacuum lines clogged.	a. Clean vacuum filters, head and line.
	b. Motor start vacuum switch out of adjustment or bad.	b. Check switch settings.
	c. Bad logic board.	c. Replace logic board.
20. Counting head fails to start counting	a. Vacuum pressure too low (min. 22"hg on gauge needed to start).	a. Adjust vacuum relief valve.
	b. Vacuum leak.	b. Check for vacuum leak (filters, lines, etc.)
	c. Motor start vacuum switch out of adjustment or bad.	c. Set vacuum switch to 19"hg or replace.
	d. Blown F4 or F5 fuse.	d. Replace fuse(s)
	e. Speed control set to off.	e. Increase speed.
	f. Bad counting head motor.	f. Check voltage at counting head motor. Replace if needed.
	g. Wrong suction blade for stock.	g. Install correct suction blade. Refer to "Suction Blade Guide" Page 12.
21. Counting head stops counting before counting is complete.	a. Wrong suction blade.	a. Check suction blade chart (Page 12) for correct blade.
	b. Stack being counted is not jogged properly.	b. Check jog of paper.
	c. Stack too loose.	c. Check spring blade and blade stop for proper adjustment.
	d. Speed too fast or too slow.	d. Adjust counting speed.
	e. VR switch travel not set correctly.	e. Adjust VR switch and counter poise spring.
	f. Counter poise spring not adjusted correctly.	f. Adjust counter poise spring.
22. Continuous reverse rotation of wiper pin for reset.	a. Bad reset switch.	a. Test reed switch and replace if needed.
	b. Weak magnet or magnet broken or missing.	b. Check magnet and replace if needed.
	c. Bad logic board.	c. Move reset speed jumper on logic board or replace logic board.

22. Counting head fails to reset after counting.	a. Bad logic board.	a. Check LED #2. IF NOT FLASHING REPLACE LOGIC.
	b. Bad counting head motor.	b. If it is flashing, check voltage at motor. If there is voltage at the motor, replace motor.
24. Tearing or chipping of corners.	a. Orbit out of adjustment	a. Reset orbit.
	b. Wiper pin not spinning freely or bad wiper pin bearings.	b. Replace bearings.
	c. Bent wiper pin.	c. Replace wiper pin and bearings.
	d. Incorrect suction blade	d. Install correct suction blade.
	e. Counting speed set too fast for stock being counted.	e. Reduce counting speed.
	f. Vertical rise (VR) switch not set properly.	f. Set VR switch.
	g. Depth of corner off.	g. Set depth of corner.
	h. Bad spring blade or blade stop set to wrong angle.	h. Adjust spring blade stop (stop should have slight downward bend) or replace spring blade.
	i. Stack too high for quantity tabbing in.	i. Shorten stack height or insert "breathers" Page 15.
25. Folding corners.	a. Orbit out of adjustment	a. Reset orbit
	b. Bad wiper pin bearings or wiper pin (pin needs to spin freely)	b. Replace bearings and/or wiper pin.
	c. Depth of corner off.	c. Set depth of corner.
26. Erratic tape lengths.	a. No tape loop or not keeping tape loop.	a. Set actuator wire on looper switch. Check and replace drive o-rings if needed.
	b. Bad looper motor or bad looper stop switch.	b. Check for AC at pins 7 & 9 on head cable. If voltage is present, check looper switch for continuity.
	c. F2 fuse blown	c. Replace F2 fuse.
	d. Tape chute out of alignment	d. Adjust tape chute.

(NOTES)

SECTION #6: ELECTRICAL SYSTEM

ELECTRICAL SYSTEM

LOGIC CONTROLLER

24 DC RELAY

De-energized switches vertical rise motor leads to “down” position.

Energized switches vertical rise motor leads to “up” position.

SSR1

Supplies 120V AC $\pm 5\%$ to speed control.

SSR2

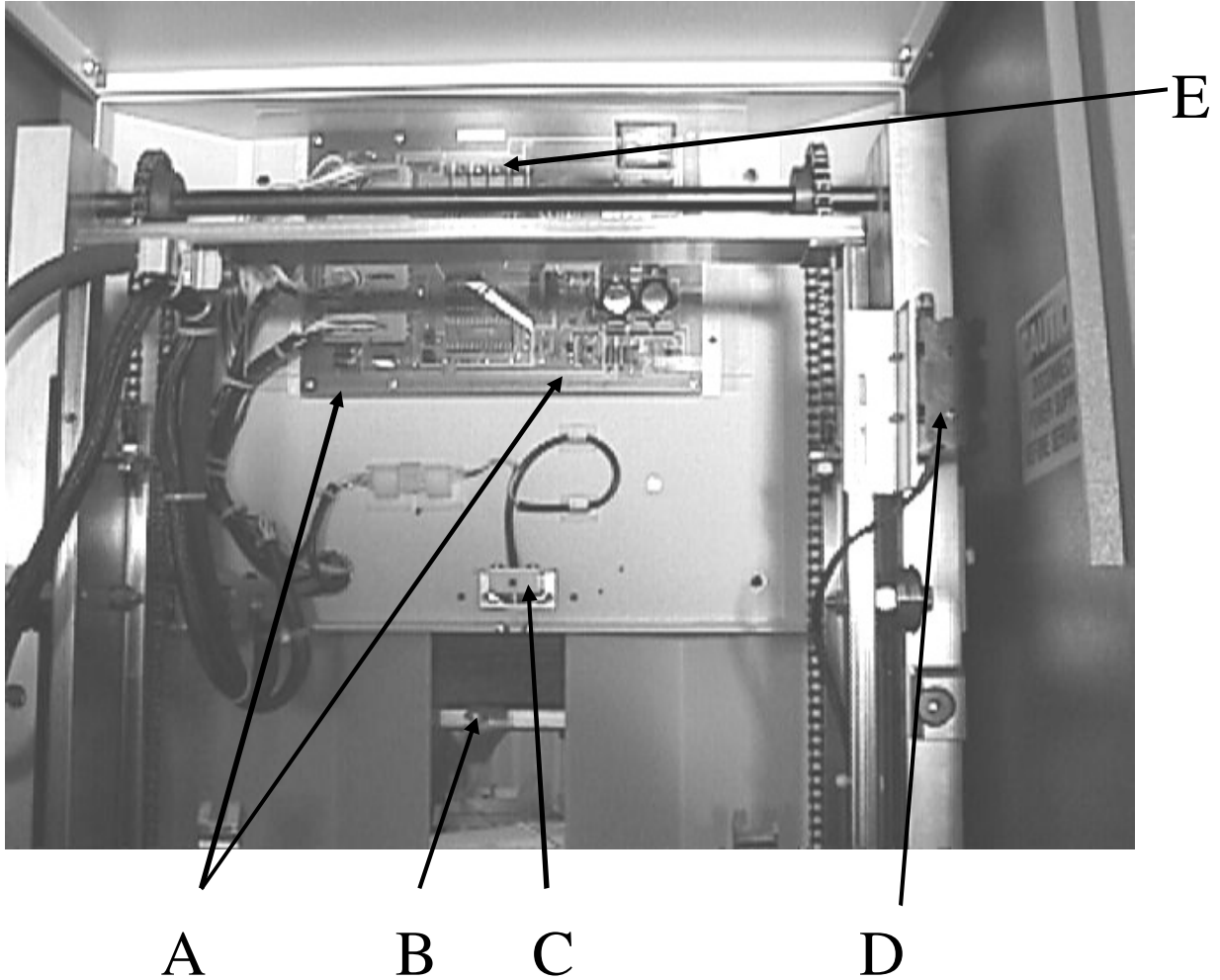
Supplies 120V AC $\pm 5\%$ to vertical rise motor via 24V DC relay.

F3 (Page 49)

Fuses for counter function

*****Also see Page 19*****

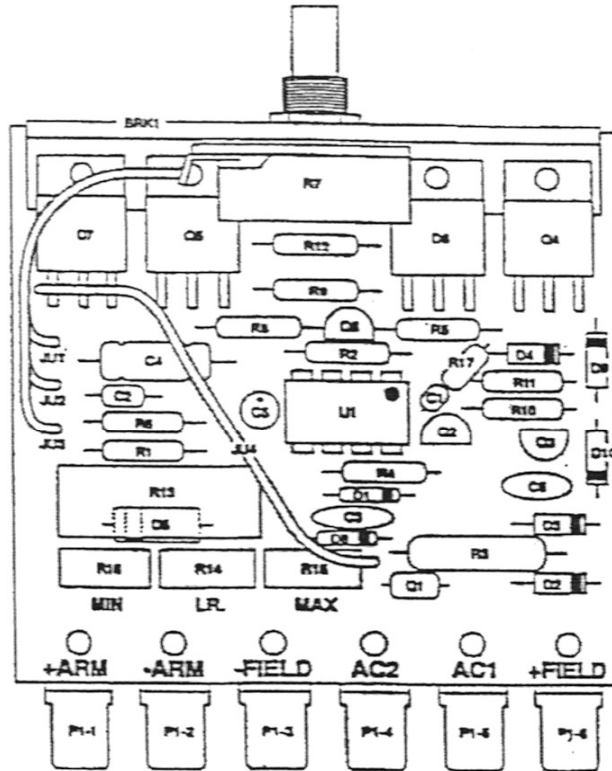
PHOTO - REAR TOP OF MACHINE
(PHOTO / DIAGRAM #13)



A	Logic Controller (S-3170)	C	Upper Laser System (S-3079-U)
B	Clamp Plate (S-1025-*)	D	Down Limit Switch (S-3112)
E	F0 – F5 Fuses F0 – *A & *B Fuse 10Amp.5X20mm – Mains (*16 Amp with air table) F1 – .75 Vertical Rise Motor for Dayton Motors 2Amp. SLO/BLO for Bodine Motor F2 – 1Amp. ECU / Looper F3 – 3Amp. + 42V DC F4 – 5Amp. Speed Control AC In F5 – 5Amp. Speed Control AC Out		

* - Different styles available depending on machine

(DIAGRAM #14: SPEED CONTROL - 15DV PARTS PLACEMENT & LIST)



RESISTORS*

- R1 100K
- R2 150K
- R3 33K 2W
- R4 22K
- R5 1Ω
- R6 33K
- R7 5K SPEEDPOT
- R8 2.2M
- R9 47K 1/2W
- R10 220K
- R11 220K
- R12 1K
- R13 .062Ω 5W
- R14 500K TRIMPOT (LRL COMP.)
- R15 50K TRIMPOT (MAX.)
- R16 20K TRIMPOT (MIN.)
- R17 2.2K

CAPACITORS

- C1 .1μf 50V
- C2 .1μf 50V
- C3 .01μf 100V
- C4 2.2μf 50V N.P.
- C5 2.2μf 50V
- C6 .01μf 100V

DIODES

- D1 1N914B
- D2 1N4005
- D3 1N4005
- D4 1N4005
- D5 S6A4
- D6 D4015L
- D7 D4015L
- D8 1N963B
- D9 1N4005
- D10 1N4005

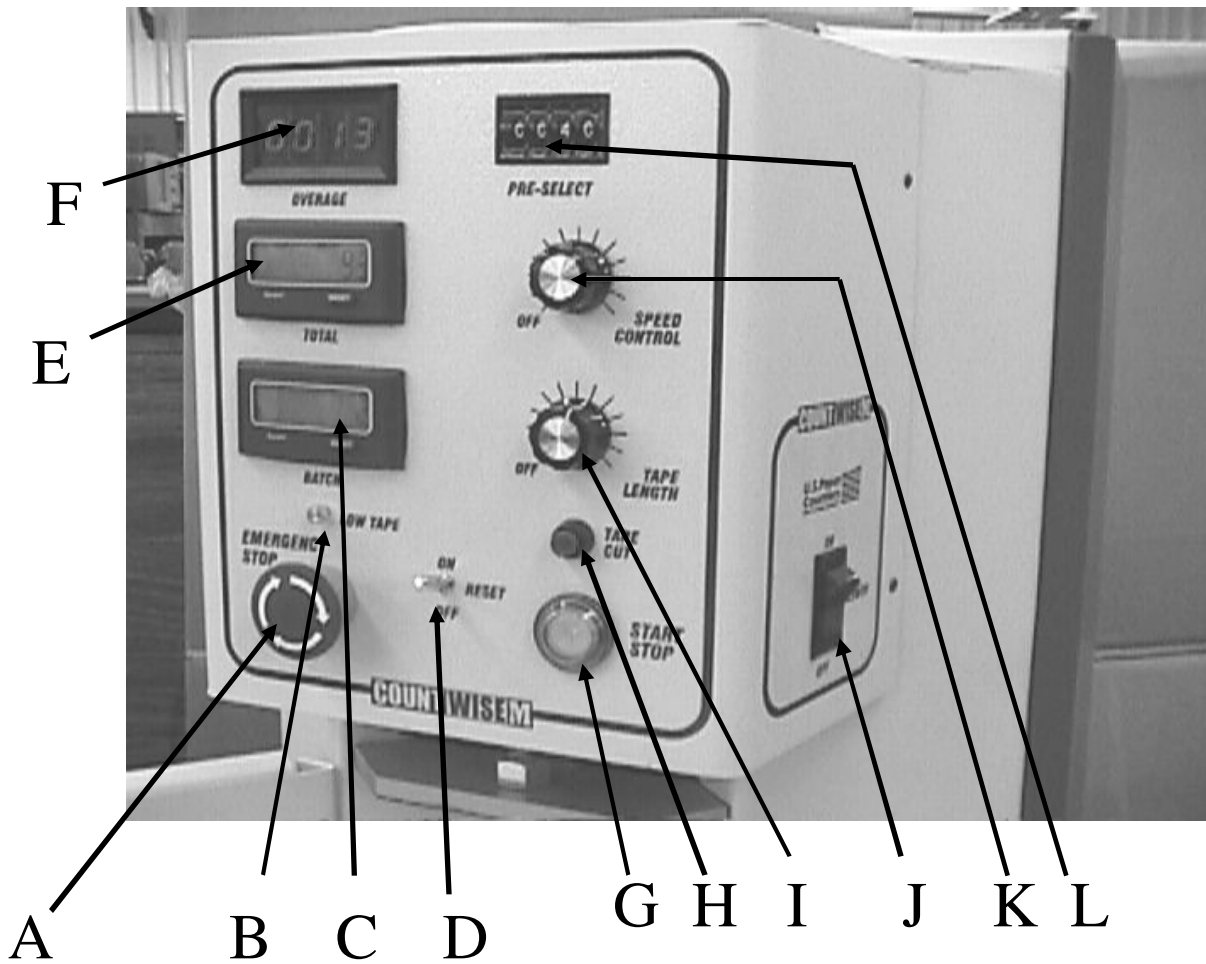
MISCELLANEOUS

- BRK1 BK-15DV ALUM. HEATSINK (A-2-2334B)
- JU1 2.50" 20GA. SOLID INS. WIRE - WHITE
- JU2 2.50" 20GA. SOLID INS. WIRE - WHITE
- JU3 2.50" 20GA. SOLID INS. WIRE - WHITE
- JU4 3.50" 20GA. SOLID INS. WIRE - WHITE
- PCB1 A-4-2322F PRINTED CIRCUIT BOARD
- P1 (-1 thru -6) CP-765 1/4" MALE SPADE CONNECTOR (6)

ACTIVE DEVICES

- Q1 S07K275 G-MOV
- Q2 2N6517
- Q3 2N6520
- Q4 S4015L SCR
- Q5 S4015L SCR
- Q6 2N4126
- U1 LM358 IC

FACEPLATE COUNT-WISE M
(PHOTO / DIAGRAM #15)



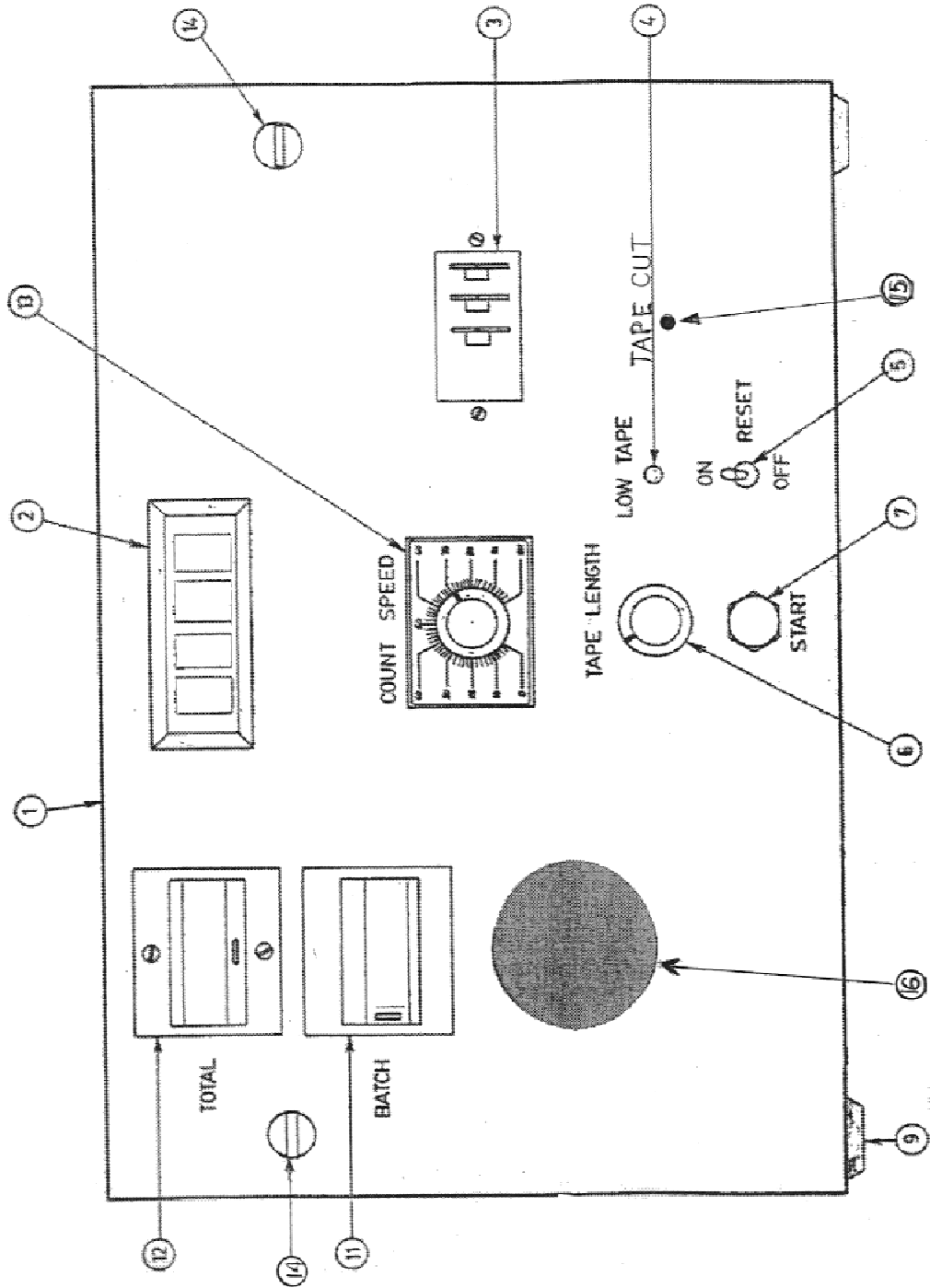
A	Emergency Stop (EMO) (S-3188)	H	Tape Cut Switch (S-3119)
B	Low Tape Indicator (S-3111-A)	I	Tape Length (S-3048)
C	Batch Counter (S-3062-*)	J	Blower On / Off (S-3058)
D	Reset On / Off Switch (S-3056)	K	Speed Control (S-3047-*)
E	Totalizer w/ Memory (S-3062-*)	L	Pre-Select (S-3065-*)
F	LED Display (S-3067)		
G	Start / Stop Switch Ass'y (S-3049-*) Start / Stop Switch (S-3049-*)		

* - Different styles available depending on machine

CONTROL PANEL KEY – MAX BANTAM 2001 TO PRESENT

1.	FACEPLATE	
2.	LED DISPLAY	Displays paper count
3.	PRE-SELECT	Displays batch number selected by user
4.	LOW-TAPE INDICATOR (S-3111-A)	DC voltage supplied by the electronic counting unit via the low-tape switch located in the counting head, behind the tape reel.
5.	RESET-ON/OFF SWITCH (S-3056)	“ON” position: overage display on the electronic counting unit will zero when start switch is pushed. “OFF” position: display will maintain number from previous batch and continue from that number.
6.	TAPE LENGTH POTENTIOMETER (S-3048)	500K with ON/OFF switch. Controls length of tape as it is being inserted into pile. “OFF” disconnects power to tape and knife solenoids, low-tape indicator and batch counter.
7.	START SWITCH START SWITCH LAMP (CALL FOR PART NUMBERS)	Supplies 5 volts DC to the logic controller 5 volts DC supplied from laser sensor
8.	N/A	N/A
9.	RUBBER FEET	Supports faceplate against chassis
10.	N/A	N/A
11.	BATCH COUNTER	Function: counts tabs inserted. Powered from electronic counting unit; knife pulse 42V DC. Will not operate with tape length potentiometer in “OFF” position. Reset accomplished with button on “batch counter”.
12.	TOTALIZER WITH MEMORY	Voltage supplied by 42V DC power supply; count input from count proximity and count vacuum switch located in counting head, via coax cable. Reset accomplished with button “Totalizer”.
13.	COUNT SPEED CONTROL	Supplies up to 90V DC to counting head motor. Speed control is supplied from output of SSR1. NOTE: Speed control can be turned “OFF” for circuit testing.
14.	KEY LOCKS (S-1017)	Secures face plate (keys included).
15.	TAPE CUT (S-3119)	Manual tape cut (after changing roll of tabbing paper).
16.	EMERGENCY STOP (EMO) (S-3118)	Emergency stop switch. Push to cease operation and stop Power to the machine.

(DIAGRAM/PHOTO #16: MAX-BANTAM CONTROL PANEL 2001 & AFTER)



NOTES

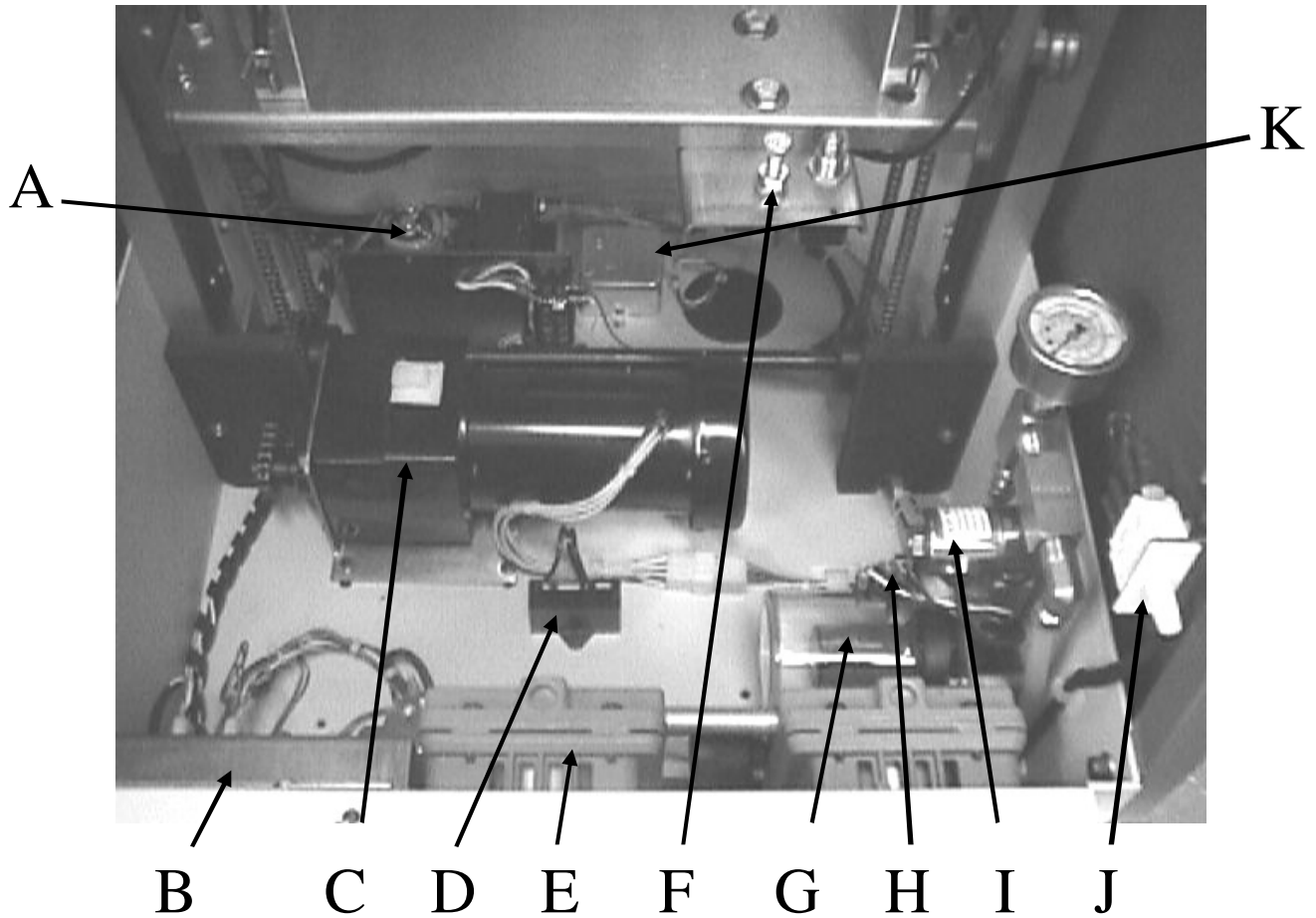
SECTION #7: BASIC ADJUSTMENTS

VACUUM SYSTEM

<p>VACUUM PUMP “E” 110 (S-3004-3B) 220 (S-3004-4B)</p>	<p>Manufactured by Thomas Industries; standard voltage 120 AC or 220/240 V AC, 50/60 Hz. Maximum output 29 ½” HG. NOTE: Vacuum may vary due to altitude and barometric pressure.</p>
<p>CLAMP VALVE (S-3041-1) (Not Shown)</p>	<p>Four-way vacuum valve, operates clamp cylinder.</p>
<p>COUNT VALVE “T” (S-3042)</p>	<p>Applies vacuum to suction blade when counting head tips off vertical rise micro switch. Valve de-energizes when clamping circuits are released.</p>
<p>START VACUUM SWITCH “H” (S-3043-1)</p>	<p>Manually adjusted to operate at 19” HG. When hole on suction blade is exposed to atmosphere, counting head vacuum switch opens, breaking circuit to counting head. (Refer to Page 58 “Setting Vacuum Switches”)</p>
<p>COUNT CONTROL VACUUM SWITCH (S-3043-1) (Also refer to Page 34, KEY #R1)</p>	<p>Manually adjusted to operate at 17 ½” HG. Wired series with count reed switch. Assures the accuracy of the count. Opens when last sheet is counted. (Refer to Page 58 “Setting Vacuum Switches”)</p>

PHOTO - POWER SUPPLY & VACUUM AREA

(PHOTO/ DIAGRAM #17)



A	Power Supply Assembly (S-3008-1)	G	Filter Housing Assembly (S-4018) Glass Jar (S-4006) Plastic Rivet (S-4018-A) Filter Stem (S-4018-B) Filter Element 2 (S-4019)
B	Vacuum Pump Cut-off (S-3132-2) Vacuum Pump Cut-Off w/ Air (S-3132-*)	H	Vacuum Switch (3043-1)
C	Vertical Rise Motor (S-3005-*)	I	Count Vacuum Valve (S-3042)
D	Starting Cap. V/R Motor (S-3007)	J	Cover Safety Switch (S-3165)
E	Vacuum Pump 110 (S-3004-3) Vacuum Pump 220 (S-3004-4)	K	Lower Laser System (S-3079-L)
F	Vertical Rise Switch (S-3114)		

* - Different styles available depending on machine

SETTING VACUUM SWITCHES

Adjusting your vacuum switches does not change the output of vacuum from your pump. Adjustment occurs when the switch closes. For instance, setting the count control vacuum switch to 17 ½" Hg allows the machine to register a count when this vacuum is achieved.

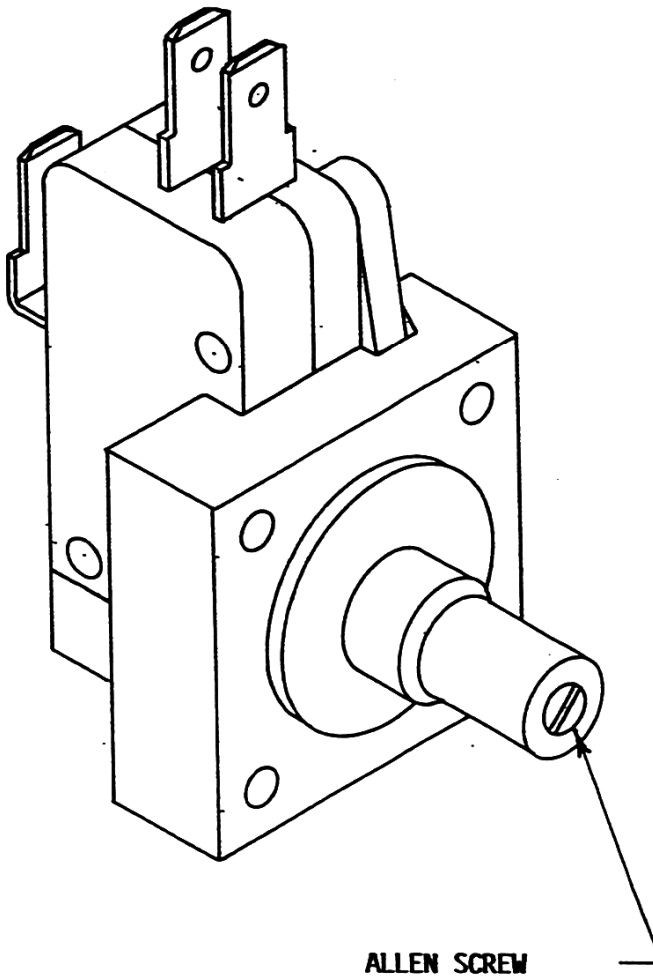
**FOR MORE INFORMATION,
AND BEFORE ATTEMPTING
THIS PROCEDURE,
PLEASE CALL
U.S. PAPER COUNTERS
518-622-2600**

(DIAGRAM #18: VACUUM SWITCH)
FOR REFERENCE ONLY)

VACUUM SWITCH ADJUSTMENT

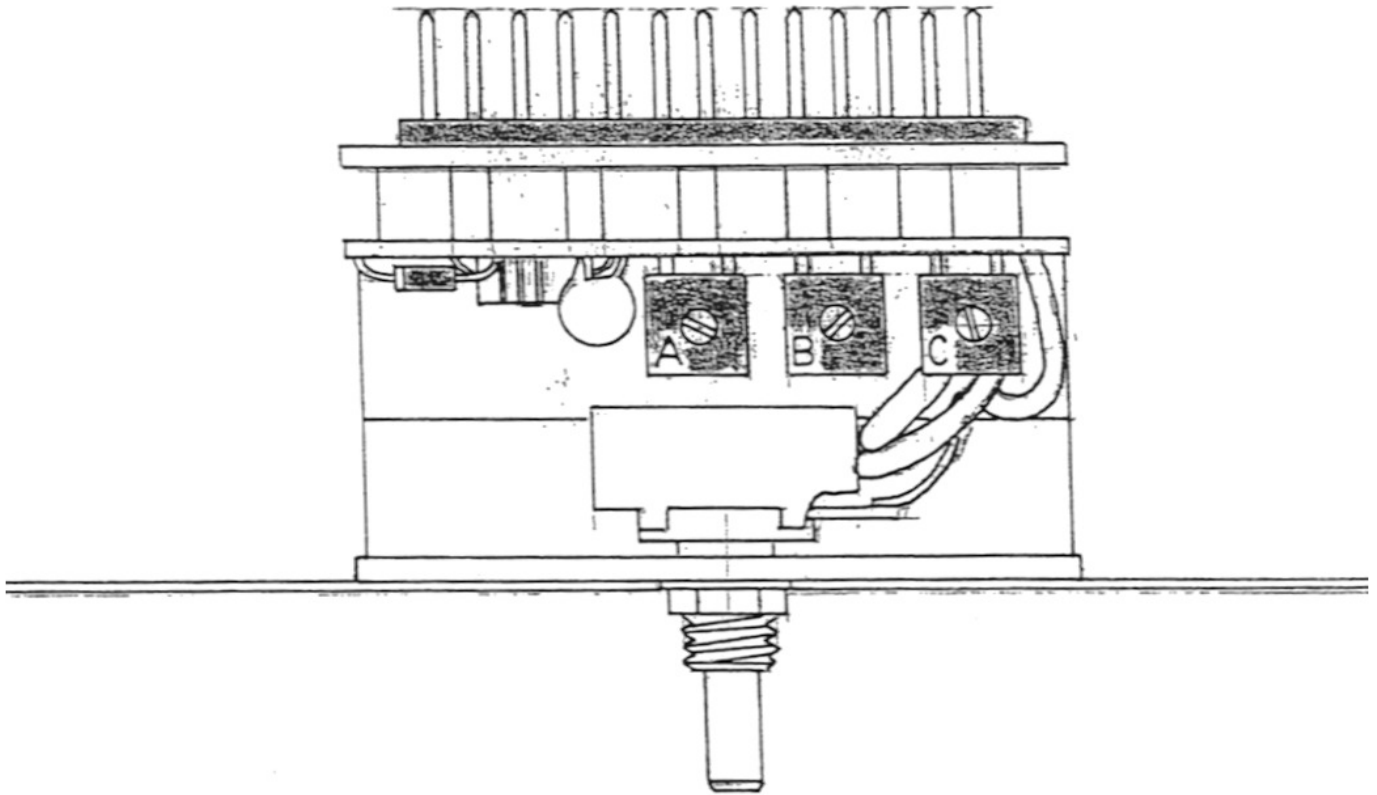
VACUUM SWITCH SETTINGS:

MOTOR START VACUUM SWITCH.....19" Hg.
COUNT VACUUM SWITCH.....17-1/2" Hg.



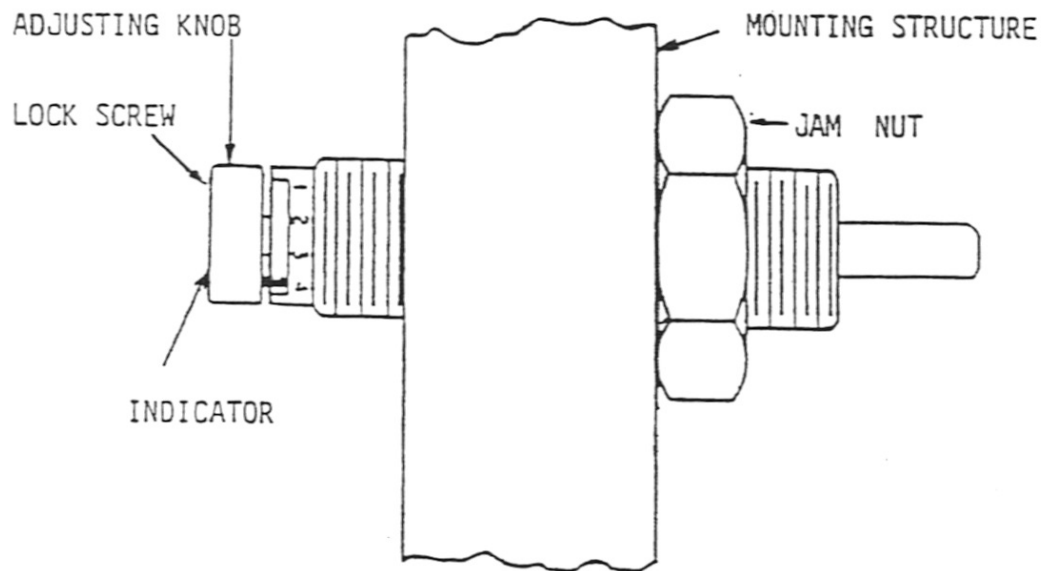
Turn allen screw clockwise; this will increase vacuum required to activate

(DIAGRAM #19: SPEED CONTROL ADJUSTMENT SEQUENCE)



1. Turn speed control knob to "0" on faceplate. (Do not attempt to tab at this time. Turn tape pot "Off".)
2. Bottom out the center pot (B) by turning it completely counter-clockwise.
3. Set the slow speed pot (C) to "Off" position by turning it completely counter-clockwise.
4. Insert a stack of paper into the machine. Press the "Start" switch and turn pot (C) Clockwise until counting starts; then back off until it stops.
5. Turn "Speed Control Knob" on face plate to full "On" position. Insert a stack of paper into The throat of the machine and press the "Start" switch. Using a stopwatch, counter should read 425 in 15 seconds. Adjustment of pot (A) may be required to obtain this.

(DIAGRAM #20: ACE MICRO CUSHION ADJUSTMENT)



Adjustment

Proper adjustment is important to the efficient operation of the ACE Micro Cushion. All units are preset at the factory at 50°. To adjust deceleration, loosen the lock screw located in the adjustment knob at rear of shock absorber with hex wrench. (.050 inch or 1.27mm). Turn towards "0" for more cushioning. When desired setting has been determined, tighten lock screw. The shock absorber is now ready for use.

NOTES

SECTION #8: WIRING DIAGRAMS

LOGIC BOARD WIRE CONNECTIONS

PLUG 1

	COLOR CODE	DESCRIPTION
1.	Green/Yellow	Earth ground
2.	White/Green	VR switch signal input
3.	Orange	*N/C
4.	Black/Green	VR switch DC ground
5.	White/Gray	VR switch for light paper applications (left column switch)
6.	White/Blue	Down limit switch signal input
7.	Green	Down limit switch DC ground
8.	White or Blue	AC neutral in
9.	Black or Brown	AC line in
10.	White/Brown	VR motor capacitor
11.	Blue	VR motor
12.	White/Orange	Laser input
13.	White/Black	DC ground
14.	Red	VR motor
15.	Black	VR motor
16.	White/Red	+42 VDC
17.	White	AC neutral out
18.	Gray	AC line out

PLUG 2

	COLOR CODE	DESCRIPTION
1.	White/Purple	+5 VDC out to start switch
2.		*N/C
3.	Black/Green	(+) speed control
4.		ECU mode
5.		ECU mode
6.		*N/C
7.		*N/C, DC ground
8.		*N/C
9.		*N/C
10.		*N/C
11.	Blue	Start switch signal input
12.	White/Orange	Start switch *N/C internally
13.	Black/Orange	(-) speed control output
14.	White	Neutral to speed control ECU
15.	Brown/White	Switched AC to speed control
16.	White/Black	DC ground
17.	White/Red	+42 VDC
18.	Black	AC line to ECU (On old version with interface board. ECU gets power from looper motor on Plug 3)

***No Connection**

PLUG 3

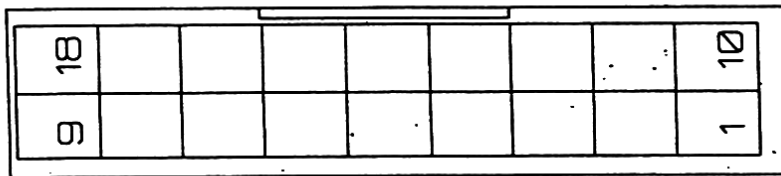
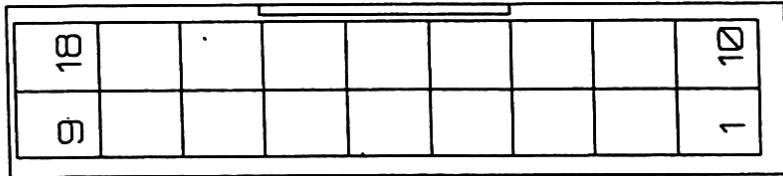
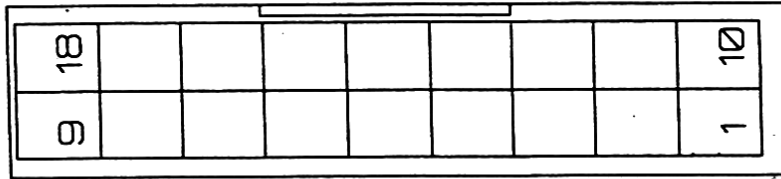
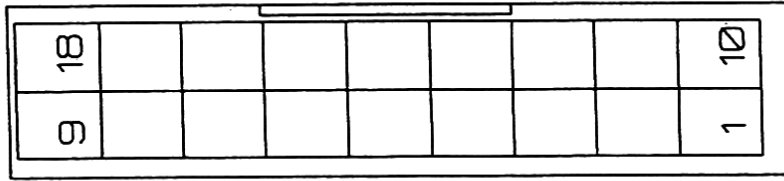
	COLOR CODE	DESCRIPTION
1.	White/Red	Laser
2.	White/Black	Laser
3.		*N/C
4.		*N/C
5.		*N/C
6.		*N/C
7.		*N/C, (Internal neutral to looper motor)
8.		*N/C, (Internal line to looper motor)
9.		*N/C
10.	Green/Yellow	Earth ground
11.	White/Gray	Reset proximity switch
12.		*N/C
13.		*N/C
14.	White/Gray	Reset proximity switch
15.	Black/Green	(+) to counting motor
16.	Brown/White	Looper motor
17.	Brown/White	Looper motor
18.	Black/Orange	(-) to counting motor

PLUG 4

	COLOR CODE	DESCRIPTION
1.		*N/C
2.		*N/C (+42 VDC internal)
3.		(+) speed control output
4.		*N/C
5.		*N/C
6.	Red	Laser
7.	Black	Laser ground
8.		*N/C
9.		*N/C ground
10.	Black	Clamp valve (-) to TIP41C open collector
11.	Black/Yellow	Clamp valve (+42 VDC)
12.	Black/Orange	Count valve (+42 VDC)
13.	Black	Count valve (-) to TIP41C open collector
14.		*N/C
15.	Black/Green	Start count vacuum switch signal input
16.	White/Gray	Start count vacuum switch ground
17.	Black/Orange	Start count switch
18.		*N/C ground

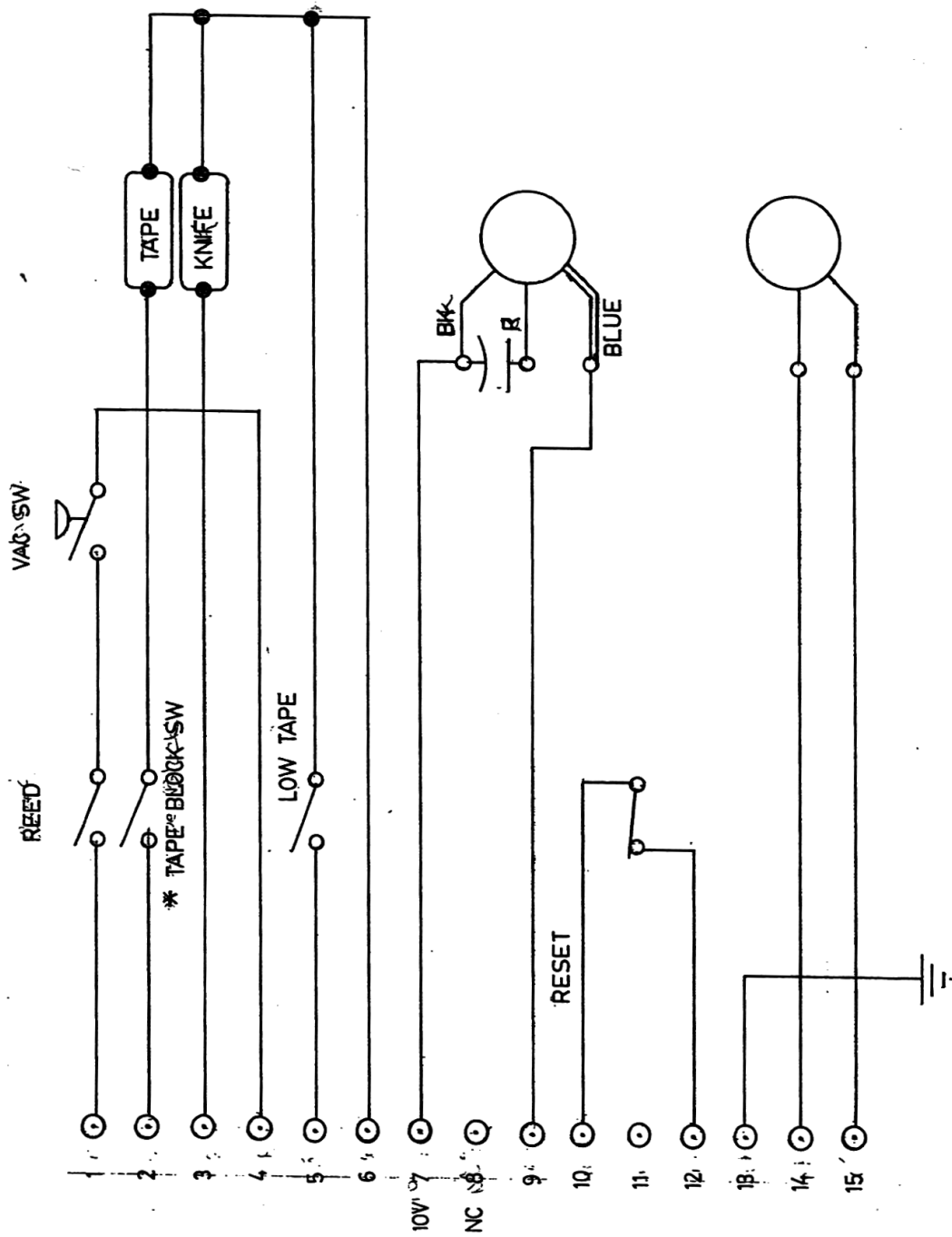
***No Connection**

(DIAGRAM # 21: WIRING DIAGRAM LOGIC BOARD PLUGS)



PLUG 1 PLUG 2 PLUG 3 PLUG 4

(DIAGRAM #22: WIRING DIAGRAM COUNTING HEAD)



COUNTING HEAD S-6000

* OPTIONAL

VERTICAL RISE MOTOR

1. The Logic Controller (S-3170) is compatible with either the Bodines or Dayton Vertical Rise Motor.
2. The board has 2 jumpers that determine which motor the board will drive. Refer to the picture (Page 69) to determine the proper jumper position

COUNT-WISE ECU HEADER PINOUT

9-PIN HEADER ON MAIN ECU BOARD

1.	Count Input	Coax
2.	Count Ground	Shield
3.	Ground	White/Black
4.	Reset	White/Blue
5.	+42V DC	White/Orange
6.	Tape	White/Green
7.	Knife	White/Brown
8.	Line	Brown/White
9.	Neutral	White

5-PIN HEADER ON MAIN ECU BOARD

A.	External Tape Pot	Orange
B.	External Tape Pot	Orange
C.	Ground	White/Black
D.	Ground	*N/C
E.	Ground	*N/C

ADJUSTMENT POTS

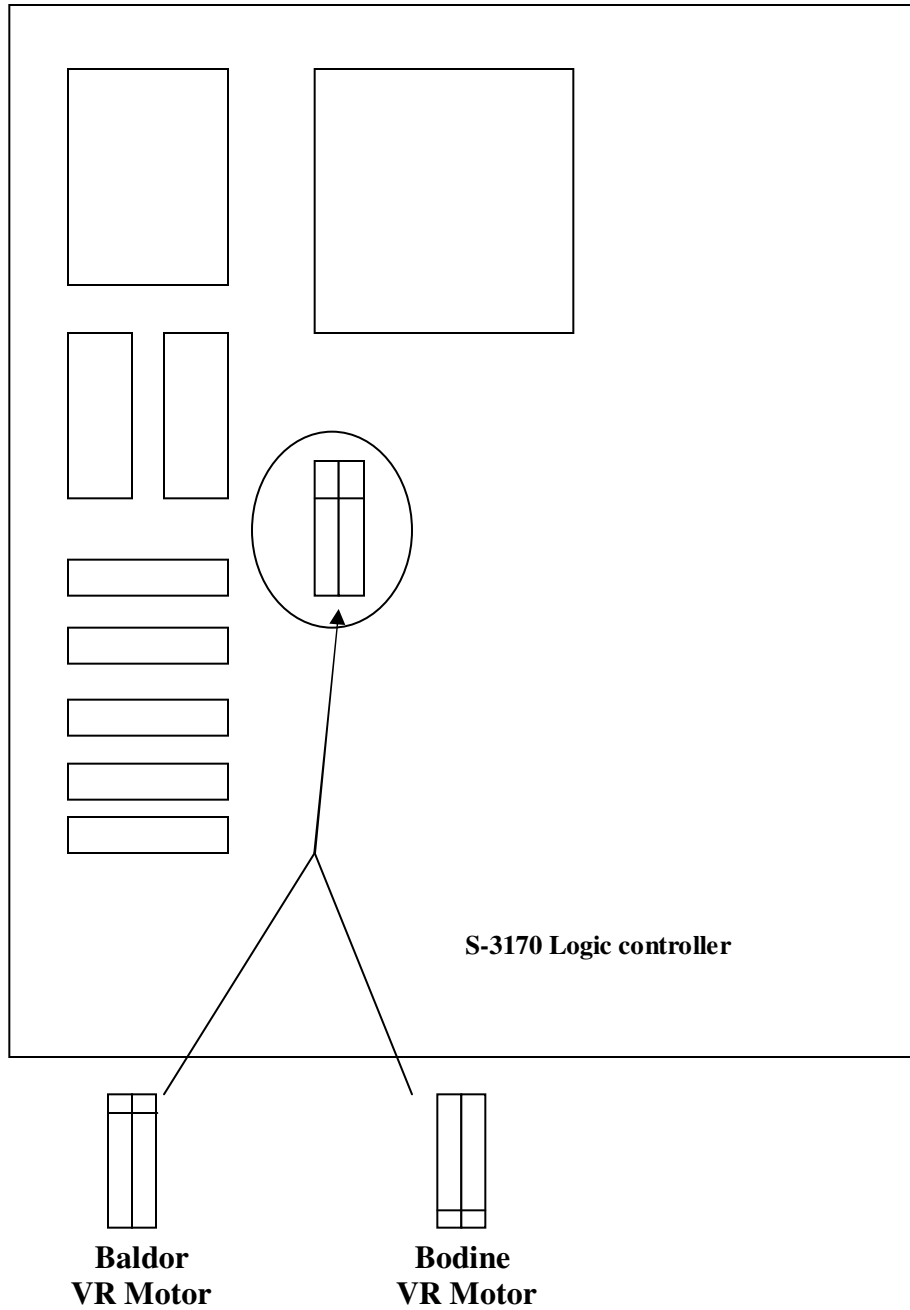
“T”	=Internal Tape Adjustment
“KD”	=Knife Delay
“K”	=Knife Adjustment

Center pot on board is equal input delay.
Set adjuster pointer towards transformer.

DO NOT TURN ANY OF THESE POTS TO THE FULL END OF THEIR ROTATIONAL TRAVEL, AS THIS WOULD CAUSE AN OPEN CONDITION.

***No Connection**

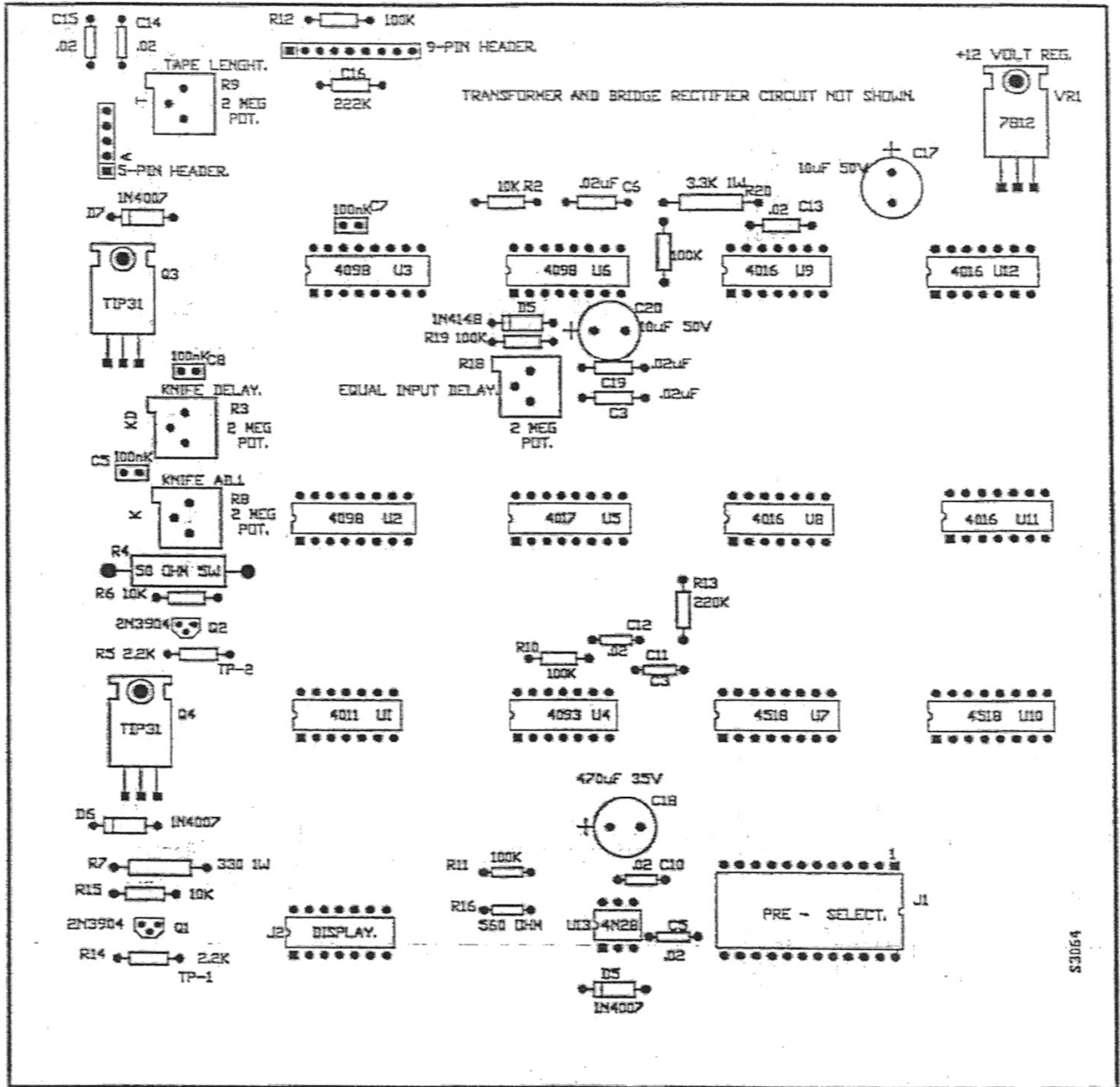
(DIAGRAM #23: WIRING DIAGRAM-LOGIC CONTROLLER)



Jumper position

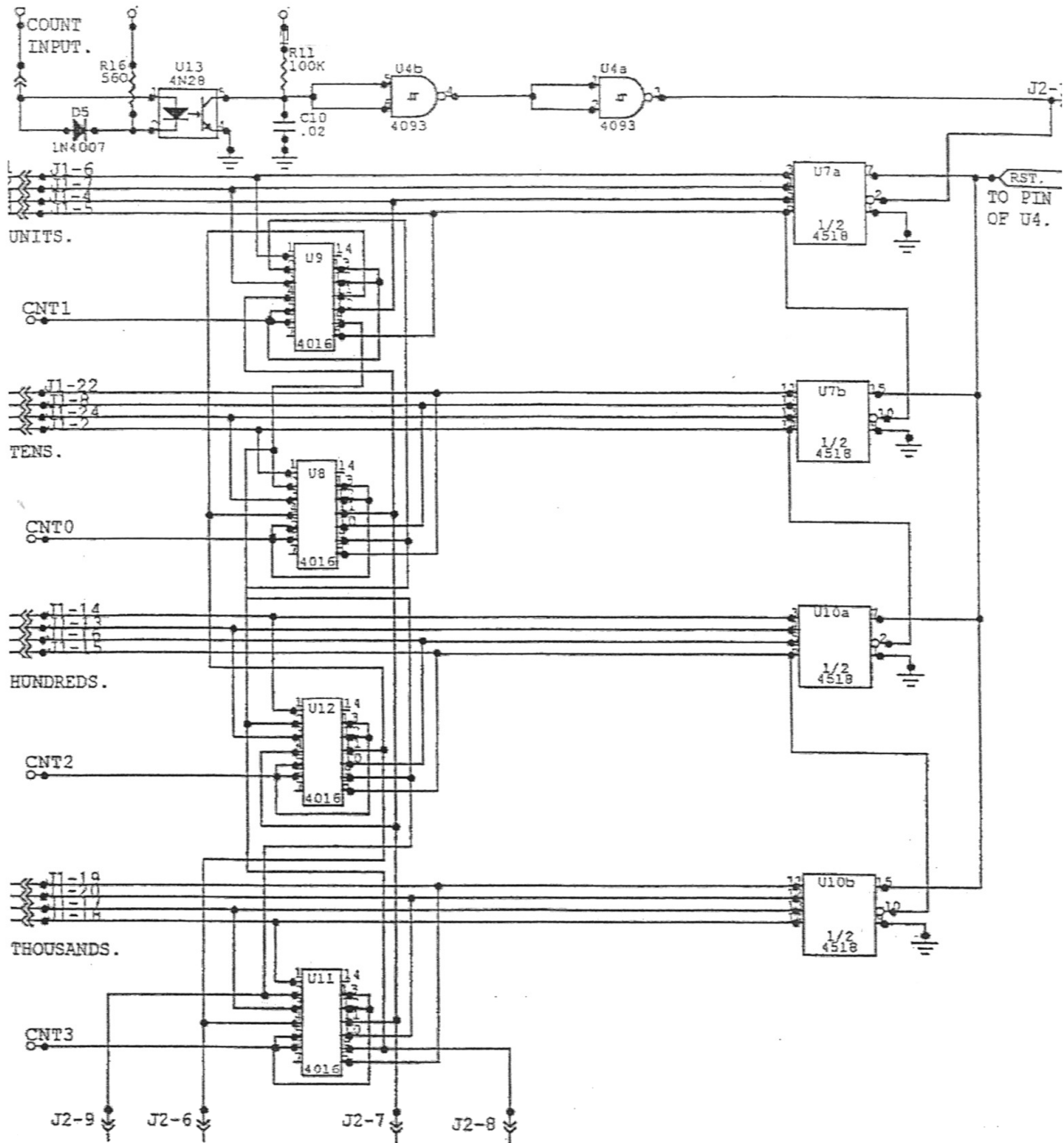
(NOTES)

(DIAGRAM #24: ELECTRONIC COUNTING UNIT (ECU)
BASIC COMPONENTS)



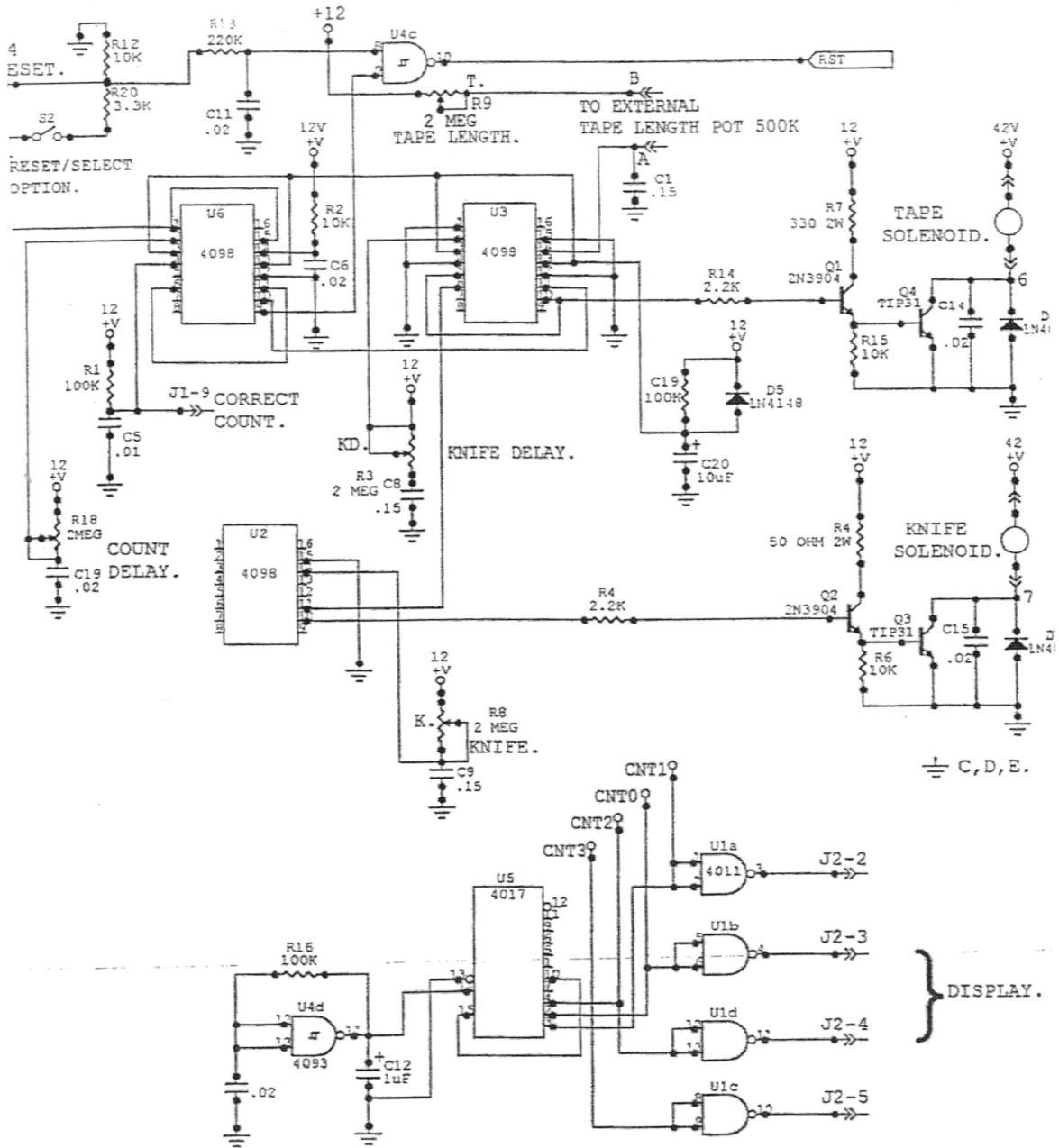
ASS'Y P/N S3064

(DIAGRAM #25: WIRING DIAGRAMS-ELECTRONIC COUNTING UNIT)



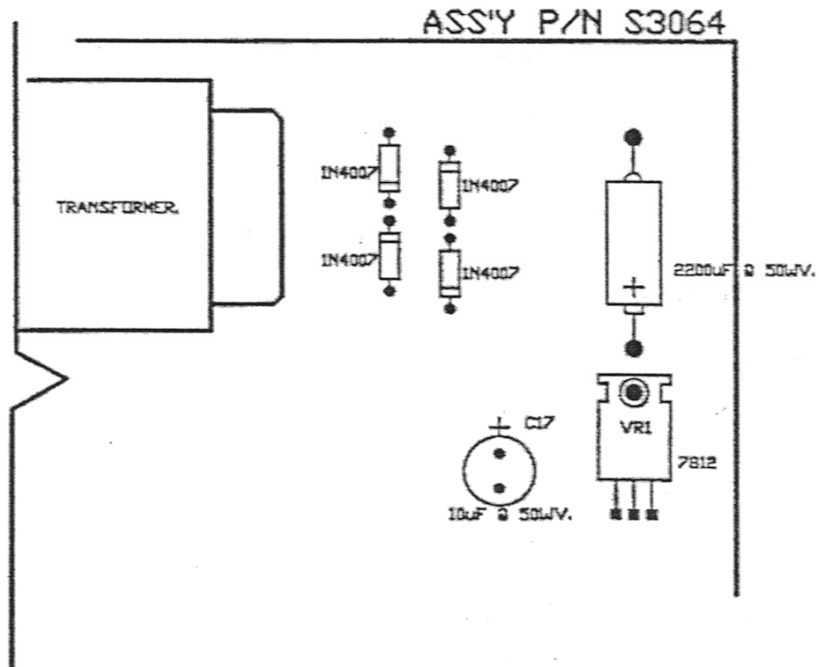
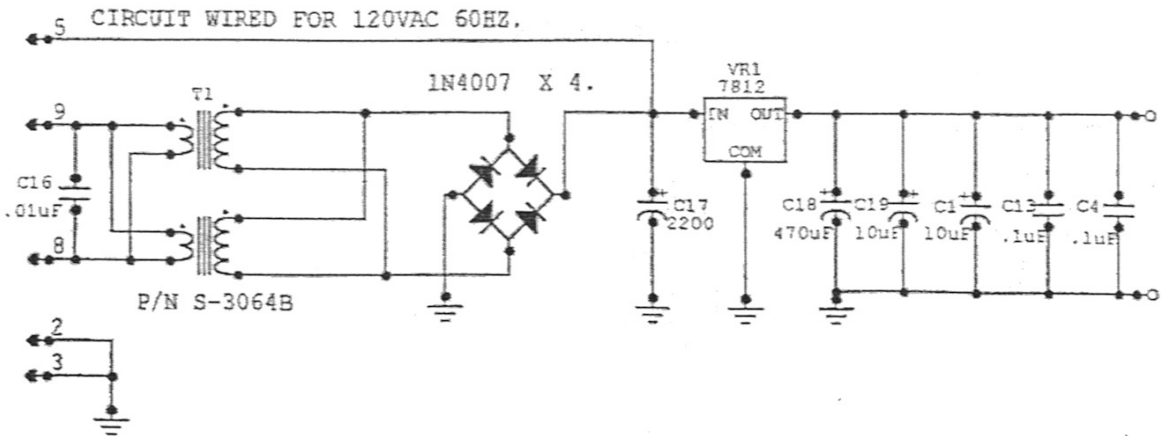
ELECTRONIC COUNT UNIT. P/N S-3064	
Title: ECU PART 1	
Rev	ID
Date: 19-JAN-99	Page: 1 of 1

(DIAGRAM #25: WIRING DIAGRAMS-ELECTRONIC COUNTING UNIT)



ELECTRONIC COUNT UNIT . P/N S- 3064	
ECU PART 2	
Rev	ID
C	

(DIAGRAM #26: WIRING DIAGRAMS-POWER SUPPLY ASSEMBLY ON E.C.U.)



POWER SUPPLY ASS'Y ON E.C.U.

NOTES

COMPUTER ECU

11-PIN HEADER ON MAIN ECU BOARD

1.	Count Input	Coax
2.	Count Ground	Shield
3.	Ground	White/Black
4.	Reset	White/Blue
5.	24V DC	White/Orange
6.	Tape	White/Green
7.	Knife	White/Brown
8.	Line	Brown/White
9.	Neutral	White
10.	12V DC	White/Red
11.	Ground	White/Black

NOTE: Pin 3 and Pin 11 are connected. 12V DC comes from own main ECU.

5-PIN HEADER ON MAIN ECU BOARD

A.	External Tape Pot	Orange
B.	External Tape Pot	Orange
C.	Ground	White/Black
D.	Ground	*N/C
E.	Ground	*N/C

AUTOSTOP ECU BOARD

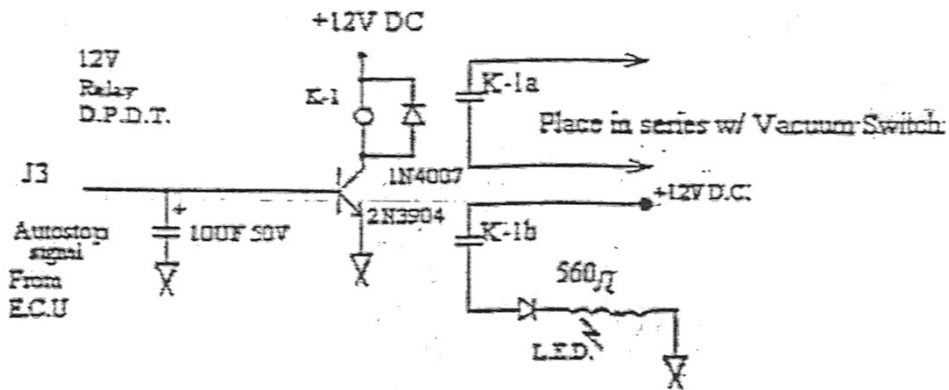
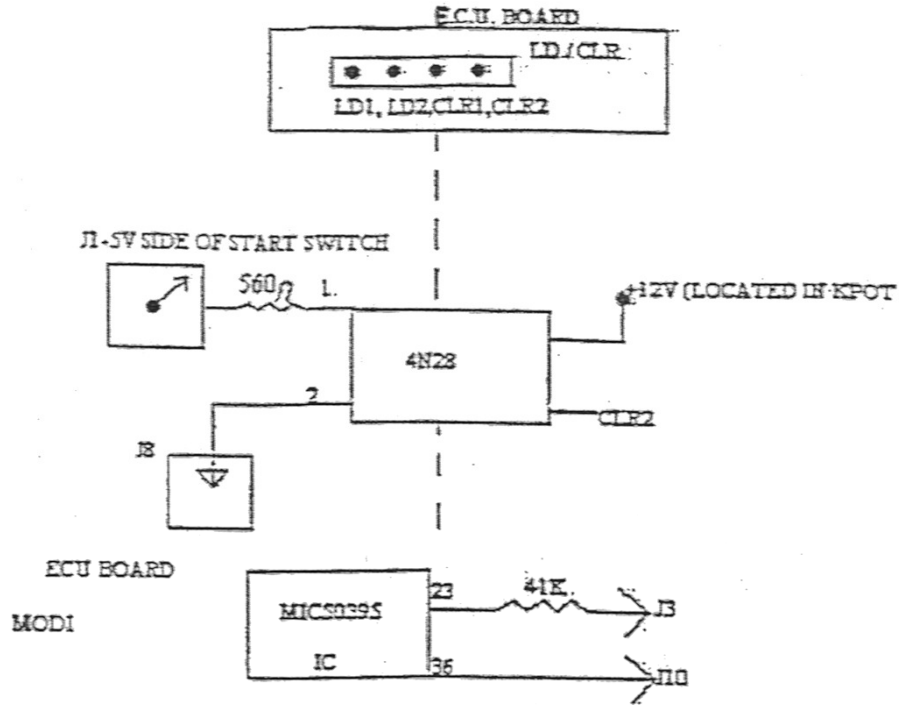
10-PIN HEADER ON AUTO-STOP ECU BOARD

J1	+5V DC Start switch	Blue
J2	*N/C	
J3	Autostop Relay Board	Green/Black
J4	*N/C	
J5	*N/C	
J6	*N/C	
J7	*N/C	
J8	Logic Ground	White/Black
J9	*N/C	
J10	Batch signal	White/Purple

NOTE: J8 & J10 come from the total and batch board.

***No Connection**

(DIAGRAM #27: COMPUTER ECU BOARD)



Note : +12VDC & GRD. From computer ECU Board Pin 10 & 11

NOTES

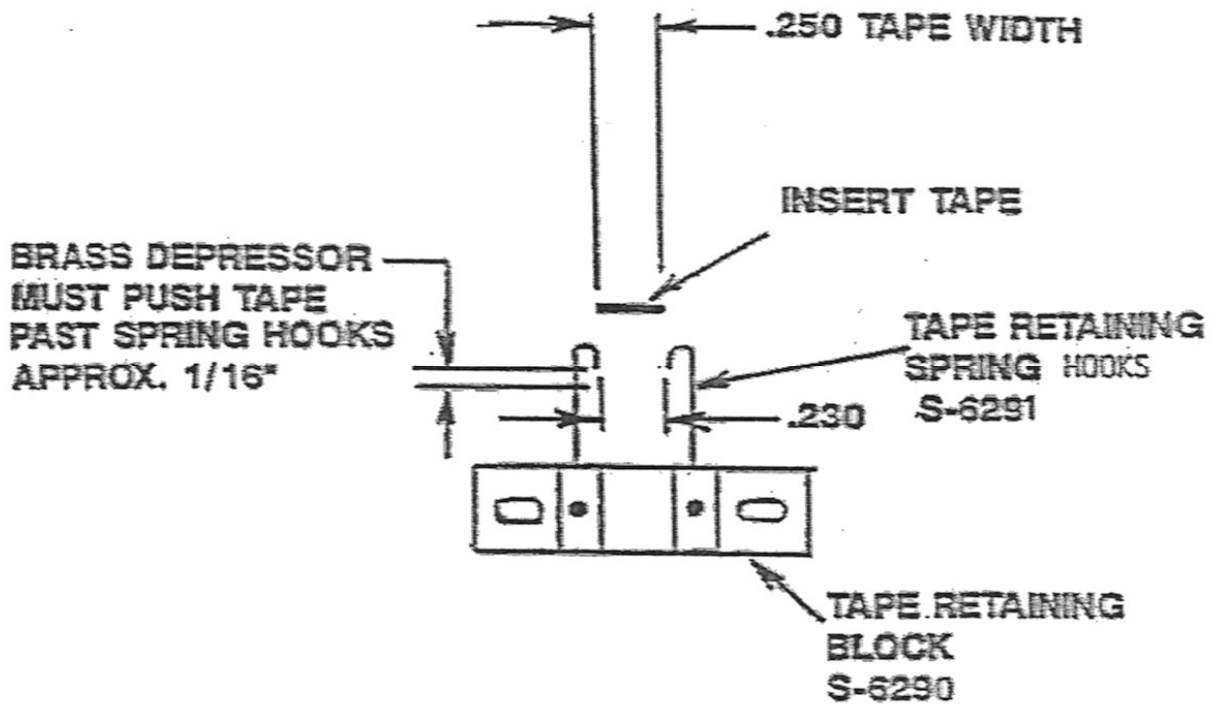
SECTION #9: PARTS LISTS, PHOTOS & DIAGRAMS

(Part #'s may change; please call to verify)

Tape Retaining Block

(DIAGRAM #28)

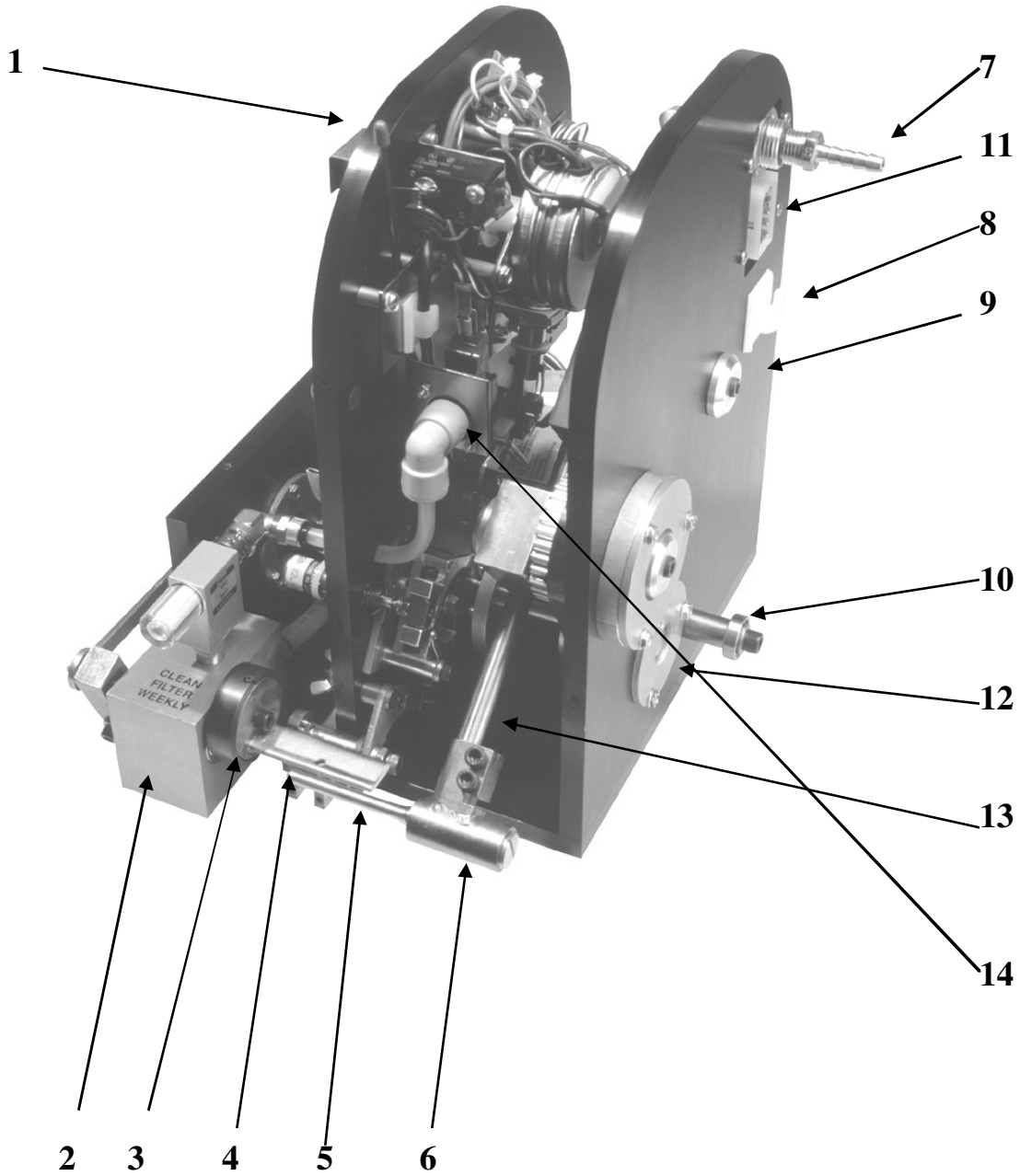
(Refer to Photo on Page #84, Key #13)



RECOMMENDED SPARE PARTS

PART #	QUANTITY	PART DESCRIPTION
S-3105	1	Looper Stop Spring Switch
S-3043-1	1	Vacuum Switch-New Type
S-6062	1	Drive Belt O-Ring
S-6054	3	Looper Drive O-Ring
S-3108	1	Count Reed Switch Assembly
S-6236-2	1	Wiper Pin W/Bearings (Includes wiper pin, 2 open bearings, large & small spacers & E-clip)
S-6237	4	Open Bearing
S-6173	1	Counter Poise Spring
S-4019	2	Filter & Muffler Element
S-3114	1	Vertical Rise Switch
S-3023	1	K-H Relay (24V) Sm (Dir. VR)
S-1053-1	1	Test Kit Complete-New
S-1077	1 Bag	Assorted Nuts & Bolts
S-627*	1	Suction Blade (*most commonly used)
S-3103	1	Tape Solenoid
S-3102	1	Knife Solenoid
S-6283	1	Adj. Connecting & Link Arm
S-3140	1	Tape On/Off Switch
S-4062-C	10	Felt Filter
S-3055-1	1	Assorted Fuse Pack
S-3049-*	1	Start Switch (*Depends on type of machine)

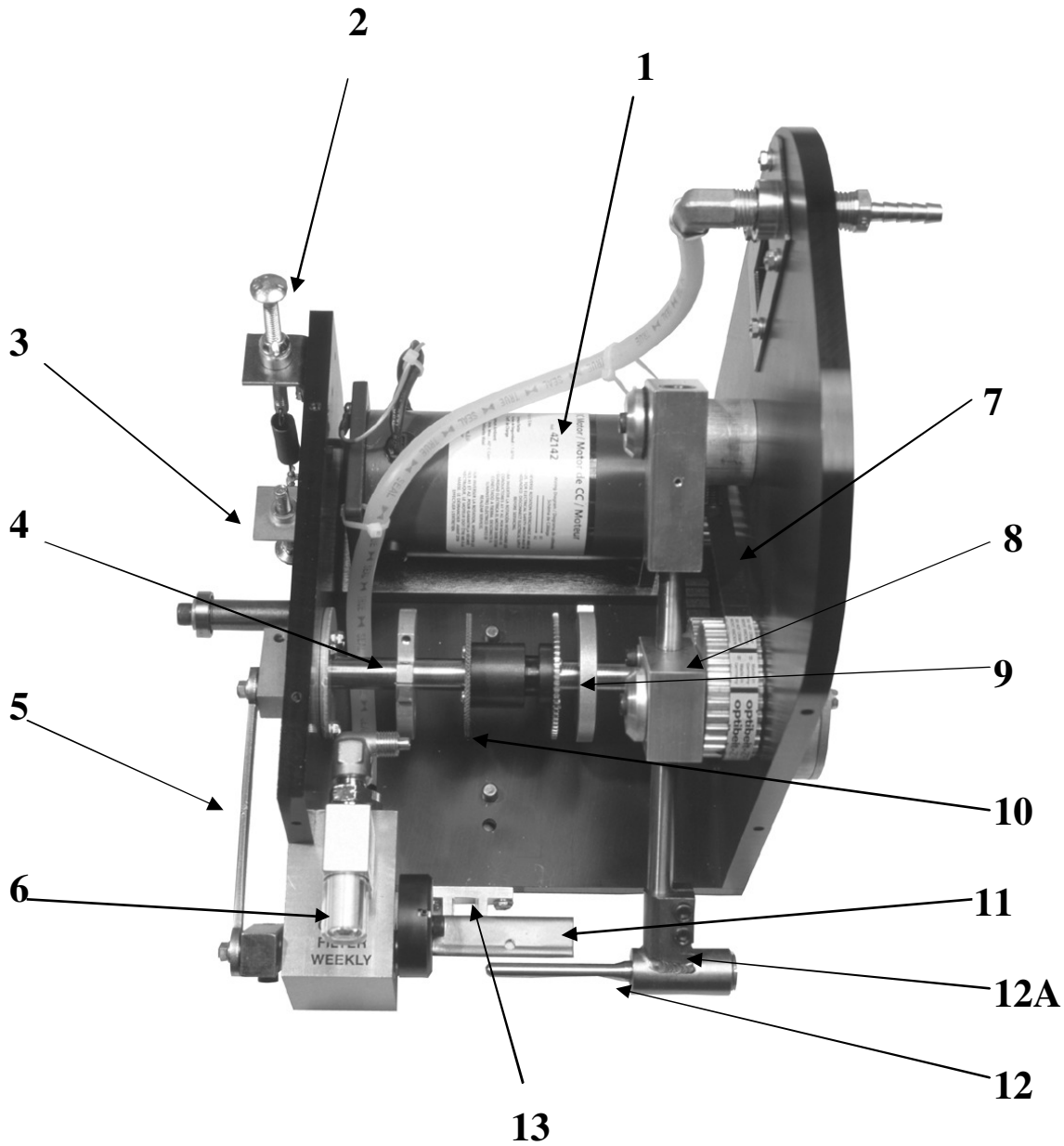
COUNTING HEAD (PHOTO /DIAGRAM #29)



PARTS LIST-COUNTING HEAD

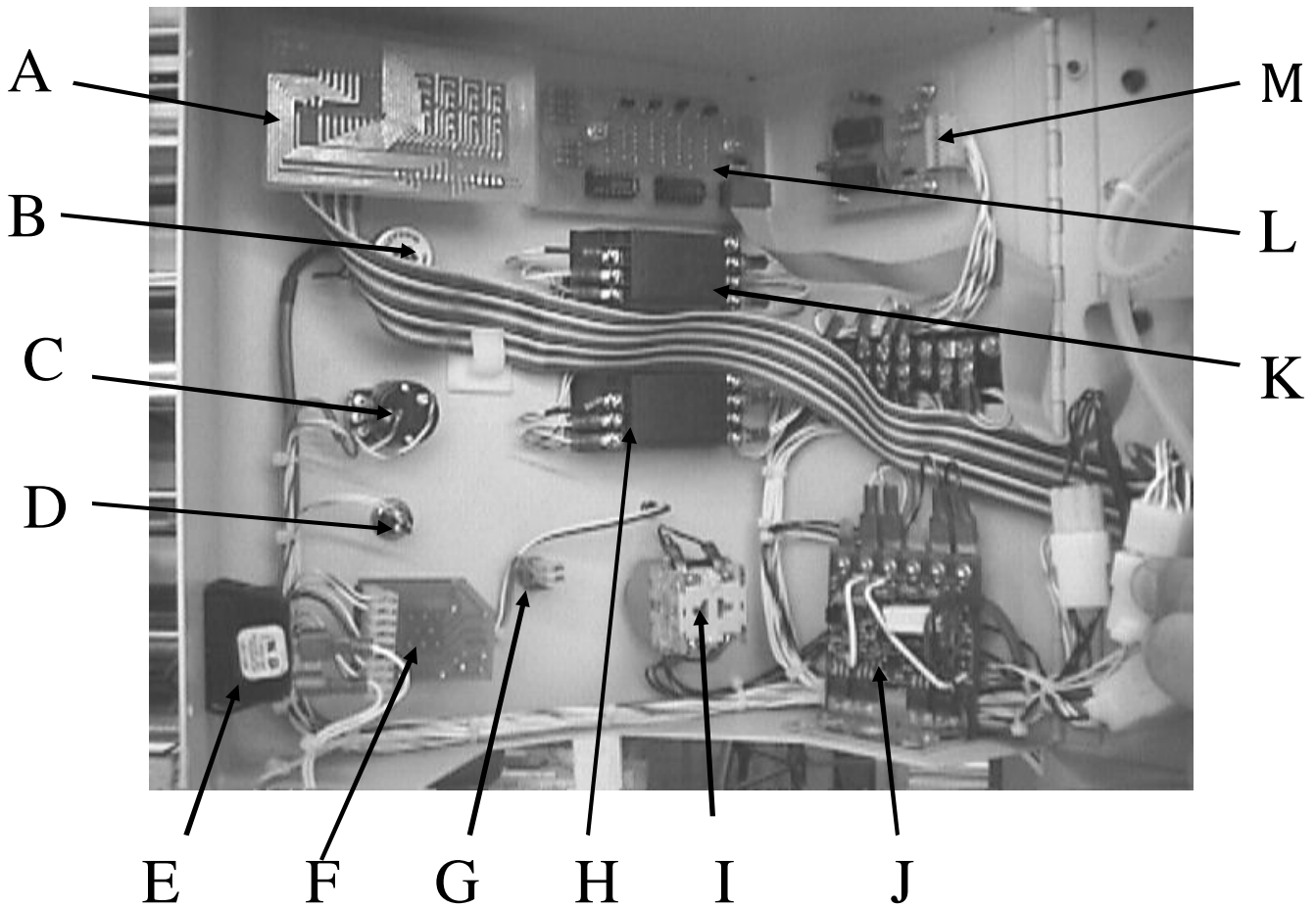
KEY #	PART #	PART DESCRIPTION
1	S-6045	Tape Loading Lever Assembly
2	S-6269 S-6132 S-6135	Suction Blade House Assembly - Seals-Suction Blade (2) - Bearings-Suction Blade & Orbitor
3	S-6133	Suction Blade Shaft
4	S-627* S-6234	Suction Blade (#70-#75- See Page 12 “ Suction Blade Guide ”) Wiper Pin Assembly Complete
5	S-6236-2	Wiper Pin W/Bearings (includes wiper pin, 2 open bearings large & small spacers & E-clip)
6	S-6235 S-6235-A S-6238 S-6232 S-6237 S-6239	Wiper Pin Housing - End Cap - Small Spacer (not shown) - Large Spacer (not shown) - Wiper Pin Bearing (2) (not shown) - Snap Ring Clip
7	S-4032-A	Hose Barb Connector
8	S-3073	Cable Clamp-Black Plastic (not shown in this photo)
9	S-6151	Lock Buttons, Relieved
10	S-6106	Pivot Bearing
11	S-3032	Receptacle 15-pin
12	S-6320 S-6318 S-6321 S-6332 S-6330 S-6331	Mainshaft Bearing Retainer (2) Mainshaft Bearing Snap-Ring (2) Mainshaft Snap-Ring (2) (not shown) Orbitor Bearing (not shown) Orbitor Bearing Retainer (not shown) Orbitor Bearing Housing (not shown)
13	S-6233	Push Rod
14	S-3043-1	Count Vacuum Switch

FRONT VIEW COUNTING HEAD
(PHOTO / DIAGRAM #30)



1- Counting Head Motor (S-3100-B)	8- Orbitor (S-6230)
2- Counter Poise Spring (S-6173)	9- Magnet Carrier Reset Reed (S-6316)
3- Vertical Rise Actuator (S-6175)	10- Lower Tape Drive Ass'y (S-6020)
4- Magnet Carrier Count Reed (S-6316)	11- Suction / Counting Blade (S-627--)
5- Connecting Link Arm (S-6100)	12- Wiper Pin w/bearings (S-6236-2)
6- Counting Head Filter (S-4062)	12a- Wiper Pint w/housing (S-6234)
7- Drive/Timing Belt (S-6011)	13- Tape Retaining Block (S-6290)

PRE-SELECT & START SWITCH AREA
(PHOTO/DIAGRAM #31)

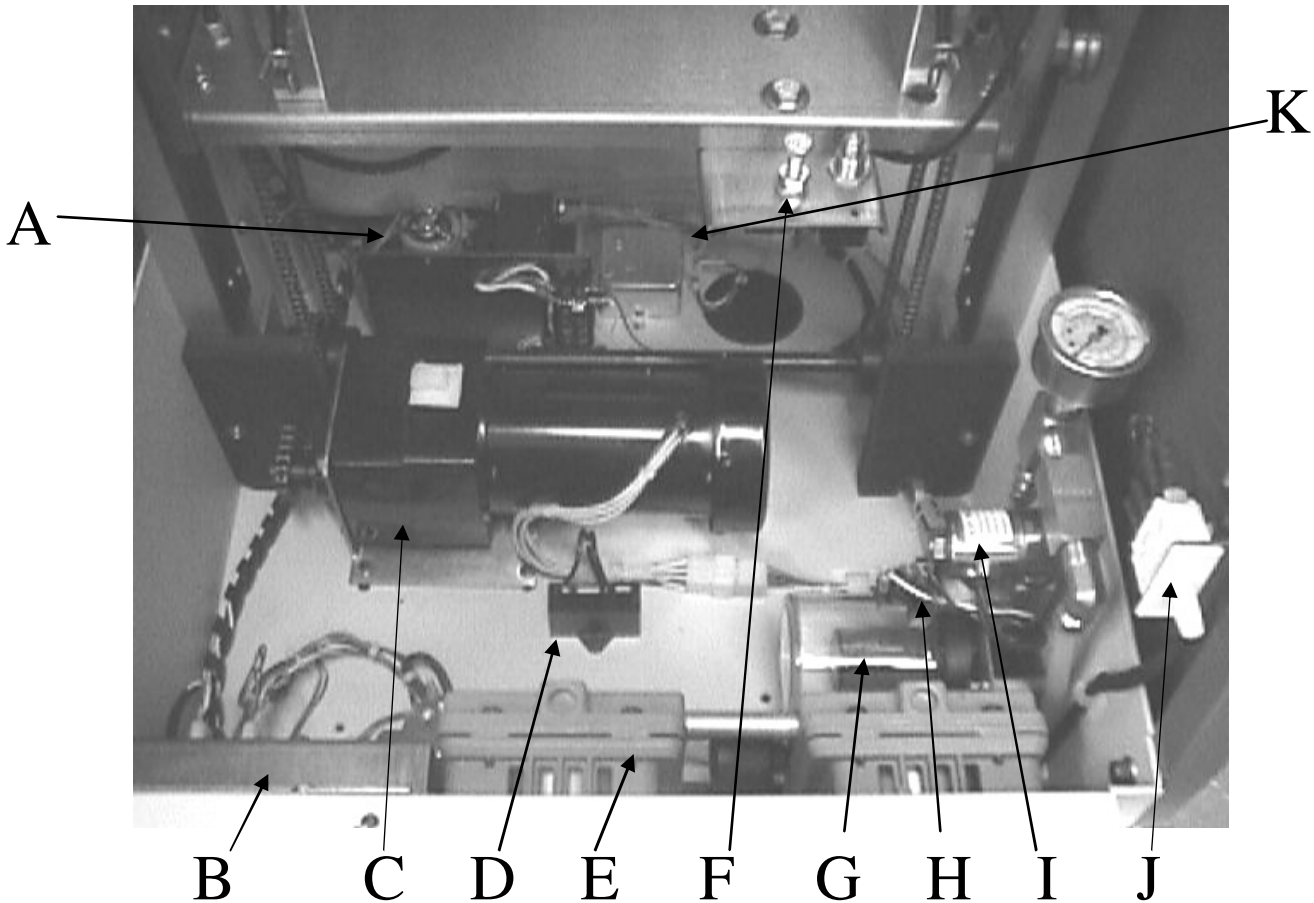


A	Pre-Select Assembly (S-3065-*)	G	Reset On / Off (S-3056)
B	Speed Control Pot (S-3047-*)	H	Batch Counter (S-3062-*)
C	Tape Length Pot (S-3048)	I	Emergency Stop Switch (EMO) Assembly (S-3188) Includes: Contact Block (S-3188-A) Red Stop Switch (S-3188-C) Terminal Protector (S-3188-C)
D	Tape-Cut Switch (S-3119)	J	Speed Control (S-3047-*)
E	Main Blower Switch (S-3058)	K	Totalizer Counter (S-3062-*)
F	Start Switch Assembly (S-3049-*) Includes: Start Switch (S-3049-*) Splash Guard (S-3049-2D) Lamp (S-3050-*) Lens Cap (S-3051-*)	L	Decade Board (S-3067)
		M	Totalizer / Batch Driver P.C. Board (S-3145-*)

* - Different styles available depending on machine

PHOTO - POWER SUPPLY & VACUUM AREA

(PHOTO/ DIAGRAM #17)

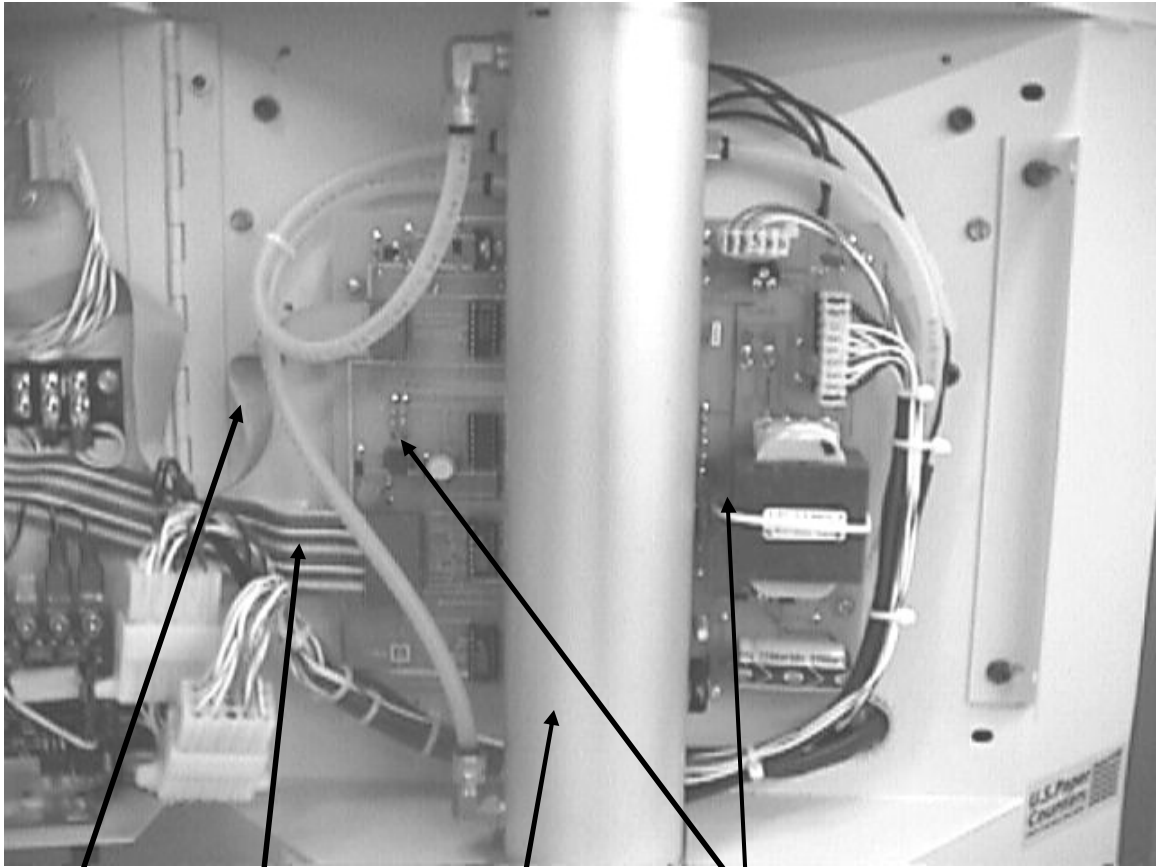


A	Power Supply Assembly (S-3008-1)	G	Filter Housing Assembly (S-4018) Plastic Rivet (S-4018-A) Filter Stem (S-4018-B) Filter Element 2 (S-4019)
B	Vacuum Pump Cut-off (S-3132-2) Vacuum Pump Cut-Off w/ Air (S-3132-*)	H	Vacuum Switch (3043-1)
C	Vertical Rise Motor (S-3005-*)	I	Count Vacuum Valve (S-3042)
D	Starting Cap. V/R Motor (S-3007)	J	Cover Safety Switch (S-3165)
E	Vacuum Pump 110 (S-3004-3) Vacuum Pump 220 (S-3004-4)	K	Lower Laser System (S-3079-L)
F	Vertical Rise Switch (S-3114)		

* - Different styles available depending on machine

INSIDE CONTROL PANEL

(PHOTO / DIAGRAM #33)



A

B

C

D

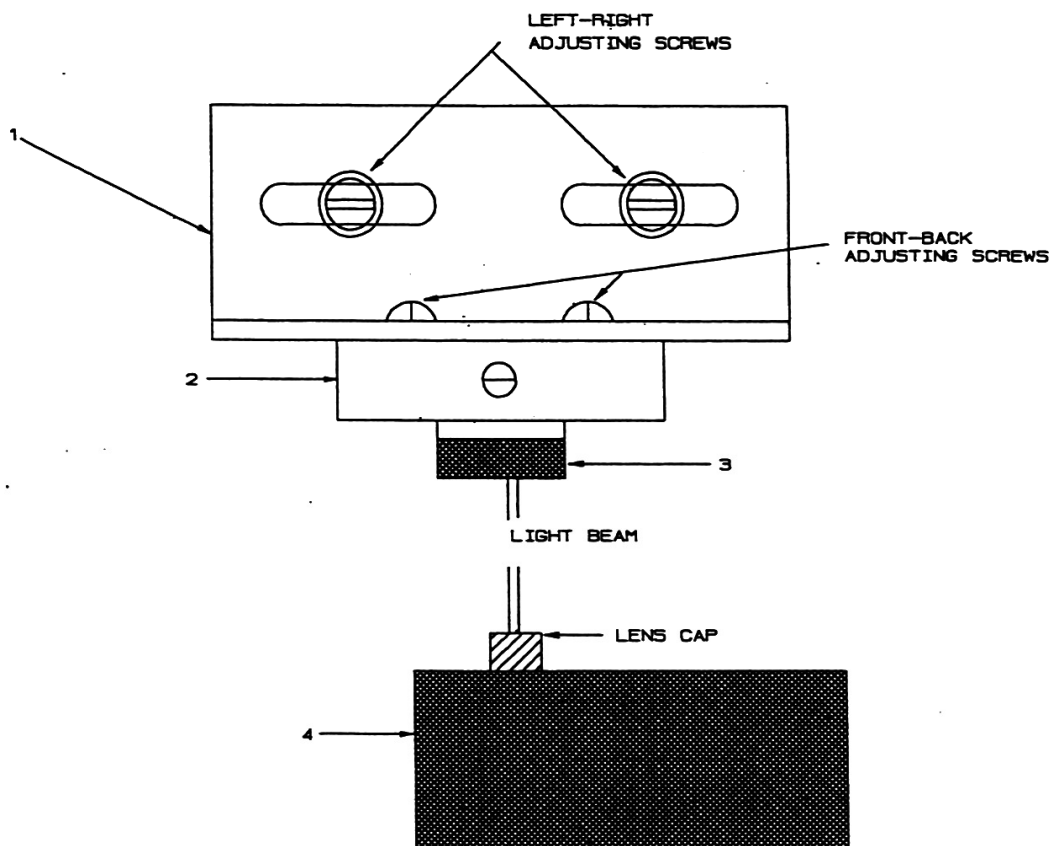
A	14 Pin Ribbon Cable (S-3066-1)	C	Clamp Cylinder (S-4023-*)
B	24 Pin Ribbon Cable (S-3068)	D	Electronic Control Unit (ECU) (S-3064)

* - Different styles available depending on machine

DIAGRAM/PHOTO #34: LASER SYSTEM OPERATION WITH PARTS LIST

The upper laser system contains a laser diode, which projects a light down on the lower laser system receiver. When the laser beam is broken, a signal is sent to the S-3170 Logic Controller, which activates the vacuum pump and enables the start switch. This will allow the clamp to lower and the paper to be counted when the "Start" switch is depressed.

The laser beam must fall on the lens cap located on the lower laser receiver. Adjustments to the lens position can be made by loosening the left to right or front adjustment screws located on the upper laser system. The laser mounting bracket can now be moved, so that the beam is in the correct position, and the screws re-tightened.



1	Laser mounting bracket	S-1072-A
2	Laser mounting block	S-1072-B
3	Cellomating lens	S-3080
	Upper laser system (above 3 items + laser diode)	S-3079-U
4	Lower laser system	S-3079-L

INDEX

A	
Ace Micro Cushion	61
Adjustments	55-61
Air Flotation	10
B	
Batch Counter Face Plate (Photo)	51
Breathers	14, 15
C	
CE Certification	12
Center Plate: Removal	26
Center Plate: Drawing with Tape Chute	31
Center Plate, Right Side: Photo	36
Center Plate, Left Side: Photo	37
Clamp Cylinder	87
Clamp Plate	49
Computer ECU	76
Computer ECU Board	77
Connecting Arm Link	36, 81
Count Adjustment w/Diagram	24
Count Reed Switch – Photo Reference	37
Counter Poise Spring, Setting	28
Counter Poise Spring, Photo	27, 84
Counting Head: Photo & Parts List	82 - 84
Counting /Suction Blade Guide	12
Counting Head: Photo, Front View & Parts List	84
Counting Head: Installation & Alignment	25
Counting Head Motor	84
Counting Head: Removal & Replacing	26, 27
Counting Head: Wiring Diagram	67
Counting Speed	12
Count Vacuum Switch (Photo).....	82
Count-Wise 1: Installation	8
Count-Wise M: Diagram	11
Count-Wise M: Installation	10
Cover Safety Switch	57,86
D	
Decade Board	41-43, 85
Down Limit Switch	49
Drive/Timing Belt	84

<i>E</i>	
Electronic Counting Unit (ECU) Wiring Diagrams	72-74
Electronic Counting Unit (ECU) Basic Components	71
Electronic Counting Unit (ECU) Power Supply Assembly	74
Electrical	12
Emergency Stop Switch	52, 85
<i>F</i>	
Filter, Counting Head	81
Filter Housing Assembly	57
Filter Jar, Glass	57
Filter Element	
*Stem	57
Fuses	49
<i>I</i>	
Insert Tape: Loading Diagram	22, 23
Insert Tape: Removing a Tape Jam	32
Installation	5-11
Max Bantam.....	6
Count-Wise 1.....	8
Count-Wise M.....	10
<i>K</i>	
Knife Assembly: Maintenance Schedule	38
Knife Assembly: Removal/Replacement & Diagram	34, 36
Knife Solenoid	36
Knurled Wheels	31, 37
<i>L</i>	
Laser System: Operation, Diagram & Parts List	88
Laser System – Lower	57, 88
Laser System – Upper	49,88
LEDS: Self-Diagnostic Diagram	17
Logic Board: Sequence of Events & Diagram	18, 19
Logic Board Wire Connections	64-66
Logic Controller	48, 49, 69
Looper Driver Motor	36
Looper Stop Switch: Photo Reference	36
Looper Stop Actuator	37
Low Tape Indicator	51
Low Tape Actuator	37
Lower Tape drive Assembly: Photo	84
<i>M</i>	
Maintenance Schedule	38
Max-Bantam Control Panel 2001 & After	52, 53

Max-Bantam: Diagram	7
Max-Bantam: Installation	6

O

Operating Instructions.....	13
Orbit Adjustment & Diagram	29, 30

P

Paper Range	12
Parts Lists, Photos & Diagrams	79
Parts: Recommended Spare Parts List	81
Photos & Drawings	79-88
Pivot Blocks	26,27
Power Supply Assembly	86
Pre-Select	51, 85

R

Receptacle Guard	9
Reset Adjustment w/Diagram	24
Reset On/Off Switch	51
Reset Reed Switch	36
Ribbon Cable (14 & 24 Pin)	87

S

S Clip	26, 27
Service	40
Spare Parts, Recommended	81
Speed Control Adjustment Sequence	60
Speed Control, Count-Wise	50,51
Speed Control, Pot	85
Start/Stop Switch	51
Start Switch Assembly	85
Suction Blade: How to Change	28
Suction Blade Guide	12

T

Tape Chute: Diagram & Photos.....	31,33,37
Tape Cut Switch	51,85
Tape Drive	36
Tape Jam: Tape Chute Removal/Replacement	32,33
Tape Length	51
Tape Loading Lever: Photo Reference	36
Tape Reel Cover	27
Tape Retaining Block	84
Tape Solenoid: Photo	37

Tape Solenoid: Changing34
Tearing or Chipping of Corners45
Technical Details: Count-Wise 1, M & Max-Bantam12
Totalizer51
Trouble-Shooting41-45

V

Vacuum Pump41, 56, 57
Vacuum Switch Adjustment59
Vacuum Switch (Photo).....82
Vacuum Switches: Setting58
Vacuum System..... 56, 57

Vertical Rise Motor57, 61
Vertical Rise Switch28, 57

W

Warranty3, 4
Wiper Pin Bearing: Maintenance38
Wiper Pin w/Bearings & Housing: Photo84
Wiring Diagrams63-77

DIAGRAMS & PHOTOS FOR REFERENCE

DESCRIPTION	PAGE	#
ACE MICRO CUSHION ADJUSTMENT	61	20
BREATHERS	14	4
COMPUTER ECU BOARD	77	27
COUNT ADJUSTMENT	24	8B
COUNTING HEAD-FRONT VIEW	84	30
COUNTING HEAD-PHOTO	82	29
COUNTING HEAD-CENTER PLATE & TAPE CHUTE	31	10
COUNTING HEAD-CENTER PLATE-RIGHT	36	11
COUNTING HEAD-CENTER PLATE-LEFT	37	12
COUNTING HEAD REMOVAL	27	N/A
COUNT-WISE M	11	3
ELECTRONIC COUNTING UNIT (ECU) BASIC COMPONENTS	71	24
FACE PLATE-COUNT-WISE M	51	15
INSIDE CONTROL PANEL	87	33
LASER SYSTEM OPERATION & DIAGRAM	88	34
LOADING INSERT TAPE	23	7
LOGIC BOARD	19	6
MAX-BANTAM	7	1
MAX-BANTAM CONTROL PANEL-2001 & AFTER	53	16
ORBIT ADJUSTMENT	29	9
POWER SUPPLY & VACUUM AREA	57, 86	17
POWER SUPPLY ASSEMBLY ON ECU	74	26
PRE-SELECT & START SWITCH AREA	85	31
REAR-TOP OF MACHINE-AMPS & FUSES	49	13
RECEPTACLE GUARD	9	2
RESET ADJUSTMENT	24	8A
SELF DIAGNOSTIC LEADS	17	5
SPEED CONTROL-COUNT-WISE 15DV-PARTS PLACEMENT & LIST	50	14
SPEED CONTROL ADJUSTMENT SEQUENCE	60	19
TAPE RETAINING BLOCK	80	28
VACUUM SWITCH ADJUSTMENT	59	18
WIRING DIAGRAM-COUNTING HEAD	67	22
WIRING DIAGRAM-ELECTRONIC COUNTING UNIT (ECU)	72, 73	25
WIRING DIAGRAM-LOGIC BOARD PLUGS	66	21
WIRING DIAGRAM-LOGIC CONTROLLER	69	23

DESCRIPTION (SORTED BY PAGE & DIAGRAM #)	PAGE	#
MAX-BANTAM	7	1
RECEPTACLE GUARD	9	2
COUNT-WISE M	11	3
BREATHERS	14	4
SELF DIAGNOSTIC LEDS	17	5
LOGIC BOARD	19	6
LOADING INSERT TAPE	23	7
COUNT ADJUSTMENT	24	8B
RESET ADJUSTMENT	24	8A
COUNTING HEAD REMOVAL	27	N/A
ORBIT ADJUSTMENT	29	9
COUNTING HEAD-CENTER PLATE & TAPE CHUTE	31	10
COUNTING HEAD-CENTER PLATE-RIGHT	36	11
COUNTING HEAD-CENTER PLATE-LEFT	37	12
REAR-TOP OF MACHINE-AMPS & FUSES	49	13
SPEED CONTROL-COUNT-WISE 15DV-PARTS PLACEMENT & LIST	50	14
FACE PLATE-COUNT-WISE M	51	15
MAX-BANTAM CONTROL PANEL-2001 & AFTER	53	16
POWER SUPPLY & VACUUM AREA	57, 86	17
VACUUM SWITCH ADJUSTMENT	59	18
SPEED CONTROL ADJUSTMENT SEQUENCE	60	19
ACE MICRO CUSHION ADJUSTMENT	61	20
WIRING DIAGRAM-LOGIC BOARD PLUGS	66	21
WIRING DIAGRAM-COUNTING HEAD	67	22
WIRING DIAGRAM-LOGIC CONTROLLER	69	23
ELECTRONIC COUNTING UNIT (ECU) BASIC COMPONENTS	71	24
WIRING DIAGRAM-ELECTRONIC COUNTING UNIT (ECU)	72, 73	25
POWER SUPPLY ASSEMBLY ON ECU	74	26
COMPUTER ECU BOARD	77	27
TAPE RETAINING BLOCK	80	28
COUNTING HEAD-PHOTO	82	29
COUNTING HEAD-FRONT VIEW	84	30
PRE-SELECT & START SWITCH AREA	85	31
INSIDE CONTROL PANEL	87	33
LASER SYSTEM OPERATION & DIAGRAM	88	34