Table of Contents

Also at the end of this manual is a quick troubleshooting guide. Keep this page by your machine to help you in the event any problems arise. It should help in most cases.

This manual has been prepared to speed installation

Read section one before beginning assembly and installation steps. Do not turn power on or operate counter before steps in section 2 are completed.

Damage to equipment can result

SECTION I

Introduction

Count-A-Pak Instruments are designed to automatically feed and count a wide range of parts, seeds, and other objects. A good understanding of how they work is a must to get accurate counts.

HOW IT WORKS

Objects to be counted are placed in the vibratory feeder bowl. The bowl has a spirally inclined track around the inside perimeter. Objects are moved upward along this track by electromagnetic vibration and drop into a chute. As the object falls into the chute, the distance between one and the next increases. At this point they are counted by a detector.

TO GET ACCURATE COUNTING

Objects must be arranged into a single file, one layer deep, before reaching the chute. They must drop into the chute one at a time. Selected devices on the feeder bowl must be adjusted correctly to accomplish this. **NOTE:** One very important factor is the speed of the vibratory feeder. There must be an even flow of seeds into the chute. If the speed is too high the seeds will bounce around causing some seeds to go past the detector side by side or with very little space between them. If this happens those seeds will be counted only as one piece. Turn down the speed until you get an even flow. Most objects will form a single file easily, others will not. Those that single file easily can be counted faster than others which do not. A feeder speed control adjusts the feed rate.

Counting speed will depend on two things:

1. How easily objects single file.
2. How good count accuracy must be.

SUMMARY

To get accurate counts, controlled single file feeding is a must. Two objects passing through the detector at the same time will be counted as one. Two objects passing through the detector with little or no space between them will be counted as one. If objects are fed one at a time past the detector there will be no miscounts!

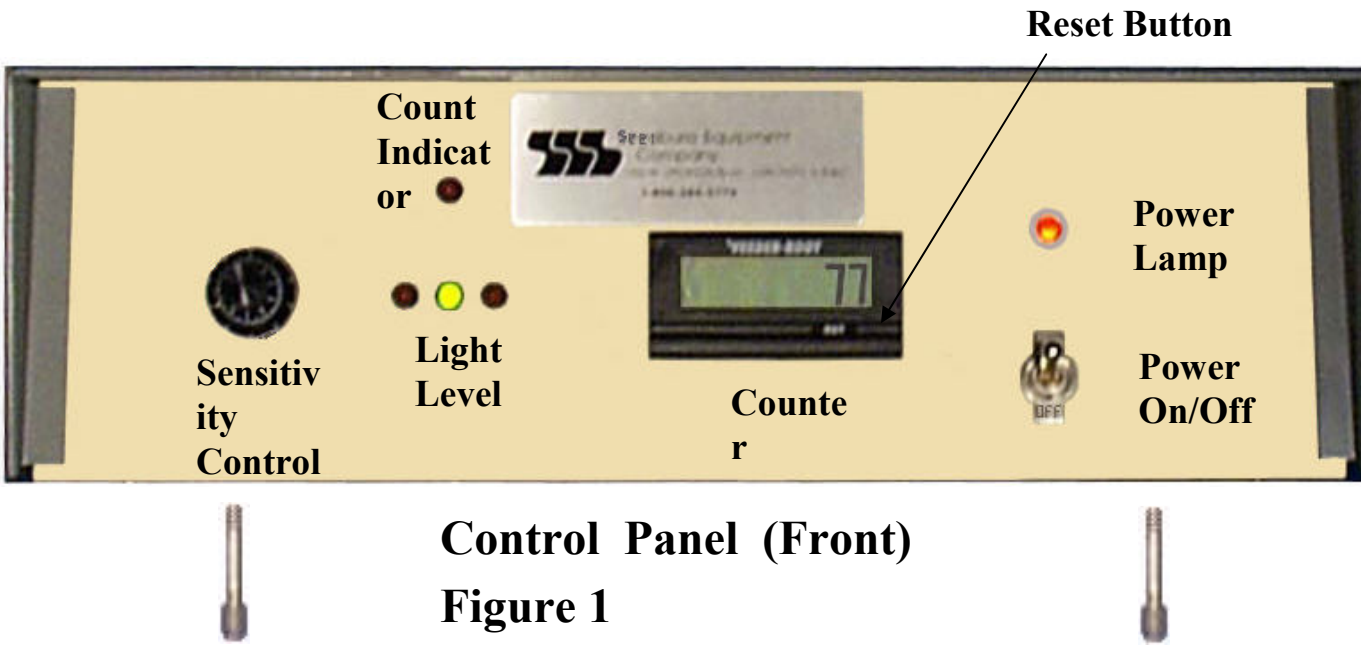
SECTION II

Assembly and installation

GENERAL

Although all components are stable in setting and well supported, the Count-A-Pak should not be subjected to rough handling or excessive vibration.

The feeder base plate has four holes in the corners. Four rubber feet are attached for shipping. It is advised that the feeder base be bolted directly to a sturdy bench. The fastest and most positive feeding results when the feeder is securely fastened to the bench in a level position.



Control Panel (Front)

Figure 1

1. Assemble legs onto counter cabinet as shown in Figure 1.
2. Place counter cabinet and the feeder base on a substantial bench or table. ***CAUTION:*** *Lift and carry feeder base by base plate only. Handling by bowl can damage tuning.*
3. *Assemble dust guard and bowl to vibratory feeder. Caution: The feeder bowl is made of cast aluminum and may break if dropped.*
4. *The chute should be positioned so there is a 1/16" gap between the bowl and the chute*

(Figure 2) and approximately a 1/16" drop from the lip of the bowl to the floor of the chute.

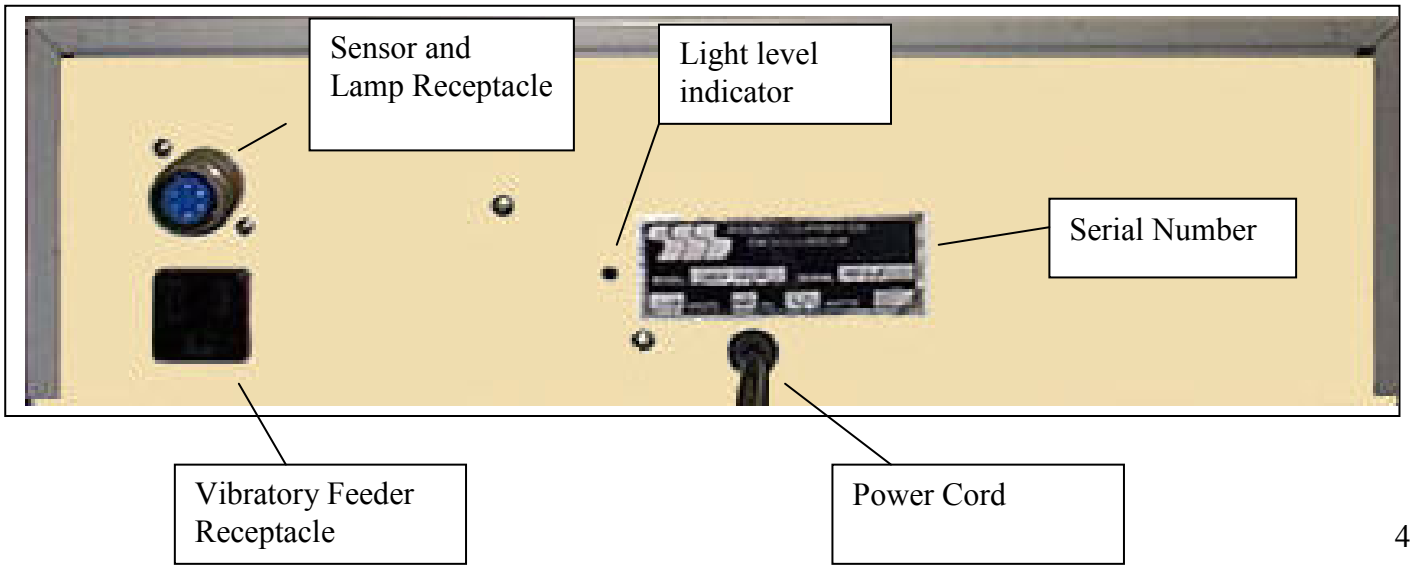
5. When alignment is correct, tighten the bolt in the center of the bowl. If you have an optional Quick Release, lock the handle in place.
6. Plug the cord from the feeder into the vibratory feeder receptacle at the rear of the control console.

(Figure 3)

7. Plug the green connector from the chute into the sensor and lamp receptacle at the rear of the control console. Tighten lock-ring.
8. With all switches off, plug the power cord from the control console into a grounded outlet. If an adapter must be used the pigtail must be grounded.
9. With no parts in the feeder, turn the feeder control on and slowly advance the knob clockwise to the maximum feed rate. If feeder bowl strikes the chute , stop at once and adjust for more clearance.

Figure 2

WHEN THE FEEDER WILL OPERATE AT MAXIMUM SPEED WITHOUT STRIKING THE CHUTE PROCEED TO THE OPERATING INSTRUCTIONS.



SECTION III

Operating Instructions

General:
For most counting operations, extremely precise adjustments or settings are not needed. Close attention to detail is a requirement only when counting very small objects or samples mixed with foreign material. When first becoming familiar with COUNT-A-PAK operations use a clean sample of 1/8" diameter minimum to make it easy. Some general settings to start out with are 1.4 for broccoli, 1.8 for wheat, 2.5 for popcorn, 3.0 for soybeans and small corn seeds, and 4.5 for large corn seeds. These settings will very a little from machine to machine but are a good starting point.

Operation Description:
Each time an object passes through the light beam between the lamp and the sensor, the count register advances one number. The sensitivity control on the panel sets the minimum size that will be detected. The count indicator LED will flash each time a count is registered.. If the LED is on continuously, the register will not count. The light level LED's on the control panel monitors operating conditions. **The clear and frosted cover glass must be kept clean.** The middle green LED should be on all the time. Should the left or right red LED's remain on, cleaning the glass or recalibration is needed. If after cleaning the glass the green LED does not stay on then a quick calibration is needed. Follow the instructions in the next section for quick calibration. When counting larger seeds, the red LED's on the light level indicator might flicker occasionally. This is normal.

Quick Calibration

Re-calibration is needed whenever either the left or right red LED indicators stay on constantly or when installing a new lamp.

QUICK CALIBRATION: Using a flashlight and a small screwdriver, (either a plastic screwdriver or insulate the metal part of the blade) insert the screwdriver into the light level calibration hole in the back of the control console. (Figure 4) Engage the slot on the trimpot and gently adjust it fully counterclockwise. The right red LED will be, or will have been on. Slowly turn screwdriver clockwise until the green LED starts to come on. Note the position of the screwdriver. Turn the screwdriver clockwise until the left red LED comes on. Turn the screwdriver counterclockwise until the green LED comes on again. Note the position of the screwdriver. Ideal adjustment is where the trim-pot is centered between the two points where the green LED comes on. Quick calibration is now complete. If a thorough calibration is necessary go to the troubleshooting section of this manual.

AFTER CHECK-ING OUT THE LIGHT LEVEL CALIBRATION YOU ARE READY TO TRY IT OUT. OBSERVE THE FOLLOWING PRECAUTIONS.

Figure 4

1. Check calibration in actual operating location, under normal lighting conditions.
2. Changing ambient light conditions (such as sunlight from a nearby window) will affect accuracy.
3. Incandescent lamps should not be allowed to shine into the chute. Florescent lights have little effect unless they are flickering.

OBTAIN A CONTROL SAMPLE:
A control sample is a carefully hand counted sample of 100, 500, or more pieces. The sample should be used when the machine is first turned on to check operation accuracy.

TO PLACE YOUR COUNT-A-PAK IN OPERATION:
The track width adjustment on the bowl is held in place by nylon set screws and may be adjusted without tools. Adjust track width (and track wiper if needed) so that a single file of parts, one layer deep will be formed. (Figure5) Turn counter on.. Set sensitivity control to the appropriate setting according to the settings stated earlier in the General section. Press the reset button on the counter to clear the count register. Place your control sample in the feeder and run it through at a slow speed. If the settings are correct the count obtained will be correct. If the counter registers more seeds than are actually in the sample there is either debris in the sample or the sensitivity is too low. Increase the sensitivity and run the sample through again until you get an accurate count. If the counter registers less seeds than are actually in your

Figure 5

sample then the sensitivity is too high and it is missing some of the seeds as they go by the sensor. Decrease the sensitivity and run the sample through again until you get an accurate count. Gradually increase the feeder speed while rechecking the control sample. As feed rate becomes quite fast, "short" counts will result. At this point, the maximum counting rate for that particular seed has been exceeded. Back the speed off a little bit and you will be at the maximum speed for that type of seed.

SOME OPERATING TIPS:

To count very small objects obtain a length of wire of the same diameter or thickness as the part. Insert the wire into the chute through the light beam. Adjust the sensitivity control until the indicator LED lights. When properly adjusted, the LED will light when the wire passes through the light beam.

The same general idea can be used to set up for counting parts mixed with chips or debris.

Adjust so that wire representing the part is counted and the wire representing the debris is not.

Parts which have holes or step diameters will count as two or more at certain sensitivity settings. If this happens, increase the sensitivity (counter clockwise) until a single count is obtained.

CAUTION

1. Operation with either cover glass dirty, cracked, broken or missing will cause inaccurate counts.
2. No part of the feeder bowl or base may come in contact with cables or any rigid surface. Do not attach any tracks or chutes to the bowl or base.
3. Make sure instrument is grounded properly.

SECTION IV

Service and Maintenance

WARNING:
Dangerous voltages are present in the interior of this instrument. Before beginning any service internally, contact the service department and disconnect the power cord.

Keep glasses clean
The clear and frosted glasses are to keep dust and dirt away from the sensor and lamp. The frosted glass is to diffuse light from the lamp. Clean glasses at least daily. After cleaning the glass, replace the glass with the clear glass on the left side of the chute and the frosted glass on the right side of the chute. (NOTE: On the frosted glass one side is smooth and the other side is frosted. Replace the glass with the smooth side facing the chute.)

Lamp replacement
Lamp replacement should only be done after thoroughly reading the troubleshooting section under lamp replacement so the lamp doesn't get damaged.

Fuse replacement
Disconnect the power cord, feeder cord, sensor and lamp cord. Turn cabinet upside down. Remove the three screws from each edge of the cabinet. Turn unit right side up. Lift the cover straight up and away from the base. The fuse is located toward the rear right hand corner. Replace with a 3AG 1.5 amp fuse. Repeated fuse blowing is a symptom of a serious fault in the instrument which must be corrected before extensive damage results.

Major failures
In case of difficulty that cannot be eliminated by use of these instructions, contact our parts and service department. Give full information of the trouble and the steps taken so far to correct it. Have model and serial numbers handy. For instruments no longer under warranty, a purchase order should be forwarded to avoid delay. Detailed instructions are sent with replacement parts.

In summary
The entire instrument is subjected to some vibration which is transmitted from the feeder. Therefore, all screws and other fasteners should be kept tightened. If reasonable care is given to the instrument, little or no service will be required short of lamp replacement.

SECTION V

Specifications

Power requirements 105 to 125 volts
1.5 Amperes 50 or 60 Hz depending on unit

1 Phase

Weight	Control Console	17 Lbs.
	Feeder base	22 Lbs.
Operating temperature	40F - 100 F	
Storage temperature	-25F - 150 F	

Accuracy + or -1 part per 1000 is typical at moderate speed

Count speed 600 parts per minute Bowl diameter

7", 10", or 10" Shallow Size range 1/32" to 1/2"

FOR SALES INFORMATION:

SEEDBURO EQUIPMENT COMPANY
2293 S. Mount Prospect Rd. Des Plaines, IL 60018

312-738-3700 Voice
312 -738-3544 Fax

E -M ail: sales@ seedburo.com W

Website www .seedburo.com

FOR SERVICE INFORMATION:

AgPoint Precision LLC
24121 West Theodore Street
Plainfield, IL. 60510

866-668-4855 Voice
312-878-6400 Voice and Fax

SECTION VI

Warranty

AgPoint Precision LLC. Warrants it's products to be free from defects in material and workmanship for a period of one year from the date of shipment. The only exception to this is the lamp, which is warranted for 90 days. Any product found to be defective within this time period may be returned to AgPoint Precision, freight prepaid, with prior authorization for repair or replacement at no charge. AgPoint Precision's liability, under this warranty, is limited to the repair or replacement of the defective product and in no event shall it be liable for consequential or indirect damage to equipment or personnel. Nor shall AgPoint Precision be liable for damages to equipment or personnel caused by misuse, overload, accidental damage, alteration, improper installation, or unauthorized opening of the equipment. Under no circumstances will AgPoint Precision be responsible for any contingent or consequential damages due to errors in counting or failure of a AgPoint Precision product to perform properly. This warranty is in lieu of all other warranties, expressed or implied. This warranty constitutes AgPoint Precision's exclusive warranty. There are no other warranties, expressed or implied,,including any warranty of merchantability or fitness for a particular purpose. Manufacturer's examination shall disclose to it's satisfaction that defects have not been caused by misuse, neglect, or improper installation. All specifications, design modification, and price change revisions are reserved and can change at any time. Replacement parts for out of warranty instruments will be billed at current prices.

To return a product for repair, first contact the AgPoint Precision Service Department at 1-866-668-4855 for an RMA(Return Material Authorization) number. An RMA 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.

After receiving an RMA number, package the equipment in it's original shipping carton. If the original shipping carton is not available, use a sturdy carton that is large enough to allow at least four inches of clearance on all 6 sides of the equipment for packing material. Include a letter explaining the problems you have been having. Clearly mark the package and the letter with the RMA number and ship to:

AgPoint Precision LLC.
24121 West Theodore Street
Plainfield,IL 60586
ATTN: Service Department

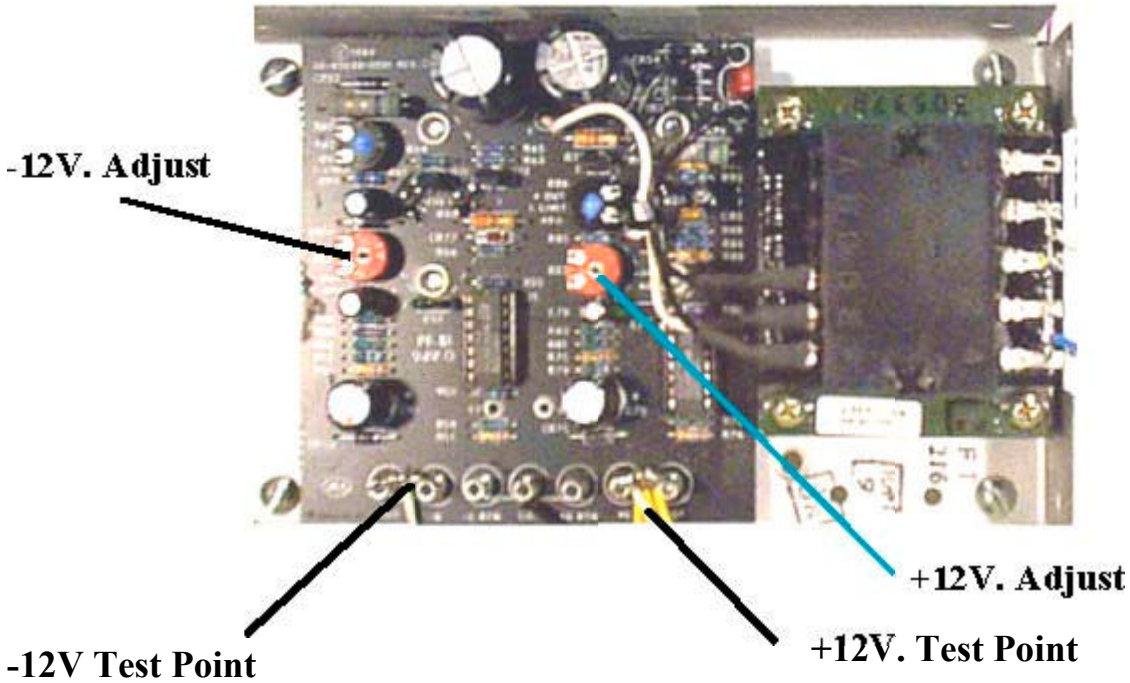
SECTION VII

Troubleshooting

*All voltages referred to in this section will be a D.C. voltage. References in this section will be made using a **Digital Volt Meter**. It is best to use a digital volt meter if one is available. If you are using an analog meter, keep in mind that you will be measuring in the -12 to the +12 volt range and be sure to observe the polarity. Your negative lead should always be on the main ground connection which is located near the fuse where all the ground wires terminate.* ***Important!!!*** *Remember to always start with the power cord unplugged and the on/off switch turned off. Once connections are made, plug in the power cord, turn the counter on, and let the unit warm up for a minute so the components can stabilize. The following procedures should only be performed by qualified technician. Make sure the clear and frosted glasses are clean before continuing. Follow the steps in the order they are presented to you.*

Power Supply Adjustment

Figure 6



The power supply in the center of the control console is a +12 volt and a -12 volt supply. To check the voltage, connect the negative lead on the meter to the ground connection. Attach the positive lead to the **-out** output of the power supply (white wire). The voltage at this point should be -12.00 volts. If adjustment is necessary, adjust the trimpot that's in the left of the circuit board. Next attach the positive lead to the **+out** output of the power supply (violet/white and yellow wires). The voltage at this point should be +12.00 volts. If adjust ment is necessary, adjust the trimpot that's in the right hand side of the circuit board.

LAMP CALIBRATION

Attach the negative lead of your meter to the ground wire in the cabinet. Connect the positive lead to the heatsink that the regulator board is connected to. Using a flashlight and a small screwdriver, (either use a plastic screwdriver or insulate the metal part of the blade) insert the screw-driver into the light level calibration hole in the back of the control console (Figure 7). Engage the slot on the trimpot and adjust it until the meter reads 2.22 volts dc.

Figure 7

Calibrating the amplifier board

Calibration of the amplifier board should be done after the power sup-ply and lamp regulator adjustments have been made. Attach the positive lead of the meter to test point 1. (Figure 8) The reading on the meter should be -4.00 volts. If adjustment is necessary, turn trimpot 1 until the voltage is obtained. Calibration should now be complete.

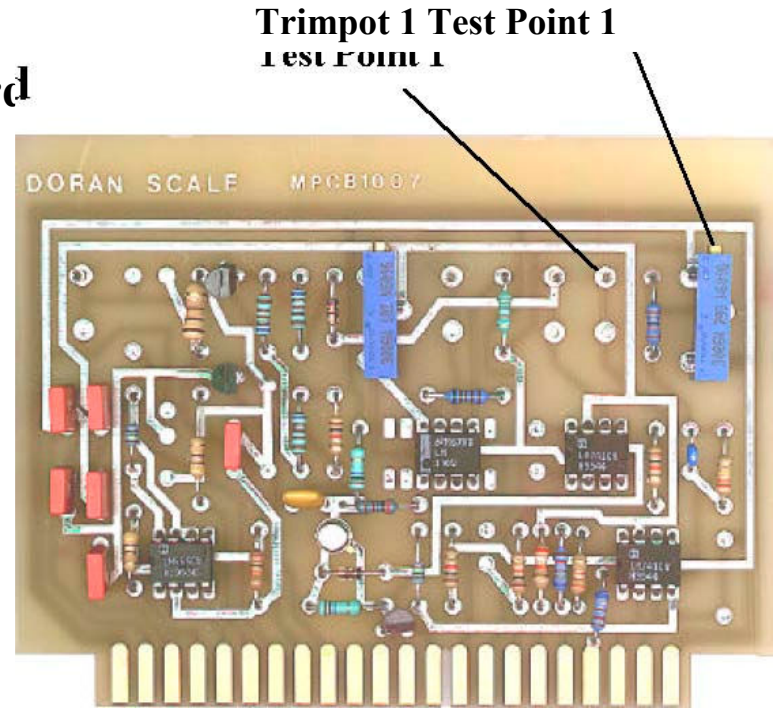
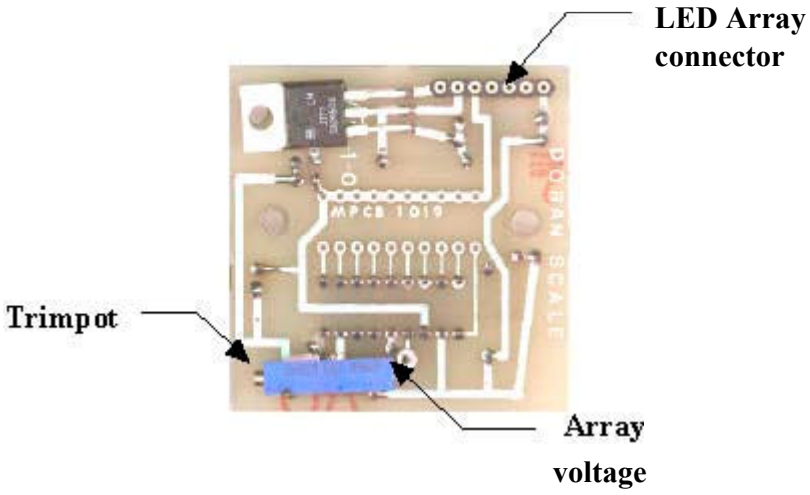


Figure 8

LED Array adjustment

It should never be necessary to adjust the LED array board because it just follows the output of the amplifier board. If you do have to though, you must make sure all other calibrations have been performed before you calibrate the array board. Attach the negative lead of your meter to the ground wire in the cabinet. Connect the positive lead to the array voltage test point on the array board. Plug the control counsel in and turn the unit on. Let the unit set for a couple of minutes so the components stabilize. Using a small flat bladed screwdriver (either a plastic screwdriver or insulate the metal part of the blade) turn the trimpot one way or another until a red light level LED comes on. Turn it back the other way slowly a little bit until the green LED starts to come on. Note the voltage reading on your meter. (Example .28) Turn the trimpot until the other red LED comes on. Turn it back the other way slowly a little bit until the green LED starts to come on. Note the voltage reading on your meter. (Example .49) Now turn the trimpot until the meter is in the middle of these two voltages. (Example .38) The LED array board is now calibrated.



SECTION VIII

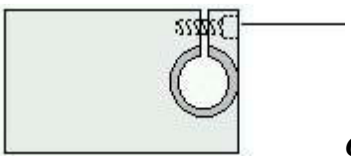
IMPORTANT INSTRUCTIONS

Please follow these instructions very carefully to avoid damaging the lamp on models 77 and 88. These lamps are tested and known to be good when they are shipped. They have a 90 day warranty, but will not be replaced if damage is determined to be from over tightening (broken envelope) or over voltage (blown filament).

There are 2 styles of lamp holders. Look at yours and go to that style.

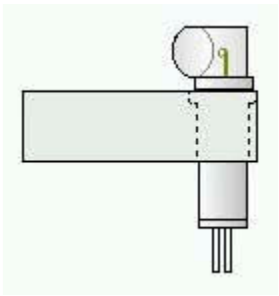
To replace Lamp

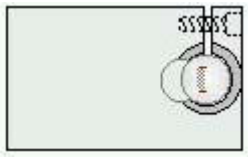
Style 1 (older)

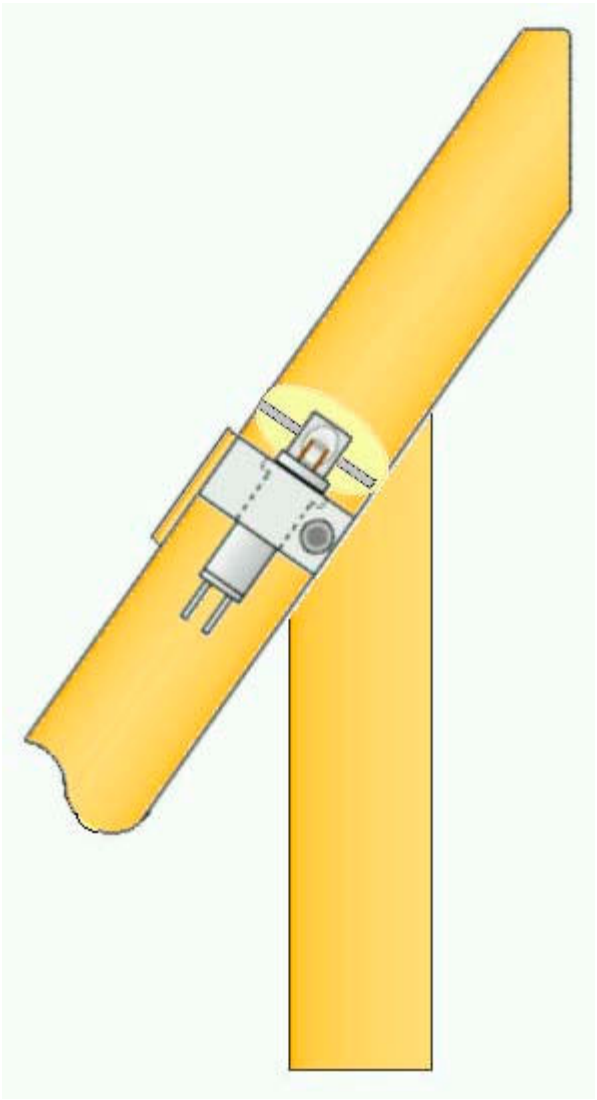


4-40x3/8 socket head cap screw. Use 3/32 Allen wrench.

Clamp screw







1. Remove connector from lamp.

2. Loosen clamp screw on lamp holder with Allen wrench.

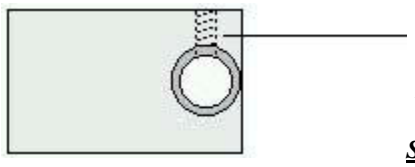
3. Remove old lamp from lamp holder.

4. Insert new lamp.

5. Align lamp per figure 1.

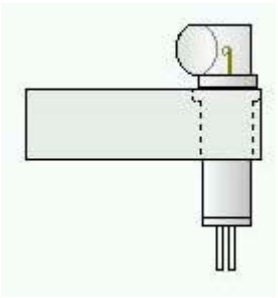
6. Tighten clam p screw only enough to snug lam p in place so it doesn't move easily. **Over tightening will break lamp and void warranty. After lamp replacement, it may be necessary to re-calibrate the seed counter.**

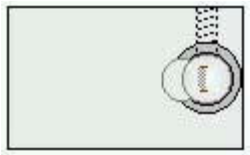
Style 2 (Newer):

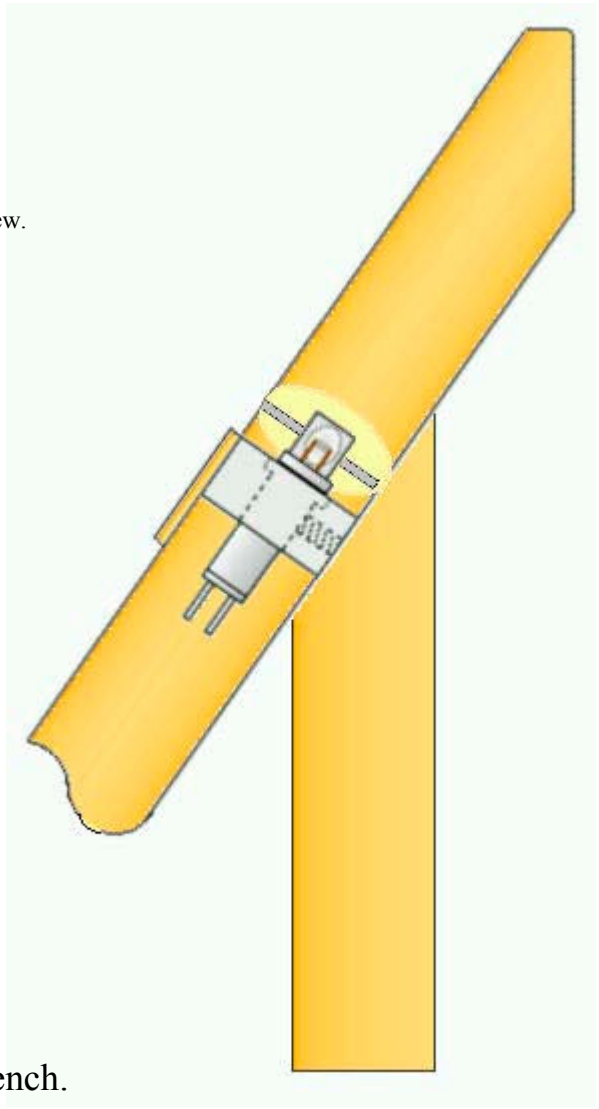


10-32x3/16 nylon set screw.
Use 3/32 Allen wrench.

Set Screw







1. Remove connector from lamp.
2. Loosen set screw on lamp holder with Allen wrench.
3. Remove old lamp from lamp holder.
4. Insert new lamp.
5. Align lamp per figure 1.
6. Tighten set screw only enough to snug lamp in place so it doesn't move easily. Over tightening will break lamp and void warranty**. After lamp replacement, it may be necessary to re-calibrate the seed counter.**

SECTION IX

Procedure for checking and or changing springs on model EB-00 Vibratory feeder.

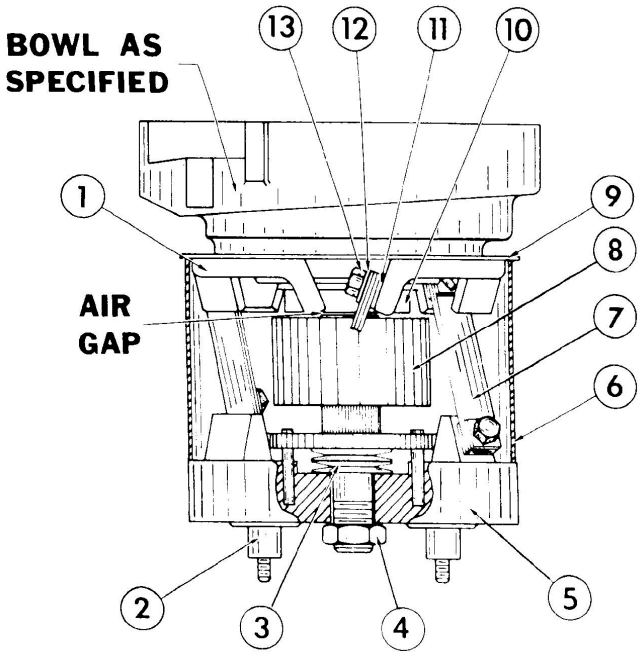
1. Unplug feeder. **Model 77 & 88 —** Unplug from the back of the control cabinet. **Model 701 —** Unplug from the power junction box on the divider panel in the middle of the machine. **Model 801 —** Unplug black connector from the SHB. (Seed Handling Base)

2. Gain access to the vibratory feeder. **Model 77 & 88 —** The feeder is already out in the open. Remove bowl. **Model 701 —** Remove bowl. Remove the three bolts holding the mounting plate to the base. (1 in front and 2 in back) Remove feeder.

Model 801 — Remove bowl. Turn unit on the side. Cut the nylon cable tie that holds the cables together. Turn unit back to its original position. Remove 11 6-32 screws. (2 on each side of the unit and 7 in the back). Remove cover.

1. Remove dust cover (aluminum disk). (Figure 9 #9)
2. Remove 3 screws that hold the vibratory feeder cover and lift off the cover. (Figure 9 #6)
3. Remove springs

You will have a combination of different thicknesses of springs on your feeder. Refer to the chart (Chart 1) for possible combinations. Yours may vary a little from the chart. There are 3 stacks of springs on each feeder. ***Springs must be removed because you cannot t otherwise.*** Remove 1 spring stack at a time. Che cracked or broken springs. If there is, then repla 1/16" spring is the one that breaks most of the ti the bolt hole. If the springs are OK or they have on the feeder making sure the round spacers are between and outside springs. (Figure 10) Leave loose at this time.



6. Repeat procedure for the second and third spring stacks.

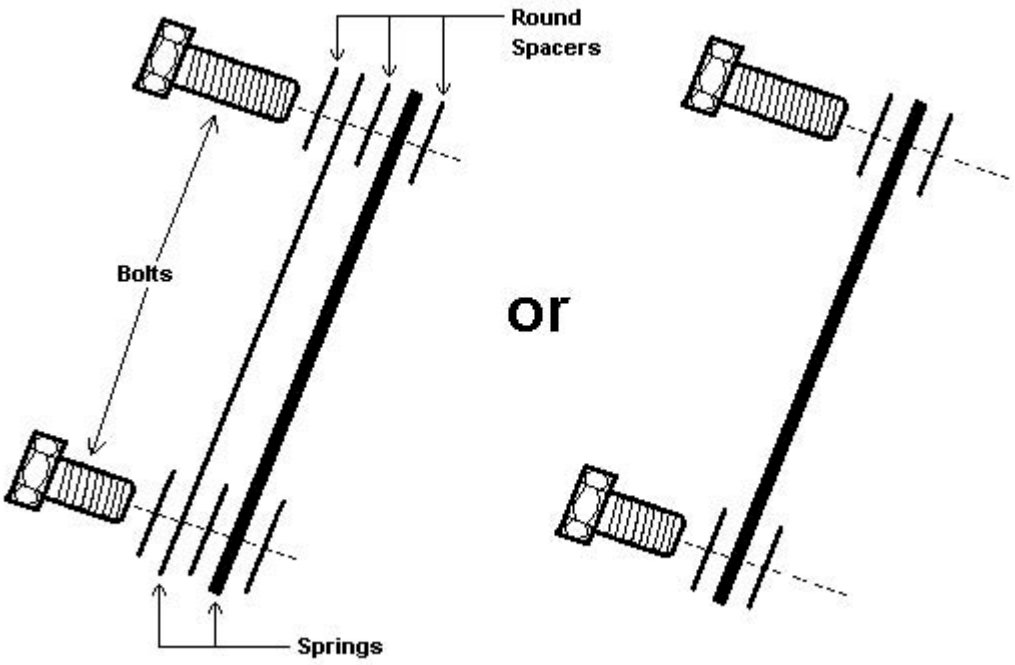


Figure 10

7. Set air gap. Place air gap gage (.020 - .040 thick) between coil (Figure 9 #8) and bowl mounting plate (Figure 9 #1) to keep the air gap between the coil and bowl mounting plate even. Tighten all three bottom clamping bolts first. While putting pressure on the bowl mounting plate tighten all three top clamping bolts starting with the two at the wider part of the coil and ending with the one at the narrow part of the coil. This air gap is an initial setting only. The clamping bolts must be very tight to avoid loosening from vibration. (25 ft./lb. if torque wrench is available)

8. Reassemble feeder. Remove air gap gage. Replace cover and screws.
Model 701 — Remount feeder back in 701.
Model 801 — Replace SHB cover and screws.
Attach cover plate and bowl and restore power to the unit.

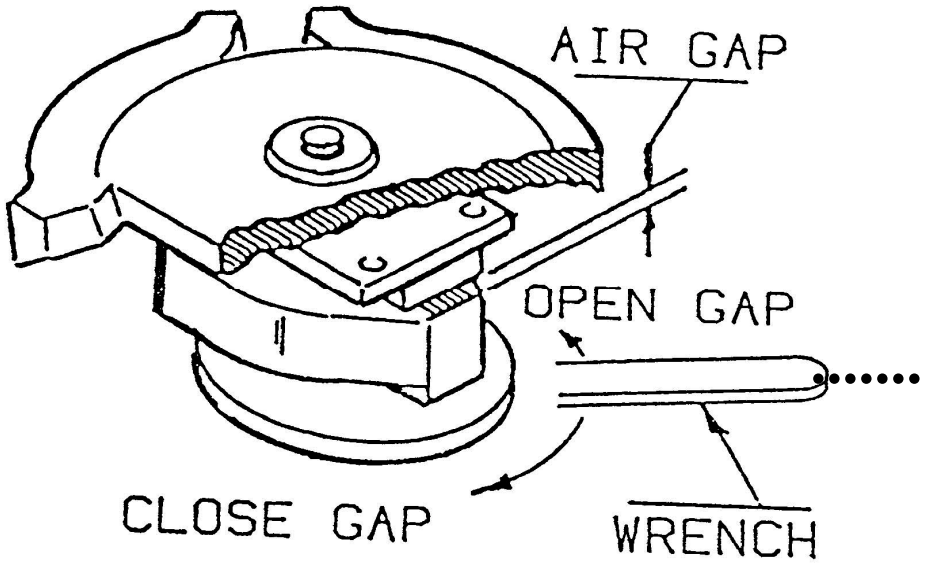


Figure 11

9. Check feeder operation Turn feeder on and check feed rate. If feeder is moving too slow use a short 15/16" wrench to turn the 15/16" nut under the feeder to close the air gap a little. (as you are looking at the feeder from the top pull the wrench towards you clockwise) (Figure 11) If the feed rate is too fast or there is a striking noise when the feeder control is turned all the way up turn the nut counterclockwise to open the air gap. **At this point everything should be fixed. If you are still experiencing problems contact the service department at:**

AgPoint Precision LLC.
24121 West Theodore St.
Plainfield, IL 60586
(866-668-4855)
7:30 AM to 5:00 PM Central time

Refer to these part numbers when ordering springs:
MHDW0049 - 1/32" (.032) in.
MHDW0096 - 3/64" (.047) in.
MHDW0067 - 1/16" (.062) in.