



**WEIGH RIGHT**  
*Automatic Scale Co.*

## **INSTRUCTION MANUAL**

MODEL IQ-1ES

Manufacturer: **WEIGH RIGHT AUTOMATIC SCALE CO.**

612A Mills Rd.

Joliet, IL 60433

PH: 815-726-4626

FAX: 815-726-7638

[www.weighright.com](http://www.weighright.com)

---

This manual serves as a guideline for operation, maintenance, troubleshooting and parts replacement.

Any questions regarding this information should be directed to;

Customer Service 815-726-4626, Monday-Friday 8:00 am to 4:30 pm, Central Time.

<b>WHY USE THE MANUAL?</b> .....	<b>4</b>
<b>PAY ATTENTION TO THIS!</b> .....	<b>4</b>
<b>USER NOTES</b> .....	<b>4</b>
<b>SAFETY INFORMATION</b> .....	<b>4</b>
<b>SERVICE INFORMATION</b> .....	<b>4</b>
<b>WHEN YOU CALL</b> .....	<b>4</b>
<b>GETTING STARTED</b> .....	<b>5</b>
<b>MACHINE REQUIREMENTS</b> .....	<b>5</b>
<b>UNPACKING AND SETTING UP</b> .....	<b>6</b>
<b>MODEL IQ UNCRATING INSTRUCTIONS</b> .....	<b>6</b>
<b>MODEL IQ SAFETY INSTRUCTIONS</b> .....	<b>7</b>
<b>INSTALLATION</b> .....	<b>7</b>
<b>MACHINE POSITIONING</b> .....	<b>7</b>
<b>ADJUSTING HEIGHT</b> .....	<b>8</b>
<b>CONNECTION OF AIR AND POWER</b> .....	<b>8</b>
<b>IQ ASSEMBLY INSTRUCTIONS</b> .....	<b>9</b>
<b>GENERAL DESCRIPTION</b> .....	<b>10</b>
<b>OPERATION</b> .....	<b>10</b>
<b>CONTROLS</b> .....	<b>11</b>
<b>“Start/Stop Screen”</b> .....	<b>11</b>
<b>“Settings”</b> .....	<b>12</b>
<b>“Pieces Screen”</b> .....	<b>14</b>
<b>“Recipe”</b> .....	<b>15</b>
<b>“Password request page”</b> .....	<b>17</b>
<b>“To save a new job”</b> .....	<b>18</b>
<b>“Calibration”</b> .....	<b>19</b>

<b>“History Screen”</b> .....	<b>20</b>
<b>LEVEL CONTROL</b> .....	<b>21</b>
<b>IQ NET WEIGH FILLER MAINTENANCE</b> .....	<b>21</b>
<b>TROUBLE SHOOTING INSTRUCTIONS</b> .....	<b>22</b>
<b>CUSTOMER SERVICE SCHEDULE</b> .....	<b>23</b>
<b>TERMS &amp; CONDITIONS</b> .....	<b>23</b>
<b>LIVING EXPENSES:</b> .....	<b>25</b>
<b>TRAVELING EXPENSES:</b> .....	<b>25</b>
<b>LOAD CELL TROUBLE-SHOOTING</b> .....	<b>26</b>
<b>FILTER / REGULATOR / LUBRICATOR</b> .....	<b>27</b>
<b>WARNING: IF YOUR UNIT HAS A PLASTIC BOWL</b> .....	<b>27</b>
<b>IMPORTANT INSTALLATION INSTRUCTIONS FOR FILTERS</b> .....	<b>27</b>
<b>IMPORTANT MAINTENANCE INSTRUCTIONS FOR FILTERS</b> .....	<b>28</b>
<b>INDICATOR TROUBLESHOOTING GUIDE</b> .....	<b>29</b>
<b>FTO1 SERVICE INSTRUCTIONS</b> .....	<b>30</b>
<b>INTRODUCTION</b> .....	<b>30</b>
<b>THEORY OF OPERATION</b> .....	<b>31</b>
<b>LONG TERM STORAGE</b> .....	<b>31</b>
<b>INSTALLATION</b> .....	<b>32</b>
<b>OPERATION</b> .....	<b>33</b>
<b>MAINTENANCE</b> .....	<b>33</b>
<b>TROUBLE SHOOTING</b> .....	<b>34</b>
<b>SPRING REPLACEMENT</b> .....	<b>35</b>
<b>AIR GAP</b> .....	<b>35</b>
<b>CHECKING FEEDER CURRENT</b> .....	<b>35</b>
<b>STROKE GAUGE</b> .....	<b>36</b>
<b>VIBRATORY FEEDER CONTROL BOARD</b> .....	<b>37</b>

## WHY USE THE MANUAL?

Reading this manual and applying the information it contains is the best way to become familiar with the Weigh Right Model IQ. Many answers to the questions we receive from new customers can be found in this manual.

### PAY ATTENTION TO THIS!

When important information about the machine and the operation of the machine is presented, it will be printed in bold text with a special graphic symbol, called an icon, on the page edge to draw your attention. Take special notice of these notes and warnings when they appear. An explanation of each kind follows:



### USER NOTES

Note icons like the one shown here at the edge of the page are used to point out tips and suggestions for operating your new machine at its peak performance.

### SAFETY INFORMATION

The caution sign icon appearing in the margin alerts you to a **SAFETY CAUTION** on the subject it accompanies and will appear in **RED**. A safety caution affects the machine and the operator. A full explanation of the safety caution accompanies the caution sign icon when it is used.



### SERVICE INFORMATION

Information on the maintenance and repair of your machine can be found in this manual.

### WHEN YOU CALL

2017-XXX

When it becomes necessary to contact Weigh Right, please be prepared to provide our service representative with your machine model and serial number.

# GETTING STARTED

## MACHINE REQUIREMENTS

The following are the minimum requirements for installing the machine.

**POWER: 120 VAC 60 Hz 15 AMP grounded service.**

***DO NOT OPERATE THIS MACHINE WITHOUT A PROPER GROUND.***

***DANGEROUS CONDITIONS WILL EXIST WITH OUT PROPER GROUNDING.***

***ALL GUARANTEES ARE VOID IF THE MACHINE IS USED***

***WITH AN UNGROUNDED CONNECTION!***



**AIR: 2 CFM @ 80 PSI unlubricated, unless machine is equipped with a mini Air compressor**

***CONNECT THE MACHINE TO AN AIR SUPPLY WITH A GOOD FILTRATION***

***AND CONDENSATION REMOVAL SYSTEM.***



**ENVIRONMENT: 50° F (10° C) to 100° F (38° C)**

***DO NOT OPERATE THIS MACHINE IN AN EXPLOSIVE ATMOSPHERE.***

***DO NOT SUBJECT THE MACHINE TO WET OR CORROSIVE ENVIRONMENTS.***

***KEEP ALL FLAMMABLE AND CAUSTIC SUBSTANCES AWAY FROM THE MACHINE AT ALL TIMES.***



# UNPACKING AND SETTING UP

## MODEL IQ UNCRATING INSTRUCTIONS

- A) Check crate(s) for visible damage.  
***Call Weigh Right if shipping damage is evident.***
- B) Carefully uncrate machine, Note that one side of the crate may be attached with wood screws for easy disassembly and re crating if necessary.
- C) Remove all separately packaged boxes and open to check contents against packing list.
- D) Carefully remove braces *making sure load cell cables are not damaged or stretched.*



***DO NOT CONNECT AIR OR POWER UNTIL THE MACHINE HAS BEEN PROPERLY UNPACKED AND INSPECTED!***



The machine is shipped on a pallet. Locate the box marked FOOTSWITCH and remove the straps holding the box to the machine pallet. Open the box and remove the footswitch assembly and set it aside for now. Lift the machine from the pallet and set it on the ground.

Remove the wrapping from the outside of the machine. Examine the exterior of the machine for any visible shipping damage. Remove the remaining packing materials from the machine and inspect the machine for any damaged, missing or loose hardware.

***IF THERE IS ANY DAMAGE, CONTACT THE DELIVERING CARRIER IMMEDIATELY AND FILE A CLAIM.***



## MODEL IQ SAFETY INSTRUCTIONS

- 1) **Never** open control panel while power source is connected. Product safety labels must remain highly visible on the equipment. Establish a regular schedule to check visibility. Should safety labels require replacement, contact Weigh Right ASC for an additional supply, free of charge.
- 2) **Disconnect and lock out the power supply** before performing any maintenance or operation adjustments.
- 3) **DO NOT** make any alterations to the controls without first contacting the Weigh Right ASC Engineering Dept. Un-authorized alterations will void the warranty. Weigh Right ASC will not assume responsibility for damage that may occur due to unauthorized alterations to the controls.
- 4) **DO NOT** dis-assemble to clean when power source is connected.
- 5) **DO NOT** put hands or fingers near conveyor when power source is connected.
- 6) **DO NOT** remove guards while machine is connected to power supply.
- 7) **DO NOT** remove hoppers while machine is connected to power supply. **Control Panel cover must be closed and secured while power source is connected**



## INSTALLATION

Machine installation is accomplished in two steps: Positioning of the Machine in Work Area and Connection of Air and Power. Follow these steps and the machine will be ready for loading of your product, adjustment and operation.

### MACHINE POSITIONING

The machine should be placed so that it can be accessed easily from all four sides. The top of the machine has a supply hopper for loading of the product; therefore do not block the top of the machine. The height of the machine, which can be adjusted with threaded leveling feet, is usually determined by the method by which the bags are filled. Manual filling will require the machine to be set at a comfortable height for the operator. Automatic filling processes because of the way they operate usually require the machine to be set at a pre-engineered height, based on conveyors and other pieces of equipment.

## ADJUSTING HEIGHT

Height adjustment of the machine is accomplished by loosening (but not removing) the four leveling feet on either side of the main machine chassis. Move the machine to the desired height and tighten the lock nuts. Make sure it is level before tightening the bolts all the way.

***THE MACHINE IS TOP HEAVY! DO NOT LOOSEN THE LEVELING FEET UNTIL PROVISIONS HAVE BEEN MADE TO SUPPORT THE MACHINE WHEN IT IS OFF OF THE GROUND. MAKE SURE A 1" MINIMUM OF THREAD IS LEFT IN THE THREADED FRAME POST.***



## CONNECTION OF AIR AND POWER

Most IQ 1E(s) machines come with an Air Compressor mounted to the frame. If not, the main air filter regulator assembly is attached to the right rear corner of the machine and has a  $\frac{1}{4}$ " NPT port for the plumbing of the air supply. Connection can be made with either a quick connect nipple or hard plumbed with a hose fitting.

***THE AIR SUPPLY TO THE MACHINE IS FITTED WITH A SUPPLY CUTOFF DEVICE. IN THE EVENT OF AN EMERGENCY SITUATION THIS DEVICE WILL BE NECESSARY TO DISCONNECT THE MACHINE FROM THE MAIN AIR SUPPLY.***



The machine comes equipped with a standard 3-prong male 120-volt line cord. Uncoil the cord and straighten it out. On the front left corner of the machine, locate the **EMERGENCY STOP** switch. Make sure the switch is depressed, which is the off position. Plug the cord into an acceptable outlet as outlined in set up section on power requirements.

If a footswitch is supplied, the assembly may be equipped with a 4-pin cable. Locate the receptacle, align the pins and push the plug into the receptacle.



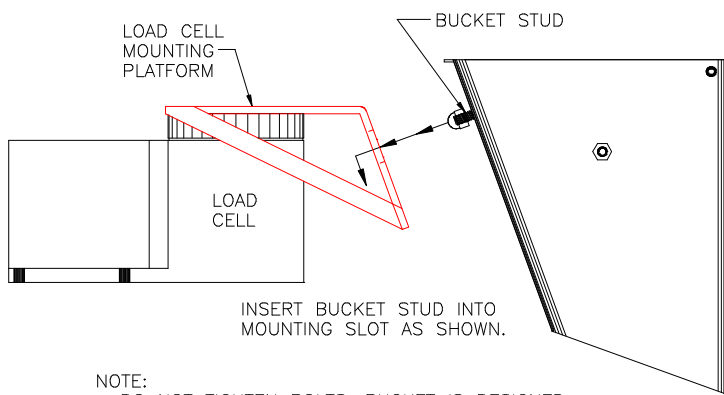
# IQ ASSEMBLY INSTRUCTIONS

1. Install (4) leveling feet or casters to machine lower base. Frame should be level when in final position.

**THE MACHINE IS TOP HEAVY! DO NOT LOOSEN THE LEVELING FEET UNTIL PROVISIONS HAVE BEEN MADE TO SUPPORT THE MACHINE WHEN IT IS OFF OF THE GROUND. MAKE SURE A 1" MINIMUM OF THREAD IS LEFT IN THE THREADED FRAME POST.**

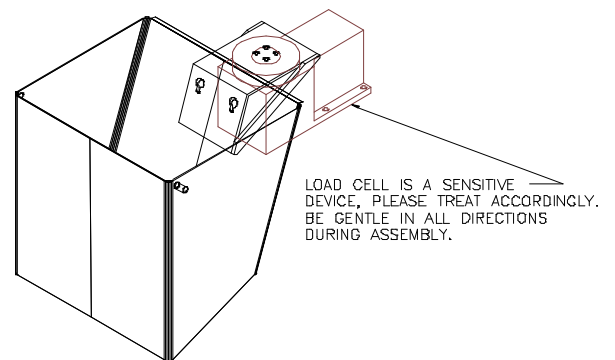


2. Install weigh buckets onto load cell mounting platform. NOTE: Lower bucket through rectangular hole in frame, place studs in slot then slip down into "key hole" notch. (see drawing below)
3. Install machine discharge hopper using hardware provided. (This requires 2 or more persons.)
4. Re-tighten all electrical terminals and connections after shipping; check for loose nuts and bolts on machine.
5. Connect air and power; Check scale with 5.00 lb. test weight provided. If scale is not accurate, follow the calibration procedure as listed in the indicator instructions. (If scale is oz; 5 lb = 80 oz, if scale is grams; 5 lb = 2268 grams)



NOTE:  
DO NOT TIGHTEN BOLTS; BUCKET IS DESIGNED TO BE REMOVED WITHOUT TOOLS FOR QUICK CLEANING.

**IMPORTANT !!**  
- REMOVE CAREFULLY FOR CLEANING.  
- DO NOT TWIST OR PULL ON BUCKET WITH EXCESSIVE FORCE.



## General Description

The Weigh Right IQ series is an automatic packaging machine that fills by weight and dispenses your product into containers or bags.

The product is fed automatically into a weigh bucket by a vibratory feed system. When the desired preset target weight is attained, a gate or feeder stops the feeding of the product and the weigh bucket dumps the material into the container when a dump signal is received by footswitch or conveyor sensor.

The vibratory feed system features multi speed controls for fast bulk feeding and slow dribble feeding for a fast and accurate fill.

The electronic weigh scale indicates the weight at any time during the filling process through a digital readout.

The IQ Series features solid state electronic controls for speed, accuracy, and reliability.

## Operation

Open hopper flow gates to desired opening for unrestricted product flow.

1. The machine is ready to start feeding product when the supply hopper is full.
2. Rotate (clockwise) the red E-Stop button so it will “pop out”.
3. Press “Start”. Next press the “Hopper Vibr” button to turn on the Supply Hopper Vibrator (this is optional and not required to run the machine).
4. Press the “Settings” button and enter the desired weight and Fast Rate/Slow Rate fill speeds. (See the Control section for pictures/explanations of function keys)
5. Adjusting the speeds also changes the filling speed. This range is from 0 -100%. This unit is equipped with a Fast Rate and Slow Rate sequence. *The Fast Rate setting should always be higher than the Slow Rate setting.* This assures the most accurate filling.
6. **Note: The machine is factory tested with Typical Settings saved as Job 1. Use these as an example for “start up” settings and modify them as it suits your product. Insure the Vibrator Pan has an even flow of product (1/2” to 3/4” deep is typical) and Fast/Slow Rates at 80/20 (again, these are typical rates). Timers are then adjusted to obtain a fast and accurate fill of the desired weight.**
7. **If autoadjust mode is turned “ON”, Run the product through about 50 fill/dump cycles so the machine may “learn” the correct settings for your product.**
8. Before beginning production, press the “zero” key to zero the scale. This also must be done when the machine is in the “Stop” mode ***INSURE NO PRODUCT IS IN THE BUCKET WHEN THIS BUTTON IS PRESSED!***
9. Pressing the “Start Scale” starts the filling process.
10. *Allow for several dump cycles to complete before adjusting any settings, as product must fill the trays evenly to achieve proper weights.*

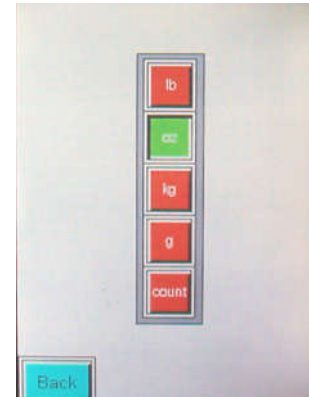


# CONTROLS

## “Start/Stop Screen”



← This Button displays this Screen



**Start/Stop Scale** – Starts/Stops the machine

**Cycles per Minute** - Displays the Containers per minute. This value is averaged over time.

**Last Weight** - Displays the last fill weight of each bucket dumped.

**OZ** – By selecting this button you can set what value to measure and display (lbs, oz, kg, g) Machine must also be in “Stop” mode to change value

**Live Weight** - Displays the current live weight of each bucket. (Large Display at top of screen).

**Settings** - Sets speed rates for feeders and timer values.

**Auto Cycle** - The machine will simulate a foot pedal press every X seconds as programmed in the Auto Cycle (Settings Screen).

**Recipes** - Recalls stored jobs

**More Options** – To Save Recipes, History and Calibrate Load cell..

**Manual Dump** - Manually dumps the weigh bucket. (Press and Hold button). Note: Air compressor has to be turned on for this to function

**# of dumps** - Allows user to set multiple dump cycle with each foot switch input

**Air Comprs** - Used to turn on/off air supply.

**Hopper Vibr.** - Turns Supply Hopper Vibrator on/off.

**Gate** – Notepad for Supply Hopper Gate setting. (Performs no function, other than to annotate gate opening.)

**Batch Count** – Allows user to set a number of dumps to occur automatically and stop. Also shows how many have occurred.

**Rezero Count** - Allows user to set frequency of the automatic re-zero function. Also shows how many have occurred.

**Zero Scale** - Allows user to instantly re-zero scale.  
**INSURE NO PRODUCT IS IN THE BUCKET WHEN THIS BUTTON IS PRESSED!**

**Current Recipe** – Displays the Job number and description of the job in memory.

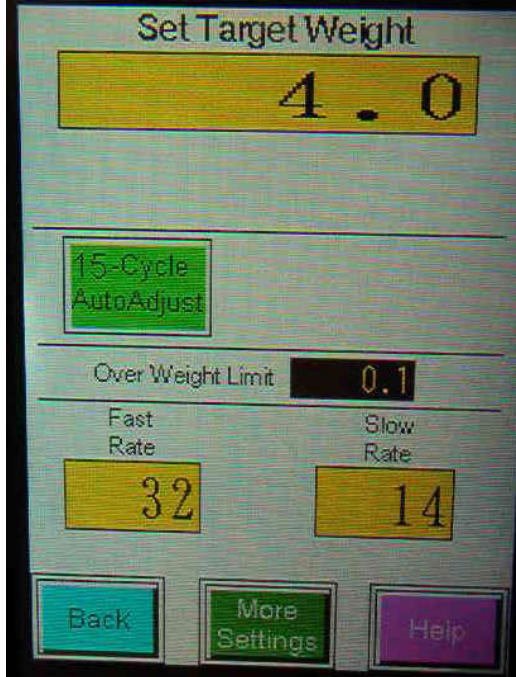
**Help** – Displays Help screens that offer explanations for the function of each button.

Note1: Some functions are not accessible unless machine is in “Stop” mode.

Note2: All buttons have color. White background(s) are for display only.

## “Settings”

This Screen is displayed when the “Settings” button is pressed



**Target Weight** – Desired final weight

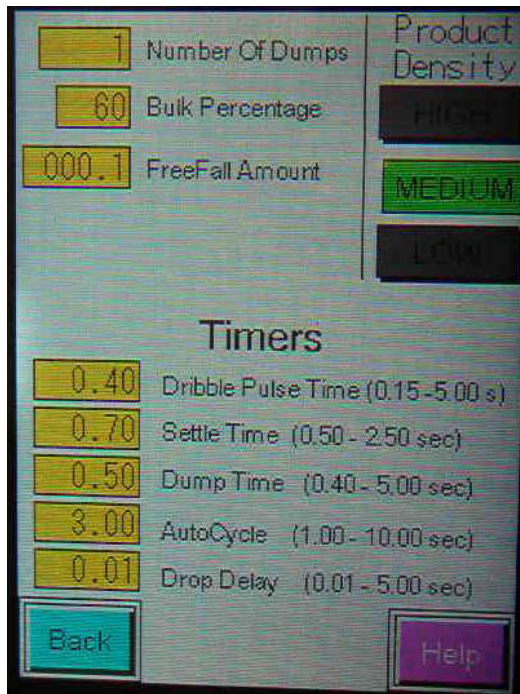
**Over Weight Limit** – Usually set for .1 oz or .01 lbs of product. **Note: This setting determines if/when the autoadjust feature activates, if autoadjust has been turned on.**

**Fast rate** - The Speed range is 0-100%. Increasing the number speeds up the vibrator.

**Slow rate** - The Speed range is 0-100%. Increasing the number speeds up the vibrator.

**Note: The Fast Rate should always be Higher than the value of the Slow Rate.**

To change any value, press the yellow portion of the appropriate button, enter in the new value, and press “ENT” to accept that value.



**Bulk Percentage-** The percentage of product run in bulk mode (Fast Rate) before the feeders start to run slower.

**Number of Dumps –** For large amounts, multiple dumps may be required to achieve desired weight

**FreeFall Amount-** The amount of product in the air that has not been measured yet. The filler will stop short to account for the freefall amount.

**Dribble Pulse Time –** Time allowed for dribble to “burst” to achieve final weight. Typical is .25 seconds

**Settle Time –** Time before scale takes final weight measurement. Typical is .5 seconds

**Dump Time -** Time for the weigh bucket to remain open. Typical is 1.00 seconds

**Auto Cycle –** Sets time delay to simulate a foot pedal press. The machine will wait for X seconds to send a signal to dump product.

**Drop Delay -** Delay to allow product to fall in Discharge Hopper before sending signal to external equipment (such as a conveyor, bagger, etc). Typical is 0.50 seconds

**AutoAdjust –**This button has 3 modes,  
**1: LockedON –** Continuous learning mode  
**2: 50-Cycle AutoAdjust –** Learns for first 50 cycles then keeps settings  
**3: AutoAdjust OFF –** Settings are entered manually

**Back –** Returns you to Main Screen

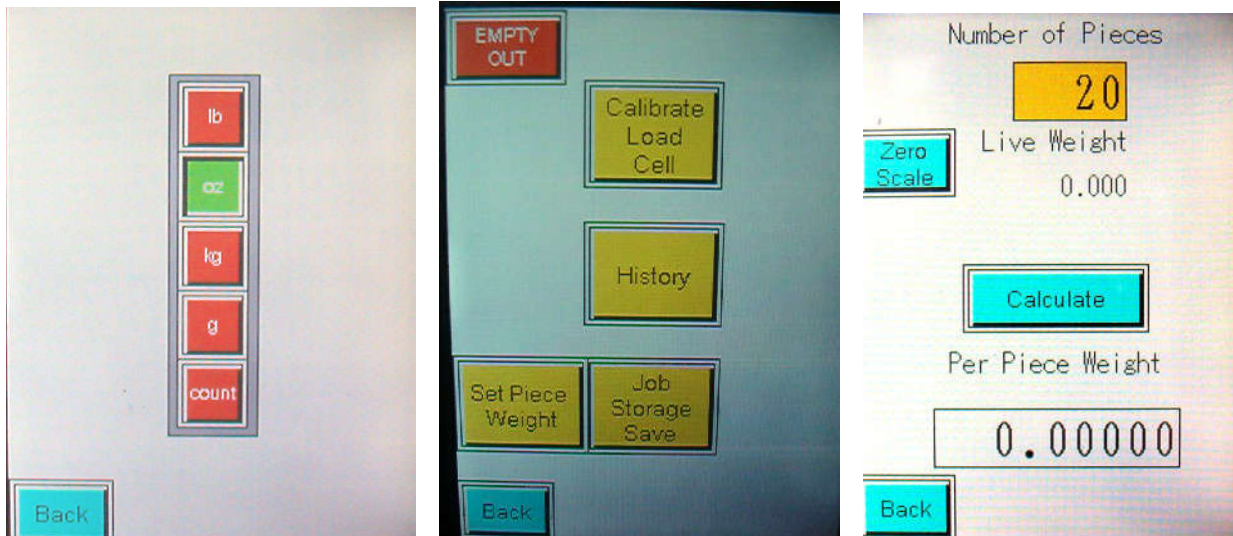
**Note: All These Values will be saved when a recipe (job number) is assigned**

**Product Density (High/Medium/Low) –** Use to select the density of the product being weighed. This will then setup the values for Fast Rate and Slow Rate. Use these settings for a “quick set” for your product.



## “Pieces Screen”

The “Set Piece Weight” button is displayed only when “count” mode has been selected on the Units Screen



When the Unit “count” on the Main Screen is selected, the Piece Weight button will then display in the “More Options” Screen.

Select “Set Piece Weight” to obtain the Piece Weight Screen

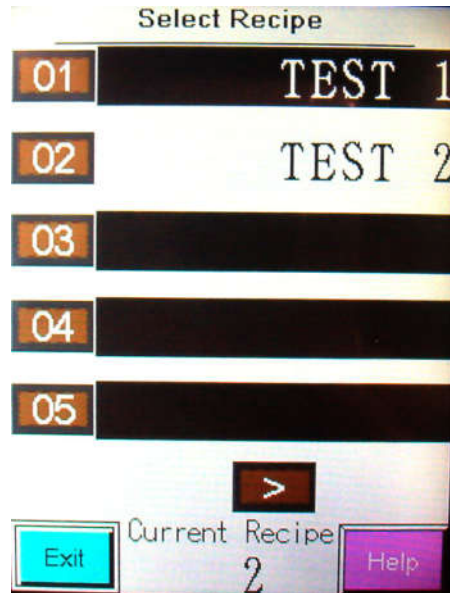
Select a number of pieces for a good averaged weight, 20 to 50 for small pieces (ex: #10 washers), 10 to 20 for large pieces (ex:  $\frac{3}{4}$  washers). **Note: More pieces will produce a more accurate count, but make sure your count is exact!**

Press “Zero Scale”, and then place pieces in the bucket.

Press “Calculate”, this will then display a calculated Per Piece Weight. You may perform this as many times as you desire, but when the back button is pressed, the last value displayed will be stored in memory.

## “Recipe”

This Screen is displayed when the “Recipe” button is pressed. This Screen is not password protected.



This screen allows for quick operator recall of previously saved Jobs.

**1 to 50 buttons** – Are available and are used to select the Job Number to recall and display jobs saved.

**To recall a job**, press the displayed number (ex: 01) and the machine will then return you to the Main Screen with the job number selected.

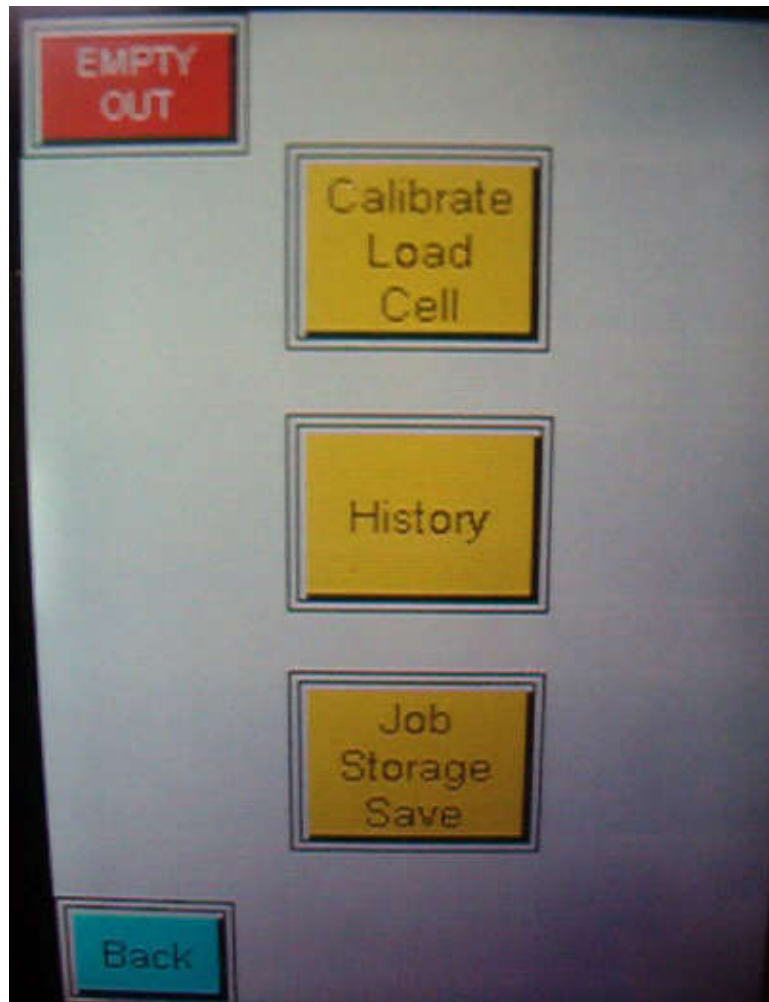
**To view other Jobs**, press the “>” button to scroll to the next 5 Jobs listed

**Current Recipe**, displays the current job in memory

If you do not want to select a job, press the “Exit” button at any time to return to the Main Screen.

## “More Options”

This page is displayed when “More Options” button is pressed on the Main Screen.



**Empty Out-** Turns on all feeders to High speed and opens the bucket. This is used to clear out the hopper at the end of a shift or between products. Can only be activated when the filler is in Run Mode. Turns off when the filler is stopped.

**Calibrate Load Cell** – Used to Calibrate Load Cell span using a test weight.

This is usually **not** necessary unless the Load Cell is replaced or the indicator has lost battery backup of parameters.

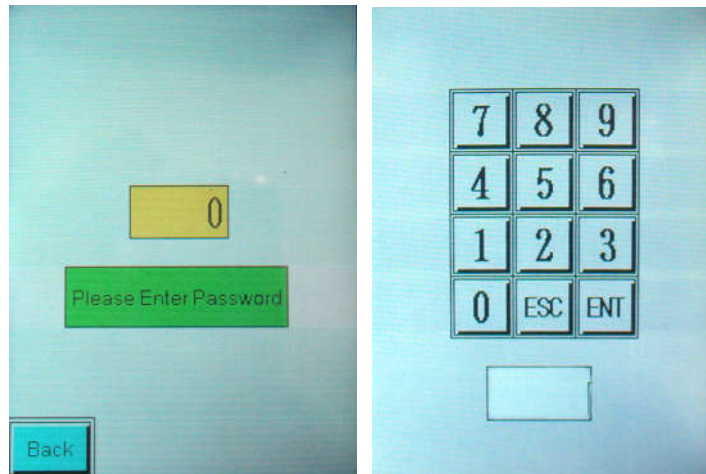
**History** – Displays the last 20 dump weights

**Job Storage Save** - Used to access and save a recipe. See “To Save a New Job” section for step by step instructions.

This area is also password protected. Consult Weigh Right for password requirements.



## “Password request page”



Enter a password when requested. Press the yellow portion of the number and a keypad will display for entry. Type in the password and press “ENT”.

[Consult Weigh Right for password requirements.](#)

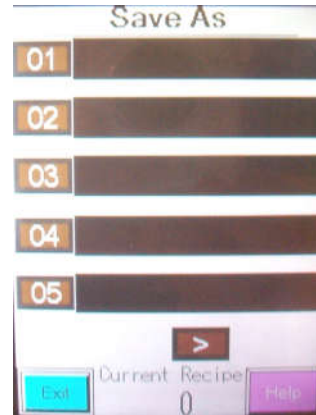
## “To save a new job”



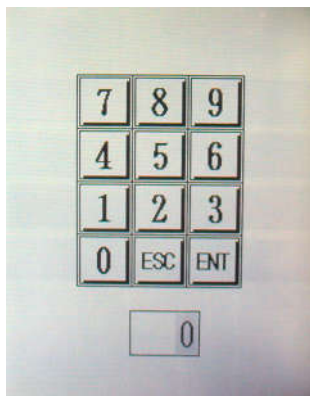
**Step 1**



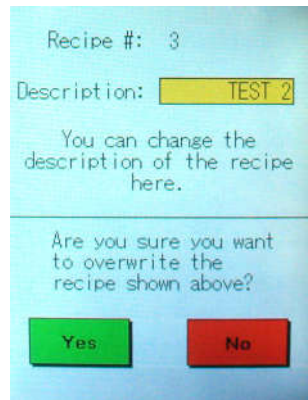
**Step 2**



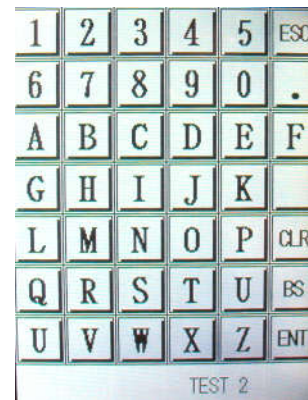
**Step 3**



**Step 4**



**Step 5**



**Step 6**

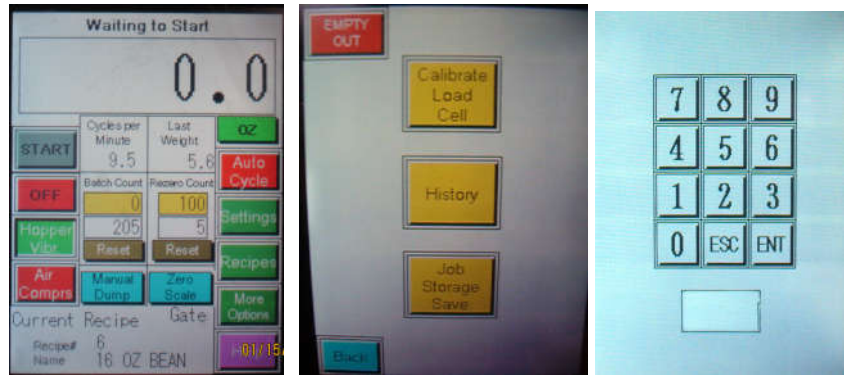
To save your CURRENT SETTINGS;

1. Select the “More Options” button on the Main Screen
2. Select the “Job Storage Save” button
3. Select the Job number that you want the Job stored in
4. The “Password ” screen will appear. Enter the password assigned. **Consult Weigh Right for password requirements.**
5. The “Recipe Entry” screen will then appear. Select the yellow portion of the description button so you can change the title of the job.
6. An entry screen will appear, type in the name of the job, then press “ENT”. You will then be returned to the “Recipe Entry” screen. Press “Yes” to save the job
7. Press “Exit” to return to the Main Screen

## “Calibration”

**Note: Do Not calibrate unless scale is out of calibration. Check first by placing Test Weight into the bucket and verify the scale reads correctly.**

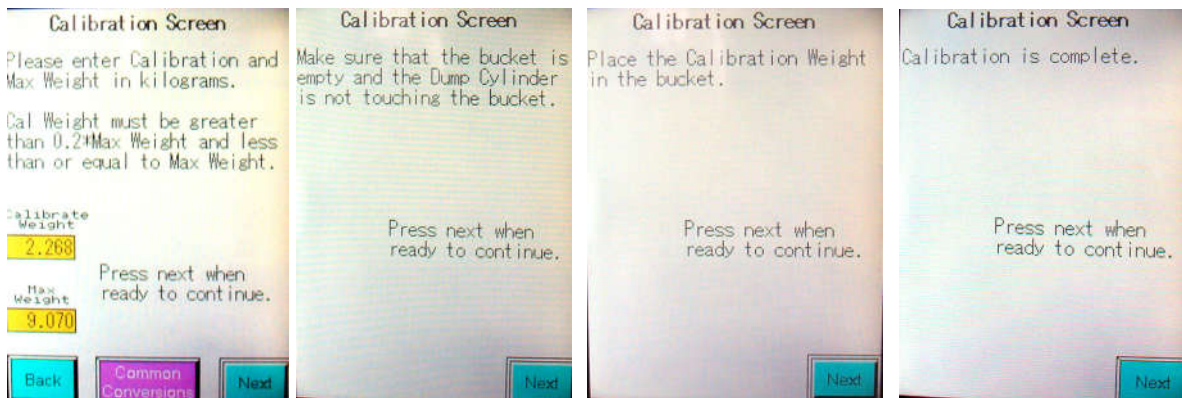
**5 lbs = 5.00 in pounds (lb) , 80.0 in ounces (oz), 2.268 in Kilograms (kg), 2268 in grams (g)**



Step 1

Step 2

Step 3



Step 4

Step 5

Step 6

Step 7

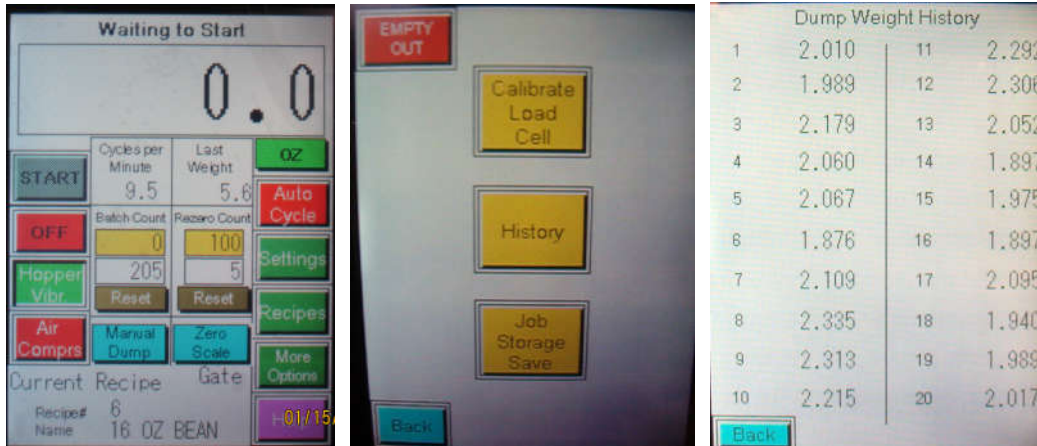
**Calibrate Weight** – Displays Test Weight in kilograms (5lb = 2.268 kilograms). Ensure this number is entered.

**Max Weight** - This is a Factory Set number of 9.070 to “characterize” the load cell used.

**Consult with Weigh Right before changing any values**

1. Select “More Options” on the Main Screen
2. Select the “Calibrate Load Cell” button.
3. The “Password ” screen will appear. Enter the password assigned. (**Consult Weigh Right for password requirements**) then the “Calibration Screen” will display.
4. Make sure the “Calibrate Weight” and “Max Weight” numbers are displayed. These are Factory Set numbers and should not be changed! At this point, **Insure no product is in the bucket!**
5. Press the “Next” button, machine will zero the bucket
6. Gently place the calibration weight in the bucket, press next and wait for the next screen
7. When calibration is complete, remove weight and press “Next to exit calibration. This will return you to the Main Screen.

## “History Screen”



Select the “More Options” button on the Main Screen

Select the “History” button

Screen will display the last 20 measured weights

## LEVEL CONTROL

Supply hopper should be approximately ½ full of product while machine is running. Factory electrician(s) should wire and install feeding equipment for automatic operation. On site adjustment will be necessary to set level (use sensitivity adjustment on sensor - if used) and time delay.

Refer to instruction sheet and/or schematic enclosed for wiring connections.

## IQ NET WEIGH FILLER MAINTENANCE

1. Keep machine as clean as possible.
2. Periodically check air cylinder for wear and smooth operation. Air filter has automatic water drain. Lubricate air lines with pneumatic lubricant, by keeping lubricator reservoir full. Most machines do not require any oil. If your unit is supplied with an oil reservoir, shut air off; unscrew oil cup, fill, and re-assemble.
3. Vibratory feeders are maintenance free. If a feeder appears to not be working, check to see if there is a piece of debris caught between the body of the feeder and the leaf springs.
4. Keep control panel locked; do not leave open to dust and moisture.
5. Keep load cell cables protected from cuts or kinks.
6. Check machine for loose screws every week.
7. Air pressure should be factory set at about 40 PSI (when mini compressor is supplied)
8. **NEVER WORK ON OR NEAR MACHINE WHILE POWER SUPPLY IS CONNECTED!**
- 10 **DO NOT OIL ANY MOVING PARTS.**
- 11 Clean machine regularly.



## TROUBLE SHOOTING INSTRUCTIONS

1. If the machine is malfunctioning or weighing inaccurately, step back and view the operation. You can usually detect the problem area by looking for the parts that seem to be causing the problem. The load cell is the most sensitive mechanism on the machine. Extra care should be taken when performing any maintenance on it.
2. The following is a checklist for trouble shooting the Model IQ.
3. **NOTE: All of the following directions can be performed without disassembly.**
4. If the filler is not consistently accurate: check to see if the vibratory feeder is feeding a steady stream of product. If feed stream is irregular, check to see that nothing has fallen into the supply hopper and blocked or has partially blocked the chute opening.
5. Check to see if product is sticking or building up on the feed trays; this would slow the machine down and could cause accuracy variations. NOTE: A consistent, uniform feed is best for accurate weighing.
6. The weigh bucket is attached to an electronic scale. *It should be treated like a scale.* A dirty scale is more likely to malfunction than a scale that is cleaned regularly. All moving parts should travel freely without friction.
7. For scale control troubleshooting, consult Weigh Right Customer Service.
8. Air valves - Coils are removable from valve stack individually. Valves feature manual checkpoint and adjustable flow valves.
9. Load cell trouble shooting as per Tedea pamphlet (instructions are included in this manual).
10. Main fuses protect vibrators and emergency stop relay.
11. An air cylinder is used to open the bucket. This is actuated by the dump command or footswitch and is controlled by the PLC controller. The speed of this operation is adjusted by an airflow restrictor mounted on the Mac valve located in the junction box under the machine. Note: The scale must reach desired set point weight before a dump can occur.
12. Re-tighten all electrical terminals and connections; check for loose nuts and bolts on machine.

## **CUSTOMER SERVICE SCHEDULE**

Weigh Right will provide any of 6 types of customer service subject to the terms and conditions of this schedule. Prior to a technical representative's departure from Joliet, IL, the customer must issue a purchase order for services to be rendered.

### **TERMS & CONDITIONS**

**BASIC CHARGES:** Services such as "On Demand," Start-Up, and Engineering Field Service, are provided at an hourly rate. The minimum billing will be 4 (four) hours and all partial hours will be rounded up. Time and one-half will be charged for more than 8 (eight) and less than 10 (ten) hours in 1 (one) day. Double time will be charged for more than 10 (ten) hours in 1 (one) day; and for Saturdays, and holidays.

**PARTS:** Parts not under warranty will be billed FOB. Joliet, IL.

**TRAVEL TIME:** Travel time is the average normal time required from our factory, Joliet, IL to the job (work) site times 2 to cover return trip. Travel time is not included with the 4 hour minimum service charge.

**TRANSPORTATION:** The cost of all round trip transportation between Weigh Right, Joliet, IL and job site.

Air travel, coach fare except when not available.

Ground transportation to include car rental, taxi, bus, train or other forms of transportation as applicable.

When a service representative is required to use his own personal vehicle, the customer will be billed at the current mileage charge to and from Weigh Right, Joliet, IL.

**LIVING EXPENSES:** Cost of living expenses include hotel accommodations and meals.

**WORK DELAYS:** Due to lack of utilities, customer support or parts is the responsibility of the customer and will be considered billable working hours.

**PRODUCT:** Ample material for the filling system should be available. Most systems will require actual operation with material for verification of system performance or trouble shooting.

**PAYMENT:** Payment terms for all service charges will be net 10 days

**DRESS/APPEARANCE CODES OR RESTRICTIONS:** The customer requesting service must inform Weigh Right, Joliet, IL in advance of a service representative departure from Joliet, IL of any such codes or restrictions. Failure to notify Weigh Right will result in a billing for service representative time and expenses.

**CUSTOMER SUPPLIED LABOR:** Many services supplied by Weigh Right require customer supplied labor or assistance. Any charges for customer supplied labor or assistance is not the responsibility of Weigh Right. Approval in writing from the factory in Joliet, IL is required prior to the performance of the customer-supplied labor or assistance.

For actual service charges refer to current price list.





## **SERVICE RATES EFFECTIVE JANUARY 1, 2017:**

Installation, training and service will be billed at \$120.00 (one hundred twenty dollars) per hour; portal to portal. The minimum billing will be 4 (four) hours (\$480.00) and all partial hours will be rounded up. Time and one-half (\$180.00/hr.) will be charged for more than 8 (eight) and less than 10 (ten) hours in 1 (one) day. Double time (\$240.00) will be charged for more than 10 (ten) hours in 1 (one) day; and for Saturdays, and holidays.

### **LIVING EXPENSES:**

Living expenses include meals, and telephone. Serviceman's per diem (covers meals & incidental expenses) \$60.00/day

### **TRAVELING EXPENSES:**

Traveling expenses will be billed as follows:

- rental car at cost
- hotel/lodging at cost
- air fare at cost
- taxi at cost
- tolls at cost
- gas and oil at cost
- company car \$.535 per mile
- travel tips at cost

Copies of receipts for items exceeding \$25.00 are available upon request.

### **Special Charges for weekend layover or plant shutdown:**

Are daily charges to cover time spent waiting if the technician is at your site and can not work due to your schedule (weekend, shutdown, etc.). A charge of \$660.00/day plus standard living expenses, as described above, will apply. All other expenses, such as car rental, etc., will continue and be charged for during this waiting time.

**WEIGH RIGHT AUTOMATIC SCALE CO. 612A MILLS ROAD JOLIET, IL 60433 PH: 815-726-4626**

# LOAD CELL TROUBLE-SHOOTING

Included here are 3 electrical tests to assist in trouble-shooting potential load cell problems. Before testing, it is suggested that each load cell be carefully inspected for physical damage. Look for distortion or cracks in all metal parts. Excessive rippling of the diaphragm on a canister may indicate damage. All welds should be free of cuts, crimps and excessive abrasion. Make note of anything that looks out of the ordinary. Single point load cells should have flexure surfaces parallel to each other and perpendicular to end surfaces. **See Figure on next page for wiring diagram**

**TEST #1 ZERO BALANCE**- Changes in zero balance usually occur if the load cell has been overloaded. Some change may be tolerated depending on application.

With a millivoltmeter, measure the load cell output under “no load” conditions. It should be less than 1% (the typical tolerance for zero balance) of the full scale output. (Check the specification for zero balance tolerance and output sensitivity). Cells can shift up to about 100% of full scale and still be functioning correctly. Re-gauging may be recommended if the output has shifted more than 100%. A typical value for a shift in zero balance is 0.3mV. This assumes 10 volts excitation on a load cell with 3mV/V output sensitivity. Full scale output with these conditions is 30mV. One percent of 30mV is 0.3mV.

**TEST #2 BRIDGE RESISTANCE** - Changes in bridge resistance are most often caused by a failure of a compensating element, or by a broken or burned bridge wire usually the result of an electrical transient such as lightning. Either type of failure must be repaired.

With an ohmmeter, measure the resistance across each pair of input and output leads. The output resistance of the bridge is normally about 350 ohms for single-ended beams and canister and 700 ohms for double-ended beams. Input resistance is nominally 380 ohms to 415 ohms for single-ended cells and 760 ohms for double-ended load cells. Refer to the calibration certificate shipped with the cell for actual values. Readings beyond these limits suggest damage and the load cell should be thoroughly inspected.

**TEST #3 RESISTANCE TO GROUND** - Electrical leakage is usually caused by water contamination within the load cell or cables. Whether the leakage can be tolerated depends on the application and electronic instrumentation being used. An unstable output is most often caused by contamination.

With a megohmmeter, measure the resistance between all 7 leads tied together (6 live leads plus 1 ground) and the load cell metal body. The reading should be 5000 megohms or more. If the cell fails the test, remove the ground wire and test with only the 6 live leads. If it tests OK, an insulation problem in the cable is suggested.

**NOTE:** If the load cell needs to be returned to the factory for further examination or repair, please call factory for R.M.A. number, and be as detailed in the description of the failure as possible. For example, if the load cell has drifted, mention the circumstances. Does it drift with the load, without the load, under temperature variation, etc.? It is strongly recommended that only factory technicians perform additional tests and make repairs.

# FILTER / REGULATOR / LUBRICATOR

## WARNING: IF YOUR UNIT HAS A PLASTIC BOWL

1. **DO NOT** use plastic bowl units without a metal bowl guard installed. Plastic bowl units are sold only with metal bowl guards to minimize the danger of flying fragments in the event of bowl failure. If this unit is in service without a metal bowl guard installed, manufacture's warranties are void, and the manufacturer assumes no responsibility for any resulting loss.
2. **DO NOT** install the unit where it will be subjected to temperatures higher than 125°F (52°C).
3. **DO NOT** install the unit where it will be subjected to pressures higher than 150 psi.
4. **CAUTION:** Certain compressor oils, household cleaners, chemicals, solvents, paints and fumes will attack plastic bowls and can cause plastic bowl failure.
5. **WHEN BOWL** becomes dirty, replace bowl or wipe only with a clean dry cloth.
6. **DO NOT** install on a compressed air line where the compressor is lubricated with or the air contains a material that will attack plastic bowls.
7. **DO** inspect plastic bowls daily to detect any cracking, damage or other deterioration. Immediately replace any cracked, damaged or deteriorated bowl with a metal bowl or a new plastic bowl and a metal bowl guard.
8. IF A UNIT HAS BEEN IN SERVICE AND DOES NOT HAVE A METAL BOWL GUARD, ORDER ONE AND INSTALL BEFORE PLACING BACK IN SERVICE.

## IMPORTANT INSTALLATION INSTRUCTIONS FOR FILTERS

1. **DO NOT** install the unit until you have read this entire information sheet. If your unit has a plastic bowl, note the special warning information that applies.
2. **EXCEPT** as otherwise specified by manufacturer, this product is specifically designed for compressed air service, and use with any other fluid (liquid or gas) is a misapplication. For example, use with or injection of certain hazardous liquids or gases in the system (such as alcohol or liquid petroleum gas) could be harmful to the unit or result in a combustible condition or hazardous external leakage. Manufacturer's warranties are void in the event of a misapplication and manufacturer assumes no responsibilities for any resulting loss. Maximum pressure and temperature ratings for plastic bowls are 150 psi. and 125°F (52°C); and for metal bowls 200 psi. and 175°F (79.4°C).
3. **INSTALL** as close possible to a point where air is being used.
4. **INSTALL** the same size unit as the pipe line in use. Avoid using fittings, couplings, etc. that will restrict air flow.

5. **IF UNIT** is equipped with a float in the bowl; the unit must be installed in a vertical position.
6. **IF UNIT** is a piston operated; automatic draining filter (has a brass stem with o-ring on it protruding from the bottom). Install only before an intermittent operated device that will allow an occasional stop or interruption of the airflow through the unit. It takes at least one second between flow cycles to assure proper orientation of the drain.

### **IMPORTANT MAINTENANCE INSTRUCTIONS FOR FILTERS**

1. **BEFORE SERVICING THIS UNIT, READ THIS ENTIRE INFORMATION SHEET.** If your unit has a plastic bowl, note the special warning information that applies.
2. **DEPRESSURIZE UNIT BEFORE REMOVING GUARD AND/OR BOWL.**
3. **DO** inspect plastic bowls daily to detect any cracking, damage or other deterioration. Immediately replace any cracked, damaged or deteriorated bowl with a metal bowl or a new plastic bowl and a metal bowl guard.
4. A. If unit has a rigid filter element, clean periodically by removing from filter, tapping on surface, and blowing off with air blowgun.  
  
B. If unit has a soft cloth element, replace with a new one every 6 months, or sooner if it looks dirty or cause excessive pressure drop 10psi. or more.
5. A. If unit is equipped with a manual petcock, drain bowl at least once per work shift.  
  
B. If unit is equipped with a float in the bowl, cleaned the bowl each time the element is cleaned or changed by turning the bowl upside down and tapping onto table top. Blow clean with blow gun.
6. If bowl seat is cracked or otherwise damaged or deteriorated, replace with manufacturer's approved seal.
7. On plastic bowl units, reinstall metal bowl guard before pressurizing.

## Indicator Troubleshooting Guide

The Scale Display is controlled by the microprocessor within the control box. If you are having trouble(s) with the screen not accepting inputs, “frozen” or not displaying information; follow these steps.

**Consult with Weigh Right before performing any of these Steps!**

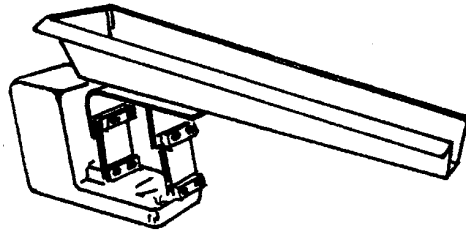
**1-800-571-0249**

1. Recycle power on the machine. Pull the power plug, wait 10 seconds, then re-power the machine.
2. Check the communications card. Open the Control Box and check that the card's green led is flashing (see picture below)
3. If the card's green led is steady and not flashing, it has lost communication with the controller. Flip the Run/Prog switch on the processor (shown below) to “Prog”, then back to “Run” mode.
4. Any other problems need to be consulted with Weigh Right



# FTO1 SERVICE INSTRUCTIONS

## Syntron® Light-Capacity Electromagnetic Vibrating Feeders



### Models: F-TO1-A DF-TO1-A

FMC Corporation reserves right to make changes at the any time, without notice and without any liability or other obligation on its part, in material, equipment, specifications and models, and also to discontinue the manufacture and sale of models and the parts and components thereof. For further detailed information contact: FMC Corporation Material Handling Equipment Operation.

**SAFETY INSTRUCTIONS:** Product safety labels must remain highly visible on the equipment. Establish a regular schedule to check visibility. Should safety labels require replacement, contact FMC Corporation, Material Handling Equipment Operation for an additional supply free of charge

The instructions and data herein are vital to the proper installation and operation of this equipment. In order to avoid delays due to faulty installation or operation, please see that these instructions are read by the persons who will install, operate and maintain this equipment. Supporting information, such as drawings, may be attached to this manual. The information contained therein take precedence over corresponding information printed in this manual.

## INTRODUCTION

The Syntron® "F-TO1-A" Feeder assembly is an electromagnetic unit, consisting of a dynamically balanced, two-mass vibrating system. This system consists of a trough and trough connecting bracket coupled to an electromagnetic drive by means of leaf springs.

**NOTE:** When supplied without a trough assembly, the drive unit (F-TO1-A Vibra-Drive) can be used with chutes, tracks, etc. (Supplied by the customer).

The drive (a coil and core assembly) is located within the base housing and is connected directly to the rear of the drive unit housing. An armature assembly, also included as part of the drive unit, is located opposite the core and coil and is connected directly to the trough connecting bracket.

The springs are clamped at the bottom to the drive unit housing, at the top to the trough connecting bracket. The trough, trough connecting bracket and armature become an assembly, joined to the drive unit through the spring assemblies.

## THEORY OF OPERATION

Model "F-TOI-A" Feeder operation produces a vibrating stroke on the surface of the feeder trough. The stroke is obtained by the electromagnet pulling the trough sharply down and back and then allowing it to spring up and forward. Repeated at high speeds (3600 v.p.m. at 60 cycle power supply), this action produces a definite vibrating movement on the trough surface.

The "F-TOI-A" Feeder requires the use of a separate controller which contains a rectifier, used to convert alternating current into rectified current.

Figure 1 illustrates a typical a c sine wave and a typical r-c sine wave (the type of pulsating current which is required to operate the feeder). The coil is energized only by the portion of the sine wave shown as a solid line of the r-c sine wave. The broken line represents the portion of the sine wave which is blocked by the rectifier. The blocked portion does not reach the feeder coil and during this time the feeder coil is de-energized.

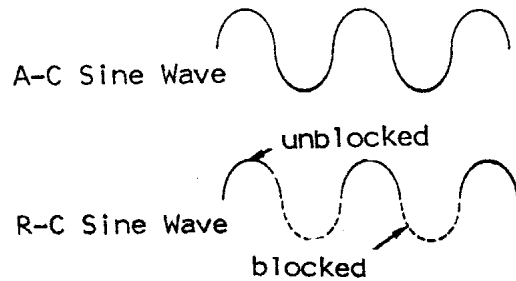


FIGURE 1 - THE RECTIFIED SINE WAVE

When the coil is energized, the core becomes magnetized and attracts the armature assembly. This pulls the armature, trough mounting bracket and trough down and back towards the core. This pull is against the mid-point of the leaf spring stack, flexing the springs.

Each power half cycle is followed by a half cycle of blocked current flow. During this half cycle, power is not available to the coil and the coil becomes de-energized. With the coil de-energized, the magnetic pull between the core and armature is released and the leaf spring system is permitted to spring back to (and slightly through) its normal position. This pulls the trough, bracket and armature assembly up and forward.

On the next power half cycle, the trough, through mounting bracket and armature assembly are again pulled down and back. On the next no power half cycle, the trough, trough mounting bracket and armature assembly are again pulled up and forward. Thus, during operation, the trough is continually vibrating along a straight line path.

The unit is mechanically adjusted to limit the travel of the armature so it does not strike against the face of the core. The space between the armature and core is called the "air gap". The size of the air gap is critical to good feeder operation.

## LONG TERM STORAGE

When received, the equipment should be carefully unpacked. Give the equipment a thorough visual inspection to reveal any damage that may have occurred during shipment. If damage is found, contact FMC and the shipping carrier at once.

If the feeder is placed in storage, prior to installation, store the feeder in the shipping carton.

**CAUTION:** Do not support the weight of the unit by the trough assembly. This will distort and damage the springs.

When storing the controller, plug all openings in the control box to prevent dirt, rodents and insects from entering. FMC advises placing corrosion preventive inside the control box. Cover the controller and place it in an area protected from extreme heat. Do not drop the controller. The force of the impact may damage the components.

## **INSTALLATION**

**CAUTION:** Do not lift the unit by the trough.

The feeder has been factory tuned for your specific application. Handling by the trough could cause damage to the feeder. When received, the feeder and controller should be carefully unpacked. All packing bands, paper, etc., must be removed. Check the controller components for protective shipping blocks, tape, etc.

Inspect all the equipment received and report any damage which may have occurred during shipment. If damage is found, notify FMC and the shipping carrier at once.

When installing the feeder, consideration must be given to the area of support. Model "F-TO-C" Feeders can weigh over 12 pounds and a support must be selected that will safely carry the full weight of the unit under loaded operating conditions.

**CAUTION:** The feeder must not come in contact with any rigid object or adjacent surface that could hamper its vibrating action.

A 1" clearance must be maintained. Any connections (such as dust seals) between the trough and adjacent objects must be flexible, preferably cloth or rubber.

The separate controller assembly should be installed as close to the feeder as possible. Installation on a wall in a clean dry location, free from excessive vibration is recommended.

**WARNING:** The electrical power supply connection to the FMC supplied controller must be made through a customer supplied safety disconnect switch. This switch must be mounted next to the controller.

If possible, install the controller at a location where it will receive adequate ventilation. This will insure prolonged component life.

**CAUTION:** The conductor between the feeder and controller must be of a size sufficient to carry the current and voltage as stamped on the equipment name plate.

**WARNING:** Be certain the equipment is properly grounded.



## **OPERATION**

**CAUTION:** Unauthorized modification of the feeder or the use of unauthorized replacement parts may damage the feeder.

FMC will not assume responsibility for feeder performance as a result of any unauthorized alterations to the equipment. Consult FMC's Material Handling Equipment Operation before modifying your feeder.

With the feeder and controller properly installed and all wiring completed, the equipment is ready for operation.

**WARNING:** While in operation the controller must be kept closed and secured.

Before starting the equipment, rotate the control knob on the controller to a low counterclockwise position. Turn the switch to its "on" position and the feeder will begin operating at a low rate of feed. While the feeder is running at this reduced rate, check all external bolts on the feeder assembly for tightness. Check the method of feeder support, making sure it is substantial and the feeder is not touching any rigid objects or an adjacent structure.

**CAUTION:** When operating normally, the feeder should perform with a smooth even stroke. If a loud "striking" noise occurs, immediately turn off the feeder.

Striking is the result of the faces of the core and armature making contact. Striking can result in serious damage to the unit! Refer to the Air Gap section of these instructions for corrective action.

With the feeder operating satisfactorily, load the trough with the material to be conveyed and adjust the control knob to the desired output. Clockwise rotation will increase the feed rate; counterclockwise rotation will decrease the feed rate. The material will flow along the trough surface in a smooth controlled rate of feed toward the discharge.

## **MAINTENANCE**

**WARNING:** Before performing any maintenance work, the electrical power supply must be disconnected at the safety disconnect switch.

Some materials, due to their nature, adhere to the trough surfaces. These deposits increase the dead weight to the feeder trough, and if permitted to build-up excessively, will alter the natural frequency (tuning) of the feeder. Material build-up on the trough should be removed as a daily practice. Look for material build-up at the rear of the feeder trough, particularly around and under hopper openings. Wet or sticky material build-up can be prevented by using factory installed electrically heated liner plates.

A clean, dry compressed air supply is recommended for general cleaning of these units. Water is not recommended.

**CAUTION:** Never oil the spring assembly. This destroys the clamping effect of the spring pads against one another.

In the event repairs are necessary, take immediate action to avoid possible injury to personnel and damage to the feeder parts from faulty operation. When ordering replacement parts, include all information given on the name plate.

**CAUTION:** Any signs of excessive heat or burned components is a indication of trouble. At first notice of an overheating condition, immediately investigate and correct the cause.

Feeder coils, under normal operating conditions, run warm but never too hot to touch.

### TROUBLE SHOOTING

PROBLEM	CAUSE	CORRECTION
Feeder operates too slow.	Line voltage below designated rating	Increase line voltage as designated on the name plate
	Unit in contact with rigid object or surface	Isolate unit
	Spring action may be hampered	Clean spring assemblies
	Defective leaf springs	* Replace
Feeder operates too fast	Worn or cracked trough	* Replace
	Line voltage above designated rating. High voltage will cause a "striking" condition.	Reduce line voltage as designated on the name plate
Unit hums, will not vibrate	Defective 5CR within controller (refer to controller instructions)	* Replace
Unit fails to operate	No power to controller	Check for broken or grounded lines
	Defective switch or fuse	* Replace
	Defective SCR within controller (refer to controller instructions)	* Replace
	Feeder coil burned out or grounded	Replace burned out coil, repair grounded coil
	Short circuit in wiring	Repair
	Open winding on rheostat	* Replace

**\*Replace parts only with those supplied or recommended by FMC.**

## SPRING REPLACEMENT

Replacement springs must be of the same size and thickness as those removed. FMC recommends replacing all springs rather than just one.

Before replacing springs, disconnect the feeder from the power supply. Work on one spring assembly at a time (first the rear spring stack). Make a note of the location and arrangement of each spring, spacer and clamp. Remove the bolts which secure the leaf springs to the base, then the bolts which hold the springs to the trough mounting bracket.

Install the new spring assembly in reverse order of that removed. Replace cap screws and torque as specified.

## AIR GAP

The air gap is the spacing that exists between the face of the armature and core assemblies. Proper adjustment of this space is extremely important for good feeder operation.

If the air gap is adjusted so the armature and core are too close, the faces of these items will make contact during feeder operation. This is called "striking".

**CAUTION:** If a loud striking noise occurs, immediately turn the unit off.  
When operating normally, the feeder should perform with a smooth even stroke.

If the air gap is adjusted so the armature and core are too far apart, the feeder current may increase to a dangerous level. A high current condition will result in coil burn-out, failure of control components or a reduced material feed rate.

The air gap is properly set at the factory, re-adjustment should rarely be required. However, if high voltage is applied to the feeder or if the air gap has been altered due to improper handling an adjustment may be in order.

Refer to the exploded feeder illustration at the end of the stroke gauge section.

Loosen hex nut (K) and insert a screwdriver into the slot on the end of the core (N). Turning the core clockwise will narrow the air gap; counterclockwise will widen the air gap. The proper air gap is reached when the air gap is as narrow as possible without a striking condition.

The designated current rating must not be exceeded.

When the proper air gap has been obtained, lock the core in place by tightening the hex nut (K). F-TO1-A units operate with the trough stroke between .045" to .050". This is checked at the stroke gauge on the trough assembly.

The air gap adjustment is a very delicate procedure and may require some time to properly obtain the desired setting. The correct air gap spacing will be obtained when the armature and core faces are as close as possible without "striking" when maximum current is applied to the feeder magnet.

## CHECKING FEEDER CURRENT

When checking feeder current with a tong meter, the meter reading must always be multiplied by a value of 1.7. A tong meter does not reveal the same current as designated on the equipment name plate due to the waveform characteristics of the feeder.

## STROKE GAUGE

Feeder stroke is the distance the trough travels in one complete cycle of vibration. This is measured from the forward upward limit of the vibrating stroke to the downward backward limit of the vibrating stroke.

This stroke can be measured by applying a stroke gauge to the feeder trough. Be certain the graduated line on the gauge are parallel with the line of drive. The gauge can be applied at any point on the side of the trough, as close to the centerline of the drive as possible.

Under vibration, a black "V" will appear on the Gauge. The amplitude of the unit can be read at the apex of this black "V". The lines should appear solid black; if fuzzy and grey, the graduated lines of the gauge are not parallel to the line of drive.

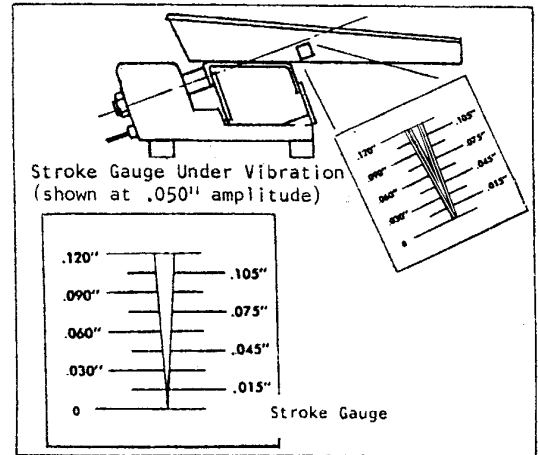
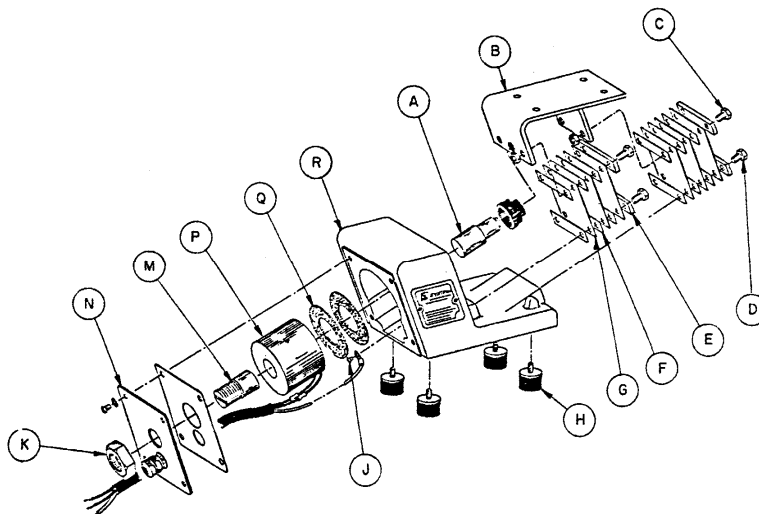


FIGURE 2 - STROKE GAUGE

OPERATING SPECIFICATIONS	
Maximum Trough Weight	6.0 Lbs.
Trough Stroke Range	.045" tp .050"
Minimum Natural Frequency	3750 VPM (50 CY) 4000 VPM (60 CY)
Maximum Current Rating (nameplate)	.8 amps 115V/50-60 CY .4 amps 230V/60 CY

TORQUE SPECIFICATIONS		
ITEM NO.	TORQUE VALUE (IN/LBS)	
	DRY*	LUBRICATED
C, D	350	60

\* Dry torque is used in factory assembly.



# Vibratory Feeder Control Board

## VF420 SIGNAL FOLLOWING POWER CONTROL APPLICATION NOTE

### DESCRIPTION

The VF420 provides manual or auto (process following) control of vibratory feeders. In the auto mode, vibration (feed rate) is proportional to the analog signal input from programmable controllers, weighing scales, tachometers, temperature controls, etc. Voltage or current input is user selectable and does not have to be isolated from the AC line or ground. The VF420 can also supply power to electric heaters, lamps, and some motor types.

Controls are factory adjusted for best overall performance. Minor adjustments may be required for specific applications. Adjustment and installation should be made by qualified personnel with power off.

### MANUAL OPERATION

Output voltage is set by main potentiometer. Jumper M to C on TB1. If output range requires adjustment, use min/max pots to raise or lower output voltage. Adjust min pot with main control at 0% on dial. Adjust max pot with main control at 100%.

### AUTO OPERATION(Signal Following)

Output voltage follows analog input signal. Jumper A to C on TB1. Move slide switch (SW1) to either current or voltage position. In CURRENT position apply 4-20mA to +SIG- input (40 mA max).

In VOLTAGE position apply 4-10VDC (20VDC max).

Do not apply voltage signal when SW1 is in the current position or damage will result. Range can be changed by adjusting the A/CAL pot. CW rotation will raise output voltage (12mA input = approximately 50% of line voltage output). Min/Max pots are not used in auto mode.

### SOFT START

Soft start provides an adjustable ramp for output voltage to reach its maximum value. This feature works in manual, auto, and power ON/OFF operation. CW rotation = longer rise time.

### AC/DC CONVERSION

AC/DC Jumper out = 60PPS (half wave DC).

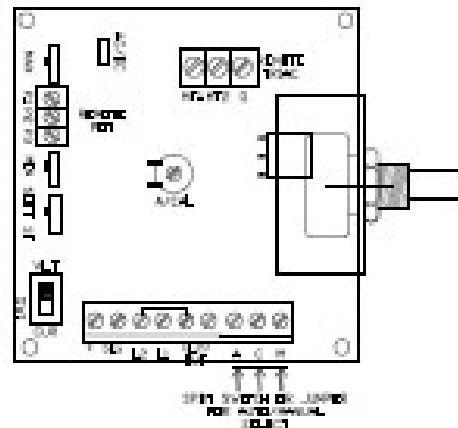
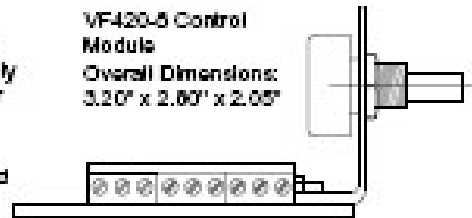
AC/DC Jumper in = 120PPS (AC).

The removal of jumper may require re-adjustment of MIN/MAX pots.

### NOTE:

Load must be connected to output terminals to get correct output voltage readings.

VF420-S Control  
Module  
Overall Dimensions:  
3.20" x 2.60" x 2.05"



**edr**

EDR Electronics, Inc.  
1504 E. Algonquin Road  
Arlington Heights, IL 60005  
Tel. (847) 840-6998 Fax 9717