

Seedburo

Model 801

COUNT-A-PAK Seed Counter

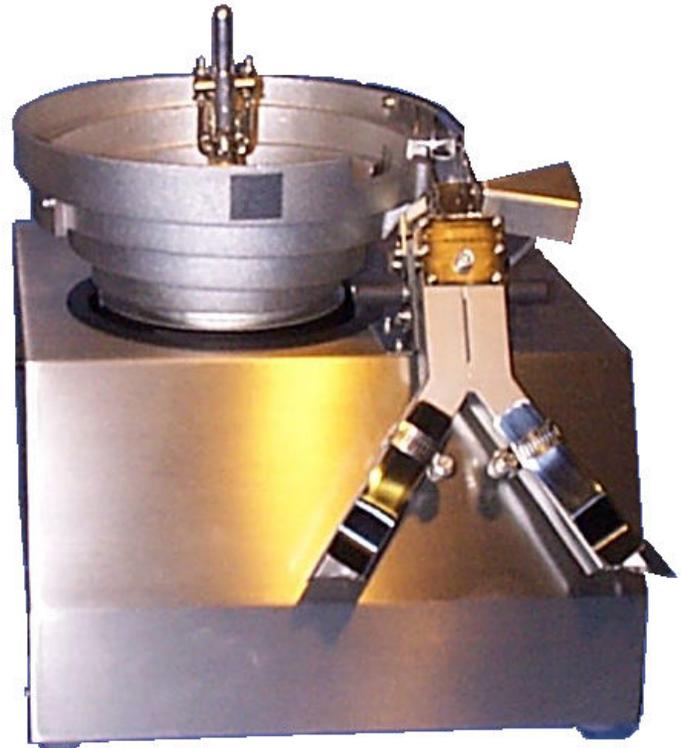
Operating and service Manual



10" Shallow Bowl



7" Bowl



10" Standard Bowl

MANUAL REVISION 6.0
MAN0016
07/12/2012

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TABLE OF CONTENTS

1. INTRODUCTION.....	Page 4
2. FUNCTIONAL DESCRIPTION.....	Page 4
3. INSTALLATION AND SETUP.....	Page 5
3.1 Unpacking.....	Page 5
3.2 Connection.....	Page 7
4. OPERATING PROCEDURE.....	Page 9
4.1 Power-up.....	Page 9
4.2 Establishing Operating Parameters.....	Page 9
4.3 Selecting An Operating Mode.....	Page 10
4.3.1 TOTAL Mode.....	Page 11
4.3.2 SINGLE BATCH Mode.....	Page 12
4.3.3 BATCH REPEAT Mode.....	Page 12
4.3.4 MULTIPLE BATCH Mode.....	Page 13
4.4 Starting the Counting Process.....	Page 14
4.5 Stopping the Counting Process.....	Page 14
4.6 Operating Hints.....	Page 15
5. DISPLAYS AND CONTROLS.....	Page 16
6. PROMPTS AND MESSAGES.....	Page 18
6.1 Scrolling Messages.....	Page 18
6.2 Stationary Messages.....	Page 20
7. ADJUSTMENTS AND MAINTENANCE.....	Page 21
7.1 Setting the Gate Time.....	Page 21
7.2 Seed Tone Operation.....	Page 21
7.3 Changing the Required Operating Voltage of OCC.....	Page 22
7.4 Feeder Bowl Alignment.....	Page 23
7.5 Adjusting Bowl Devices.....	Page 23
7.6 Checking and Changing Vibratory Feeder Springs.....	Page 24
7.7 Spare Parts and Accessories List.....	Page 27
8. TROUBLESHOOTING GUIDE.....	Page 28
8.1 Vibratory Feeder.....	Page 28
8.2 Diverter Assembly.....	Page 28
8.2.1 Electrical Problems.....	Page 28
8.2.2 Mechanical Problems.....	Page 28
8.3 Operator Control Console.....	Page 29
9. WARRANTY.....	Page 30
10. SPECIFICATIONS.....	Page 31

APPENDIX

A. SERIAL COMMUNICATIONS.....	Page 32
A.1 801 Initiated output.....	Page 32
A.1.1 Function.....	Page 32
A.1.2 End of Run Data Transmission.....	Page 32
A.1.2.1 TOTAL mode.....	Page 32
A.1.2.2 SINGLE BATCH mode.....	Page 32
A.1.2.3 BATCH REPEAT mode.....	Page 32
A.1.2.4 MULTIPLE BATCH mode.....	Page 32
A.3 Character Legends.....	Page 33
A.4 Line Settings.....	Page 33
A.4.1 Baud Rate.....	Page 33
A.4.2 Data Bits and Parity.....	Page 33
A.5 Serial Port Connector.....	Page 33
A. INDEX	Page 34/35
A. Troubleshooting Guide	Page 36/37
A. Packing instructions	Page 38/39

TABLE OF FIGURES

Figure 3-1	Major Components.....	Page 5
Figure 3-2	Bowl Quick Release Assembly.....	Page 6
Figure 3-3	Connections.....	Page 7
Figure 5-1	Displays and Controls.....	Page 16
Figure 7-1	Power Input Connector.....	Page 22
Figure 7-2	Voltage Selector Card Orientation.....	Page 22
Figure 7-3	Parts and alignment to Diverter Chute Assembly...	Page 23
Figure 7-5	Side view of feeder Spring Stacks.....	Page 25
Figure 7-6	Model EB-00 Vibratory Feeder.....	Page 25
Figure 7-7	Adjusting Feeder Air Gap.....	Page 26
Figure 8-1	Diverter Assembly.....	Page 29

1. INTRODUCTION

Congratulations! You have chosen the most technologically advanced seed counter available today. The Seedburo Model 801 Count-A-Pak incorporates state-of-the-art CMOS microprocessor technology and full front panel programmability to provide you, the user, with the ultimate in flexibility and reliability.

Major features include:

- Membrane Touch Panel
- Functions for Totalizing, Batching, Repeat Batch, and Multiple Batching
- Modular Design - Operator Control Console separate from Seed Handling Base
- Two Versions of Seed Handling Base with either 7" or 10" Feeder Bowl
- Bowl Conversion - Interchangeable Seed Handling Base with same Operator Control Console
- Rugged Stainless Steel Design
- Serial Data Interface (RS232)
- Optical Seed Sensing Device
- Bag / No Bag Detection Circuitry
- Optional Start/Stop foot Switch
- Quick Disconnect for Feeder Bowl
- Can Be Shipped by UPS
- New LED optic assembly creates less heat, takes less power, and provides for more accurate counts

2. FUNCTIONAL DESCRIPTION

The 801 Count-A-Pak seed counter is an electronic device specially designed to count a wide range of seeds. Dual microprocessor based circuitry is employed to assure reliable operation. Count-A-Paks are fully tested before shipment and are ready to operate upon delivery. Some adjustment of control devices is needed for different seed sizes.

Seeds are placed in the feeder bowl. The bowl has a spirally inclined track around the inside perimeter. Seeds are moved upward along this track by electromagnetic vibration. Rate of seed movement is adjusted by use of the SPEED control setting. Adjustable devices automatically arrange seeds to form a single file line, one layer deep. Seeds are discharged into an output chute and detected by an opto-electronic sensor. Sensitivity (or Threshold) of the sensor can be adjusted to count various seed sizes.

ACCURACY is a function of counting speed. The greatest accuracy is achieved by a controlled, single-file delivery. Seeds that form a single file easily may be counted faster than others. Counting SPEED is limited by how easily seeds form a single file and how accurate the counting must be. Some chaffy seeds count best at high speed ... the rapid motion tends to untangle them. When very high speed is needed, some accuracy may be lost. Fast, accurate counting can be expected from dry, clean seeds of a relatively uniform size that form a single file easily.

3. INSTALLATION AND SETUP

3.1 Unpacking

Carefully remove the OPERATOR CONTROL CONSOLE (OCC), SEED HANDLING BASE (SHB), and BOWL of the COUNT-A-PAK from packaging containers (see Figure 3-1). Place OCC and SHB units on a solid, level surface. Make sure the locking handle of the BOWL is pointing forward to the unlocked position (see Figure 3-2). Lower bowl over slotted shaft on SHB. Adjust clearance between diverter output chute and bowl discharge area to approximately 1/16 inch (this may have to be slightly less on some very small seeds, see (Figure 7-3, item 9) for bowl alignment). Push lock handle upright to a fully vertical position to secure bowl.

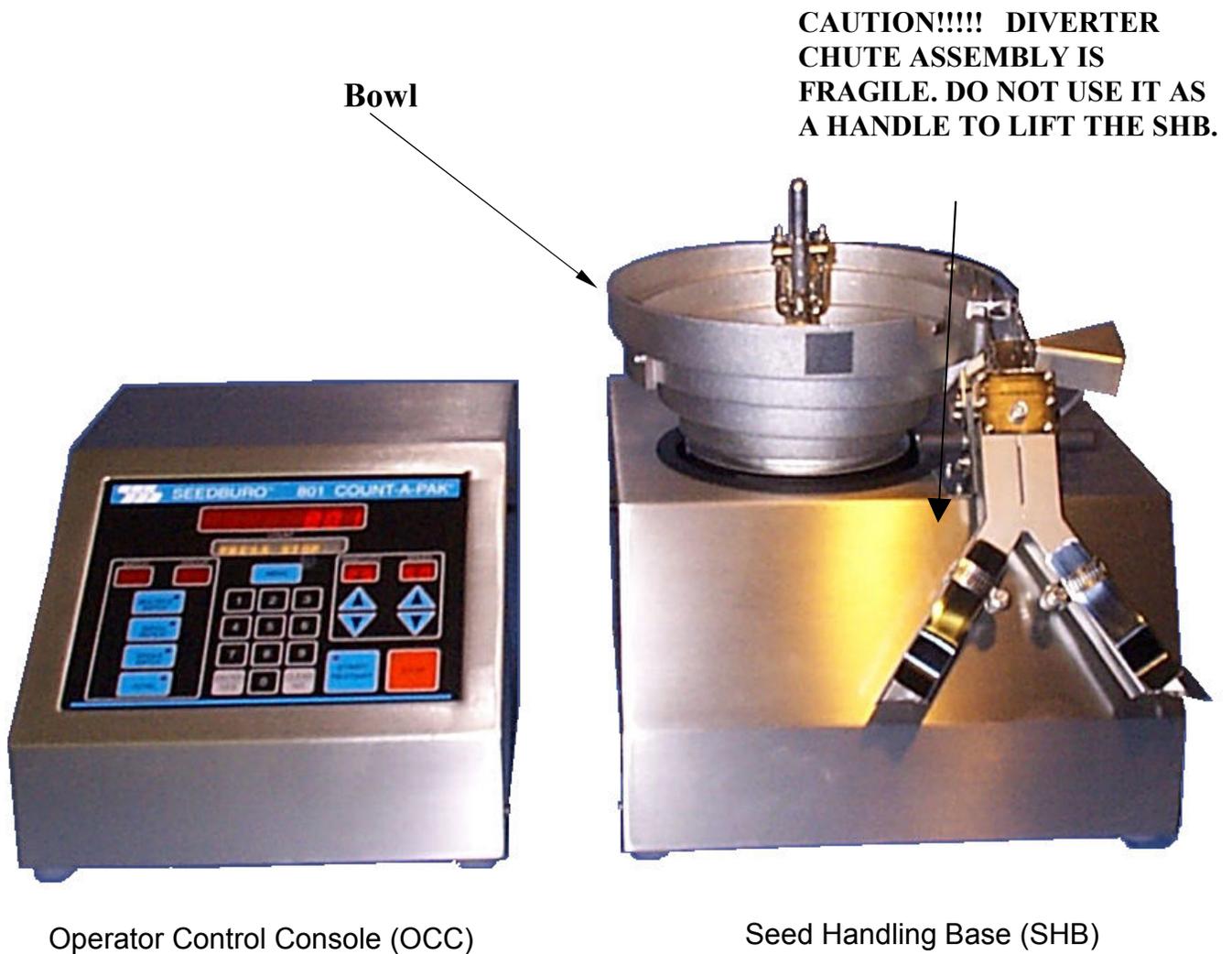


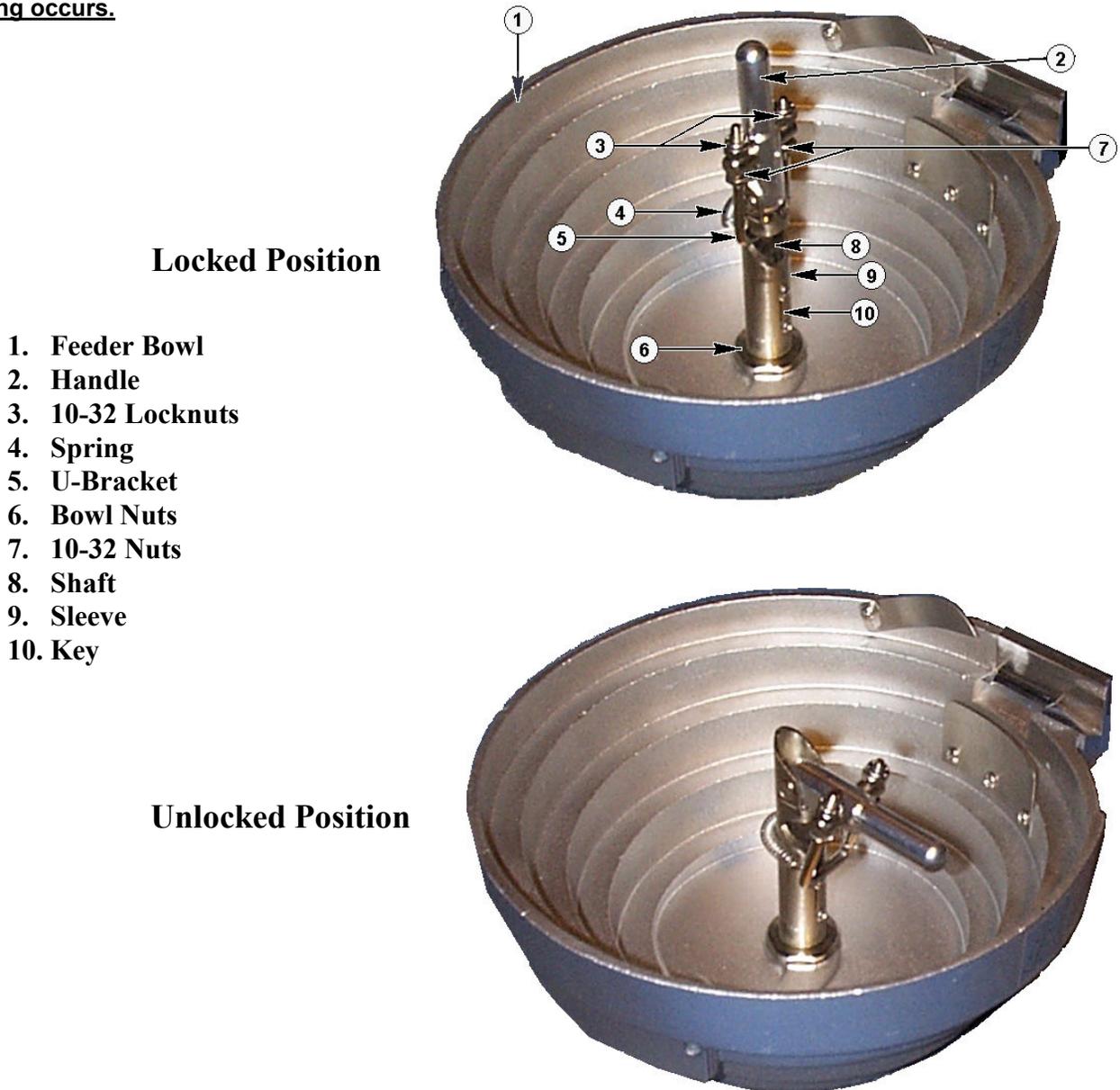
Figure 3-1 Major Components

INSTALLATION HINTS:

*Keep original packaging containers for storage or future shipping purposes. Diverter chute assembly must be protected during storage or shipment with careful packaging.

*The feeder bowl is packaged separately. It is made of cast aluminum and may crack or break if dropped. A cracked or damaged bowl must be replaced. The SHB and feeder bowl have a smooth audible hum when running.

Do not restrict bowl vibration in any manner. If an unusual striking noise or sharp knocking occur at any time during operation, turn Feeder OFF immediately! Serious damage may occur if not corrected promptly. See Section 7.4 if sharp knocking occurs.



1. Feeder Bowl
2. Handle
3. 10-32 Locknuts
4. Spring
5. U-Bracket
6. Bowl Nuts
7. 10-32 Nuts
8. Shaft
9. Sleeve
10. Key

Figure 3-2 Bowl Quick release Assembly

3.2 Connection

Connect the cables from OCC (P17 Figure 3-3 #1, SHB CONTROL and P18 Figure 3-3 #2, SHB POWER) to the mating connectors on the rear of the SHB. The SHB CONTROL cable connects to the 28 pin connector on the SHB (left side of rear panel, looking from rear of unit). The SHB POWER cable connects to the 8 pin connector on the SHB (right side of rear panel, looking from the rear of unit). If the optional foot-switch has been ordered, connect it to P19 (Figure 3-3 #3) on the OCC.

Verify that the voltage required is appropriate for your power line voltage. The required voltage can be determined by examining the power input connector assembly (P5 Figure 3-3 #4) on the rear of the OCC. Count-A-Paks are designed for 115V or 230V operation, although they will operate over a range of 100-130V or 200-260V. There are 4 small holes on the right-hand end of this connector assembly, which are labeled 100V, 120V, 220V, and 240V. There will be a small white indicator pin in one of these holes (see Figure 7-1). The voltage indicated beside that marker is the line voltage for which the OCC is configured. The Count-A-Paks are typically shipped with this set to 120V or 240V position. The 100V and 220V positions are used only for very low line voltages. Additionally, all units which require 200V to 260V will be labeled "220 VOLTS" on both the OCC and the line cord (for further information see Section 7.3).

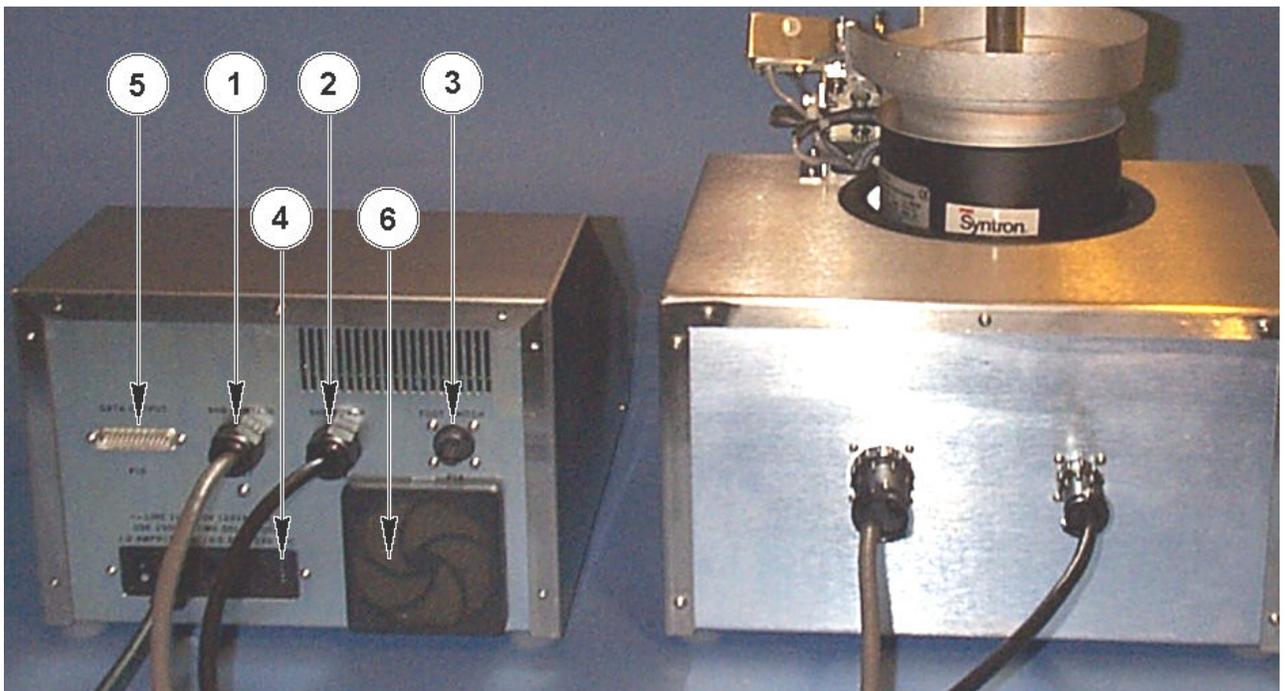
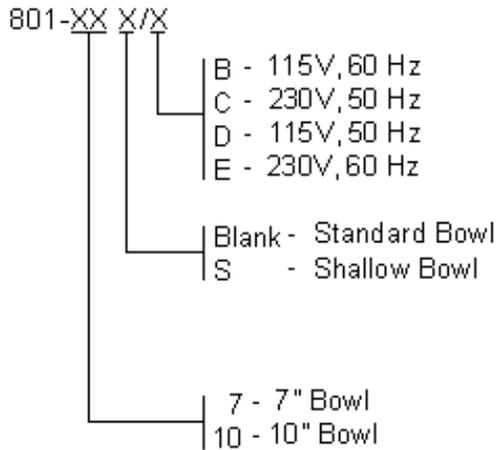


Figure 3-3 Connections

Although the OCC can be configured for a wide range of voltages and frequencies, the SHB cannot. The voltage and frequency required for the SHB may be determined from the serial number tag on the rear panel of the SHB. It will work only on the voltage and frequency marked.



ELECTRICAL EQUIPMENT MUST BE PROPERLY GROUNDED FOR SAFETY OF OPERATING PERSONNEL. DO NOT OPERATE UNIT FROM A RECEPTACLE WHICH LACKS A PROPER 3 WIRE TYPE GROUNDING CONNECTION.

All Count-A-Paks are equipped with a three wire power cord. When connected to a proper power receptacle, the entire unit is grounded. Due to the wide variation of power line connectors used throughout the world, all units for other than 120 volt operation must have the proper local power line connector attached to the line cord prior to operation. The color coding of the line cord wires is as follows:

Light Blue	-	Neutral
Brown	-	Hot
Green/Yellow	-	Earth Ground

CAUTION: Be sure that the proper power plug is attached prior to powering up the 801. Failure to do so may cause damage and void your warranty. Be sure the power switch on the left-hand end of P5(Figure 3-3 #4) is turned off before connecting line cord to P5 and power line outlet.

4. OPERATING PROCEDURE

4.1 Power-Up

Turn on the power switch on the rear panel of the OCC. The diverter gate will switch positions several times to check the solenoids. All LEDs and LED display segments will light for several seconds allowing a visual check for bad LEDs. The message display will show the message "REVISION X.X" (X.X is current software revision) for a few seconds, followed by the message "CALIBRATING" while the unit performs an internal calibration of the sensitivity level. (Ensure there is nothing in the chute to interrupt the light beam during calibration).

The message display will next indicate "SELECT MODE" and the SPEED, SENSITIVITY, and COUNT displays will show the most recently used values. the STOP switch LED will be illuminated while the MULTIPLE BATCH, BATCH REPEAT, SINGLE BATCH and TOTAL switch LEDs will be flashing.

A "Beep" tone will be heard when a valid switch is pressed. A lower tone indicates an invalid switch selection. The amplitude of this tone may be adjusted with a very small flat blade screwdriver via a 1/4 inch hole on right hand side of the bottom of the OCC cabinet.

4.2 Establishing Operating Parameters

The first time the unit is used, or if the unit has been left unpowered for more than 3 months, the operating parameters should be programmed. This is accomplished by pressing the MENU switch at this time. The message display will indicate "CHK SETTNCS?". Press the ENTER/YES switch. The message display will indicate "BAG DET. ON?". Press ENTER/YES to enable the bag detection circuit or CLEAR/NO to inhibit operation of the bag detection circuits.

The message will now be "GATE DLY (ms)". The number flashing in the COUNT display is the delay in milliseconds between the time a seed is detected by the opto-electronic sensor and the time the diverter gate switches chutes. This is used only in the various Batch modes of operation to ensure that a counted seed has time to get past the gate into the proper bag before the gate switches to the other bag. This setting will typically be in the 30-50 ms range and may be determined empirically as explained in Section 7.1. A new number may be entered from the keyboard, followed by ENTER/YES. A range of 0 to 99 ms is valid. The current setting can be selected by pressing ENTER/YES.

The message display next shows "SD.TONE ON?". If ENTER/YES is pressed, a short beeping tone will be heard each time a seed is counted. A CLEAR/NO response will inhibit this tone. The function of this tone is explained in Section 7.2.

The next message displayed is "AUTO PRT ON?". If ENTER/YES is selected, data will be transmitted to the serial port on the rear of the 801 at the end of each run, or each time STOP is pressed. If the serial communications port is not being used or if Autoprint is not desired, press CLEAR/NO. This function is explained more fully in Appendix A.

The final message, "9600=Y1200=N", refers to the serial data transmission rate, or baud rate, detailed in Appendix A. This option is only important if some type of equipment, such as a printer or computer/data logger is connected to the serial port on the back of the 801. Choose ENTER/YES to select 9600 baud, or CLEAR/NO to select 1200 baud. If the serial port is not being used, either of these can be chosen, as they will have no effect. Refer to Appendix A for more information.

The message display reverts back to "SELECT MODE".

4.3 Selecting An Operating Mode

An operating mode must now be selected. There are 4 operating modes which may be selected. The four modes are:

TOTAL - Counts the total number of seeds in a given lot through one chute. The feeder stays on until stopped or approx. 2 minutes after the last seed is counted. See Section 4.3.1 for detail.

SINGLE BATCH - A single quantity of seeds counted from a larger bulk amount. The terminal count (number of seeds in a batch) is preset in the COUNT display prior to counting. The 801 counts this number of seeds into one chute and then stops the feeder, changes the diverter gate position, and reloads the terminal count. In order to count another batch, it is necessary to press the start switch again. For instance, if it is desired to count exactly 38 seeds into a bag, the COUNT display is set to 38 before starting the feeder. When 38 seeds have been counted into the bag, the diverter gate will switch to prevent any more seeds from falling into that chute and the feeder will stop. See Section 4.3.2 for more detail. Another Batch may be counted by changing the bag or putting a bag on the other chute at this time and pressing START again.

BATCH REPEAT - Counts a single quantity of seeds from a larger bulk amount into one chute, then changes the diverter gate to the other chute, reloads the terminal count, and counts another batch into that chute. This action continues, alternating chutes, and requires the operator to change bags each time one is filled (i.e., If BAG DETECT ON and has been selected, the counting will terminate if a previously filled bag is not removed before the diverter gate switches back to that chute). The counting will terminate if a bag is not present on the delivery chute and BAG DETECT ON has been selected. The message display indicates the number of batches counted. See Section 4.3.3 for more detail.

MULTIPLE BATCH - Up to 99 Groups of up to 99 Batches each may be selected. Each Group must be defined in terms of terminal count (number of seeds in each Batch) and number of Batches. The 801 will operate similar to BATCH REPEAT mode, but will stop at the end of each Group, and prompt the operator to check bag size for the next Group. The counting will also terminate if a bag is not present on the delivery chute and BAG DETECT ON has been selected.

As an example, assume it is desired to count 20 Batches of 38 seeds each and then 10 Batches of 15 seeds each. Group 01 will be set for a Count of 38 and Batches at 20. Group 02 will be set for a Count of 15 and Batches at 10. See Section 4.3.4 for more detail.

Select the desired operating mode by pressing one of the four Mode switches and verify or modify the parameters that are displayed.

4.3.1 TOTAL Mode

Press the TOTAL switch to select this mode any time the feeder is not running. The message display will indicate "SPEED OK?" and the SPEED display will flash the current speed setting. This may be adjusted up or down with the arrows under the SPEED display, followed by ENTER/YES. It may also be changed by entering a numeric value between 00 and 99 followed by ENTER/YES.

Next the message display will indicate "SENS. OK?" and the SENSITIVITY display will flash the current sensitivity value. The SENSITIVITY is adjusted in a similar manner utilizing the arrows under the SENSITIVITY display.

Upon pressing ENTER/YES to confirm the sensitivity value, the message display will indicate "COUNT OK?" and the COUNT display will flash the current count. This will normally be reset to zero (0) in this mode by pressing CLEAR/NO (message display will indicate "MODIFY NOW!!") followed by ENTER/YES. It can also be set to any numeric value, and will proceed to count up from that value. If it is desired to enter such a value, it is accomplished by pressing CLEAR/NO and entering the value on the numeric keypad followed by ENTER/YES.

The BATCH and GROUP displays have no function in this mode.

After placing the seeds to be counted in the bowl, the feeder is started by pressing START or the external foot-switch. If the bag detector is on, a bag must be present in order to start the feeder. The feeder stays on until the bowl becomes empty (no seeds counted for approximately 3 minutes) or is manually stopped by the STOP switch or optional foot-switch. It will also stop if the bag detector is on and the bag is removed during counting.

4.3.2 SINGLE BATCH Mode

Press the SINGLE BATCH switch to select this mode any time the feeder is not running. The message display will indicate "SPEED OK?" and the SPEED display will flash the current speed setting. This may be adjusted up or down with the arrows under the SPEED display followed by ENTER/YES, or by entering a numeric value between 00 and 99 followed by ENTER/YES. The speed may also be adjusted during counting with the up or down arrows.

Next the message display will indicate "SENS. OK?" and the SENSITIVITY display will flash the current sensitivity value. The SENSITIVITY is adjusted in a similar manner utilizing the arrows under the SENSITIVITY display.

Upon pressing ENTER/YES to confirm the sensitivity value, the message display will indicate "COUNT OK?" and the COUNT display will flash the current terminal count. It should be set to the number of seeds desired in the batch, and will proceed to count down to zero (0) from that value. Entering a new terminal count is accomplished by pressing CLEAR/NO and entering the value on the numeric keypad followed by ENTER/YES.

The BATCH and GROUP displays have no function in this mode.

After placing the seeds to be counted in the bowl, the feeder is started by pressing START or the external foot-switch. If the bag detector is on, a bag must be present on one of the chutes in order to start the feeder (It doesn't matter which chute the bag is on, as the 801 will automatically select the one with a bag). The feeder stays on until the batch is counted, at which point the feeder stops and the message "FINISHED" is displayed. The feeder may also be manually stopped by pressing the STOP switch or optional foot-switch. The feeder will also stop if the bag detector is on and the bag is removed during counting.

4.3.3 BATCH REPEAT Mode

Press the BATCH REPEAT switch to select this mode any time the feeder is not running. The message display will indicate "SPEED OK?" and the SPEED display will flash the current speed setting. This may be adjusted up or down with the arrows under the SPEED display, followed by ENTER/YES. It may also be changed by entering a numeric value between 00 and 99 followed by ENTER/YES.

Next the message display will indicate "SENS. OK?" and the SENSITIVITY display will flash the current sensitivity value. The SENSITIVITY is adjusted in a similar manner utilizing the arrows under the SENSITIVITY display.

Upon pressing ENTER/YES to confirm the sensitivity value, the message display will indicate "COUNT OK?" and the COUNT display will flash the current terminal count. It should be set to the number of seeds desired in each batch, and will proceed to count down to zero (0) from that value. Entering a new terminal count is accomplished by pressing CLEAR/NO and entering the value on the numeric keypad followed by ENTER/YES.

The BATCH and GROUP displays have no function in this mode.

After placing the seeds to be counted in the bowl, the feeder is started by pressing START or the external foot-switch. If the bag detector is turned on, at least one bag must be present in order for the feeder to start, but normally two bags will be present in this mode. The 801 will not deliver seeds into an empty chute with the bag detector on.

Seeds are counted into one chute until the count reaches zero, the diverter gate then switches to the other chute, the terminal count is reloaded, and counting continues into the other chute. The MESSAGE DISPLAY will indicate the number of BATCHES that have been counted. If the bag detector is turned off, this action will continue indefinitely, alternating delivery chutes, as long as there are seeds in the bowl. If, however, the bag detector is turned on, a filled bag on either chute must be changed before seeds will again be delivered into that chute. Otherwise, the feeder will stop and the message display will indicate "CHECK BAG".

The bag should be changed and the counting will continue upon pressing the START switch. This feature prevents double filling a bag.

If the bags are changed after each batch, the feeder stays on until the bowl is empty, at which point the feeder stops and the message "BOWL EMPTY" is displayed. If this should occur, the number of batches counted can be recalled by pressing the ENTER/YES switch.

The feeder may also be manually stopped by pressing the STOP switch or optional foot-switch.

4.3.4 MULTIPLE BATCH Mode

Press the MULTIPLE BATCH switch to select this mode any time the feeder is not running. The message display will indicate "SPEED OK?" and the SPEED display will flash the current speed setting. This may be adjusted up or down with the arrows under the SPEED display, followed by ENTER/YES. It may also be changed by entering a numeric value between 00 and 99 followed by ENTER/YES.

Next the message display will indicate "SENS. OK?" and the SENSITIVITY display will flash the current sensitivity value. The SENSITIVITY is adjusted in a similar manner utilizing the arrows under the SENSITIVITY display.

Upon pressing ENTER/YES to confirm the sensitivity value, the message display will indicate "GROUP OK?". The BATCH and GROUP displays are used only in this mode. The GROUP display will show the current Group, the COUNT display will show the terminal count for the displayed GROUP, and the BATCH display will show the number of batches in the displayed Group. If both the COUNT and BATCH numbers are correct, this Group should be confirmed with ENTER/YES. If either of these numbers are wrong, pressing CLEAR/NO will allow modification of COUNT and then BATCH. Entering a new terminal count is accomplished by pressing CLEAR/NO and entering the value on the numeric keypad followed by ENTER/YES. A new number may then be entered for BATCH followed by ENTER/YES.

Additional Groups are entered in a similar manner. Up to 99 Groups may be entered, and each Group may contain up to 99 Batches.

After placing the seeds to be counted in the bowl, the feeder is started by pressing START or the external foot-switch. If the bag detector is turned on, at least one bag must be present in order for the feeder to start, but normally two bags will be present in this mode. The 801 will not deliver seeds into an empty chute with the bag detector on, but will stop the feeder and indicate "CHECK BAG". The feeder may be restarted as above at this point, after checking the bag.

Seeds are counted in batches as in BATCH REPEAT mode until the number of Batches in a Group are completed. At this point, the feeder will stop and the display will prompt the operator to "CHECK BAG SIZE--PRESS START TO RESUME... NEXT GROUP--". The next Group is then counted similarly, and this action continues until all Groups are complete, at which time "FINISHED" will appear on the message display. If the bag detector is turned off, the Group will count to completion, alternating chutes for each Batch in the Group regardless of whether the bags are changed, or even present.

If, however, the bag detector is turned on, a filled bag on either chute must be changed before seeds will again be delivered into that chute. The feeder may also be manually stopped by pressing the STOP switch or optional foot-switch.

4.4 Starting the Counting Process

Place the seeds to be counted into the bowl. Be sure bag(s) are in position on the chute(s). Press START (or press the optional foot-switch, which is a remote start/stop switch). The vibratory feeder will be activated and the LED on the START switch will light and the LED on the STOP switch will go out. As the seeds begin to fall through the chute, the count will be shown on the COUNT DISPLAY. The SPEED and SENSITIVITY settings may be adjusted while the unit is operating by using the UP/DOWN arrows under the respective displays.

4.5 Stopping the Counting Process

The vibratory feeder may be stopped at any time by pressing the STOP switch (or optional foot-switch). In the TOTAL and BATCH REPEAT modes, the Count-A-Pak will also stop after failure to count a seed for several minutes. If this occurs, the message display will show "BOWL EMPTY", indicative of an empty bowl. In the SINGLE BATCH or MULTIPLE BATCH modes, the Count-A-Pak will also stop after reaching the terminal count or completing all Groups, respectively. The message display will show "FINISHED" when this occurs.

At this point, the unit may be restarted or another operating mode selected.

4.6 Operating Hints

For most counting operations, extremely precise adjustments and calibrations are not necessary. Close attention to detail is required when counting very small seeds, or seeds mixed with debris. Changing light conditions after starting a count can affect accuracy. This applies to overhead lighting, and any other light source that is directed at the 801. Incandescent lamps should not be allowed to shine directly into the chute. Fluorescent lights should have little effect, unless flickering.

To become familiar with the settings, use a small sample of seeds and run a TOTAL count several times and verify the results. (A control sample is a carefully counted sample of seeds.) Select different Speed and Sensitivity settings while checking the accuracy of the counts. A control sample is useful for checking accuracy at regular intervals

1. Problems with new equipment often occur from failure to understand instructions. Become familiar with the troubleshooting guide to prevent unnecessary delays in the use of your COUNT-A-PAK.
2. Problems with new equipment often occur from failure to understand instructions. Become familiar with the troubleshooting guide to prevent unnecessary delays in the use of your COUNT-A-PAK.
3. Keep unit clean. Clean air filter on rear panel of OCC Figure 3.3 #6 at least every 90 days, more often under extremely dusty conditions. Filter may be changed without tools by carefully removing snap-off cover and washing filter media in soap and water. Replace media and cover. Do not oil any parts at any time. Always keep feeder bowl and glass cover plates on diverter chutes clean. A small soft bristle brush is recommended. Do not use high pressure air, as mechanical damage to the diverter assembly could result. The glass cover plates may be removed and washed in soap and water, if desired.

4. When counting into bags or envelopes, chutes may become blocked. Always leave enough clearance between bottom of chute and bottom of container for seeds. If a blockage occurs, clear from bottom of chutes only, otherwise damage to diverter flap may result.
5. Reset counter displays before counting begins. Clean samples count most accurately.
6. NEVER use chutes as handles to move the instrument.
7. Service and repairs are most easily done by a qualified repairman. If help is needed, time and trouble can be saved by calling the manufacturer for service assistance.

Contact Information

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2293 South Mount Prospect Rd.
Des Plaines, IL 60018
(312) 738-3700 FAX: (312) 738-5329

SERVICE: AgPoint Precision LLC
24121 West Theodore Street
Plainfield, IL 60586
(866)668-4855 FAX: (312) 878-6400

5. DISPLAYS AND CONTROLS

There are five numeric displays, one message display, six indicator LEDs (Light Emitting Diodes), and twenty-three key-switches on the OCC. There is also a power on/off switch located on the rear of the OCC on the power entry module. The function of each display and control follows.

(1) Count Display

ber of seeds remaining in

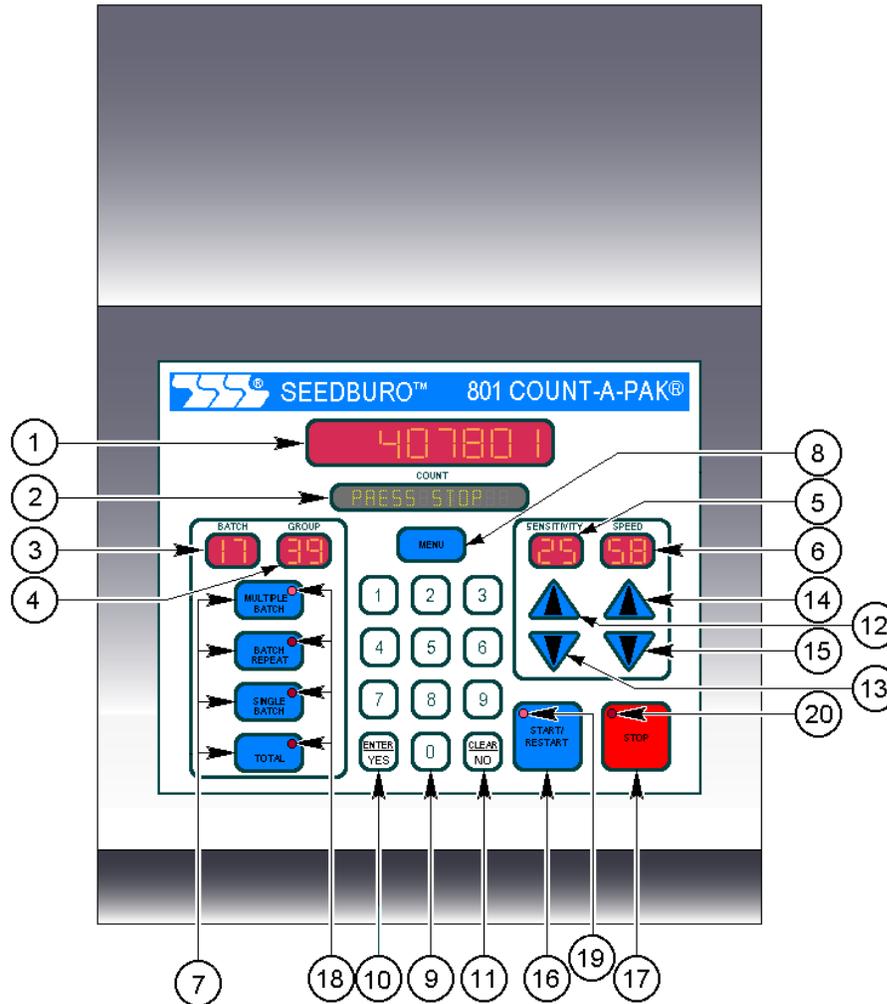


Figure 5-1 Displays and Controls

- (2) Message Display Displays various messages and operator prompts.
- (3) BATCH Display..... Displays the number of Batches in a Group in MULTIPLE BATCH mode. This is active only in the BATCH REPEAT mode.
- (4) GROUP Display..... Displays the number of the current Group in MULTIPLE BATCH operation. This is active only in the BATCH REPEAT mode.
- (5) SENSITIVITY Display..... Displays the current Sensitivity setting. Maximum sensitivity (for small seeds) is 00 and minimum sensitivity (for large seeds) is 99.
- (6) SPEED Display..... Displays the current Speed (Amplitude) setting for the vibratory feeder. Minimum speed is 00 and maximum speed is 99.
- (7) MODE Switches These four key-switches are used to select the operating mode when the SELECT MODE prompt is present.
- (8) MENU Switch Press this switch followed by ENTER/YES to configure default settings or press this switch followed by CLEAR/NO to return to mode selection any time feeder is off.
- (9) Numeric Keyswitches Used to enter numeric values for (0-9) various parameters. The entered value must be followed by ENTER/YES.
- (10) ENTER/YES Switch..... Terminates numeric entries and designates an affirmative response to question prompts.
- (11) CLEAR/NO Switch..... Clears existing parameter values and designates a negative response to question prompts.
- (12/13) SensitivityUp/Down Arrows....Increases (13) or Decreases (12) Sensitivity of detector. Lower number is more sensitive.
- (14/15) Speed Up/Down Arrows Increases (14) or Decreases (15) vibratory feeder amplitude. Larger number is higher speed.
- (16) START/RESTART Switch Starts a count cycle and the vibratory feeder. Alternately, START can be initiated via the optional foot-switch.
- (17) STOP Switch Stops vibratory feeder or interrupts a count cycle. Alternately, stop controlled by optional foot-switch.
- (18) Mode Indicators Red LED illuminates to indicate the selected mode of operation: TOTAL, SINGLE BATCH, BATCH REPEAT, or MULTIPLE BATCH.(19) Feeder On Indicator Illuminates to indicate vibratory feeder is running.
- (20) Feeder Off Indicator Illuminates to indicate vibratory feeder is not running.

6. PROMPTS AND MESSAGES

6.1 Scrolling Messages

There are several messages that scroll continuously across the message display until the operator intervenes. These are:

"PRESS ENTER TO RECORD..."

Pressing the ENTER/YES key stores the currently displayed parameter value in retained memory.

"USE LAST PROGRAM? (YES OR NO)..."

Pressing ENTER/YES uses previous program, while CLEAR/NO allows a new program to be entered.

"PRESS START, CLEAR, MODE, OR MENU..."

Pressing START will initiate the counting process. CLEAR will delete the current parameter. Pressing one of the four mode switches will select that mode of operation. MENU will return to the startup menu.

"ANOTHER GROUP? (YES OR NO)..."

ENTER/YES will allow entry of parameters for an additional Group. CLEAR/NO will signify that this is the last Group.

"NEXT GROUP--CHECK BAG SIZE--PRESS START TO RESUME..."

This indicates that a Group has been completed and signals the operator to verify that the proper bag size is in place for the next Group. Pressing START will initiate counting of the next Group.

6.2 Stationary Messages

There are several stationary messages. These are:

"SELECT MODE" One of the four operating modes must be selected.

"SPEED OK?" Verify current Speed setting with ENTER/YES, or change setting utilizing one of several methods. The setting can be changed using the up/down arrows. It can also be changed by entering a new value via the numeric keypad followed ENTER/YES. Also, if CLEAR/NO is pressed, the message "MODIFY NOW!!" will appear and a new value can be entered via the numeric keypad followed by ENTER/YES. Note: The Speed can be adjusted during counting via the up/down arrows.

"SENS. OK?"	Verify current Sensitivity setting with ENTER/YES, or change setting utilizing one of several methods. The setting can be changed using the up/down arrows. It can also be changed entering a new value via the numeric keypad followed by ENTER/YES. Also, if CLEAR/NO is pressed, the message "MODIFY NOW!!" will appear and a new value can be entered via the numeric keypad followed by ENTER/YES. Note: The Sensitivity can be adjusted during counting via the up/down arrows.
"BOWL EMPTY"	This message appears when a seed has not been counted in several minutes. This is the normal termination in TOTAL and BATCH REPEAT modes.
"NO BAG"	This indicates that a bag must be attached to one of the chutes, using the bag retainer clip, prior to starting, or a bag was removed during a cycle. This function may be disabled via the "CHK SETTNGS" function in the main menu.
"FINISHED"	This message appears when the counting is complete in SINGLE BATCH or MULTIPLE BATCH modes.
"COUNT OK?"	Verify current Count setting with ENTER/YES, or change setting utilizing one of several methods. It can be changed by entering a new value via the numeric keypad followed by ENTER/YES. Also, if CLEAR/NO is pressed, the message "MODIFY NOW!!" will appear and a new value can be entered via the numeric keypad followed by ENTER/YES.
"BATCHES OK?"	Verify the current number of batches in this Group with ENTER/YES, or change setting utilizing one of several methods. It can be changed by entering a new value via the numeric keypad followed by ENTER/YES. Also, if CLEAR/NO is pressed, the message "MODIFY NOW!!" will appear and a new value can be entered via the numeric keypad followed by ENTER/YES.
"GROUP OK?"	Verify the current settings of Terminal Count and Batches in this Group with ENTER/YES, or change settings by pressing CLEAR/NO.
"MODIFY NOW!!"	Enter a new value for the current parameter via the numeric keypad followed by ENTER/YES.
"PRESS START"	Press START to initiate counting.
"PRESS STOP"	Press STOP to interrupt the counting.
"CHK SETTNGS?"	Press ENTER/YES to modify the current default settings of bag detector operation, line frequency, gate delay, and seed tone operation. Press CLEAR/NO to return to the "SELECT MODE" function.
"REVISION X.X"	This is displayed immediately after power-up prior to calibration. The number which appears in place of X.X is the software revision number which should be provided to obtain support.
"BAG DET. ON?"	Pressing ENTER/YES enables the Bag Detect circuit. CLEAR/NO inhibits its operation.

"AC = 60Hz"	During power up the 801 automatically detects the power line frequency of 60 Hz or 50 Hz. Display will indicate which power line setting is being used.
"AC = 50Hz"	
"CALIBRATING"	This means the 801 is calibrating the sensitivity of the opto-electronic sensor to compensate for changes due to component aging and light output from the lamp. This occurs after power-up diagnostics, and each time the START switch is pressed.
"GATE DLY(mS)"	This is the delay in milliseconds between the time a seed is detected by the opto-electronic sensor and the time the diverter gate switches chutes.
"SD. TONE ON?"	Selecting ENTER/YES to this message will enable a short beeping tone each time a seed is counted. This tone is useful in determining an approximate sensitivity setting. See Section 7.2 for details. Selecting CLEAR/NO at this message will inhibit this tone.
"9600=Y1200=N"	This is the serial data transmission rate (baud rate) setting. Press ENTER/YES for 9600 baud, or CLEAR/NO for 1200 baud. If the serial port on the rear of the 801 is not being used, either selection can be pressed. Refer to appendix A for more information.
"AUTO PRT ON?"	Pressing ENTER/YES selects the Autoprint feature. If the 801 is connected to a printer or other serial device, a printout will be made at the end of each run, or each time STOP is pressed. If this feature is not desired, or if no devices are connected to the serial port, press CLEAR/NO. Refer to Appendix A for more information.
"RAm FAiL"	Nonvolatile memory has been corrupted. This may be due to a faulty RAM battery that needs replacing or a bad memory device. To verify a bad memory device, turn the 801 off and then on. If the message reappears, the memory may need replacing. If the message does not reappear, the battery may need replacing. This battery is a special type that is attached to the memory device and cannot be replaced with any standard store-bought cells. Call service for details.
"Prt COnF"	This message appears as a result of the menu button being pressed while the 801 is being powered up. A configuration list will be printed.

7. ADJUSTMENTS AND MAINTENANCE

7.1 Setting the Gate Time

The Gate Time is adjusted by selecting MENU, setting the Bag Detect Function off, selecting the power line frequency, and then entering a number for the Gate Delay Time. 50 milliseconds is a good starting point. Seed tone setting does not affect this adjustment. Select BATCH REPEAT mode of operation, set SPEED to a value which will yield slow seed movement, set SENSITIVITY anywhere, as it will not affect the Gate Delay Adjustment.

Set the COUNT for a small number, such as 4 (This will cause the diverter gate to change positions after every fourth seed). Place seeds in the bowl and bags on both chutes. Press START and watch the seeds fall into the chute. The last seed in each batch should fall through the chute before the diverter gate switches positions. If the last seed is struck by the gate, the Gate Delay Time is set too low, and should be increased. If the Gate Delay is set too high, it is possible for the first seed of the next batch to fall through the gate before it switches.

There is typically a fairly wide range of Gate Delay Times that will yield satisfactory operation. After establishing the extremes, as above, select a value midway between them.

7.2 Seed Tone Operation

The seed tone is useful in determining an approximate SENSITIVITY setting for a particular type of seed. When selected, a short tone will occur each time the detector counts a seed. The seed tone is selected at the "SD. TONE ON?" prompt explained in Section 4.2. Total mode is selected and SPEED set so that the seeds feed slowly. Set SENSITIVITY to 99. Upon starting the feeder, watch as the seeds fall through the chute. A beeping tone should be heard each time a seed passes. If any seeds are falling without the beeping tone occurring, the sensitivity should be set to a lower number (more sensitive) utilizing the arrow keys under the SENSITIVITY display. If all seeds cause a beep, the sensitivity can gradually be adjusted to higher numbers (less sensitive) to find the optimum setting at which seeds will be reliably counted, while rejecting smaller foreign material.

This method yields only an approximate setting. If a very precise setting is required, it is better to start with the SENSITIVITY setting derived here and fine tune it by repetitively running counts on a known quantity of seeds.

The amplitude of this tone may be adjusted with a very small flat blade screwdriver via a 1/4 inch hole on right hand side of the bottom of the OCC cabinet.

7.3 Changing the Required Operating Voltage of OCC

The power line voltage required to operate the OCC can be changed as follows :

***** Note *****

The voltage required by the SHB **CANNOT** be changed, this section refers only to the OCC

Disconnect power line cord from power outlet and from P5. Open cover of power input connector (see Figure 7-1), using a small blade screwdriver or similar tool. Set aside cover/fuseblock assembly. Pull voltage selector card straight out of housing, using indicator pin. Orient indicator pin to point up when desired voltage is readable at bottom (see Figure 7-2). Note that when indicator pin is fixed, successive voltages are selected by rotating the card 90° clockwise. Insert voltage selector card into housing, printed side of the card facing toward the power line connector, and the edge containing the desired voltage first. Change fuse to appropriate value if necessary (100/120 Volt positions require 1 Ampere time delay fuse, and 220/240 Volt positions require 1/2 Ampere time delay fuse.

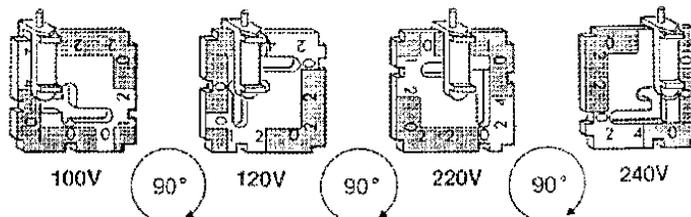
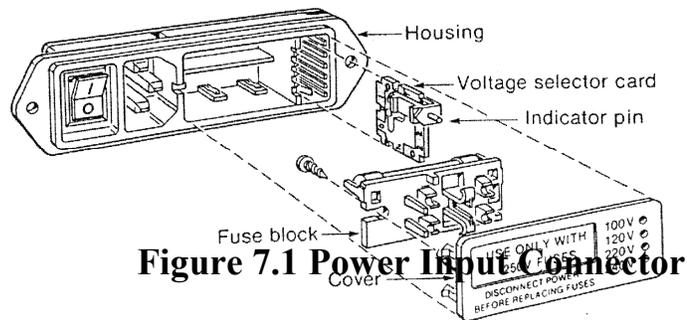


Figure 7-2 Voltage Selector Card Orientation

7.4 Feeder Bowl Alignment

The feeder bowl should be aligned such that the gap between the discharge area of the bowl and the diverter chute is approximately 1/16 inch (1.6 mm). See Figure 7-3 Item 9. If a sharp knocking occurs, STOP feeder immediately. The gap may be set too small.

7.5 Adjusting Bowl Devices

The Track Width Slide (Figure 7-3 Item 7) should be adjusted (it is held in place with nylon set screws and may be moved without tools) in or out to accommodate various seed sizes. It should be set to allow only a single file of seeds to pass.

The Track Wiper (Figure 7-3 Item 4) should be adjusted slightly higher than the seeds. It is intended to return seeds to feeder bowl when they tend to ride "Piggyback" or travel on edge of track.

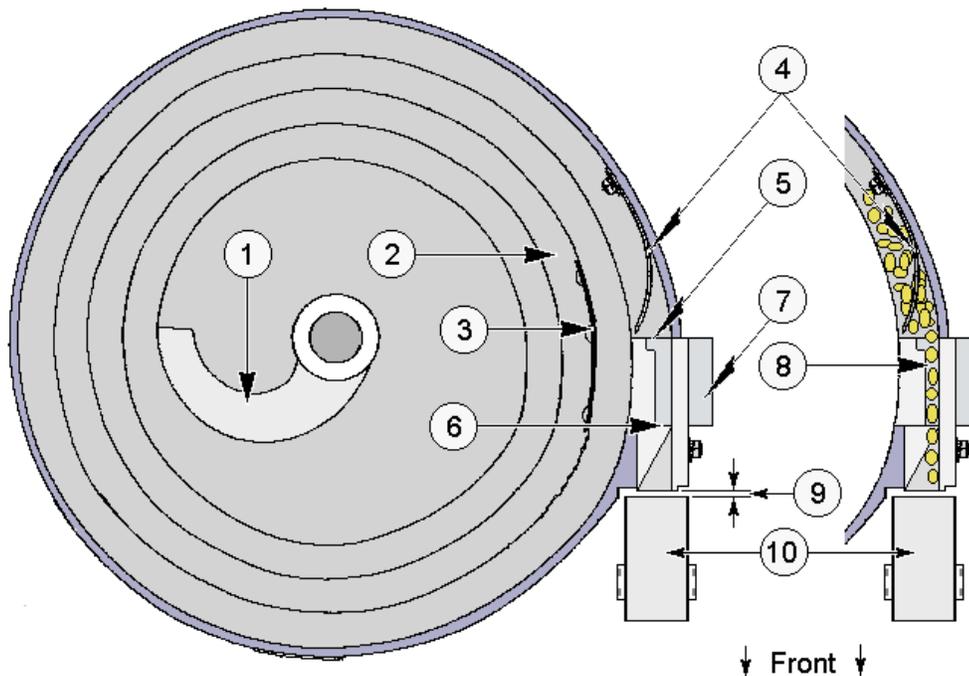


Figure 7-3 Parts and Alignment to Diverter Chute Assembly

- (1) Bottom Guide - Advances seeds from center of bowl (ten inch bowl only)
- (2) Bowl Seed Track - Seeds are moved upwards to discharge area

- (3) Baffle - Prevents seeds that fall from track width slide from falling to bottom of bowl (ten inch bowl only)
- (4) Track Wiper - Proper adjustment returns seeds to feeder bowl when they tend to ride "piggyback" or travel on edge of track
- (5) Track Width Slide is slightly lower than adjacent portion of seed track
- (6) Track Width Slide is slightly higher than adjacent portion of seed track (If Track Width Slide position needs adjusting at 5 or 6, two mounting screws are provided on the side of the track width slide holder)
- (7) Track Width Slide - Adjusts as indicated. Slide is held in place with nylon set screws and may be moved without tools. Slide should be adjusted to allow only one file of seeds as illustrated by 8.
- (8) Single file of seeds illustration
- (9) Clearance A - Distance between edge of discharge area of bowl and diverter chute, approximately 1/16 inch (1.6 mm)

7.6 Checking and Changing Vibratory Feeder Springs

Unplug the power line cord from the power outlet.

Remove the feeder bowl from the vibratory feeder.

Remove eleven screws holding the cover on the SHB.

Remove the four screws holding the SHB control connector (the larger of the two connectors). The retaining nuts on these screws can be accessed by placing the SHB on its side.

Carefully remove cover without damaging the wiring.

Lift off the aluminum cover plate (see Figure 7-6, Item 9) and remove the three screws that hold the vibratory feeder cover on. Carefully lift the cover off (see Figure 7-6, Item 6).

There are 3 stacks of springs on each feeder (see Figure 7-6, Item 7). On 7" bowls there are three stacks with a 1/16" spring in each stack. On 10" bowls there are three stacks with a 1/16" spring and a 1/32" spring in each stack. Remove springs 1 stack at a time. Check to make sure there are no cracked or broken springs. The 1/16" spring is the one that breaks most often and usually around the bolt hole.

If springs are OK then replace, making sure round spacers are inserted correctly between and outside springs. Leave clamp bolts a little loose at this time.

Repeat for second and third stack of springs.

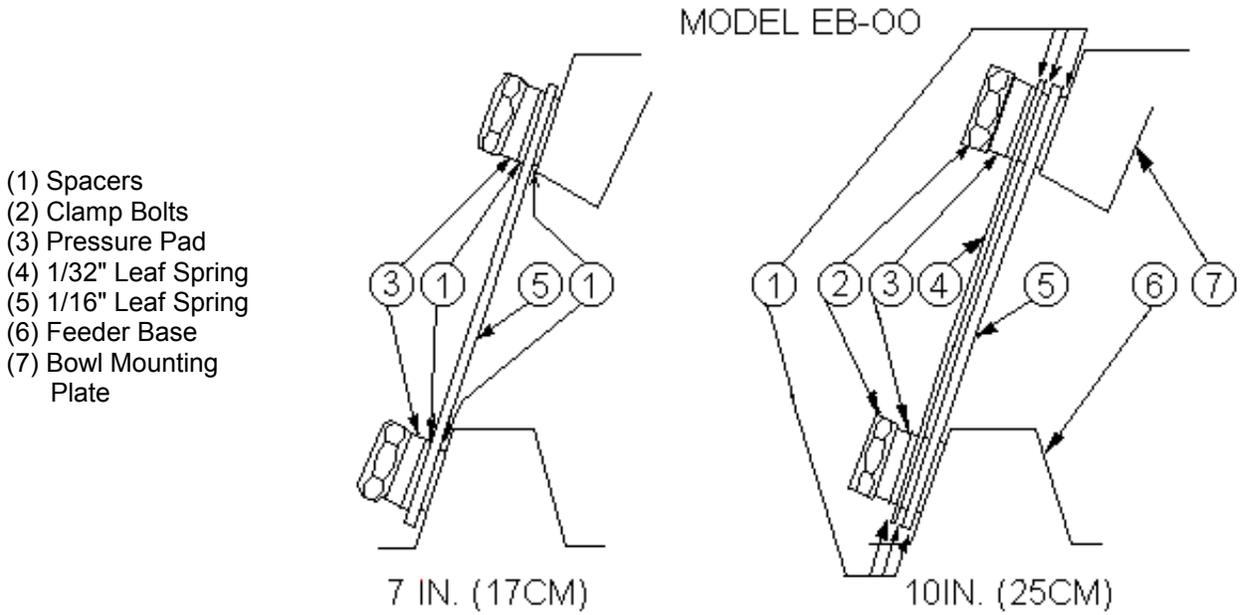


Figure 7-5 Side view of feeder spring stacks

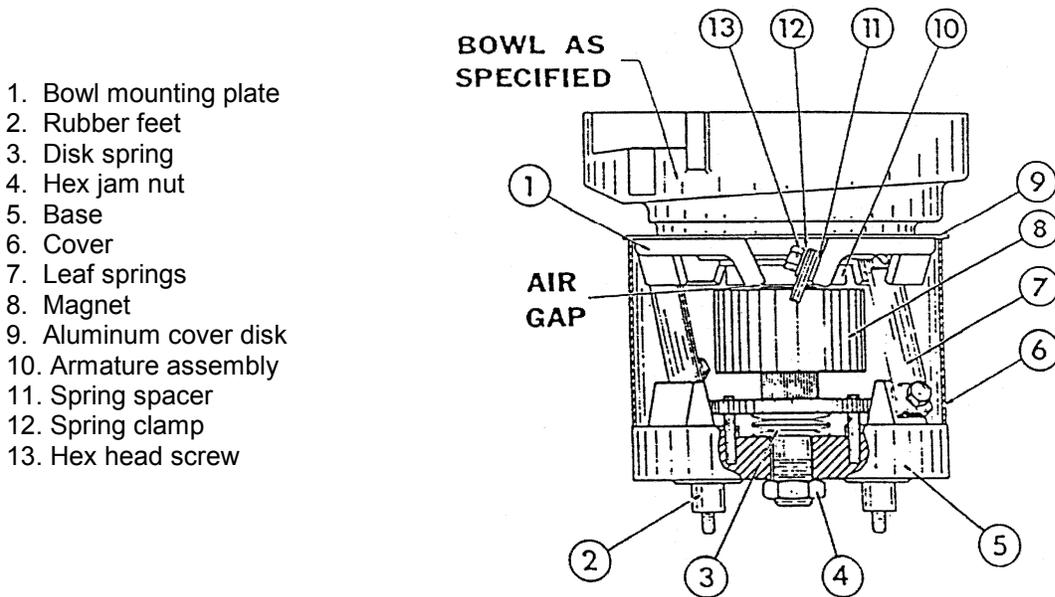


Figure 7-6 Model EB-00 Vibratory Feeder

Place a .020 inch (0.5 mm) air gap spacer gauge (may be obtained from our service department) between magnet assembly (see Figure 7-6, Item 8) and bowl mounting plate (see Fig. 7-6, item 10) to keep magnet assembly and mounting plate parallel. Tighten all 3 bottom clamp bolts first. While applying pressure to the bowl mounting plate, tighten all 3 top clamp bolts, starting with the 2 at the wider part of the magnet assembly and ending with the one at the narrow part of the magnet assembly. This air gap is an initial setting only.

Clamp bolts must be very tight to avoid loosening from vibration (25 Ft-Lb, if torque wrench is available).

Remove air gap gauge. Do not reinstall cover yet. Temporarily reinstall cover plate (see Figure 7-6, Item 9). Install bowl onto vibratory feeder.

Connect SHB power cable from OCC to feeder power connector (small connector). Connect SHB control cable to feeder control connector (large connector which was removed from cover during disassembly). Connect OCC line power plug to power line only after the above cables are connected. Turn on power. Wait until "SELECT MODE" appears in the message display. Select TOTAL mode, press ENTER/YES three times, and press START. Increase SPEED to 99. Check feed rate. If feeder is moving too slowly, use wrench to turn 15/16" air gap adjustment nut on bottom of vibratory feeder (see Figure 7-7) to close air gap. If feed rate is too fast or there is a striking noise when speed is increased to 99, turn air gap adjusting nut to open air gap.

Turn off power. Unplug the power line cord from the power outlet. Disconnect the SHB power and control cables from the OCC.

Remove bowl from vibratory feeder. Remove bowl hold-down shaft. Remove cover plate.

Reverse disassembly procedure to reassemble.

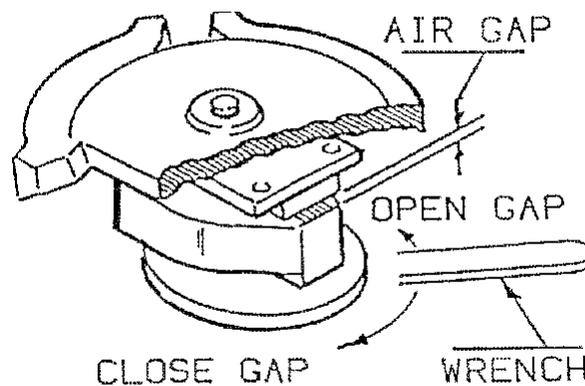


Figure 7-7 Adjusting Feeder Air Gap

7.7 Spare Parts and Accessories List - Recommended spare parts include:

Springs for 7 inch SHB vibratory feeder requires 3 each, 99-MHDW0067, 1/16 inch leaf spring

Springs for 10 inch SHB vibratory feeder requires 3 each, 99-MHDW0067, 1/16 inch leaf spring and 3 each, 99-MHDW0049, 1/32 inch leaf spring

Cover glass lenses, requires 2 each, 99-MLEN0001, clear cover glass

801 LED assembly, requires 1 each, 99-MSUB0092

Accessories include:

START/STOP remote foot-switch assy., 99-MSUB0027

Replacement 7 inch Bowl Assy., 1/2 inch track, 801712

Replacement 10 inch Bowl Assy., 80110

Replacement 10 inch Shallow Bowl Assy., 80110S

8. TROUBLESHOOTING GUIDE

8.1 Vibratory Feeder

A broken leaf spring causes either slow or uncontrollable feeding. If no loose bolts, broken springs or isolation mounts are found, the cause may be electrical.

8.2 Diverter Assembly

If chutes are sharply bumped or used as handles to move the Count-A-Pak, the diverter assembly may be damaged. Electrical failures are often broken or loose solenoid cable connections. Correct any malfunctions immediately. The majority of diverter chute problems are mechanical binding.

To test the operation of the diverter chute assembly, run a BATCH REPEAT test. Set terminal count to a small number (i.e., 3). Interrupt light beam with finger, pencil, or similar object. A solenoid is energized to change delivery chutes at the end of each batch.

If diverter flap is stuck, turn off the OCC. Locate the indicator knob (on front of chute assembly) and turn with fingers. Flap should turn freely in either direction until contact is made with diverter housing. Even the slightest binding may cause sticking. A slight squeak is OK.

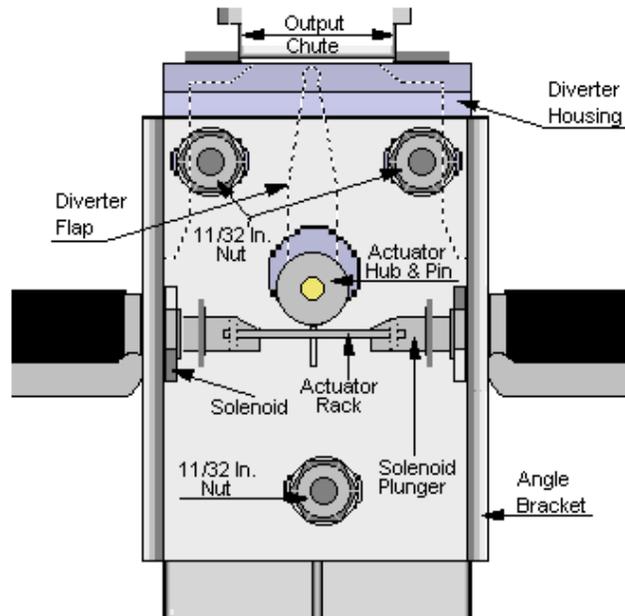
8.2.1 Electrical Problems

It is an electrical problem when one or both solenoids fail to energize. Solenoids are energized alternately as batch totals are reached. Do a BATCH REPEAT test. A de-energized solenoid offers no resistance to turning. If one solenoid fails to energize, the problem is either the solenoid, the cable, or the drive circuitry in the OCC. If an ohmmeter is available, the solenoid circuits in the SHB can be checked for open circuits. A reading of 30 to 45 ohms should be obtained between pins 4 and 5 of the larger connector on the rear of the SHB for the right solenoid. The left solenoid should read the same between pins 7 and 8. The solenoid connections can be switched between the right-hand and left-hand solenoid to help isolate the problem also.

8.2.2 Mechanical Problems

The diverter flap actuator is located on back of the diverter chute assembly (see Figure 8-1). It is necessary to remove entire diverter chute assembly from cabinet to check or adjust actuator.

To adjust actuator, loosen three 11/32" (8.8 mm) nuts on back of assembly. Do not remove. Adjust angle bracket to position actuator so that solenoid plungers and diverter flap are centered as shown. Tighten all three screws and test flap movement. Position diverter assembly for proper gap to feeder bowl discharge area when assembling to cabinet.



8.3 Operator Control Console

Figure 8-1 Diverter Assembly

If the LED displays fail to light, check the power connection and the fuse.

If the operation of the unit ceases and it no longer responds to key-switch inputs, turn the power switch off for at least 5 seconds and then turn it on again.

 ALWAYS MAKE CERTAIN THAT EQUIPMENT IS DISCONNECTED FROM ALL
 ELECTRICAL POWER BEFORE REMOVING THE COVERS.
 DANGEROUS VOLTAGES ARE PRESENT IN THIS EQUIPMENT.

9. WARRANTY

Count-A-Pak instruments are warranted to be free from defects in workmanship and material for a period of one year from date of shipment.

Liability of seller under this warranty is limited to replacing or repairing any such instrument returned by the buyer during this period, provided:

- 1) Buyer promptly notifies seller in writing requesting authorization to return instrument. Letters should include model and serial numbers, date of purchase, and itemization of all complaints.
- 2) The instrument is returned to the seller, transportation charges prepaid.
- 3) Manufacturer's examination shall disclose to its satisfaction that defects have not been caused by misuse, neglect, or improper installation.

Under no conditions shall seller/manufacturer be liable for collateral or consequential damages. This warranty is in lieu of all other warranties expressed or implied. Seller/Manufacturer reserves the right to change specifications, design, and price. Replacement parts will be billed at current prices for out of warranty instruments.

To return a product for repair, first contact the Ag Point Precision Service Department at 1-866-668-4855 for a return authorization number. An RMA (Return Material Authorization) is required for any returned product. A delay in the repair can be expected if a product is returned without proper documentation, including the RMA number.

All returns MUST be packaged in good sturdy protective packaging
Please save your original packaging

After receiving an RMA number, package the equipment in its original shipping carton.

If the original shipping carton is not available, contact the service department to get a set of the correct packaging sent to you. You will be charged a nominal fee. If you choose to use other packaging material and boxes, the unit will be sent back in the proper packaging for which you will be charged and you will also be charged for any shipping damage.

Clearly mark the package with the RMA number and ship to:

AgPoint Precision
24121 West Theodore Street
Plainfield, IL 60586
1-866-668-4855
Attn: Service Department

10. SPECIFICATIONS

POWER CONSUMPTION	120 volt-amperes, maximum
VOLTAGE RANGE	100-130 and 200-260 volts, 50 or 60 hertz as specified
UNIT SIZE	OCC - 11" W x 8" H x 14"D SHB - 13" W x 8" H x 14" D (Add approx. 8" to Height with Feeder Bowl mounted.)
SHIPPING WEIGHT	OCC - 21 Lbs. SHB - 45 Lbs.
OPERATING TEMPERATURE RANGE	0 to 100 degrees F. (-18 to 38 °C)
COUNT RANGE	99,999,999
FEEDER BOWL SIZE (specified with order)	10" (25 cm) Diameter, .5" (13 mm) Track Width for seeds .03 to .4" (.8-10 mm) Diam. and .03 to 1" (.8 - 25 mm) in Length 7" (18 cm) Diameter, .5" (13 mm) Track Width for seeds .03 - .4" (.8 - 10 mm) Diam. and .03 - .4" (.8 - 10 mm) in Length

APPENDIX

A. SERIAL COMMUNICATIONS

A.1 801 Initiated output

A.1.1 Function

This type of communication includes end-of-run data transmissions (Autoprint), and configuration data transmissions. Autoprint, which can be selected or inhibited from the setup menu, transmits data at the end of a "run" or when the STOP switch (or foot-switch) is pressed. This would be used with a printer or data logger. The configuration transmission is initiated by holding the MENU switch down during power up. This is usually done to obtain a printout, or "hard copy" of the configuration information.

A.1.2 End of Run Data Transmission

A.1.2.1 TOTAL mode
format = "COUNT=_xxxxxxx CR+LF"

End of run is when bowl empty is sensed.

A.1.2.2 SINGLE BATCH mode
format = "COUNT=_xxxxxxx CR+LF"

End of run is when terminal count reaches zero and 801 displays "FINISHED".

A.1.2.3 BATCH REPEAT mode
format = "COUNT=_xxxxxxx CR+LF"
"BATCHES=_xx CR+LF"

End of run is when terminal count reaches zero at end of each batch and also when bowl empty is sensed.

A.1.2.4 MULTIPLE BATCH mode
format ="COUNT=_xxxxxxx CR+LF"
"GROUP=_xx CR+LF"
"BATCHES=_xx CR+LF"

End of run is when terminal count reaches zero at end of each batch and 801 displays "FINISHED".

A.3 Character Legends -

The following abbreviations are utilized in this specification.

_	= Space Character (20H) is REQUIRED here.
CR+LF	= Carriage Return (13H) and Linefeed (10H)
xxxxxxx or Yyyyyyy	= Numeric Characters (0-9) - The number of characters present or required is indicated by the number of x or y characters shown.
	= Option. There is a choice of the data before or after this symbol, but not both. This symbol itself is not part of the data.

A.4 Line Settings

A.4.1 Baud Rate

The data transmission rate, or baud rate, is the rate at which the 801 and the connected serial equipment communicates. The 801 has the capability to transmit and receive data at either 1200 or 9600 baud. The limitations of the equipment that is connected to the serial port determines which of these rates should be used. If the equipment will support 9600 baud, it generally should be used because it is faster. If the equipment will not support a baud rate this high, then the 1200 baud rate should be selected.

After the baud rate of the 801 is selected, the baud rate of the serial equipment must be set to match it. Most serial communication equipment, such as computers and printers, support several baud rates, which can be selected with software or switches. The equipment must support at least one of these two rates in order to communicate with the 801.

A.4.2 Data Bits and Parity

Besides communicating at the same data rate, the 801 and the serial equipment must also use the same protocol. Serial communication is accomplished using frames of data consisting of a start bit, 7 or 8 data bits, an optional parity bit, and 1 or 2 stop bits. The 801 is set up to operate with 8 data bits, 1 stop bit, and no parity. The serial equipment attached to the 801 must also be set to these parameters in order for communication to take place.

A.5 Serial Port Connector

The 9-pin serial port on the rear of the 801 is used for serial communications. Only 3 pins are used at this time. The function of each pin is as follows:

Pin 2	TXD (Transmit)
Pin 3	RXD (Receive)
Pin 5	SIGNAL GROUND

Index

50Hz.....	9, 20, 32, 34
60Hz.....	9, 20, 32, 34
Accessories.....	27
ACCURACY.....	4, 14, 15
air filter.....	15
air gap spacer.....	26
AUTO PRT ON.....	9, 20, 32, 34
Baffle.....	24
BAG DET. ON.....	9, 19
BAG DETECT ON.....	10, 32
BATCH REPEAT.....	9, 10, 12, 14, 16, 17, 19, 21, 28
BATCH.....	11, 16, 17
Beep.....	9, 20, 21
Bottom Guide.....	23
BOWL EMPTY.....	10, 11, 13, 14, 19, 32
Bowl Seed Track.....	23
CALIBRATING.....	9, 14, 20
CHECK BAG SIZE.....	10, 13, 18
CHECK BAG.....	12, 13
CHK SETTNGS.....	9, 19
CLEAR.....	18
CLEAR/NO.....	9, 17-20
COUNT DISPLAY.....	13
COUNT RANGE.....	31
COUNT.....	9, 28, 32, 33
ENTER/YES.....	9-13, 17-20, 26
features.....	4, 13, 20
FINISHED.....	11, 13, 14, 19, 32
Gate Delay Adjustment.....	22
Gate Delay.....	19, 22, 34
GATE DLY.....	9
GROUP.....	10-14, 17-19, 32, 33
MENU.....	9, 17, 18, 20, 21, 32-34
MESSAGE.....	9-14, 15-18, 20, 26
MODE.....	9-14, 16-19, 22, 26, 32, 33
MODIFY NOW.....	11, 18, 19
MULTIPLE BATCH.....	4, 9, 10, 13, 14, 16, 17, 19, 32
NEXT GROUP.....	10, 13, 18
OCC.....	5, 7, 8, 9, 13, 15, 16, 20 -22, 26
OPERATING TEMP.....	28, 31
P17.....	7
P18.....	7
P19.....	7
P5.....	7, 8, 23
Piggyback.....	23, 24
POWER CONSUMPTION.....	31
Power-Up.....	9, 19, 20, 32
PRESS START TO RESUME.....	13
RAM.....	20
REVISION.....	9, 19, 34
SD.TONE ON.....	9, 20, 22
SELECT MODE.....	9, 10, 17-19, 26
Sensitivity.....	4, 9, 11-14, 17, 19-21, 33
SHB.....	5-8, 22, 24, 26, 27, 31

SHIPPING WEIGHT.....	31
SINGLE BATCH.....	4, 9-11, 17, 19, 32
SPEED OK.....	11-13, 18
SPEED.....	4, 9, 11-14, 17, 18, 21, 26, 33, 34
START.....	10, 11, 13, 14, 17-21, 26
STOP.....	9-14, 17, 19, 20, 23, 27, 32
Threshold.....	4
TOTAL.....	9-11, 14, 16, 17, 19, 21, 27, 32
Track Width Slide.....	23, 24
Track Wiper.....	23, 24
UNIT SIZE.....	31
Unpacking.....	5
UP/DOWN arrows.....	14, 17-19
VOLTAGE RANGE.....	31
voltage selector card.....	22

Quick Troubleshooting Guide

This is a quick troubleshooting reference guide. Keep this by your seed counter as a reference for the most common and simple problems that may come up. This guide should solve most common problems without contacting the service department. If not, contact the service department at the number listed at the end of this guide. Lookup the problem your having, read the possible causes, and follow the possible solutions one by one in the order they are listed.

Problem	Possible causes	Possible solutions
<i>Nothing comes on</i>	<ol style="list-style-type: none"> 1. Dead outlet 2. Power cord not plugged in 3. Fuse blown 	<ol style="list-style-type: none"> 1. Make sure the outlet that the counter is in is working. 2. Make sure the counter is plugged into a known good outlet. 3. Unplug the unit. Check fuse.
<i>Counts come out low</i>	<ol style="list-style-type: none"> 1. Feeder speed is too high 2. There is unwanted debris or partial seeds in your sample. 3. Sensitivity set too high 4. Unit out of calibration 	<ol style="list-style-type: none"> 1. If the feeder speed is set too high there won't be an even flow of seeds and two seeds can go by the detector at once counting as one piece. 2. Make sure you are using a clean sample 3. If the sensitivity is set too high for small seeds they wont be detected. Turn the sensitivity lower until the unit starts counting. Refer to the operating instructions to set the unit back up. 4. If the above suggestions do not resolve the problem then call the service department for an RMA #.
<i>Counts come out high</i>	<ol style="list-style-type: none"> 1. There is unwanted debris or partial seeds in your sample. 2. Sensitivity set too low 3. Unit out of calibration 	<ol style="list-style-type: none"> 1. Make sure you are using a clean sample 2. If the sensitivity is set too low the unit will count debris and partial seeds. Turn the sensitivity knob clockwise until the unit stops counting unwanted material. Refer to the operating instructions to set the unit back up. 3. If the above suggestions do not resolve the problem then call the service department for an RMA #.
<i>Unit counts by itself</i>	<ol style="list-style-type: none"> 1. Sensitivity set too low 2. Light getting into chute 	<ol style="list-style-type: none"> 1. Set the sensitivity higher to lower the sensitivity. 2. If there is a flickering fluorescent light, sunlight, or incandescent bulb shining in the chute it will cause this type of problem. Move the machine to another location to solve this problem.
<i>Unit will not count</i>	<ol style="list-style-type: none"> 1. Debris blocking detector 2. Sensitivity set too high 3. Unit out of calibration 	<ol style="list-style-type: none"> 1. Look inside chute and remove any debris stuck in chute. 2. Set the sensitivity to a lower number. 3. If the above suggestions do not resolve the problem then call the service department for an RMA #.
<i>Feeder not working at all</i>	<ol style="list-style-type: none"> 1. Feeder not plugged in 2. Blown feeder control 	<ol style="list-style-type: none"> 1. Plug feeder into the receptacle on the back of the counter. 2. Contact the service department for further instructions.

<i>Seeds fall between chute and bowl</i>	1. Too much space between chute and bowl	1. Unlock handle of the quick release on the bowl. Turn the bowl a little bit closer to the chute.
<i>Feeder all of a sudden too fast or too slow with very little speed control</i>	1. Probably 1 or 2 broken springs.	1. Proceed to feeder section under trouble shooting and check for broken springs. Replace springs as necessary.
<i>Feeder all of a sudden too fast or too slow with no speed control</i>	1. Blown feeder control	1. Contact the service department for further instructions

If these suggestions do not help resolve the problem or if you have any other problems call (866) 668-4855

Important: Be sure to save ALL original packing material that your unit came with!

Because of the weight of your counter and the fact that mailing and freight services do not always handle things with care, it is best if you ever need to send the counter in for service, to send it back in the original packaging. This packaging and packaging materials have been designed to cause minimal damage and shock should the counter be mishandled or dropped. As you are unpacking your counter, if you notice any shipping damage, notify your shipper immediately! Normal care should be taken when handling and using this product. Improper handling or abuse can damage the counter and result in costly repairs that may not be covered by the warranty.