

# BANTAM-1 TOUCH SCREEN

*Operation, Service Manual and Parts Guide*

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## User interface instructions

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**NOTE: The following functions are initiated at the “Main Screen”.**

**Reset “On/Off”** – To reset totals to “Zero” when pressing the “Start” Button.

~ Move the for the Reset “On/Off” to the desired position.

**Tabbing “On/Off”** - To turn the Tabbing either “On” or “Off”.

~ Move the slider for the “**Tabbing On/Off**” to the desired position.

**Changing the “Batch” Amounts:**

~ Press the current batch amount number. (A small numeric key pad will then be displayed.)

~ Enter the desired batch amount.

~ Press the “**Enter**” key to lock in that number. (**Note:** if you make a mistake while entering the new batch amount, press the “**CLR**” button.)

**Setting the Tape Length** - To change the tape length.

~ Press the “**Settings**” button to bring you to the “**Setting**” screen.

~ Press the current “**Tape Length**” amount. (A small numeric key pad will then be displayed.)

~ Enter the desired “**Tape length**” amount. (See \***Example below.**)

~ Press the “**Enter**” key to lock in that number. (**Note:** if you make a mistake while entering the new amt. press the “**CLR**” button.)

(\***Example: 2.25” tab = #22; 2.50” tab = #25. If set at 22 @ 70% (speed) = 2.25”**)

**Important: BEFORE USING THE “TABBING” FEATURE, A TAPE LENGTH AMOUNT MUST BE ENTERED.**

**Knife Cut.**

After changing the rolls of tabbing tape or working on the counting head, press the “**Knife Cut**” button to cut the excess tape from the knife prior to counting.

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## **Basic Operating Instructions.**

(REFER TO MAIN MANUAL FOR COMPLETE INSTRUCTION)

1. Counting head should be equipped with a suction blade suitable for the paper. (Refer to **Suction blade chart** located in the **Main Manual**, page 12.)
2. Activate Main switch at rear of machine to "ON" position.
3. If tabbing is required: "**Tabbing**" function must be turned on from the "**Main Menu**", and the desired "**batch amount**" must be selected. (Page 3)

**CAUTION:** When tabbing in low numbers or counting thin paper, stack *height and speed* of counting may need to be reduced considerably (refer to main manual for more information). Check that "**Reset On/Off**" and "**Tape Length**" are set correctly for the desired results.

4. Load paper on table, insert breathers (wood inserts), *only* if necessary, and place firmly into throat of machine and insure a proper jog. (Corner of stack of material must be uniform.)
5. Press "**Start**" switch.
6. At completion of count, clamp will release. Remove paper. Counters will reset once the "**Start**" switch is pressed again.
7. Wait for counting head to lower and wiper pin to reset to its home position. Once completed, repeat steps 4-7.

## **IMPORTANT**

- A. "Breathers" (wood inserts) may be required, according to the height of the paper to be counted. (See page 5.)
- B. Stack size, counting speed and capability may vary due to the substance and texture of the paper being counted and the tabbing range selected.
- C. A slight curl of the corner counted is normal. The thickness of the stock determines the amount of curl.

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## **BREATHERS**

### **WOOD INSERTS-Count-Wise Models Only. (Optional on Max-B1)**

Breathers - wood inserts – are lengths of wood specifically designed and inserted into the stack of material 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 into the stack, do not follow any particular rules. Papers vary in weight, texture and finish which will affect the breather spacing. Through experience, spacing at 3 in. (76mm) intervals for one type of paper gives excellent results. Different weights of material may require different spacing.

Overuse of breathers (wood inserts) must be avoided. An excessive number inserted in the stack will loosen the corners so much that the upward motion of the counting head will bend them back and give erratic counting.

When counting thin paper, care should be taken not to damage the sheets when inserting breathers (wood inserts).

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### MAINTENANCE

1. **Filter Assemblies** Remove jar and clean filters **daily**. Depending upon the amount of paper dust, more frequent cleaning or replacement of filters may be necessary. Be sure jars are tight to avoid vacuum leaks. (depending on model Filter jar is located on Carriage of counting head or upper rear left inside back cover)
  2. **Wiper Pin Bearings (\*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.  
(Refer to page 28, Counting Head diagram: part #6 – Wiper Pin Housing.)  
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, **lithium or Teflon** grease and place directly onto 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 hrs of operation. (See #6 below for additional lubrication points.)**
- NOTE:** Depending upon amount of usage and material dust, more frequent lubrication may be required. Be sure end cap is tight.
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 onto knife. Disassembly of 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 (weekly, or every 40 hrs of operation, using a light oil):**
    - Pivot bearings (on sides of head)
    - Connecting ling 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 action will cause head **failure**. If you have any questions, contact the factory.

7. Inspect upper and lower knurled wheels and gears. Check all mechanical and electrical connections for tightness.
8. Machine: General cleaning of machine may be done using glass or all-purpose cleaner.

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

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## **How to Set Machine Back to “Factory Specifications”**

### **#1- Initial Step. (Refer to diagram pg. 33)**

- a. Loosen pivot blocks, dash pot and stop bolt, as well as dash pot / VR (vertical rise) bracket.
- b. Place counting head into the “slots” in each pivot block. Take care to position left side pivot bearing squarely between guide pins located in left side housing. Close hinged top onto pivot bearing and tighten wing nuts.

### **#2- Setting the Dash Pot / VR (Vertical Rise) Bracket**

- a. Looking into the machine from the rear, the right pivot block should be centered on the adjustment hole (holes in carriage base plate under “dash pot) with approx. 1/8” of the hole showing from the rear. The left pivot block (again to be centered on the adjustment hole) should be placed so the rear of the pivot block is touching the rear of the adjustment hole, giving the head a slight tilt to the left .
- b. Check that the Vertical Rise Switch is in a location where the Vertical Rise actuator is going to depress it. If it is not, move the rear of bracket accordingly.
- c. Remove counting head. Lock down bracket bolts and replace head.

### **#3- Level Counting Head to the Machine (NOT Floor)**

- a. Place a small “level” on the bottom of the machine just to the right of the counting head motor under the carriage. Depending on the reading, either level the machine or mark on the level where the bubble is sitting.
- b. Place the level on the right side of the counting head.
- c. Move the “dash pot” up or down so it touches the counting head just below the Vacuum Block housing. Continue to move the dash pot so that the head’s level is in the same spot as it was with your 1<sup>st</sup> measurement as advised in “a”. Do not allow the head to push in to the dash pot, just touch it when its level. Tighten the dash pot (lock it in place).
- d. Once the head is set to level and it hits the dash pot, bring the “stop bolt” at the rear of the head either up or down so that there is a 1/16 - 1/8” gap from the stop bolt and bottom of the head (when the head leveled).

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### **#4- Setting the “Depth of Corner”.**

- a. When all of the above settings are done, use a black marker to place a small dot on the suction blade on the back edge in the center **above** the hole in the suction blade.
- b. Open the top cover of the machine to the full open position so you can look down into the machine.
- c. Place a sheet of heavy stock paper in the throat of the machine. Material needs to have very clean and square corners.
- d. Turn the “**Speed Control**” all the way to the “**Off**” position and press the “**Start**” button. The clamp should come down and the head should rise up to meet the paper and remain there. Turn the machine off via *the main power switch* and pull up the clamp by hand.
- e. Keeping the right side of the counting head tilted towards the left (as explained above in #3), slightly move the head left, right, forward or backward so that the very corner of the paper meets the dot previously marked by the sharpie pen mark as stated in “**a**”, and that the vacuum hole in the suction blade is centered on the corner of the paper. To confirm, use a pencil and trace the paper on the blade. When the paper is removed there should be a perfect triangle on the counting blade with the vacuum hole in the center.

**IMPORTANT: The head needs to be offset to work correctly; it needs to be angled to the left side of the machine.**

- f. When the depth of corner is set, remove the paper and turn the power on: let the head lower. Replace the paper in the throat of the machine, but only enough to break the laser beam so the vacuum pump comes on. Place a soda can or block of wood under the clamp and press the start button. This will allow the head to rise. Once the head is high enough, you can tighten the bolts that hold the pivot blocks. Turn the machine off. Tighten the bolts, remove everything from the throat.

### **#5 Setting the Speed Control:**

- a. Take a small piece of scotch tape and place it over the hole on the suction blade.
- b. Open the front panel of the machine and locate the “**Speed Control**”. There are 3 “pots” (potentiometers) on the speed control. Looking left to right facing you, the pots are marked “50K” (high), “2M” (Not used), and “20K” (low). Make sure the center pot (2M) is off (turned counter clock wise all the way).
- c. Place the “**Speed Control**” knob on the front of the faceplate at the “**1**” position; turn the “**Tape Length**” “**Off**”, and the power should be turned “**On**”. Insert paper into the



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throat of the machine. Press the “**Start**” button. The clamp will come down, the head should rise, and the counting head motor should begin to count. The wiper pin should just be rotating around the *blade about 1 time per second*. If not, adjust the “20K” pot (far right) to obtain this speed.

- d. While the machine is still running, use a clock with a second hand or a stop watch, and turn the “**Speed Control**” knob clockwise all the way to full speed. Press the “**Reset**” on the totalizer and start timing for 15 seconds. *At the 15 second mark, the machine should have counted 450 – 500 sheets*. If not, adjust the “high speed” pot (50K) until this is reached. Once the high speed is set, recheck the low speed. (You may need to adjust both a few times to set speed correctly.)

### **#6- Setting the “Spring Blade” and “Table Flap”**

- a. The **table flap** needs to be **level with the table**. With a glove or a rag, (flap can be sharp) the table flap can be bent up or down; bend accordingly.
- b. The **spring blade** needs to have a very, very slight downward bend to it.
- c. **If either the table flap or spring blade are bent other than instructed, the machine will not operate correctly and may cause chipping of the material or loss of vacuum.**

### **#7 - Setting the “Vertical Rise” and “Counter Poise Spring”**

- a. The “**Vertical Rise**” switch (**VR switch**) setting is adjusted by the “**VR Actuator**” (upside down carriage bolt with locking nut on right side of head). The **VR switch** needs to be set so that it opens (tips off the switch) when the counting head is level and just touches the tip of the **dash pot**. The head should rotate or tilt forward no more than 1/8” of an inch before the VR switch opens. If not, adjust the VR actuator bolt accordingly and lock it in place by the locking nut.
- b. There is no actual “setting” for the **Counter Poise Spring**. However, depending on the material being counted you may need to put “more” or “less” tension on the spring. The initial setting for the spring is where the tensioner bolts threads are 50% above and 50% below the “L” bracket that holds it in place. For thick stock more tension is needed on the spring to help hold the angle of the head while counting through the stock. On thinner stock, too much tension on the spring will cause the counting head to push upwards too hard and chip or tear the corners of the material. If too little tension is on the spring, the counting head may shake while counting, causing the loss of vacuum.

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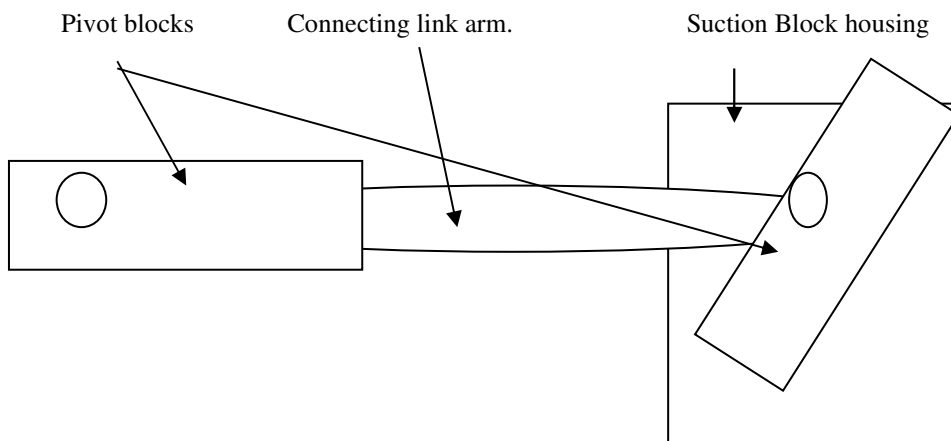
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## Other settings:

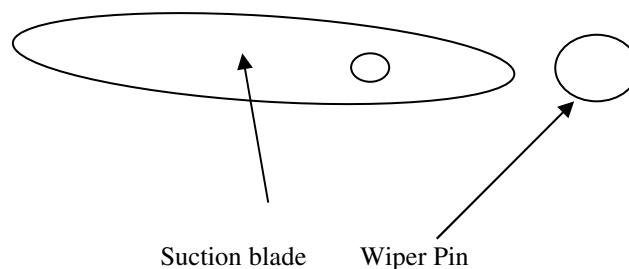
#1 - **Reset position:** The “Reset” position of the suction blade and wiper pin needs to be set so that the wiper pin is just in front and slightly below the suction blade. If this is not the case then adjust the magnetic carrier forward or backwards to set this position.

#2- **Count Reed position.** The “Count Reed Switch” needs to be set so that when the wiper pin is just above, in front and just over the suction blade the switch closes.

#3 - Setting the connecting link and suction blade. (See picture below)



Above is the setting for the connecting link arm and how it should look with the below setting of the suction blade and wiper pin in the below position. Note: the blade should have a very, very slight upwards angle in the rear of the blade. .



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### **Trouble Shooting – For Touch Screen (More trouble shooting in Main manual)**

1. No Power	Power Switch in Off position.	Turn Power Switch "On"
2. Power LED on logic no lit.	<ul style="list-style-type: none"> <li>a. Main power fuse blown.</li> <li>b. Emergency Stop Switch not set/resent.</li> <li>c. Bad interlock.</li> <li>d. Bad logic.</li> </ul>	<ul style="list-style-type: none"> <li>a. Replace fuse.</li> <li>b. Set Emergency Stop Switch to correct position.</li> <li>c. Close rear cover, check "Cover Safety Switch". Check AC pins 3 &amp; 4 on interlock. If no AC, check plug 1 pins 8 &amp; 9 on logic board.</li> <li>d. Check for broken wire or replace logic board.</li> </ul>
3. Vacuum Pump does not start.	<ul style="list-style-type: none"> <li>a. No power.</li> <li>b. LED #7 on logic board not lit.</li> <li>c. Solid state relay (SSR) on pump not turning on (LED#&amp; is lit.)</li> <li>d. Lower laser receive is bad.</li> </ul>	<ul style="list-style-type: none"> <li>a. (See #1 No Power)</li> <li>b. Check plug on receiver.</li> <li>c. Check for DC voltage on SSR pin 1 &amp; 2. If there is voltage, "jump" relay. If no voltage, replace SSR.</li> <li>d. Replace receiver.</li> </ul>
4. Vacuum pump does not stop.	<ul style="list-style-type: none"> <li>a. Obstruction (tabs) covering lower laser.</li> <li>b. Laser not aligned.</li> <li>c. Laser is not lit or light is dim.</li> <li>d. Bad logic board.</li> </ul>	<ul style="list-style-type: none"> <li>a. Clean lower laser assembly of obstructions.</li> <li>b. Check alignment.</li> <li>c. Replace laser diode assembly. (Test with flashlight.)</li> <li>d. Check DC voltage on plug 4 pins 6 &amp; 7 on logic or replace logic board.</li> </ul>
5. Decade (overage) not lit.	<ul style="list-style-type: none"> <li>a. F2 fuse blown.</li> </ul>	<ul style="list-style-type: none"> <li>a. Replace fuse.</li> </ul>

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### Trouble Shooting – For Touch Screen (More trouble shooting in Main manual)

PROBLEM	POSSIBLE CAUSE	CORRECTIVE ACTION
6. Counts fail to register while machine is running.	<ul style="list-style-type: none"> <li>a. Broken wire.</li> <li>b. Bad count reed switch.</li> <li>c. Vacuum switch out of adj. or bad.</li> <li>d. Bad PLC</li> <li>e. Bad Opto Board</li> </ul>	<ul style="list-style-type: none"> <li>a. Check continuity of coax cable from PLC to Opto Board</li> <li>b. Replace switch.</li> <li>c. Check vacuum switch</li> <li>d. Replace PLC.</li> <li>e. replace Opto Board</li> </ul>
7. Count registers, but no tabs in stack.	<ul style="list-style-type: none"> <li>a. Tape length too short.</li> <li>b. Knife sticking.</li> <li>c. No tape loop.</li> <li>d. Loose connection on PLC/ broken wire.</li> <li>e. Tape chute out of adjustment or jammed.</li> <li>f. Tape on/off switch out of adjustment.</li> <li>g. Bad solenoid.</li> <li>h. Bad in-line fuse. Blown F3 fuse.</li> </ul>	<ul style="list-style-type: none"> <li>a. Adjust length.</li> <li>b. Clean knife*.</li> <li>c. Check loop follow up, o-rings, looper switch and motor.</li> <li>d. Check ECu</li> <li>e. Adjust chute or clean.</li> <li>f. Adjust switch.</li> <li>g. Check continuity on red replays on outer faceplate</li> <li>h. Replace fuse.</li> </ul>
8. Count registers but no knife.	<ul style="list-style-type: none"> <li>Sticky knife.</li> <li>Loose connection on PLC.</li> <li>Broken wire.</li> <li>Bad relay.</li> </ul>	<p>Ref to steps under 'Count registers, but no tabs in stack' (#7 above).</p>
9. Tape and/or knife operate continuously.	<ul style="list-style-type: none"> <li>Bad PLC</li> <li>Bad Relay</li> <li>Bad Solenoid</li> </ul>	<ul style="list-style-type: none"> <li>Replace PLC</li> <li>Replace Replay</li> <li>Replace Solenoid</li> </ul>

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<p>10. Miscounts, undercounts, or overcounts.</p>	<p>a. Wrong suction blade being used.</p> <p>b. Bad count reed switch.</p> <p>c. Vacuum switch bad, clogged or out of adj.</p> <p>d. VR out of adjustment.</p>	<p>a. Refer to counting blade chart for correct blade.</p> <p>b. Test reed switch for proper function; replace if needed.</p> <p>c. Clean, adjust or replace vacuum switch.</p> <p>d. Check VR switch settings.</p>
<p>11. Counter fails to reset</p>	<p>a. Reset switch in off position.</p>	<p>a. Move switch to correct position or replace.</p>
<p>12. Insert tape not entering stack or falling out.</p>	<p>a. Tape length too short.</p> <p>b. Counting head alignment (depth of corner) not correct.</p> <p>c. Tape retaining springs out of adj.</p> <p>d. Head timing is out of adj. (count reed).</p>	<p>a. Adj. tape to a 2 ¼" - 2 ½" length.</p> <p>b. Check depth of corner.</p> <p>c. Set retaining springs.</p> <p>d. Set timing with meter (call factory). (Refer to 'Tearing or chipping corners' at #24 below for more info.)</p>
<p>13. Knife partial cutting or half cuts.</p>	<p>a. Sticky knife.</p> <p>b. Linkage sticking.</p> <p>c. Bad Relay.</p> <p>d. Bad cutting edge on knife.</p>	<p>a. Clean knife &amp; linkage*.</p> <p>b. Check for binding or worn parts.</p> <p>c. Replace ECU.</p> <p>d. Replace knife.</p>
<p>14. Clamp not lowering.</p>	<p>a. Laser out of alignment or blocked by tabs.</p> <p>b. Vertical rise switch out of adjustment.</p> <p>c. Bad start switch.</p> <p>d. Blown fuse.</p>	<p>a. Align laser. Check lower laser receiver.</p> <p>b. Set VR switch.</p> <p>c. If LED 11 doesn't light when start switch is pressed, replace switch.</p> <p>d. Replace F3 fuse on logic board. Refer to sequence of events.</p>

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<p>15. Clamp lowers as soon as paper is placed in throat of counter.</p>	<p>Bad start switch. Bad clamp valve. Bad logic board. Blow Security clamp relay</p>	<p>Replace parts as needed.</p>
<p>16. Counting head does not rise.</p>	<p>a. If logic board was replaced, check VR jumper settings on board. VR switch out of Adj. b. Blown F1 or F3 fuse.  c. Bad 24 VDC directional relay.  d. VR sprocket loose.  e. Bad logic board.</p>	<p>a. Move jumpers to match VR motor in machine. LED #8 on logic must be lit; check and adjust VR switch. b. Check fuses; replace if needed. c. LED 1 should be lit when relay is energized; replace if needed. d. Tighten setscrew or replace roll pin. e. Replace logic board.</p>
<p>17. Counting head does not lower.</p>	<p>a. Laser obstructed, out of alignment or dim. b. Down limit switch out of adjustment.  c. Blown F1 fuse.</p>	<p>a. Clear, adjust or replace. b. Check 24VDC relay on logic board. Check LED #10 on logic. Must be in up position (adjust switch). c. Replace fuse.</p>
<p>18. Counting head fails to stop after counting is complete.</p>	<p>a. Filters, counting head or Vacuum lines clogged. b. Motor start vacuum switch out of adj. or bad. c. Bad logic board.</p>	<p>a. Clean vacuum filters, head and line. b. Check switch settings. c. Replace logic board.</p>
<p>19. Counting head fails to start counting.</p>	<p>a. Vacuum pressure too low b. Vacuum leak. c. Motor start vacuum switch out of adj. or bad. d. Blown F4 or F5 fuse. e. Speed control set to off. f. Bad counting head motor. g. Wrong blade for stock.</p>	<p>a. Adjust vacuum relief valve. b. Check for vacuum leak c. Set Vacuum switch to 19"hg or replace. d. Replace fuse(s). e. Increase speed. f. Check voltage at counting head motor; replace if needed. g. Install correct blade.</p>

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<p>20. Counting head stops counting before counting is complete.</p>	<p>a. Wrong counting blade.  b. Stack being counted is not jogged properly.  c. Stack too loose.  d. Speed too fast or too slow.  e. VR switch travel not set correctly.  Counting poise spring not adjusted correctly.</p>	<p>a. Check blade chart for correct counting blade.  b. Check jog of paper.  c. Check spring blade and blade stop for proper adjustment.  d. Adjust counting speed.  e. Adjust VR switch and counter poise spring.</p>
<p>21. Continuous reverse rotation of wiper pin for reset.</p>	<p>a. Bad reset switch.  b. Weak magnet.  Magnet broken or missing.  c. Bad logic board.</p>	<p>a. Test reed switch and replace if needed.  b. Check magnet and replace if needed.  c. Move reset speed jumper on logic board.  Replace logic board.</p>
<p>22. Counting head fails to reset after counting.</p>	<p>a. Bad logic board.  b. Bad counting head motor.</p>	<p>a. Check LED #2 on logic; if not flashing replace logic.  b. If it is flashing, check voltage at motor. If voltage at motor, replace motor.</p>
<p>23. Tearing or chipping of corners.</p>	<p>a. Orbit out of adj.  b. Wiper pin not spinning freely or bad wiper pin bearings.  c. Bent wiper pin.  d. Incorrect counting blade.  e. Counting speed set too fast for stock being counted.  f. Vertical rise (VR) switch not set properly.  g. Depth of corner off.  h. Bad spring blade or blade stop set to wrong angle.  i. Stack too high for quantity tabbing in.</p>	<p>a. Reset orbit.  b. Replace bearings.  c. Replace wiper pin and bearings.  d. Install correct counting blade.  e. Reduce counting speed.  f. Set VR switch.  g. Set depth of corner.  h. Replace spring blade.  Adj. spring blade stop (stop should have slight downward bend).  i. Shorten stack height.</p>
<p>24. Folding corners.</p>	<p>a. Orbit out of Adj.  b. Bad Wiper pin bearings or wiper pin (pin needs to spin freely).  c. Depth of corner off.</p>	<p>a. Reset orbit.  b. Replace bearings.  Replace wiper pin.  c. Set depth of corner.</p>

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<p>25. Erratic tape lengths.</p>	<ul style="list-style-type: none"><li>a. No tape loop or not keeping tape loop.</li><li>b. Bad Looper motor.</li><li>c. Bad looper stop switch.</li><li>d. F2 fuse blown.</li><li>e. Tape chute out of alignment.</li></ul>	<ul style="list-style-type: none"><li>a. Set actuator wire on looper switch.</li><li>b. Check and replace drive o-rings, if needed.</li><li>c. Check for AC at pins 7 &amp; 9 on head cable; if voltage is present, check looper switch for continuity.</li><li>d. Replace F2 fuse.</li><li>e. Adjust tape chute.</li></ul>
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## **SEQUENCE OF EVENTS - LOGIC BOARD S-3170**

1. Plug machine into AC service.
2. Main switch to "ON" position with Safety Switch closed (cover down):
  - 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.

# BANTAM-1 TOUCH SCREEN

*Operation, Service Manual and Parts Guide*

## Logic Board Wiring Connections

### Plug 1

Color Code	Description
1. green/yellow	earth ground
2. white/green	v.r. switch signal input
3. orange	N/C
4. black/green	v.r. switch dc-ground
5. white/grey	v.r. switch signal 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	v.r. motor capacitor
11. blue	v.r. motor
12. white/orange	laser input
13. white/black	DC GND
14. red	v.r. motor
15. black	v.r. motor
16. white/red	+42 VDC
17. white	AC neutral out
18. grey	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 output
4.	ECU mode
5.	ECU mode
6.	N/C
7.	N/C, DC GND
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 and ECU
15. brown/white	switched AC to speed control
16. white/black	DC GND
17. white/red	+42 VDC
18. black	AC line to ECU (On old version w/interface board, ECU gets power from looper motor on plug 3.)

# BANTAM-1 TOUCH SCREEN

## *Operation, Service Manual and Parts Guide*

### **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/grey	reset proximity switch
12.	N/C
13.	N/C
14. white/grey	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.	N/C
4.	N/C
5.	N/C
6. red	Laser
7. black	Laser Ground
8. white/black	Solid state looper relay-Max 3000 (Gnd)
9.	N/C (Gnd)
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/grey	start count vacuum switch ground
17. black/orange	start count switch
18.	N/C (Gnd)

# BANTAM-1 TOUCH SCREEN

## *Operation, Service Manual and Parts Guide*

### **CHANGING THE TAPE SOLENOID**

1. Remove Center Plate.
2. Remove top tape drive by removing 2 allen screws.
3. Using 1/2" (12.7mm) socket, remove nut holding the solenoid.
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.
6. Tighten the 1/2" nut to hold the solenoid to the plate.
7. Replace top tape drive with its 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.
11. Tighten plunger nut.

### **REMOVAL OF KNIFE ASSEMBLY**

1. Remove connector link arm from tear drop .
2. Loosen locking nut and remove allen screw.
3. Remove Knife assembly from the end of tape chute and adjusting plate .
4. **DO NOT USE OIL ON KNIFE ASSEMBLY.**

### **REPLACING KNIFE ASSEMBLY**

1. Position knife on tape chute, screw allen head screw through knife adjusting plate into knife anvil until screw bottoms.
2. Attach knife connector link arm to tear drop.
3. Push tape through until it comes through the knife anvil. (Tape must travel smoothly thru anvil; slightly turn the allen head screw clock-wise or counter-clockwise until tape flows smoothly.
4. Lock down the locking nut .
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 connector link arm .

# BANTAM-1 TOUCH SCREEN

## *Operation, Service Manual and Parts Guide*

6. Place counting head in a flat position. Push tape through chute until tape hits bottom of blade, approximately mid-way. Adjusting the angle of the knife anvil using the allen head screw accomplishes this setting.
7. **DO NOT USE OIL ON KNIFE ASSEMBLY.**

### **VACUUM SYSTEM**

VACUUM PUMP	standard voltage 110V AC or 230V AC 50/60 Hz, optional voltage is available. Powered by time delay relay. Maximum output 29 1/2" HG. Protected by 10 amp mains fuse. NOTE: Vacuum may vary due to altitude and barometric pressure.
CLAMP VALVE	Four way vacuum valve, operates clamp cylinder.
COUNT VALVE	Applies vacuum to suction blade when counting head tips off vertical rise micro switch. Valve de-energizes when clamping circuits released.
MOTOR START VACUUM SWITCH	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 motor.
COUNT CONTROL VACUUM SWITCH	Adjusted to operate at 17 1/2" HG. Wired in series with count reed switch. Assures the accuracy of count. Open when last sheet is counted.

### **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 17-1/2 Hg allows the machine to register a count when this vacuum is achieved. To set your switches, use the following method:

1. Turn off power, remove counting head and place on table in front of machine.
2. Hook up an extended hose to the counting head from the hose in the back.
3. Remove the main cover from the counting head and put a meter across the first and last lead of the count control vacuum switch.
4. Remove white/grey wire from motor start vacuum switch.
5. Apply power.
6. Put something over your sensor so that the pump comes on. While holding down the vertical rise switch, press the start switch momentarily. The clamp should come down and the carriage will rise. Release the vertical rise switch. Vacuum should be coming through the blade. Gauge should read about 15" Hg.

# **BANTAM-1 TOUCH SCREEN**

## *Operation, Service Manual and Parts Guide*

7. Slowly cover up the counting blade hole. Watch the vacuum gauge and, when it reaches 17-1/2" Hg, there should be continuity through the count control vacuum switch. If continuity is reached before the gauge reaches 17-1/2" Hg, count control switch should be adjusted clockwise. If it is above 17-1/2" Hg, adjust counter clockwise to lower setting. Repeat step until desired reading is achieved.
8. For the motor start vacuum, place the leads of the meter across the first and last lead of that switch. Slowly cover up counting blade hole, watching the vacuum. When the vacuum reaches 19" Hg, this switch should have continuity.
9. Put machine back together. Remember to put wire back on motor start vacuum switch.

### **VACUUM SWITCH ADJUSTMENT**

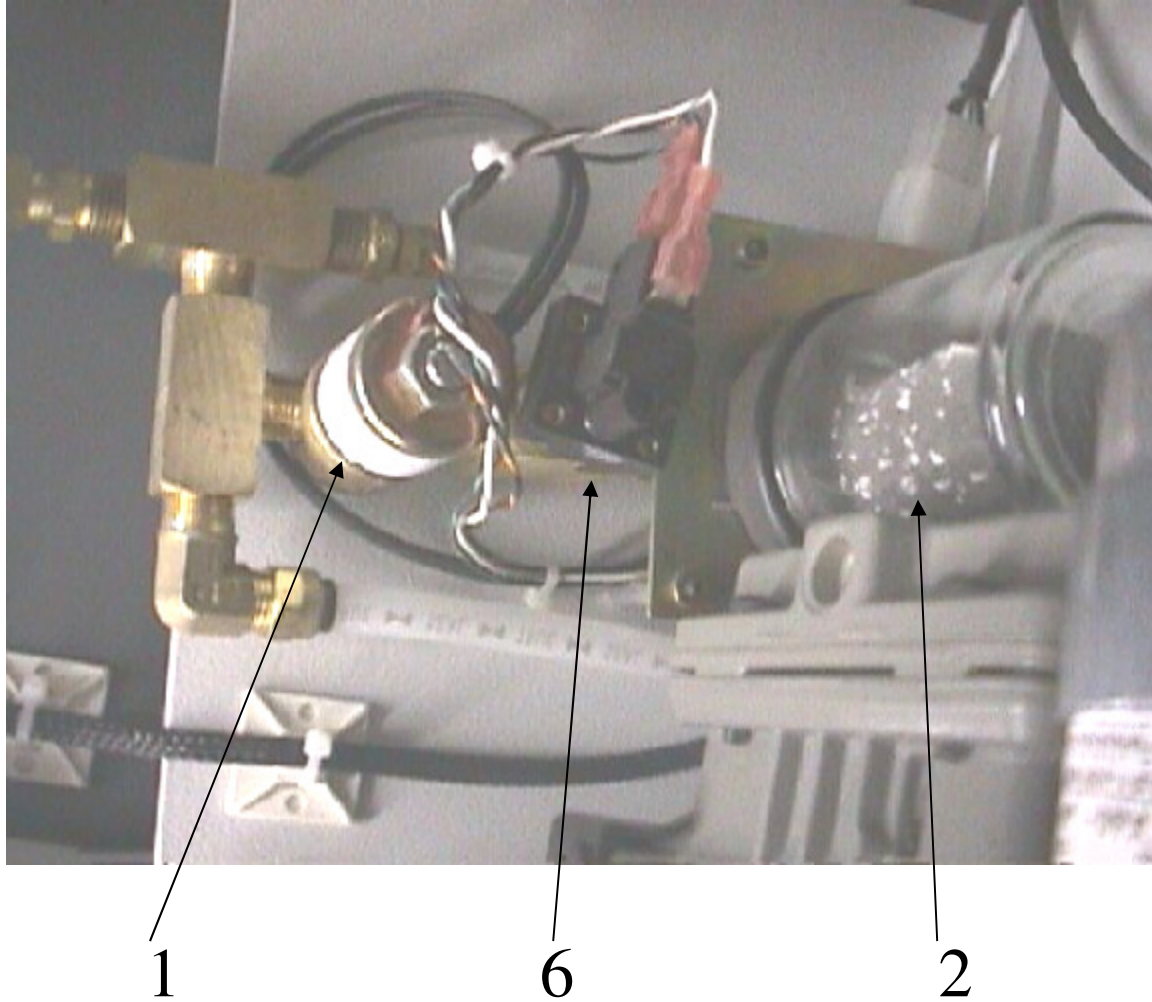
#### VACUUM SWITCH SETTINGS:

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

# BANTAM-1 TOUCH SCREEN

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**Photo of Vacuum Manifold**



2	(If equipped) Glass Filter Jar (S-4006) Filter Element (S-4019) Element Cap (S-4018-A)	6	Start Count Vacuum Switch (S-3043-1)
1	Kip Valve (S-3041-1)		

# BANTAM-1 TOUCH SCREEN

## *Operation, Service Manual and Parts Guide*

### **TAPE CHUTE REMOVAL**

1. Remove screw holding upper tape chute bracket.
2. Loosen lower wing nut that holds "L" bracket in place (**Do not remove**).
3. Slide Tape Chute carefully out of Knife Assembly and "L" bracket .

### **REPLACING TAPE CHUTE**

1. Replace chute carefully into Knife and "L" bracket .
2. Replace screw (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 thru the knife. Tighten nut .
4. Reinsert tape into chute and push tape to the tape chute slot .
5. Position chute so that tape lightly brushes bottom knurled drive wheel while passing over slot .
6. Secure screw .

### **HOW TO REMOVE A TAPE JAM**

**NOTE:** Do not pick at tape thru knife or serious damage will result to knife assembly.

1. Remove head from machine.
2. Remove both head covers.
3. Push small knurled wheel against large knurled wheel and rotate the mainshaft to "back-out" the jam in the chute.
4. **If step 3 did not 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 to not damage the tape chute by scoring or burring where the tape travels.
5. **If steps 3 or 4 did not work:** removal of knife assembly is necessary. Proceed as follows:
  - a. Unhook black connecting link S-6283 from teardrop.
  - b. Loosen the #10-32 nut and remove #10-32 allen cap screw.
  - c. Carefully lift knife assembly off of tape chute.
  - d. You will now see the tape protruding from end of chute. Grab tape with small needle nose pliers and pull straight out.
  - 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. Screw in #10-32 allen cap screw until it bottoms in knife. Do not overtighten 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 none of the above works:** the tape chute will have to be removed. See directions above. Using a small torch, heat area of tape to "burn out" the jam. Pass a new piece of tape thru the chute to clear. Or, you may order a new chute, S-6056, if necessary.



# **BANTAM-1 TOUCH SCREEN**

## *Operation, Service Manual and Parts Guide*

### **COUNTING HEAD REMOVAL**

1. Remove 15 pin plug from counting head. (NOTE: Grasp plug (not wires) when unplugging cable and hook into white clip on inside of side panel).
2. Pull off vacuum hose.
3. Loosen wing nuts on left and right pivot bearing housing, and lift hinged top off bearing.
4. Remove counterpoise spring by unhooking "S" clip from dashpot bracket.
5. Grasp front of counting head by vacuum shaft housing and the back of counting head. Carefully lift head out.

### **REMOVING COUNTING HEAD CENTER PLATE**

1. Remove counting head from Count-Wise; remove counting head covers and insert tape.
2. Unscrew vacuum line from suction blade housing.
1. 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 head screws from bottom of 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.

### **REPLACING COUNTING HEAD**

1. Place counting head into pivot bearing housing. 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 counterpoise spring "S" clip into hole provided in rear of dashpot bracket.
3. Plug cable into counting head and reconnect vacuum hose.

# BANTAM-1 TOUCH SCREEN

## *Operation, Service Manual and Parts Guide*

### **HOW TO CHANGE A SUCTION BLADE**

1. Turn off power receptacle and disconnect cord.
2. Remove counting head from machine (ref to 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. Turn on power. The machine is ready to count.

### **HEAD INSTALLATION AND ALIGNMENT**

1. Raise carriage assembly approximately halfway. Loosen pivot block bolts from carriage base plate.
2. Mark center of suction blade directly behind suction hole.
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, adjust 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 the paper.
7. Raise counting head again approximately halfway and tighten pivot blocks to carriage base plate.
8. Hook counterpoise spring to dashpot bracket.
9. Insert a 3/8" (9.54mm) spacer block between carriage base bracket and counting head base to level head.
8. Loosen set screw on dash pot assembly (setting to be at #5 or mid-range) and adjust dash pot plunger so that a 1/16 to 1/8-inch gap exists between the plunger and suction blade housing. Tighten nuts.
9. 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 dashpot plunger tip and base of suction blade housing. Tighten.
10. To set vertical rise setting: Turn mushroom cap bolt into vertical rise switch button until you hear

# BANTAM-1 TOUCH SCREEN

## *Operation, Service Manual and Parts Guide*

click. When it clicks, adjust approximately 1/16th of a turn into vertical rise switch, hold and tighten.

### **ADJUSTMENT IS CRITICAL FOR PROPER FOLLOW-UP THRU PAPER.**

11. Adjust counterpoise spring tension to lightly pull counting head down. Approximately half the length of the bolt or less is satisfactory.

### **ORBIT ADJUSTMENT**

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

1. Remove counting head from machine.
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. Rotate and hold crank arm at maximum forward position so that allen screws are facing downward.
6. Loosen allen screw on large crank arm, and raise back edge of suction blade approximate 2 degrees above level. Lightly snug screw.
7. While holding small crank arm (at maximum forward position), rotate mainshaft until top of wiper pin is flush and parallel with front surface of suction blade 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 on orbitor assembly to adjust)

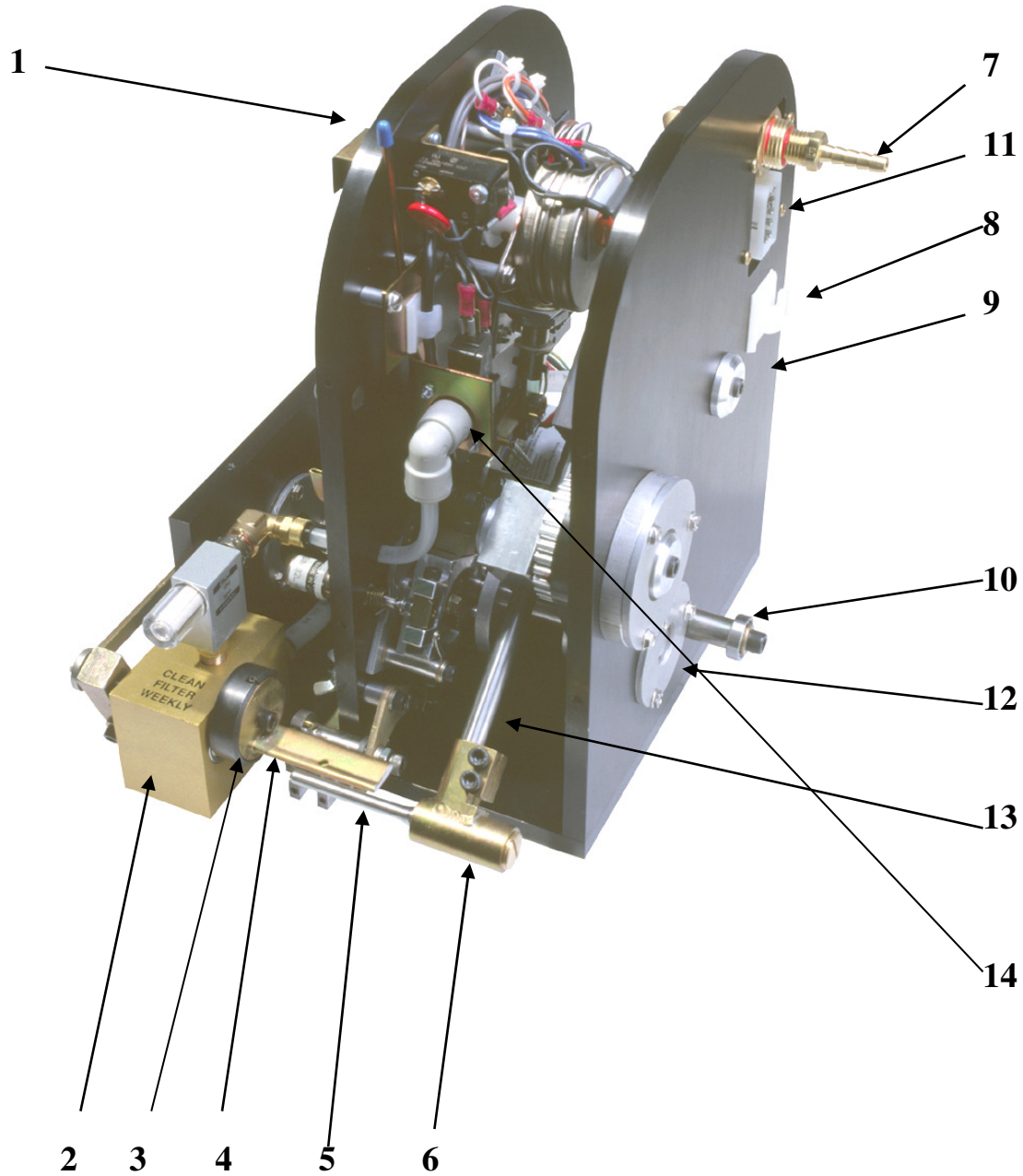
8. Lightly snug all screws.
9. Continue rotating wiper pin under suction blade and around back edge. Set clearance of approximately 1/8" (3.18mm) between wiper pin and back edge of suction blade by loosening screw and rotating rocker arm adjustor. Snug screw.
10. Continue rotating wiper pin across top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

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## COUNTING HEAD

### PARTS LIST-COUNTING HEAD



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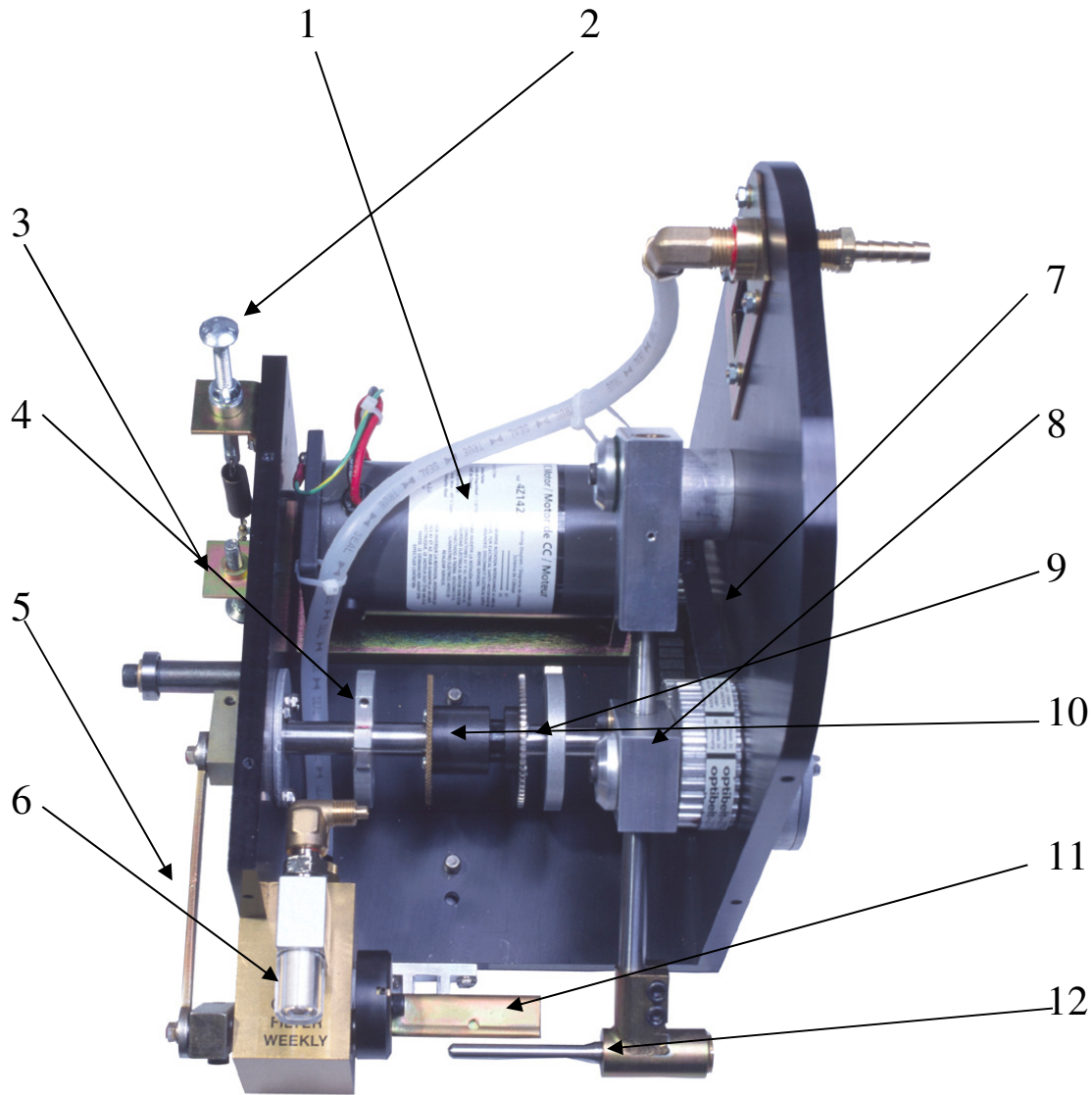
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Key #	Part Description	Part #
1	Tape Loading Lever Ass'y	S-6045
2	Suction Blade Housing Ass'y	S-6269
	Seals Suction Blade (2)	S-6132
	Bearings Suction Blade & Orbitor	S-6135
3	Suction Blade Shaft	S-6133
4	Suction Blade #70 thru 75 (See Page 6 for specifications.)	S-627X
	Wiper Pin Assembly Complete	S-6234
5	Wiper Pin w/Bearings (includes wiper pin, 2 bearings small & large spacer, and E-Clip)	S-6236-2
6	Wiper Pin Housing	S-6235
	End Cap	S-6235-A
	Spacer - small (not shown)	S-6238
	Spacer - large (not shown)	S-6232
	Wiper Pin Bearings (2) (not shown)	S-6237
	Snap Ring Clip	S-6239
7	Hose Barb Connector	S-4032-A
8	Cable Clamp - Black Plastic	S-3073
9	Lock Buttons, Relieved	S-6151
10	Pivot Bearing	S-6106
11	Receptacle 15 Pin	S-3032
12	Mainshaft Bearing Retainer (2)	S-6320
	Mainshaft Bearing Snap-Ring (2)	S-6318
	Mainshaft Snap-Ring (2) (not shown)	S-6321
	Orbitor Bearing (not shown)	S-6332
	Orbitor Bearing Retainer (not shown)	S-6330
	Orbitor Bearing Housing (not shown)	S-6331
13	Push Rod	S-6233
14	Count Vacuum Switch	S-3043-1

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## Counting Head Base

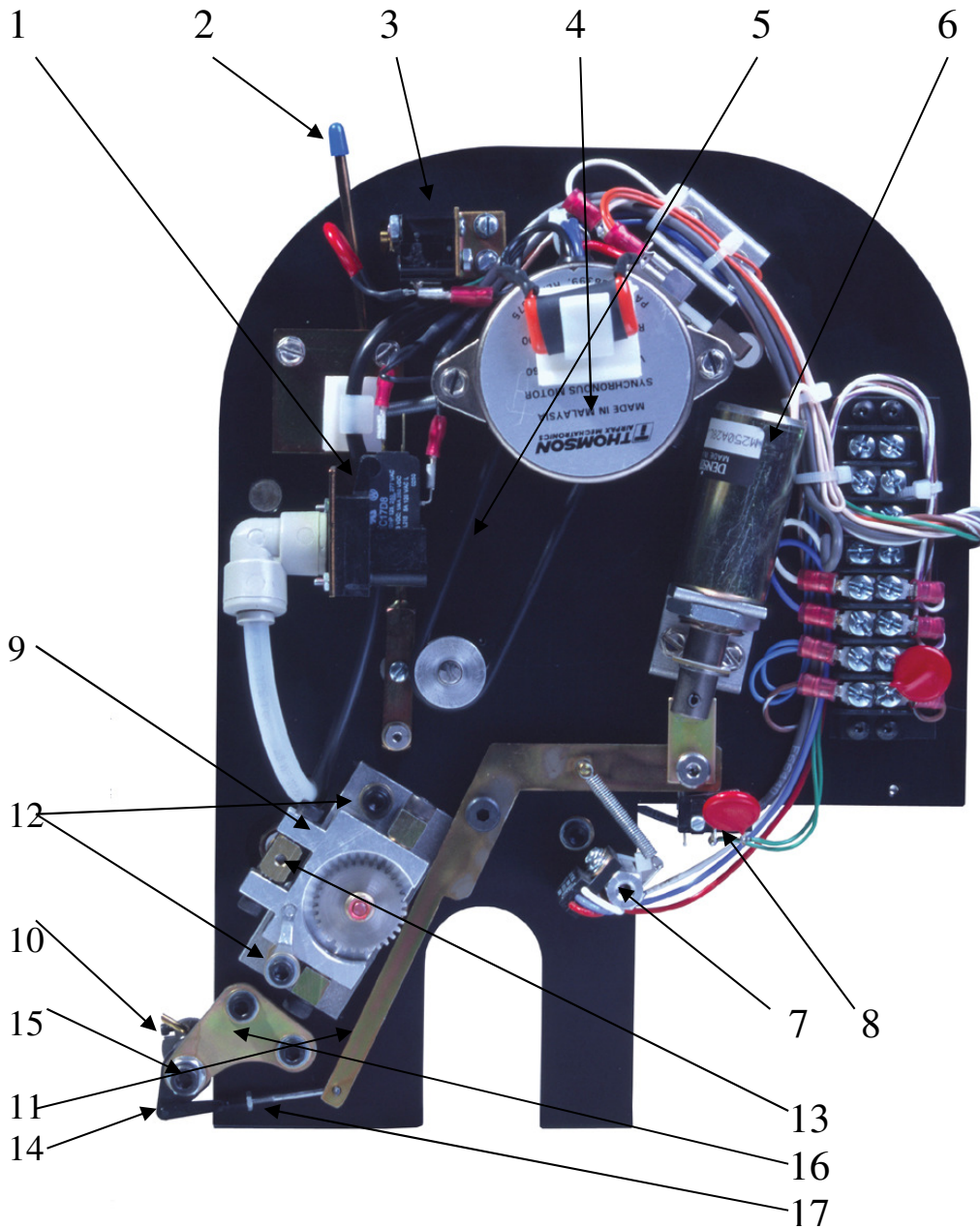


1- Counting Head Motor	7- Drive / Timing Belt
2- Counter Poise Spring	8- Orbitor
3- Vertical Rise Actuator	9- Magnet Carrier Reset Reed
4- Magnet Carrier Count Reed	10- Lower Tape Drive Ass'y
5- Connecting Link Arm	11- Suction / Counting Blade
6- Counting Head Filter	12- Wiper Pin

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Counting Head Center Plate Right View

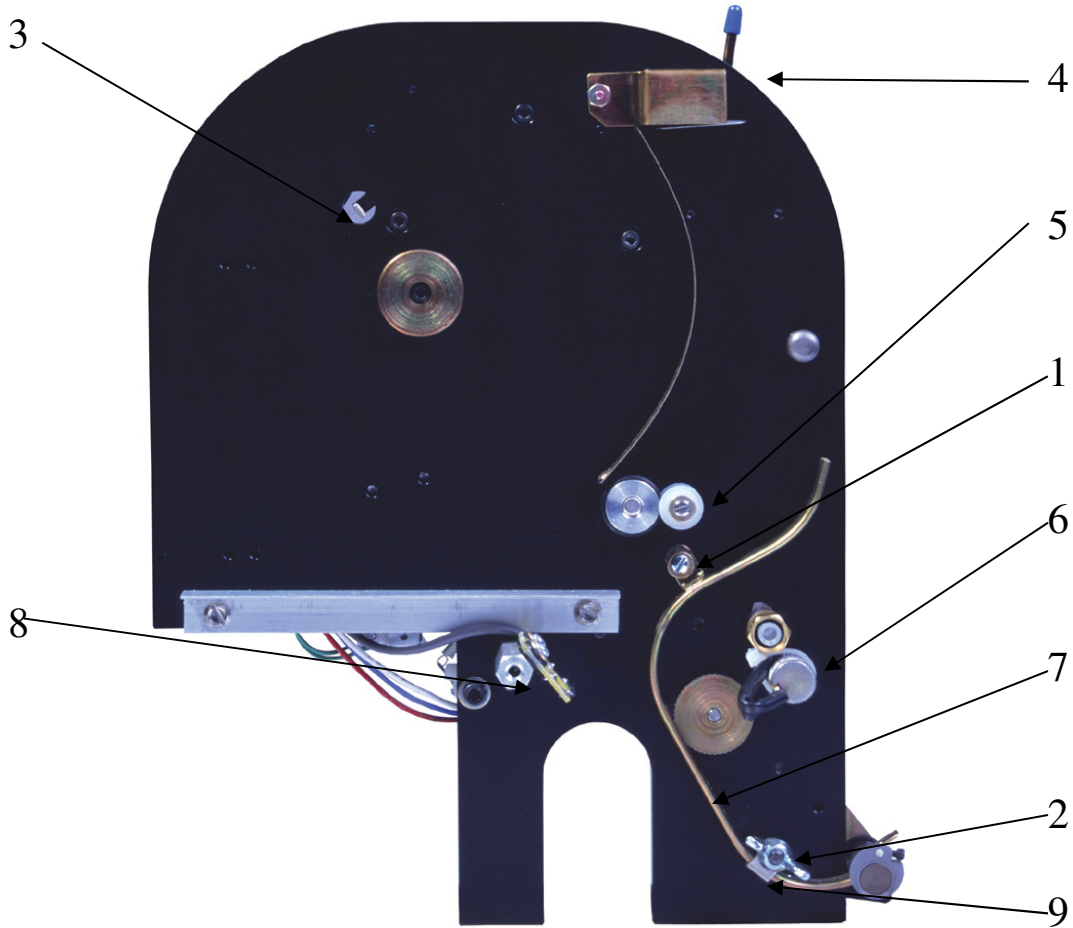


1- Vacuum Switch	10- Knife
2- Tape Loading Lever	11- Knife Linkage
3- Looper Stop Switch	12- Allen Screws
4- Looper Driver Motor	13- Nut
5- Looper Drive Belt	14- Tear Drop
6- Knife Solenoid	15- Locking Nut
7 - Reset Reed Switch	16- Knife Adjusting Plate
8 - Tape On / Off Switch	17- Connecting Link Arm
9 - Tape Drive	

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## Counting Head Center Plate Left View



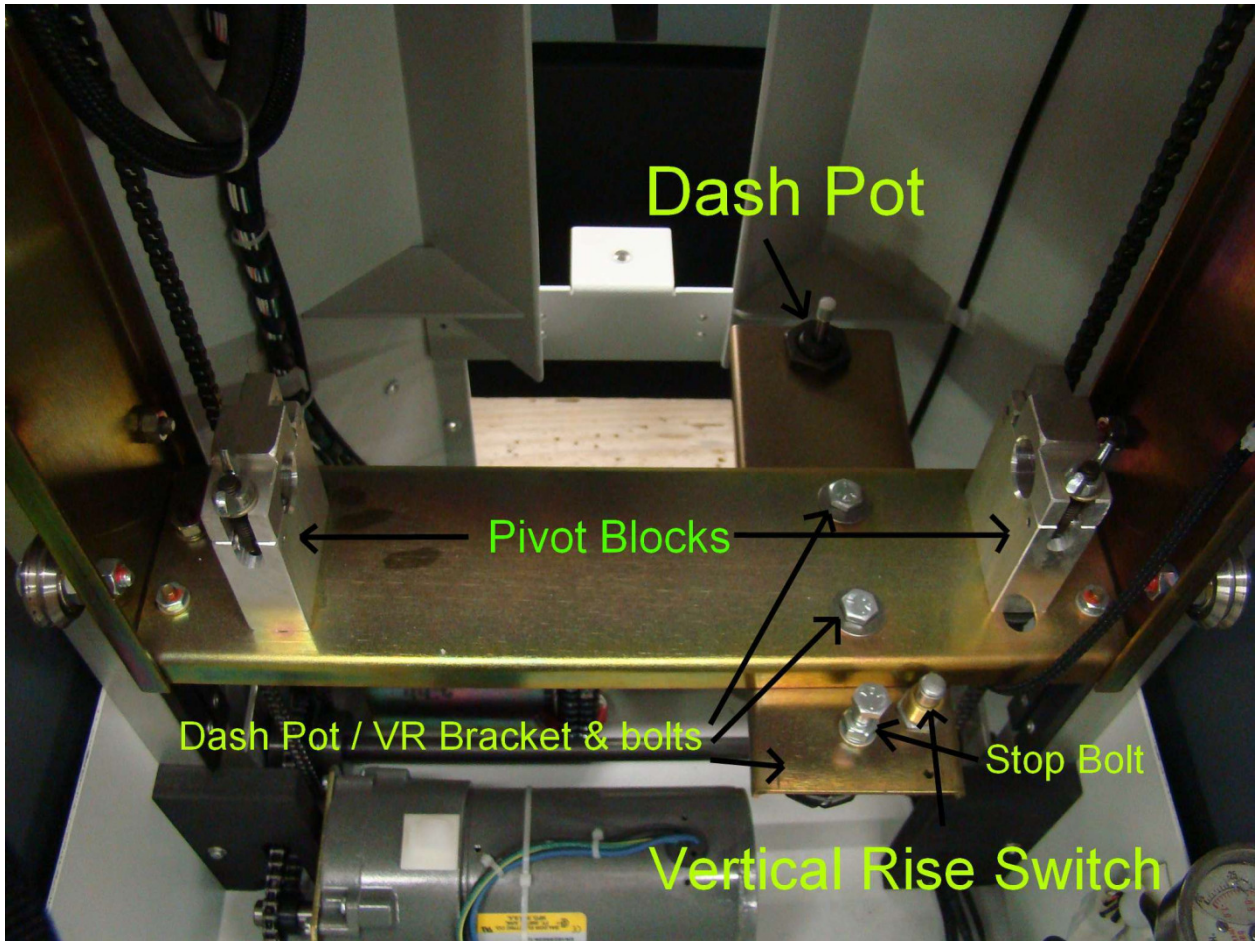
1- Screw	6- Tape Solenoid
2- Nut	7- Tape Chute Slot
3- Low Tape Actuator	8- Count Reed Switch
4- Looper Stop Spring Switch	9- "L" Bracket
5- Looper Drive Wheels	



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Carriage Diagram (ref. to Page 8 for proper set up)



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U.S. PAPER COUNTERS PARTS & SERVICE

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**WEB SITE:** [www.wecount.com](http://www.wecount.com)

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