



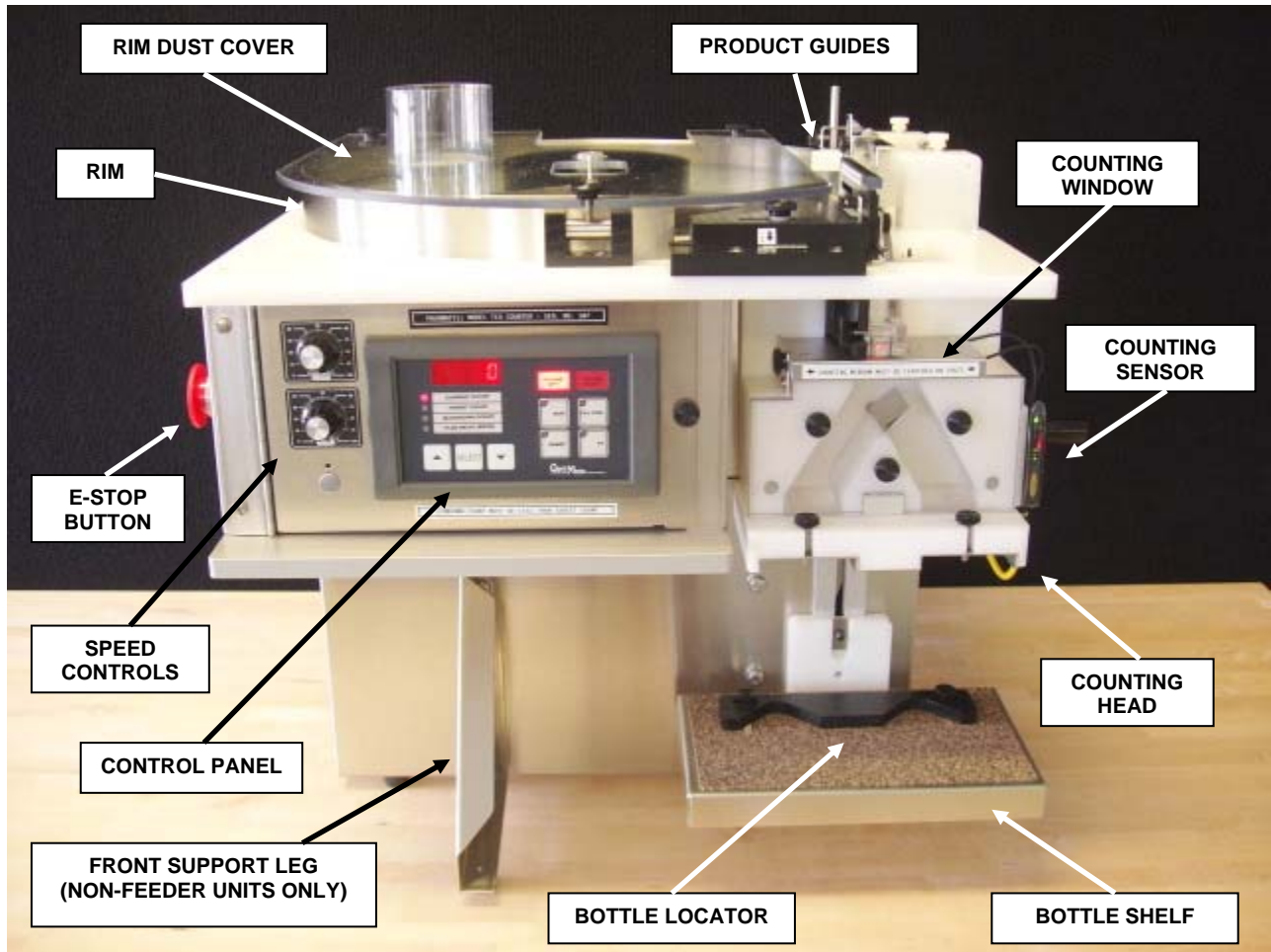
**Model TC4 Electronic Counter**  
**Operation Manual**

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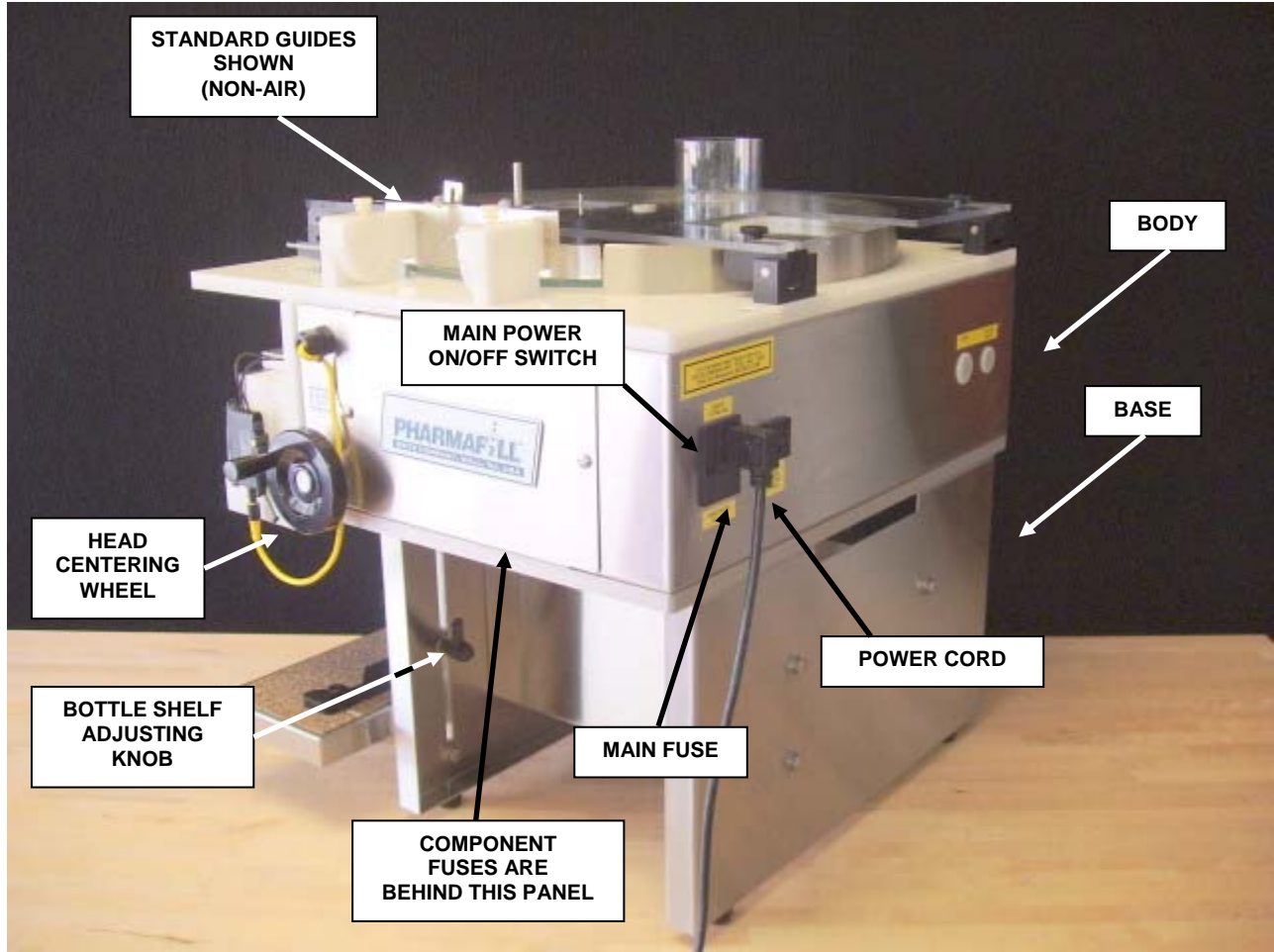
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(Technical Notes/Drawings Begin After Last Page)

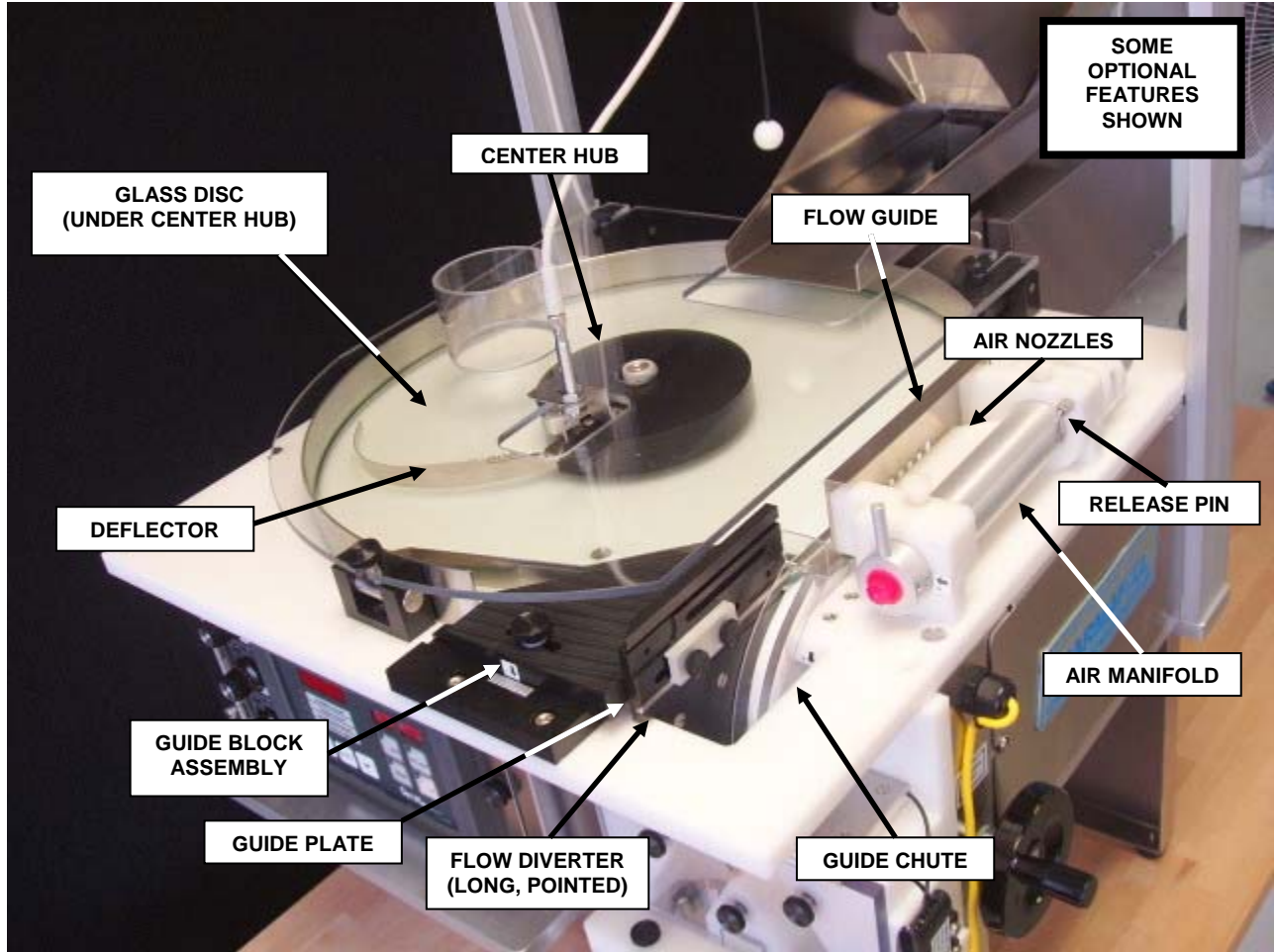
1. GENERAL ILLUSTRATIONS  
1.1. FRONT VIEW



### 1.2. REAR QUARTER VIEW

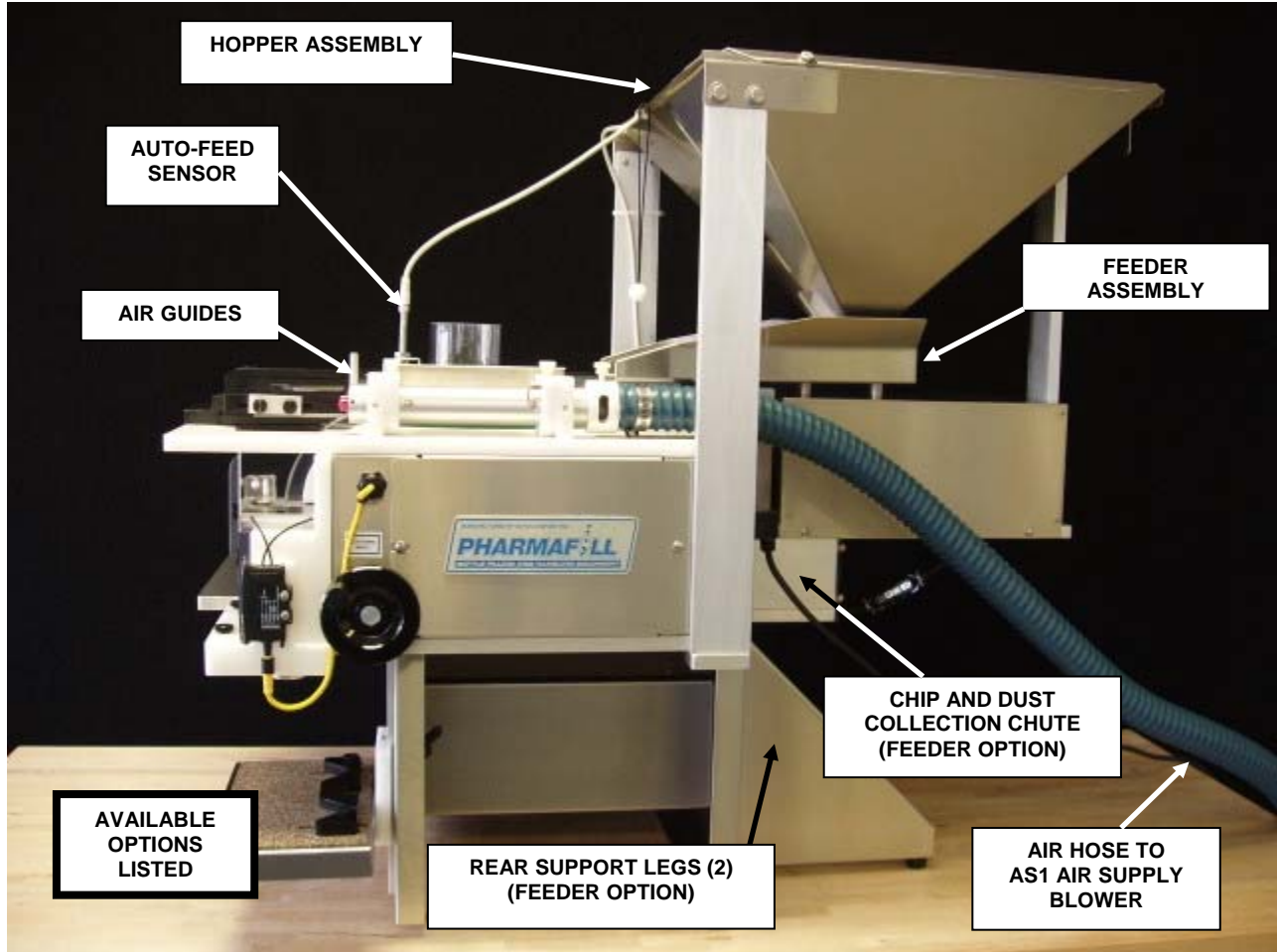


### 1.3. OVERHEAD VIEW





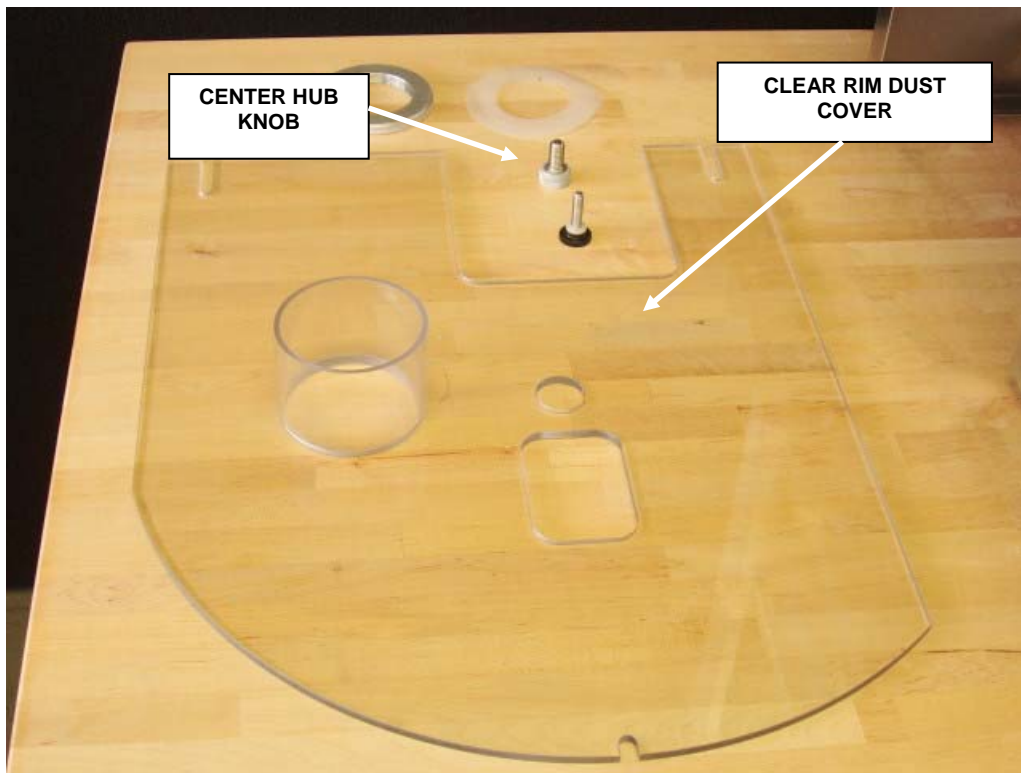
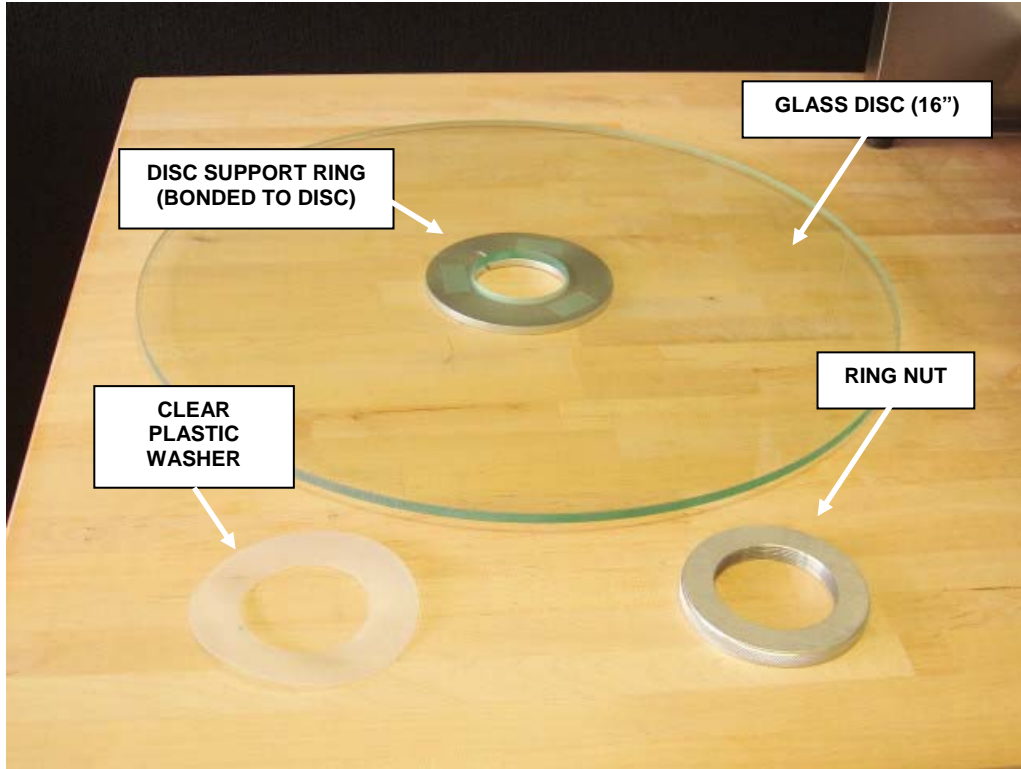
## 1.4. SIDE VIEW – OPTIONAL EQUIPMENT



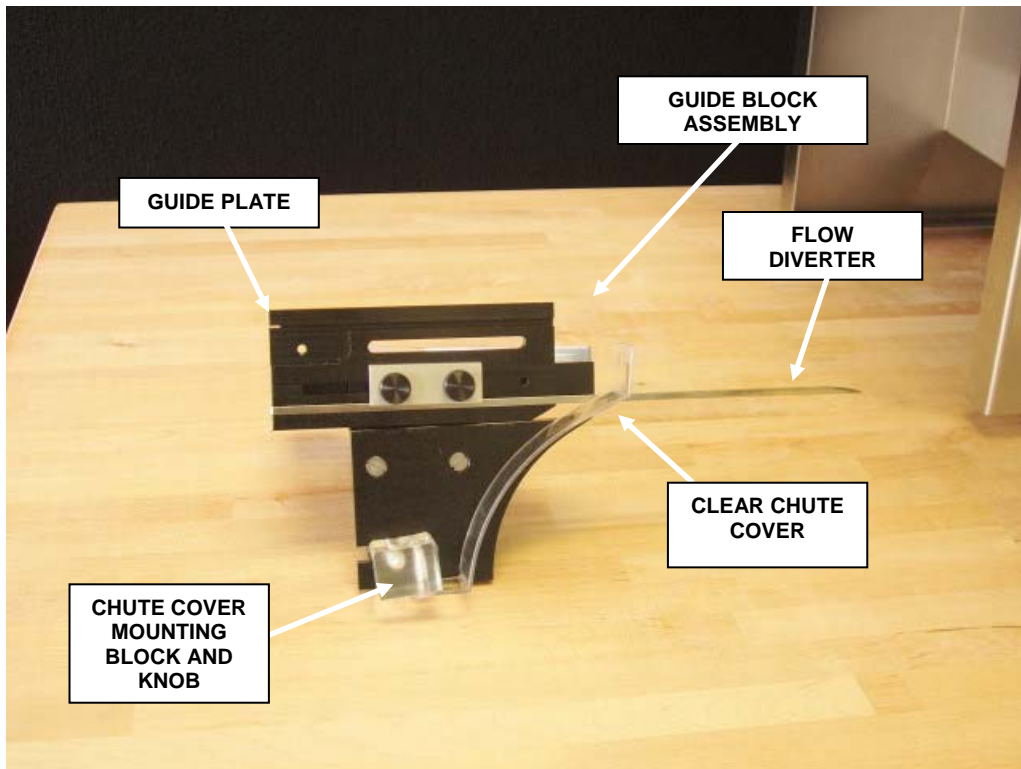
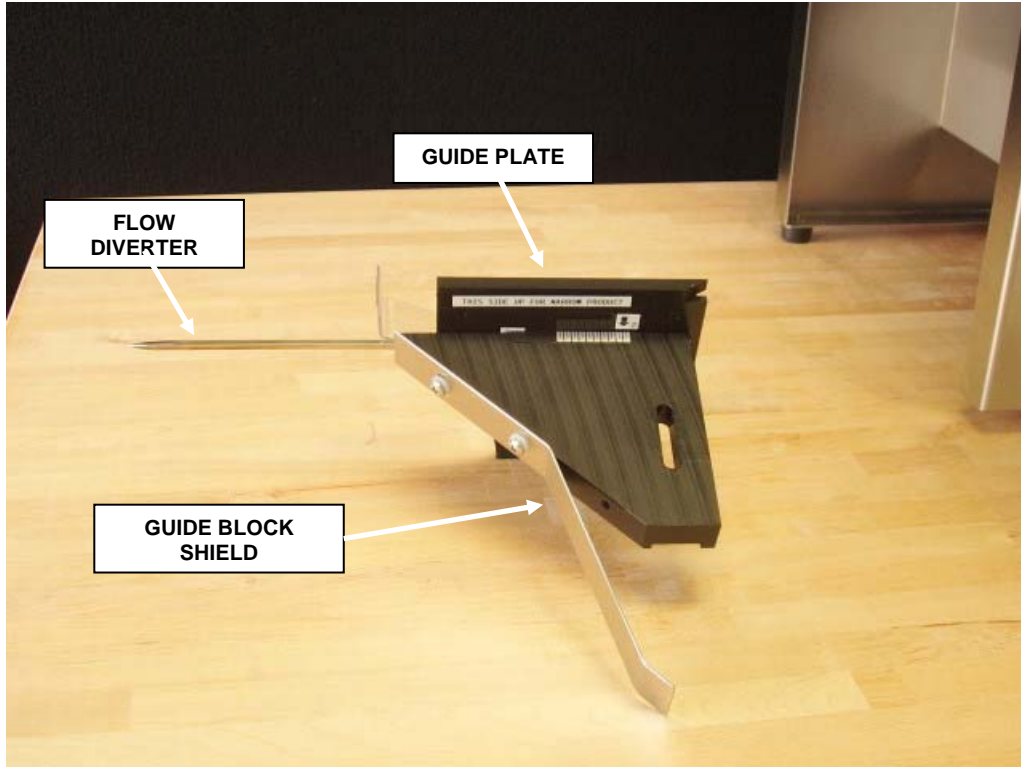
## Available Options:

1. Air Guide System
2. Include Air Manifold with Nozzles, Relief Ring and Air-type Flow Guide
3. AS1 Air Supply Blower (not shown)
4. Includes Air Hose
5. Vibratory Feeder Assembly
6. Includes Rear Support Legs
7. AFC Sensor - Automatic Feeder Control
8. Hopper Assembly

1.5. GLASS DISC, RING NUT, WASHER AND CLEAR RIM COVER

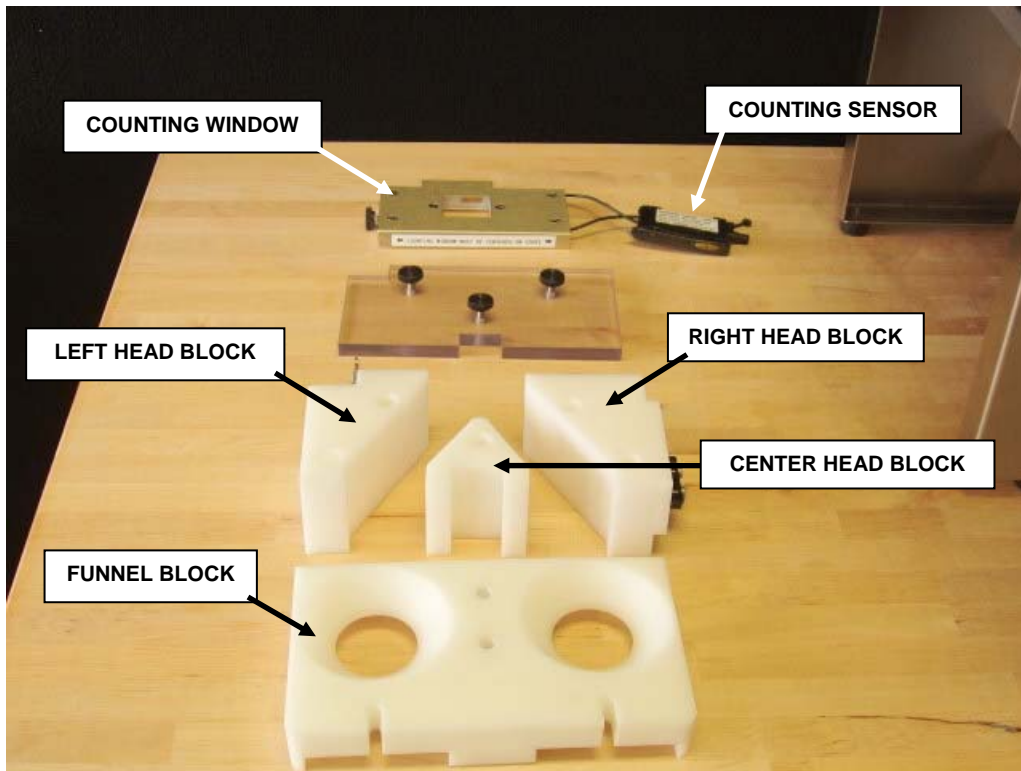
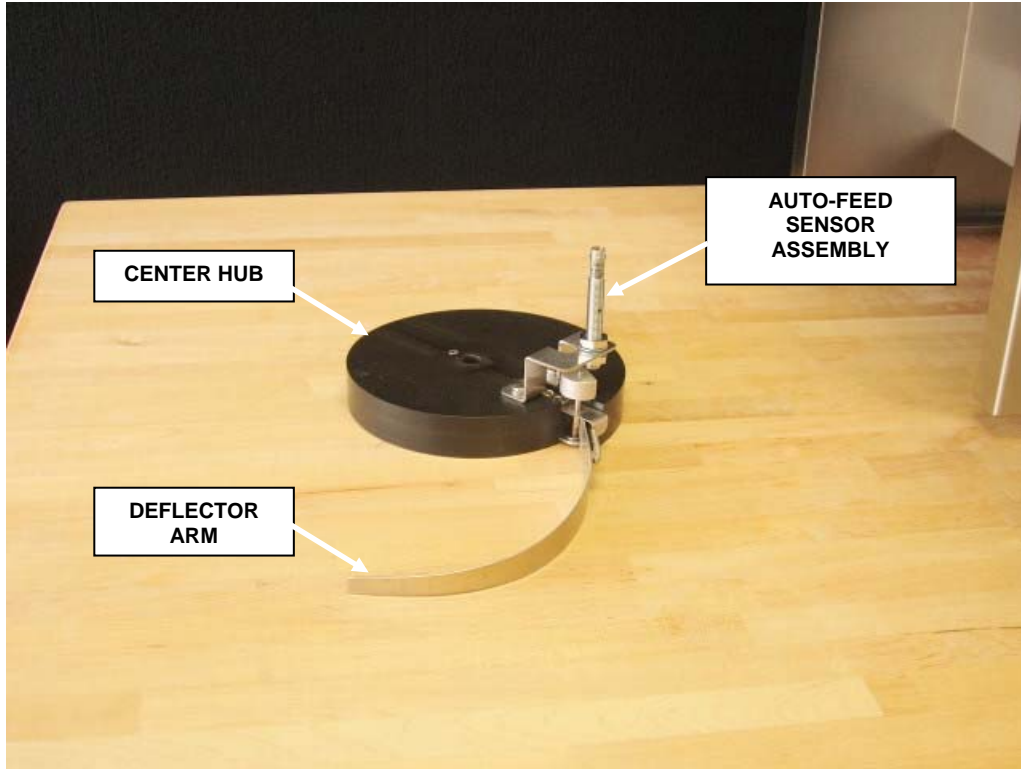


### 1.6. GUIDE BLOCK

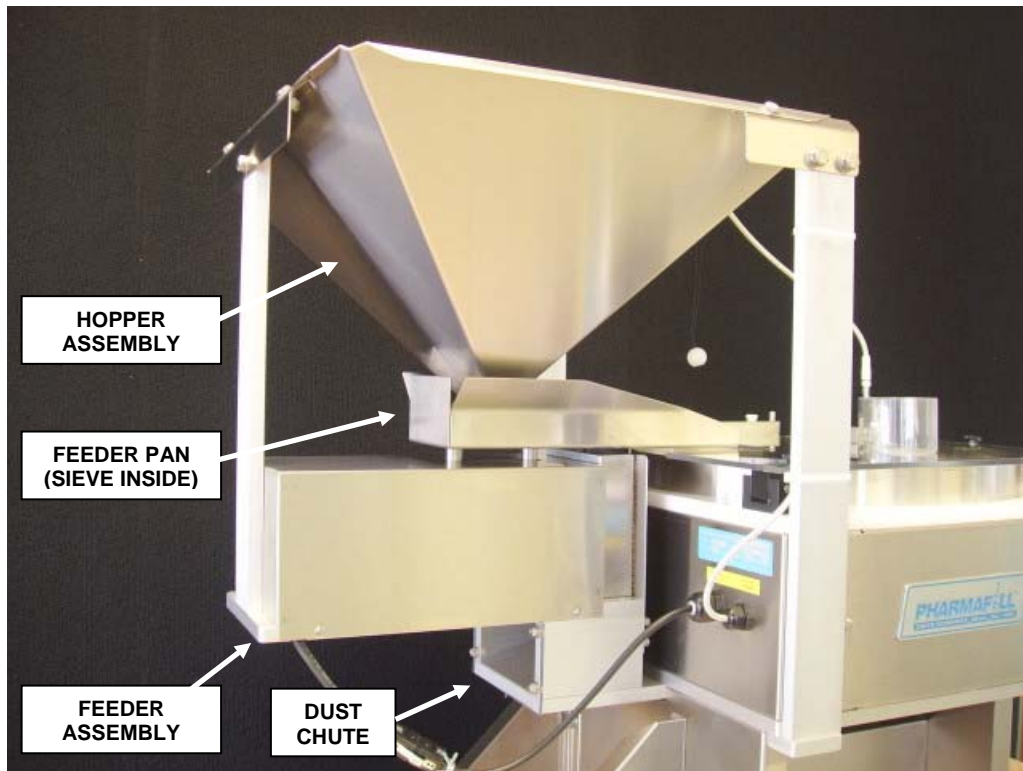
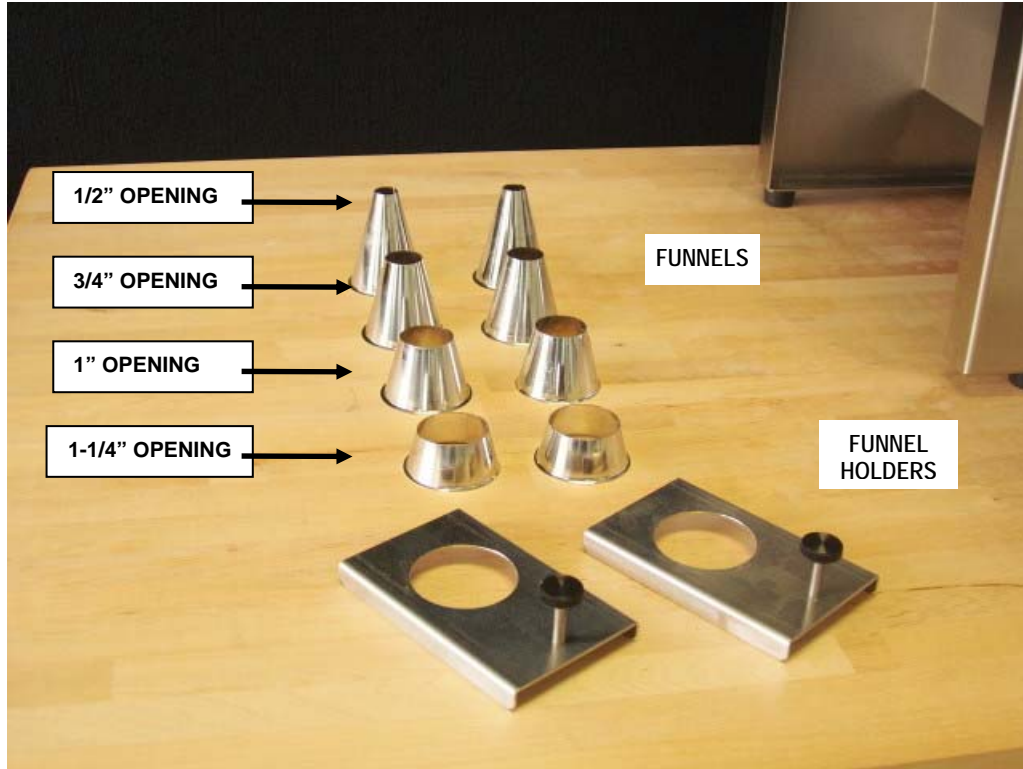




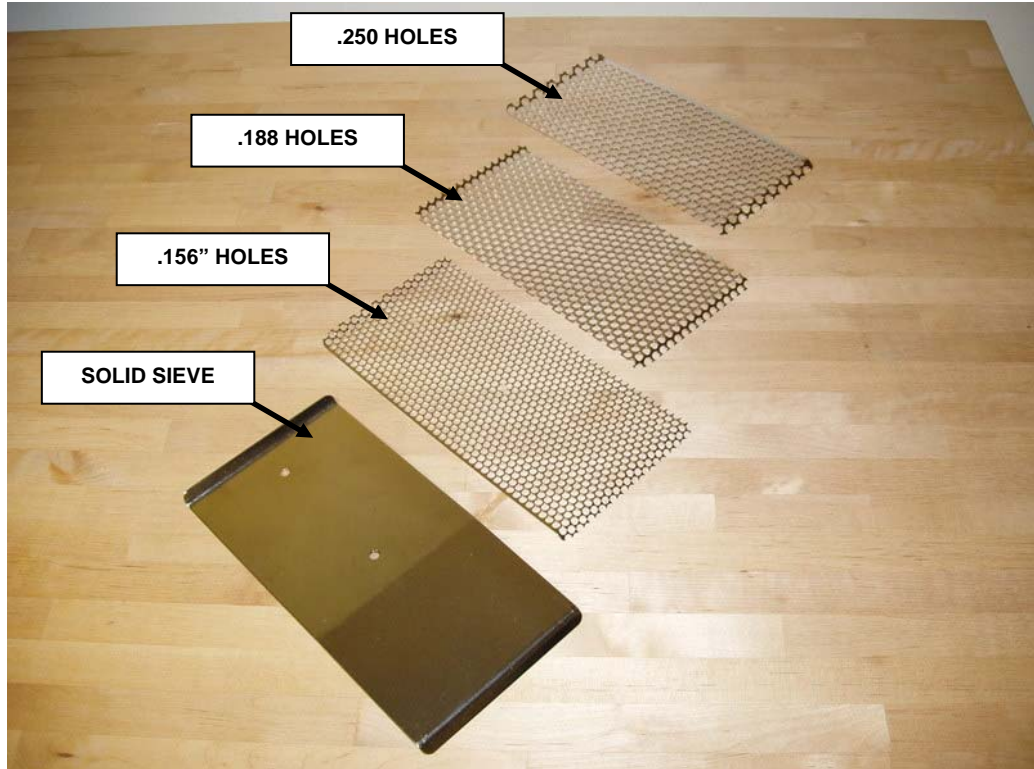
### 1.7. CENTER HUB, COUNTING HEAD PARTS



1.8. FUNNELS, HOPPER, FEEDER



### 1.9. FEEDER PAN SIEVES



2. SAFETY REMINDER



**Warning**



**This machine contains moving parts and operates automatically. This may present a hazard to personnel.**

**Never operate this machine with any covers or guards removed or any guard switches or safety devices removed or bypassed.**

**Only people who have been correctly trained should operate or clean this machine.**

**Only people who are correctly qualified and trained should carry out maintenance, installation or any other service work.**



**Never clean or service the machine without isolating the electrical supply and isolating the air supply.**



**Always test for the presence of voltage before touching or working on electrical components.**

**Note that there might be other requirements that could apply.**

**Refer to the manuals supplied by the component manufacturers for further safety instructions.**

### 3. INTRODUCTION

Thank you for purchasing a Pharmafill Model TC4 Semi-automatic Pill Counter. We at Deitz Company hope you will find that the Model TC4 meets or exceeds your expectations and requirements for an affordable, reliable and innovative addition to your packaging operation.

Pharmafill products are designed and manufactured by Deitz Company Inc., in Wall, NJ, USA. We have manufactured machinery for the bottle filling industry since 1966 and started our Pharmafill line in 1993. We are a small (but growing) family-owned business that emphasizes quality, innovation and superior customer service.

If you have any questions or comments, please contact us by phone or visit our website. Chances are someone whose last name is Deitz will handle your inquiry personally.

Deitz Company Inc.  
PO Box 1108  
1750 Route 34  
Wall, NJ, USA 07719

Tel 732-681-0200  
Fax 732-681-8468

E-mail [support@deitzco.com](mailto:support@deitzco.com) or  
[support@pharmafill.com](mailto:support@pharmafill.com)

Web site [deitzco.com](http://deitzco.com) or  
[pharmafill.com](http://pharmafill.com)

The operation manual is designed to make it easier for you to know the machine and to make use of its intended range of operation. It contains important instructions on how to operate the machine safely, adequately and economically. Observing these instructions helps to avoid risks, to reduce cost for repair work and machine downtime, and enhances the machine's operational reliability and lifetime.

The operation instructions are to be supplemented by further instructions due to existing national regulations on accident prevention and environmental protection.

If used in compliance with the instructions contained in this manual and provided that safety devices are regularly maintained and properly working, this machine is not dangerous to the operator.

This manual is to be kept accessible to all operators using this machine and it is assumed that before use the operator will read fully, and understand this manual and will follow instruction stated within.

As this machine may be used in the packaging of hazardous substances the operator should be aware of the precautions required for these substances.



In addition to the operating instructions and the binding regulations on accident prevention valid in the country where the machine is being used and at its operational site, the recognized technical rules on safe and proper working have to be observed as well.

These operating instructions and the information contained therein have been compiled with due care and attention. However, DEITZ COMPANY does not take any responsibility for misprints, translation errors or other errors and any damages resulting there from.

DEITZ COMPANY retains the right to make changes in the described products to improve functionality, reliability and design. The measurements or data shown on schematics, sketches and photos are not binding. They are for description purposes.

The information and drawings found in the operation manual are the intellectual property of DEITZ COMPANY and may not be copied or given to third parties.

LEGAL NOTICE: DEITZ COMPANY<sup>TM</sup>, PHARMAFILL<sup>TM</sup> and any graphic representations of the same are legal trademarks of Deitz Company Inc. and may not be used by others without specific written permission from Deitz Company.

## 4. SPECIFICATIONS (Also see technical information at end of manual)

## GENERAL

Model	TC4 Semi-automatic Pill Counter
Type	AD1154
Product Capability	Most solid oral dose tablets, capsules and caplets. Maximum width or diameter: 0.9 inch (22 mm) Maximum length: 0.9 inch (22 mm) Maximum height: 0.4 inch (10 mm)
Maximum Rate	Typical coated tablet, diameter .25 inch: 2500-3000 per minute Typical capsule, size 00: 1000-1500 per minute
Accuracy	Typically 99.99% (1 error per 10,000 pills) at optimal conditions

## INPUTS

Voltage	110 VAC <sup>1</sup>
Cycles	50/60 HZ
Phase	1
Amperage	2.0A with no outlet load or 7.0A with AS1 Air Supply Unit
Compressed Air**	Not required
Room Humidity	85% RH non-condensing

## DIMENSIONS

Floor Foot Print	Base machine: 20.9" wide x 19.1" deep (53cm X 49cm) With Feeder/Hopper: 21.2" wide x 34" deep (54cm X 86cm)
Height	Base Machine 19.5" (50 cm) With Feeder 21.4" (54 cm) With Hopper 30" (76 cm)
Bottle Height	From 1" to 9" (2.5cm to 23cm) <sup>3</sup>
Weight	Base machine: 83 lbs (38 Kg) With optional Feeder: 113 lbs (52 Kg) With optional Feeder and Hopper: 120 lbs (58 Kg)

## OTHER

Hopper Capacity	0.6 cu. ft [.017 m <sup>3</sup> ], or 1.6cu. ft [.045 m <sup>3</sup> ] with 6" extension
Glass Disc	Float Glass 16" diam. X 1/4" thickness [40 cm x 6 mm]
Construction Materials	See Section 10 – Contact Compliance Document

Notes:

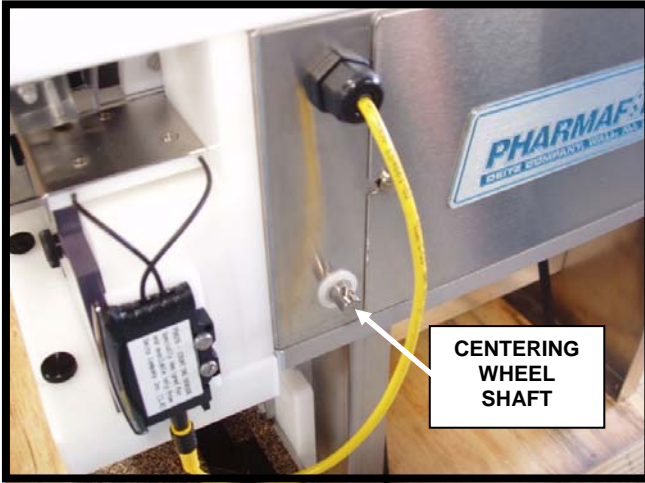
1. Other input voltages are available as factory options if specified at the time of order
2. Compressed air, if supplied to air guide manifold, must clean and dry, free of moisture (water) and oil.
3. May be adjusted further by adjusting or modifying leveling feet.

## 5. INSTALLATION AND COMMISSIONING

### 5.1. Unpacking

- ❑ Carefully remove the cardboard cover from the pallet.
- ❑ Remove all packing materials any additional boxes that may be inside.
- ❑ Cut the plastic straps that hold the machine to the pallet.
- ❑ Position the machine on working surface (typically a table)
- ❑ Remove any shrink-wrap, bubble wrap and/or protective cardboard inserts.
- ❑ Inspect all supplied equipment for damage.
- ❑ If any damage is present please notify DEITZ COMPANY immediately.
- ❑ Install the Head Centering Wheel (if removed for shipping). See the procedure on the following pages.
- ❑ **VERY IMPORTANT:** Refer to Section 9: “Cleaning – Breakdown and Buildup” to remove the last of the packing material and for cleaning prior to first use. **DO NOT** attempt to operate the machine before all packing material is removed before following this step.
- ❑ Connect electrical power and test. See the procedure on the following pages.

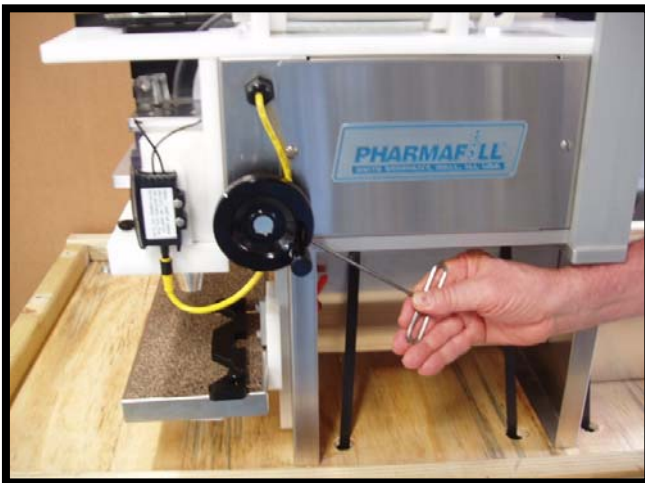
5.2. INSTALLATION OF THE HEAD CENTERING WHEEL (IF REMOVED FOR SHIPPING)



Remove the tape from the centering wheel shaft. Make sure the white plastic washer is in place.

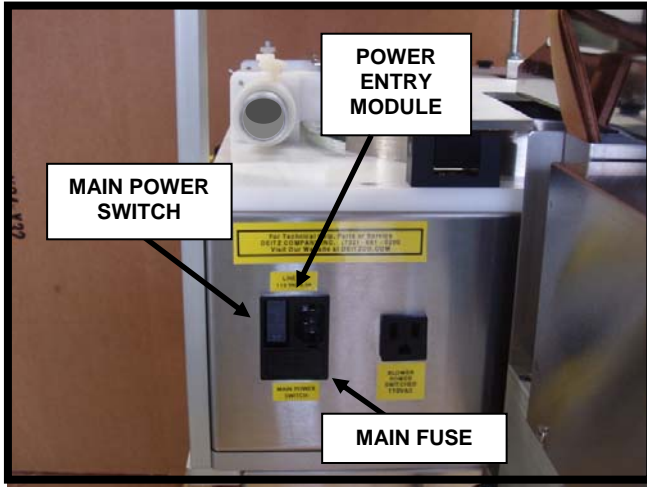


Use a 1/8" hex key to install the Head Adjusting Wheel. Make sure to align the setscrew in the wheel with the relief in the shaft.



Tighten securely.

### 5.3. ELECTRIC



Locate the Power Entry Module at the rear of the machine. Make sure the Main Power Switch is in the OFF position (down).



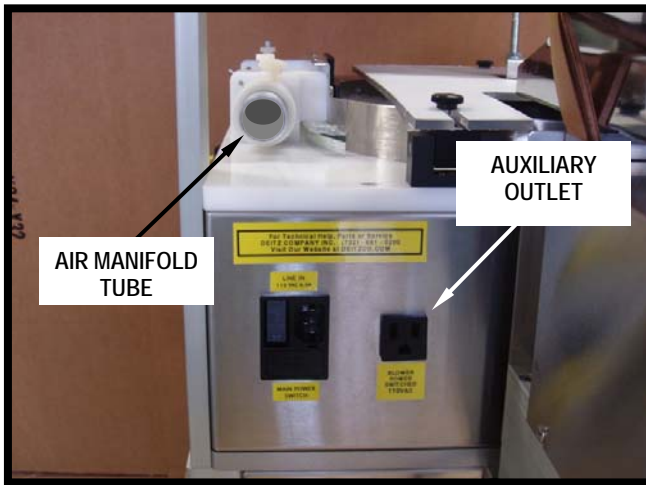
Press the Emergency Stop button so that it latches in the “in” position.



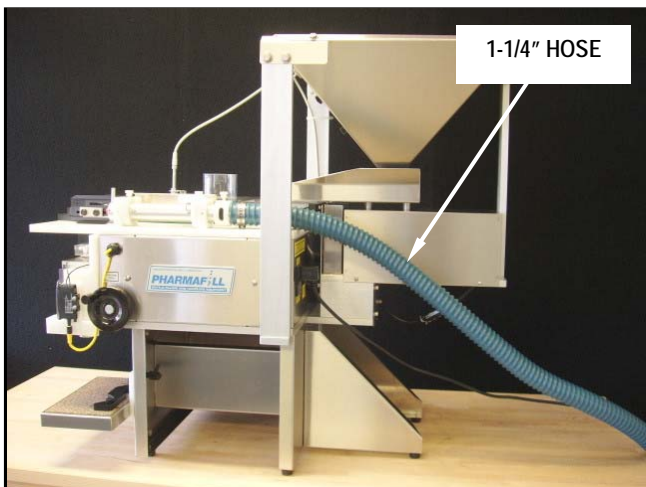
Plug-in the provided power cord into the Power Entry Module. Plug the other end into a grounded 115 VAC outlet rated at no less than 10 amps.



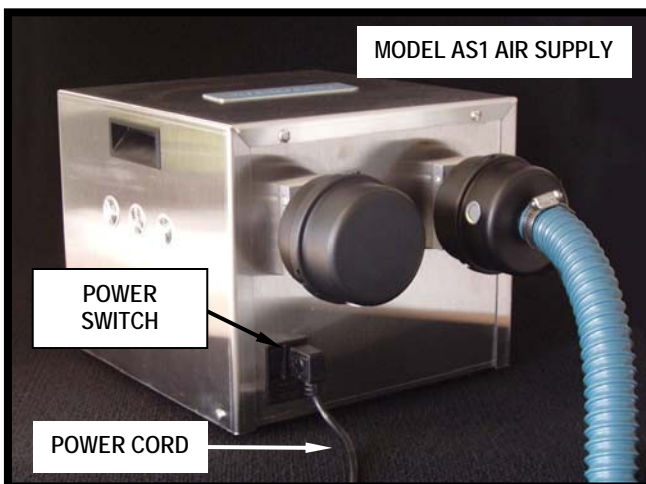
5.4. CONNECT LOW PRESSURE AIR SUPPLY (IF EQUIPPED WITH OPTIONAL AIR GUIDES)



Attach the hose from the Model AS1 Air Supply to the 1-1/4" opening at the rear of the air manifold tube.



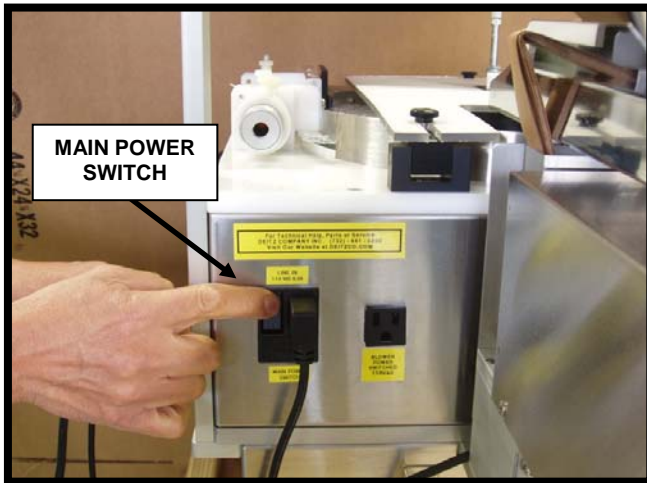
Plug the power cord from the AS1 Air Supply into the auxiliary outlet on the back of the TC4.



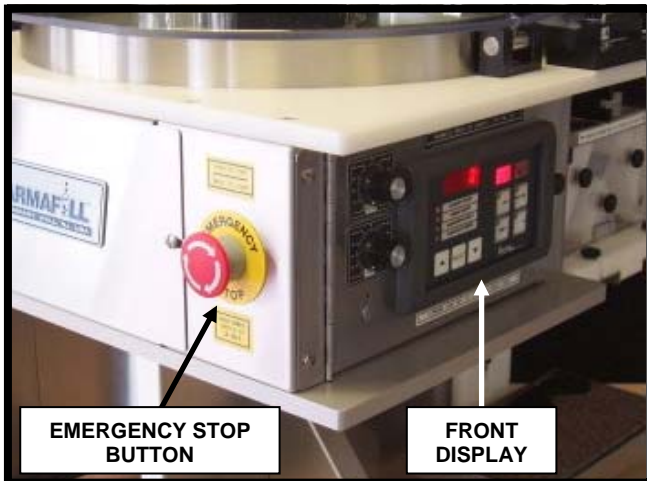
Turn on the AS1 at the switch on the power entry module of the AS1. It should not start running until the TC4 is turned on.

If using your own compressed air supply, attached your regulated line to the 1/4-NPT port at the rear of the air manifold tube.

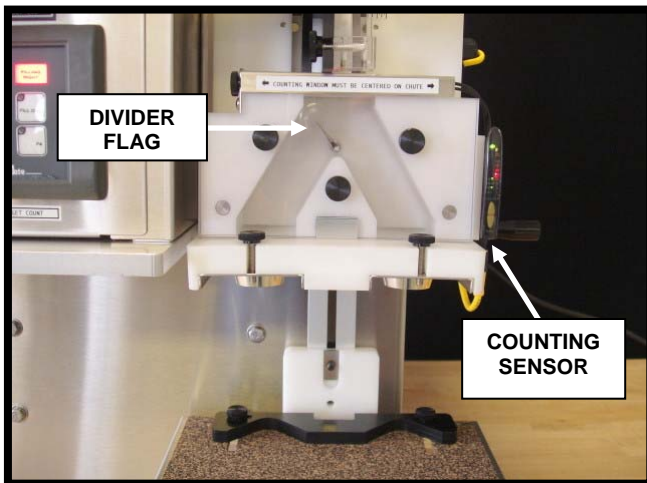
### 5.5. SYSTEMS CHECK



Turn on the machine at the Main Power Switch.



Twist and release the E-stop button. Confirm that the Control Panel lights up. After 5 seconds, the FILLING LEFT or FILLING RIGHT indicator should light and the machine is ready to use.



Confirm that the counting sensor lights up. Press the RESET button on the Control Panel several times and confirm that the divider flag flips back and forth smoothly and quickly.

## 6. GENERAL INFORMATION

### 6.1. STANDARD FEATURES AND CAPABILITIES

The model TC4 Pill Counter is a rotating-disc electronic counter. The TC4 will count most solid oral dose products, including clear, translucent or center-hole. It is designed to be easy to operate and maintain, and is ruggedly built to stand up to hard use and last for decades.

The electronics inside include two computers (one in the PLC and one in the Counting Sensor), which are specially programmed to provide the most advanced features and performance.

The TC4 can be used for count verification, and manual or semi-automatic production filling.

- ❑ Check Counter – count the contents of a pre-filled and accurately
- ❑ Manual Production Filler – with the push of a button, fill one container with a pre-set quantity.
- ❑ Semi-Automatic Production Filler – continuously fill one container after another, with an operator providing empty bottles and taking away filled ones.

### 6.2. OPTIONAL FEATURES

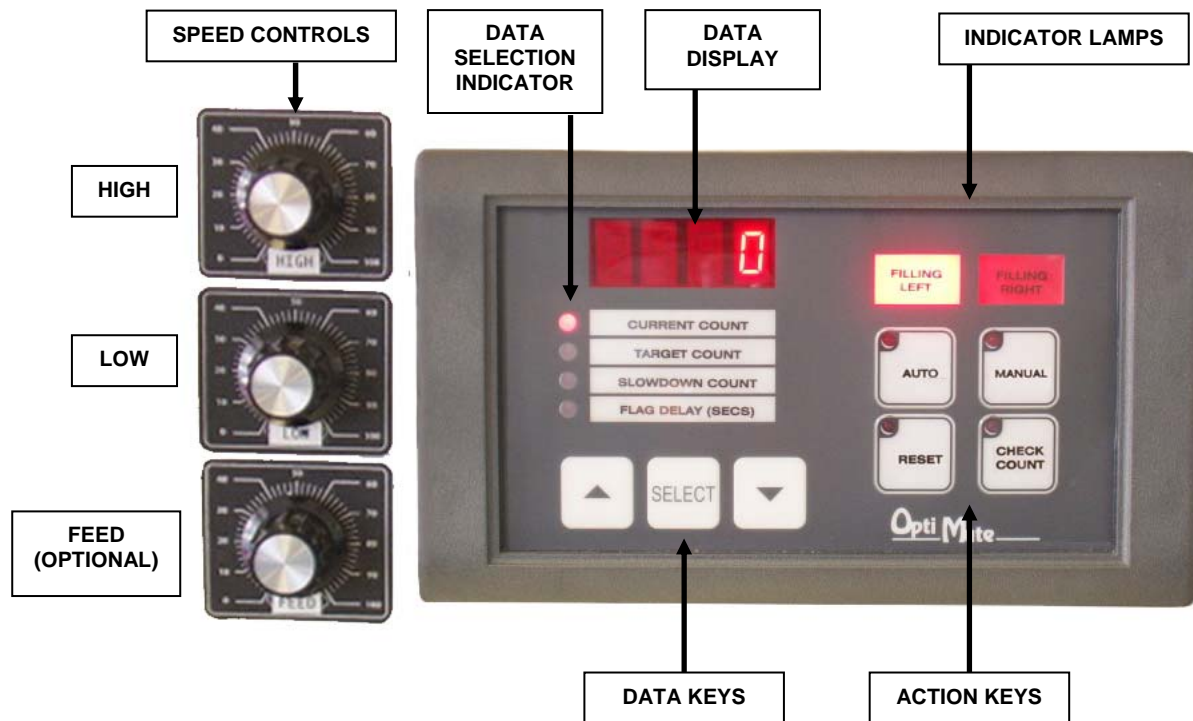
The TC4 can be built to the customer requirements, with several options. Machines may be upgraded in the field.

- ❑ Air Guide System – replaces the basic mechanical height guides with an adjustable air jets, allowing easier setup from one product to the next, and virtually jam-free product flow. Available with our AS1 Air Supply unit for clean, quiet low-pressure air.
- ❑ Feeder With Chip Collection Chute – variable speed vibratory feeder with tray. Includes sieves plates and a dust chute to collect dust and chips. The operator fills the tray with a supply of product (up to 500 pieces), which is fed onto the glass disc at a controlled rate. This saves the operator from manually feeding the product directly onto the disc.
- ❑ Automatic Feeder Control – a special sensor assembly, which turns the feeder on only when more product is need on the disc. This way the feeder will always provide the correct amount of product, with over-feeding or starving the disc.
- ❑ Hopper – holds a large supply of product (up to 10,000 pieces) with adjustable opening and visual sight indication of level. Product is fed into the vibratory feeder tray. Ideal for semi-automatic production.

## 7. OPERATION

### 7.1. CONTROL PANEL

The panel has three sections – data, indicator lamps, and action keys.



#### 7.1.1. DATA SECTION.

The data section controls four numeric values:

<u>Value</u>	<u>Type</u>	<u>Range</u>
Current Count	Display only	0-9999
Target Count	Adjustable	0-9999
Slowdown Count	Adjustable	0-9999
Flag Delay	Adjustable	0.0 - 0.99 seconds

The Data Display shows a 4-place number. The Data Selection Indicator shows which value is being displayed. The Data Keys let you change the value (where possible).

To view or change the data, which data point to display by pressing the SELECT key until the LED lights up next to the selection. Change the value using the up or down arrow keys. Holding an arrow key will cause the value to change quickly.

**CURRENT COUNT** - (display only) the total number counted since the last reset. The maximum display value is 9999. It cannot be adjusted, except with the Reset key (next section), which forces the value to zero.

**TARGET COUNT** - (adjustable set point) the desired number per container. The maximum value is 9999.

**SLOWDOWN COUNT** - (adjustable) the number of items to be counted to cause the disc to slow down as the Target Count is approached. The maximum value is 9999. The value must be less than the Target Count.

**NOTE:** The Target Count must be set to a value greater than the Slowdown Count or the counter will not automatically reset when the Target Count is reached,

**FLAG DELAY** - (adjustable) a time delay between the moment the Target Count is reached and when the flag flips. This is to allow enough time for the target count pill to fall from the counting window to the divider flag. The maximum set point value is 0.99 sec. Generally, the usable range is 0.0 to 0.05 sec.

#### 7.1.2. ACTION KEYS

The four click-membrane keys are marked **AUTO**, **MANUAL**, **CHECK COUNT** and **RESET**.

**AUTO** – This is the production-filling mode. Press **AUTO** to start the disc (and feeder, if equipped) to begin delivering product. The machine will now continuously count product, alternately discharging to the right or left funnel. Containers must be continuously supplied and removed in sync with the machine. Press **AUTO** again to stop, or press the **RED E-STOP BUTTON** on the right side.

**MANUAL** – This used to fill one container at a time manually. Press to start the disc (and feeder, if equipped) to begin delivering product until the target count is reached one time. Product delivery will stop, the flag will flip and the counter will reset. After the reset, any product that runs on is counted and discharged to the alternate funnel. Press again to repeat. Good for parameter testing, check counting and casual production filling.

**CHECK COUNT** – This mode will count continuously without flipping the divider flag. The Target Count and Slowdown Count are ignored. Press to begin delivering product and counting. Counting will continue until you press the button again. In Check Count mode, the maximum count is 99,999,999, although the display will only show the last four numerals.



RESET – Press to immediately set the Current Count to zero and flip the divider flag. In manual mode, counting will stop. In Auto or Check Count modes, counting will continue.

### 7.1.3. INDICATOR LAMPS – LEFT, RIGHT

The two rectangular red indicator lamps are marked as follows:

FILLING LEFT – indicates the divider flag is positioned to direct product to the left funnel. There should be a container on the left side of the bottle shelf to catch the product flow.

FILLING RIGHT – indicates the divider flag is positioned to direct product to the right funnel. There should be a container on the right side of the bottle shelf to catch the product flow.

## 7.2. SPEED CONTROLS

Speed controls (potentiometer adjustment knobs) are located on the left side of the control door. All machines have two control knobs for the speed of the glass disc, marked HIGH and LOW. Those equipped with the optional vibratory feeder have a third control knob, marked FEED.

The glass disc runs at two speeds, changing from high speed to low speed as the target count is approached.

HIGH – This is the speed of the disc when the Current Count is less than the Slowdown Count. This should be set up to the highest speed at which a particular pill can be counted with the required accuracy. While this speed may be good for counting, it may be too fast the Divider Flag to precisely split the flow when the target count is met. This speed is found by running test counts.

LOW – This is the speed of the disc when the Current Count is greater than the Slowdown Count. This should be set to the speed at which the Divider Flag can split the flow precisely. This speed is also found by running test counts.

FEED – (if equipped, optional) this controls the feed rate of the product from the vibratory feeder to the glass disc. If the optional Automatic Feed Control is also installed, the feeder will stop when there is an adequate supply of product on the glass disc. As the supply diminishes, the feeder will resume feeding.

### 7.3. COUNTING SENSOR

- Detects solid (opaque) product and translucent or clear product, such as gel caps.
- Automatically and continuously adjusts light level for maximum sensitivity
- Compensates for dust buildup and sets alarm if conditions become marginal.

#### 7.3.1. THRESHOLD ADJUSTMENT – How Much The Light Level Must Drop To Count.

When the light in the counting window is unblocked, the sensor detects 100% of the light. When an object falls through the window, the light is blocked. If the threshold size is set to 40%, the sensor will send a count signal when 40% of the light is blocked; that is, when the light level falls below 60%. The sensor will reset when the light level rises above 60% again. This is the factory setting and works with most products. The threshold can be reduced to as low as 5%.

Adjustable in 5% increments

Light bar 1=5%

Light bar 8 = 40% (factory setting, most products)

#### 7.3.2. ONE-SHOT DELAY ADJUSTMENT – How Long The Count Signal Stays On.

This is used to stretch the count signal so a product with a clear center does not produce a “double” count. Normally set at the minimum (5 ms) for solid product. For clear or opaque product, increase the one-shot according to the length of the product. For example, 10 ms for round gel caps .25” long, or 40 ms for oblong gel caps .90” long.

Adjustable in 5 millisecond increments

Light bar 1 = 5 ms (factory setting, for solid product)

Light bar 8 = 40 ms (for long clear products)

### 7.3.3. SETTING THE THRESHOLD AND ONE-SHOT DELAY ADJUSTMENTS (V2.0)

The version number on the label of the counting sensor determines how it is adjusted. Both version function the same.

If the label on the sensor says “(2.0)”, use this procedure:

#### THRESHOLD

To adjust:

- ❑ Press and release + (plus)
  - Light bar will change to indicate current threshold
  - “LO” and “DO” lights will flash alternately
- ❑ Press + to increase the threshold (less sensitive)
- ❑ Press – to reduce the threshold (more sensitive)

Will automatically exit adjustment mode after 4 seconds of inactivity

Will automatically reset light level for maximum performance before returning to normal.

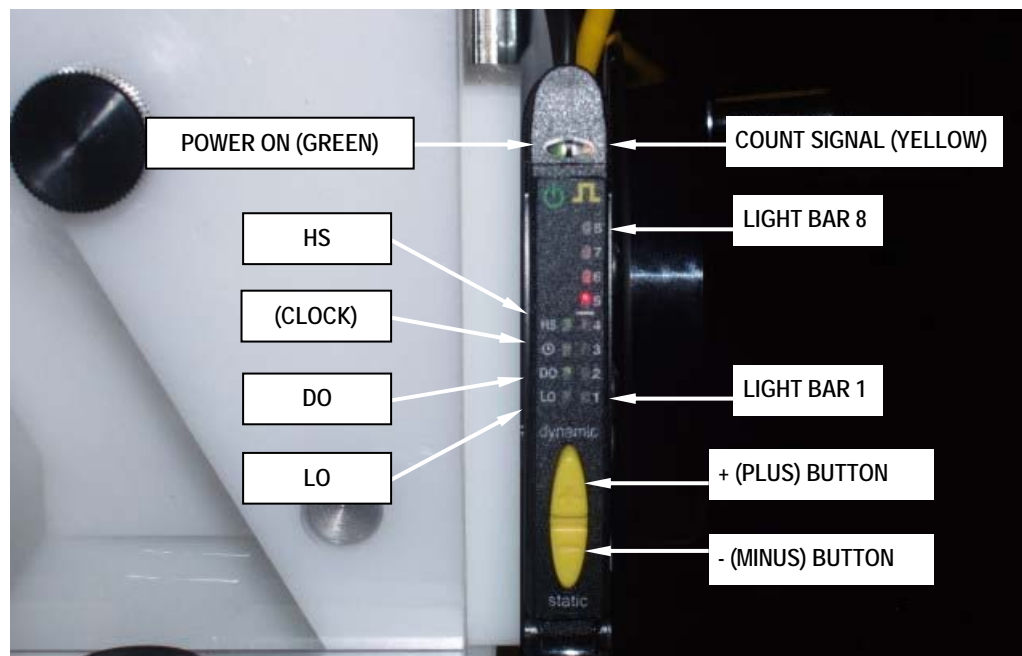
#### ONE-SHOT DELAY

To adjust:

- ❑ Press and release – (minus)
  - Light bar will change to indicate current one-shot delay
  - “Clock” light will flash
- ❑ Press + to increase the one-shot delay.
- ❑ Press – to reduce the one-shot delay.

Will automatically exit adjustment mode after 4 seconds of inactivity

Will automatically reset light level for maximum performance before returning to normal.

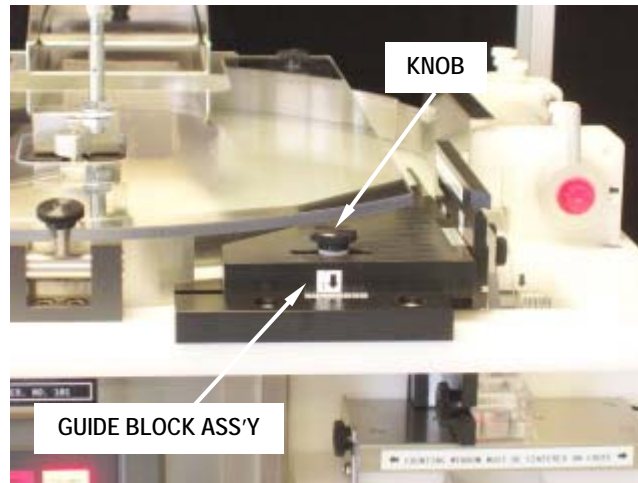


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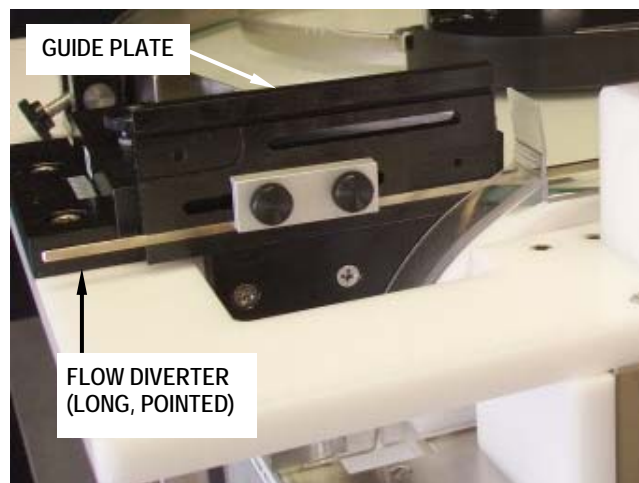
## 7.4. PRODUCT GUIDE ADJUSTMENTS

The guide adjustments create a steady flow of product down the channel, into the chute and through the center of the counting window. The flow must be single file, one level high.

- 7.4.1. **WIDTH** – The channel width is adjusted by moving the Guide Block Assembly side-to-side. To adjust, loosen the knob and move the guide block to the left. Place a few pills in the channel and move the guide to the right so that only a single file row may pass down the channel. Leave enough room so that the product will flow freely. Tighten the knob. **NOTE:** if the guide block will not open fully, check that the Guide Plate depth is not limiting the travel.



- 7.4.2. **DEPTH** – The Guide Plate is kept close to the edge of the glass disc by the depth (front-to-back) after the width is set. Loosen the two knobs on the Guide Plate just enough to move the plate. Slide it forward until it touches the edge of the glass disc, and then move it back a bit so that it does not drag on the disc (adjust for minimum clearance). As you tighten the two knobs, rotate the Guide Plate forward so that the pointed tip of the Flow Diverter is lightly touching the glass disc.



### 7.4.3. HEIGHT GUIDES

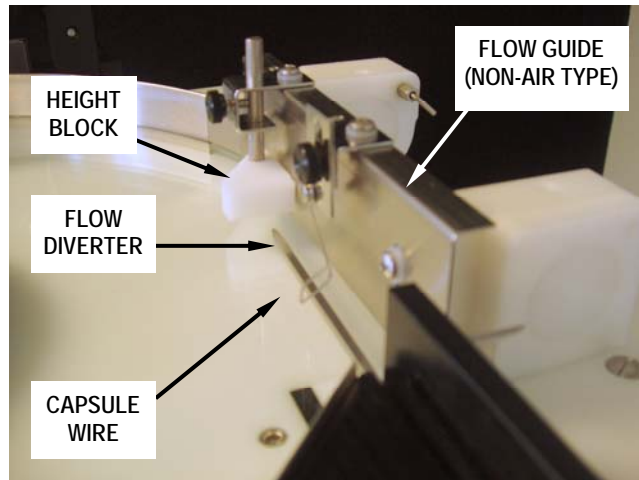
The mechanical height guides or the optional air guide must be set to reject certain faults, such as a pill in the channel traveling on top of another pills (doubles), leaning up against another pill (piggy backs) or riding on edge (standups).

Tip: The setting of the either type height guide can best be fine-tuned while the product is flowing, when you are making test runs.

#### 7.4.3.1. MECHANICAL HEIGHT GUIDES

For tablets, use the adjustable Height Block (triangular block at entrance to channel) to prevent faults. Loosen the knob on the bracket and set the guide slightly higher than one tablet laying flat. Move the Capsule Wire up out of the way.

For capsules and caplets (caps), use the Capsule Wire (spring wire midway down the channel) to prevent faults. First raise the Height Block up out of the way, since caps usually wedge under against a rigid guide. To set the Capsule Wire, loosen the knob and set the guide slightly higher than one cap laying flat. The cap guide may also be rotated or bent to better reject the doubles.

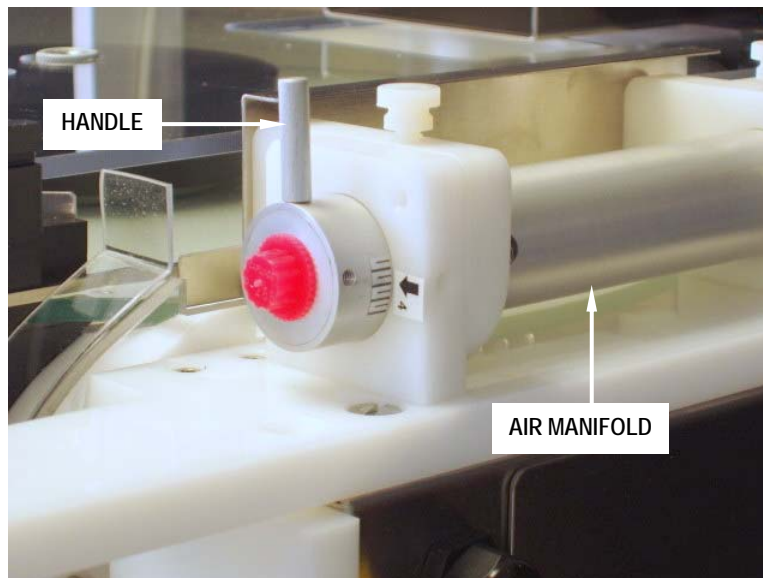
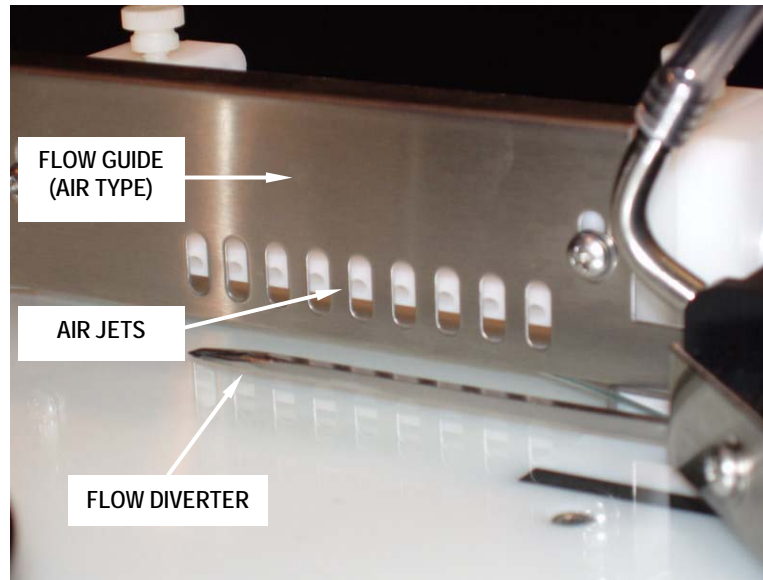




### 7.4.3.2. AIR GUIDES

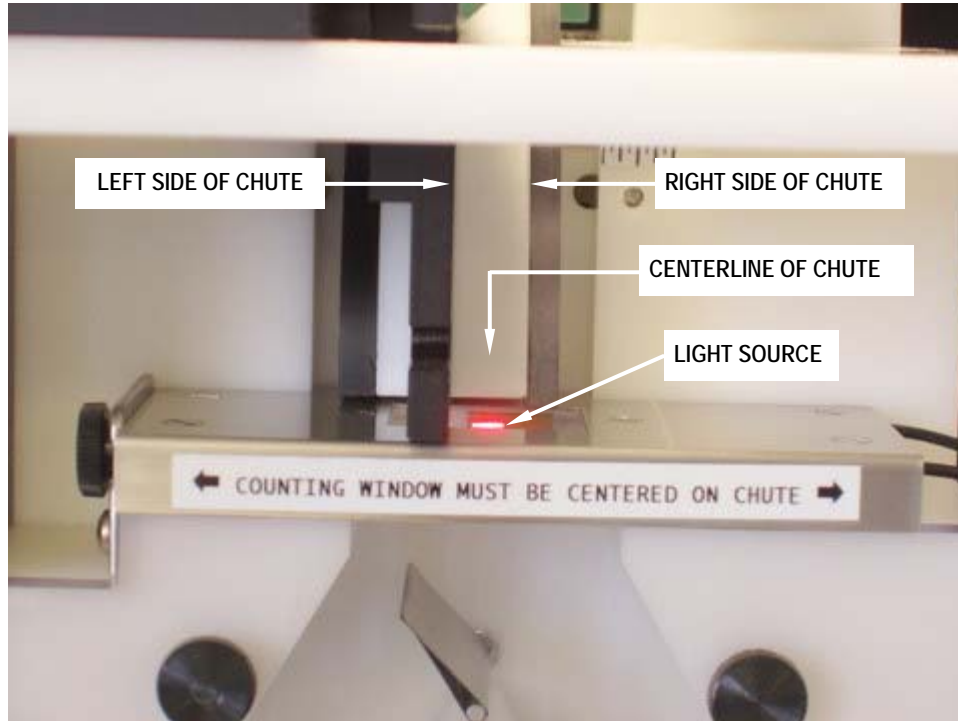
The Air Guides work for all types of product (tabs, caps, etc.). They prevent jams better than mechanical guides, are easy to adjust and are not prone to stoppages that require an operator to clear.

To set the Air Guides, loosen the knobs on the air guide blocks. Use the handle on the air manifold to rotate the Air Jets so that the air flows just above the pills in the channel. If set too low, the air will disturb the flow in the channel, impeding the flow and possibly blowing pills right out of the channel. If set too high, faults might not be rejected. Once set at the right height, tighten the knob.

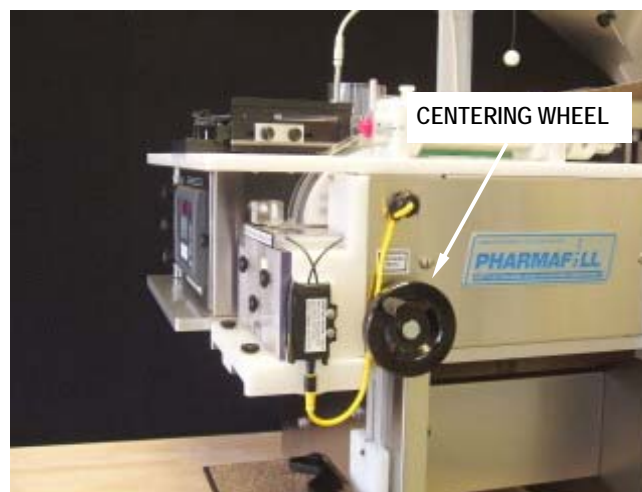


### 7.5. CENTERING THE COUNTING HEAD

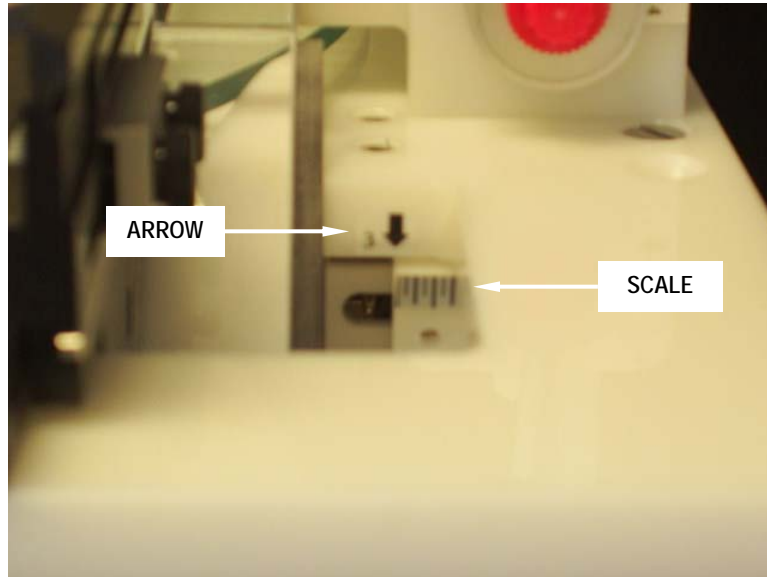
To count properly, objects must fall directly from the chute into the center of the counting head. This way the object will fall through the center of the light source of the counting window and strike the divider flag at the same angle whether filling right or left



When you make a change to the width of the product guide assembly, you are moving only the left side of the chute. This changes the location of the centerline, so you must also adjust the counting head. Do this by turning the centering wheel on the right side of the machine.



Once you have visually confirmed that the Counting Head is centered on the chute, note the position of the head relative the scale and arrow located in the opening by the chute.



## 7.6. FUNNELS, BOTTLE SHELF AND SIEVES

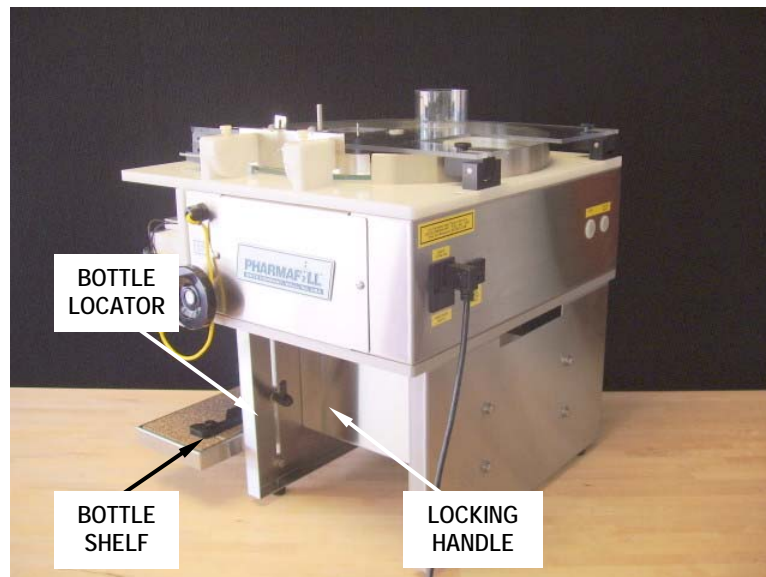
### 7.6.1. FUNNELS

Select the funnel size which best matches your container. Ideally, you want the funnel opening to be as large as possible, while still smaller than the opening of the container. Place one Funnel in each Funnel Holder and slide them both into the slot on the bottom of the Counting Head.



### 7.6.2. BOTTLE SHELF

Adjust the height of the Bottle Shelf by loosening the Locking Handle and moving the shelf up or down. Adjust the Bottle Locator side-to-side and front-to-back to properly center the container opening on the funnels.



## 7.7. TESTING TO ESTABLISH PARAMETERS

For each product to be counted, you will have to establish the correct parameters for the best combination of speed and accuracy. We recommend the following method.

1. Hand count a certain quantity of product (100 in this example) into a container. This will be your test batch.
2. Use the test batch to set the basic product guide adjustments to the machine for this product and note the settings.
  - a. Width of channel
  - b. Depth of guide plate
  - c. Height setting (mechanical or air guide)
  - d. Center position of head under chute
3. Using Check Count and starting at a very moderate speed, count the test batch several times.
4. If the counts are inaccurate, check the guide settings and continue counting.
5. Once the counts are accurate and repeatable, increase the speed slightly and continue counting.
6. Above a certain speed for each product, you will not be able to maintain accuracy. Go back to a lower speed and consider this the maximum speed for that product. Note the setting of the HIGH speed control.
7. Set the LOW speed control to approximately  $2/3$  of the value of the HIGH setting.
8. Set the TARGET COUNT to 50 and your SLOWDOWN COUNT to 49 (for now). Pour all the product onto the disc and use Manual mode to check the action of divider flag. Do this several times. The excess overrun quantity should be accurately counted. Adjust the FLAG DELAY if it is not accurate.
9. If the overrun is consistently more when directed to one-side than the other, the head may not be centered properly.
10. The amount of the overrun can help you to set the SLOWDOWN COUNT value: for example, if the overrun is consistently around 10 pieces, set the Slowdown Count to be at least 10 less than the Target Count.

## 8. COUNTING AND FILLING

This is a quick summary of the steps taken to get counting.

### 8.1. PREPARATION

The machine should be cleaned before first use, and before running a new product.

- The product guides and counting head should be set for the product.
- The HIGH, LOW and FEED (if applicable) speeds should be set.
- The bottle shelf should be set for the preferred container.
- The correct funnels should be in place.
- (If applicable) feeder sieve should be in place.
- (If applicable) the hopper should be filled and the hopper door opened.
- (If using AUTO or MANUAL modes) the data for Target Count, Slowdown Count and Flag Delay should be set.
- Count a known test batch to confirm accuracy.

### 8.2. CHECK COUNT MODE – count the contents of a pre-filled container.

- Place a container under each funnel.
- Press RESET.
- Press CHECK COUNT. The machine will start.
- Pour contents of pre-filled container onto glass disc.
- The contents will be counted and the tally will be displayed until RESET is pressed again.
- Press CHECK COUNT again to stop and reset the counter to zero.

### 8.3. MANUAL MODE

- Place a container under each funnel.
- Press RESET
- Press MANUAL. The machine will start.
- One container will be filled to the Target Count and the machine will stop.
- Any product that runs on after the stop will be counted and go in the alternate container.
- To continue, press MANUAL again.

### 8.4. AUTOMATIC MODE

- Place a container under each funnel.
- Press RESET
- Press AUTO. The machine will start.
- The machine will fill the first container and then switch to filling the next container at the alternate funnel.
- As containers are filled, replace them with empties
- Press AUTO again to stop.

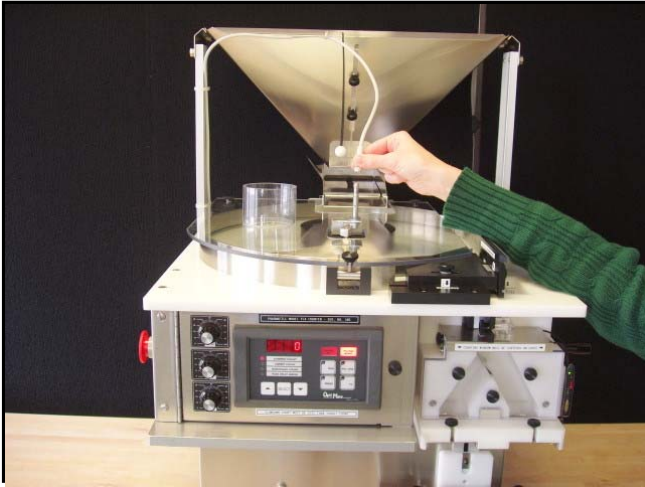


## 9. CLEANING – BREAKDOWN AND BUILDUP.

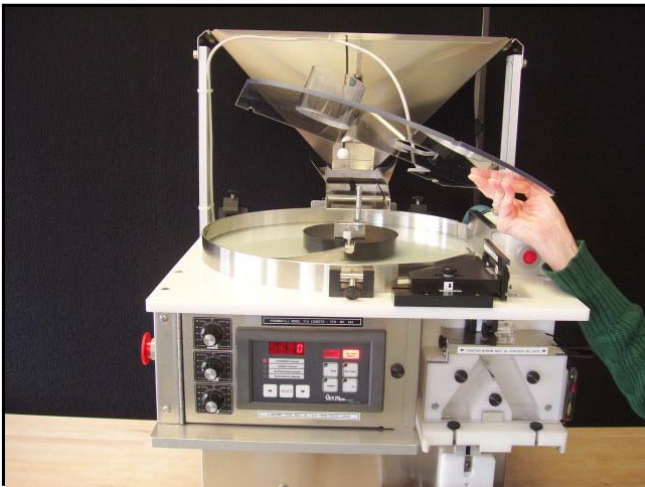
### 9.1. BREAKDOWN OF REMOVE-TO-CLEAN CONTACT PARTS

1. If equipped with the optional automatic feeder control, disconnect the electrical cable connected to the AFC sensor by unscrewing it.
2. Remove the clear rim cover – Loosen the front knob and rotate it up. Loosen the rear knobs, lift and slide cover out.
3. Remove the center hub – unscrew the knob and remove the hub.
4. Remove the product guide assembly – unscrew the knob, slide the assembly to the right and lift up.
5. Rotate the air manifold assembly – pull the release pin and rotate the assembly up.
6. Remove the rim band – starting at the front, lift the band out of its groove, working your way around to the back.
7. Remove the glass disc – unscrew the hold-down ring nut, remove the clear plastic washer and lift off the glass.
8. Remove the counting window and sensor – unlock the electrical cable by pulling the black ring down, then disconnect it by pulling the connector down. Remove the counting sensor by pulling down on the release clip at the bottom and rotating the sensor out. Loosen the knob on the left side of the counting window and remove the window and sensor as one piece. DO NOT let the window hang by the fiber optic cables. DO NOT separate the fiber optic cables from the sensor.
9. Remove the counting head clear front cover – unscrew the three knobs and remove the cover.
10. Remove the funnel holders and funnels – loosen the funnel knob and slide the funnel holder and funnel out.
11. Remove the left, right and center head blocks – slide the blocks off the mounting posts.
12. Remove the funnel block – loosen the two knobs, letting the block drop until it is free.
13. Remove the feeder pan sieve plate (if equipped with optional feeder) – loosen two knobs and remove sieve plate.
14. Remove the hopper door (if equipped with optional hopper) – remove two knobs and lift door out of hopper.

## 9.1.1. STEP-BY-STEP BREAKDOWN – UPPER SECTION



If equipped with the optional Auto-Feed Sensor, disconnect the sensor cable.



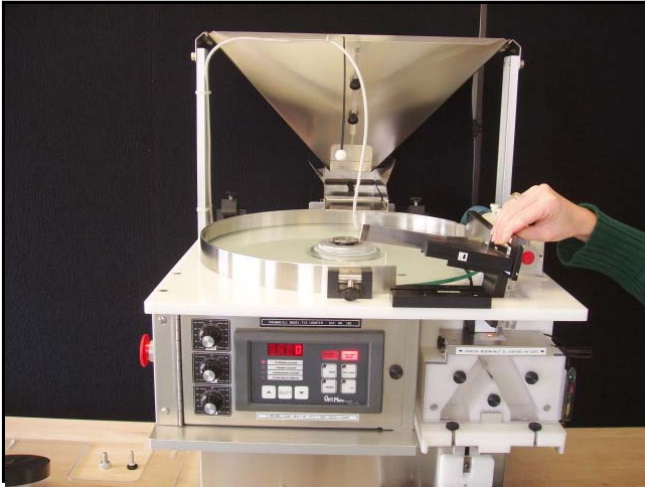
Remove the Rim Dust Cover by loosening the hold-down knob (front) and two mounting knobs (rear). The cover will slip out.



Remove the Center Hub (with Deflector attached) by unscrewing the center knob.

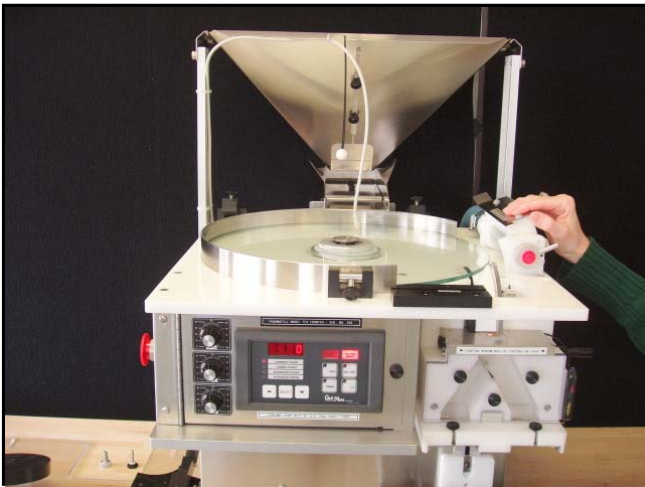
(First time – remove bubble pack under deflector)

## 9.1.1 STEP-BY-STEP BREAKDOWN – UPPER SECTION (CONT'D)



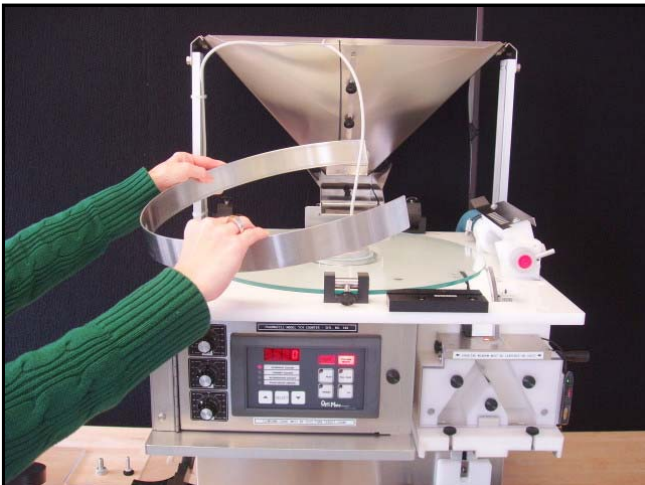
Remove the Guide Block Assembly by unscrewing the hold-down knob.

(First time – remove bubble pack from under the Flow Diverter)



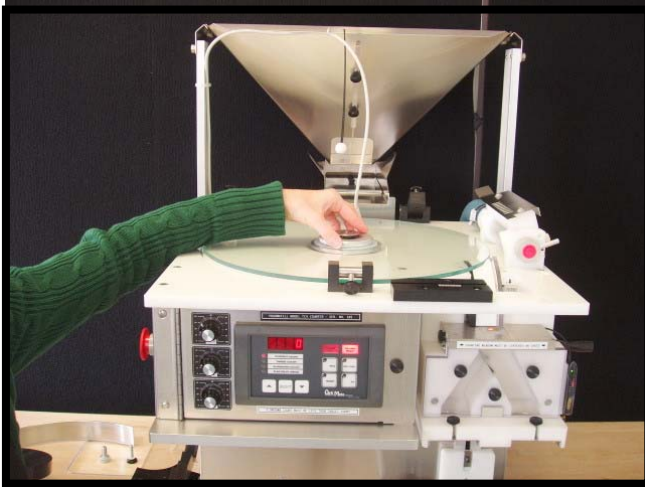
Move the Flow Guide Assembly out of the way by pulling on the release pin and swinging it up.

(First time – remove bubble pack under the Flow Guide)

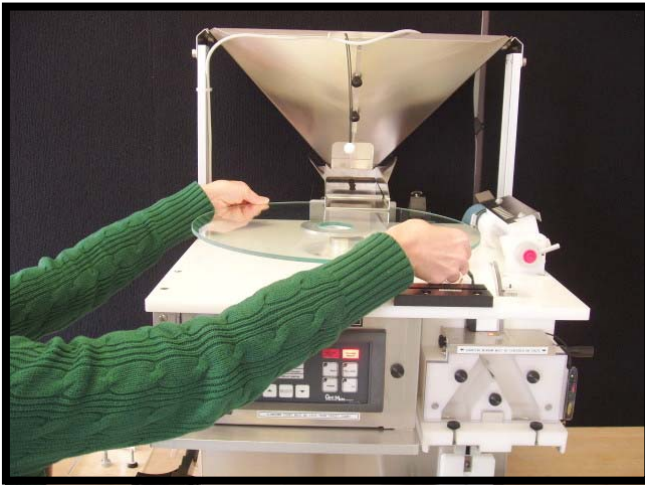


Remove the Rim Band by lifting it out of the groove in the top plate. Always start at one end and work your way along the length way to the other end. This works for both removal and installation.

9.1.1 STEP-BY-STEP BREAKDOWN – UPPER SECTION (CONT'D)



Unscrew the ring nut, then remove the ring nut and the thin plastic washer.

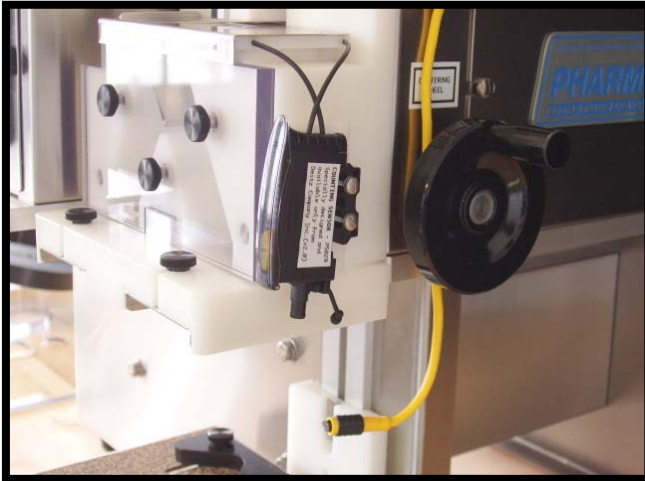


Lift the glass disc off of the drive hub.  
(First time – remove bubble pack from under the glass disc)

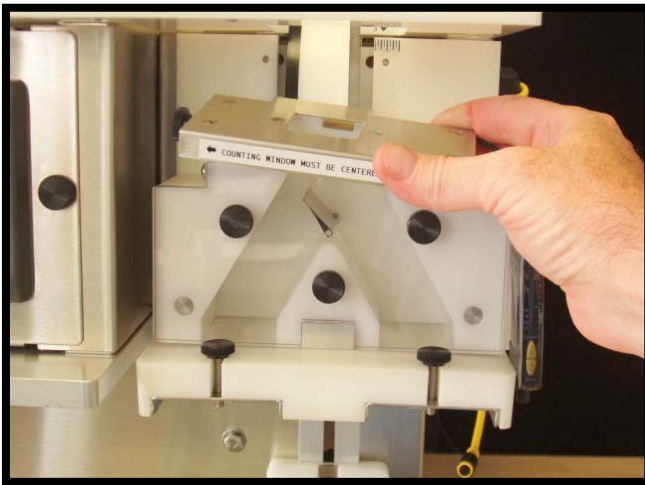




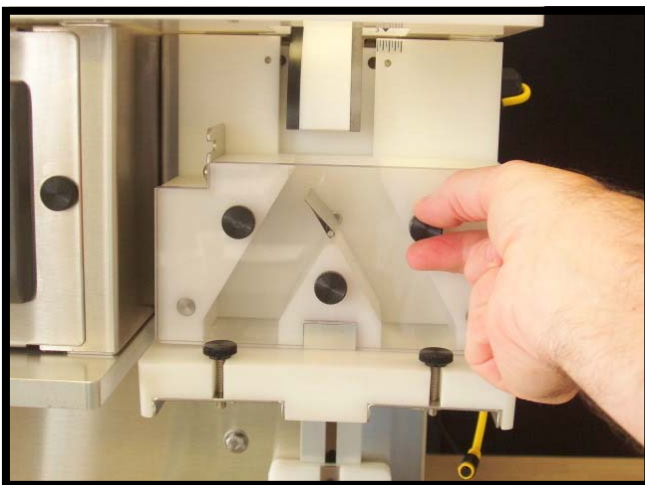
## 9.1.2. STEP-BY-STEP BREAKDOWN – HEAD SECTION



Remove the counting window and sensor – unlock the electrical cable by pulling the black ring down, then disconnect it by pulling the connector down. Remove the counting sensor by pulling down on the release clip at the bottom and rotating the sensor out.

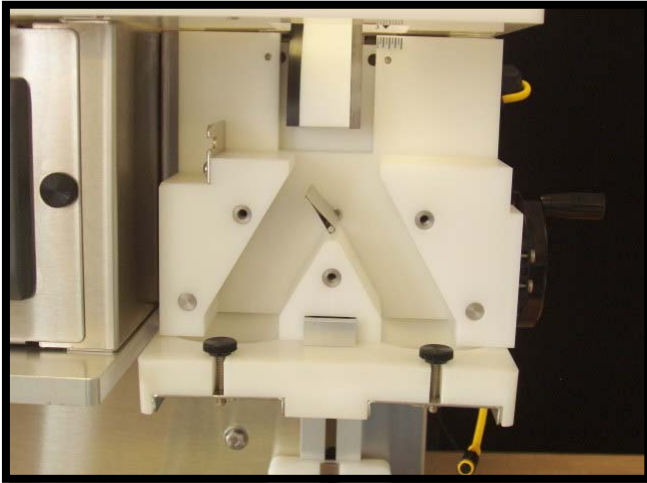


Loosen the knob on the left side of the counting window and remove the window and sensor as one piece. DO NOT let the window hang by the fiber optic cables. DO NOT separate the fiber optic cables from the sensor.

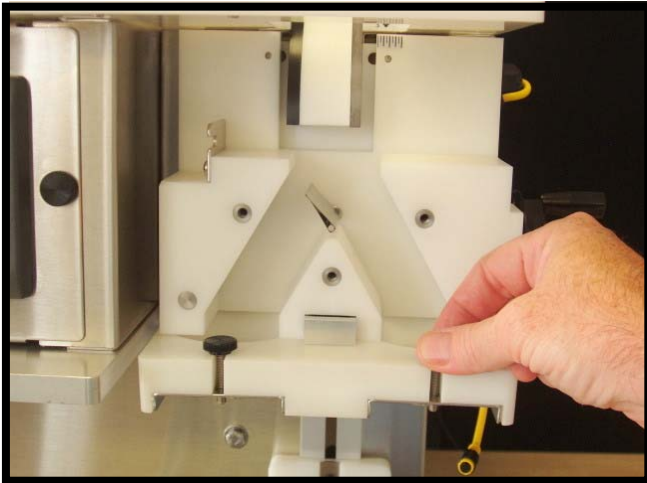


Remove the clear front cover – unscrew the three knobs and remove the cover.

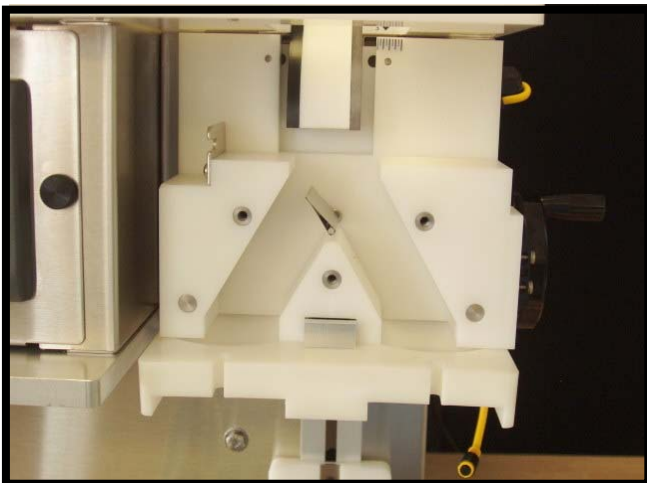
9.1.2 STEP-BY-STEP BREAKDOWN – HEAD SECTION (CONT'D)



Counting Head with clear front cover removed.



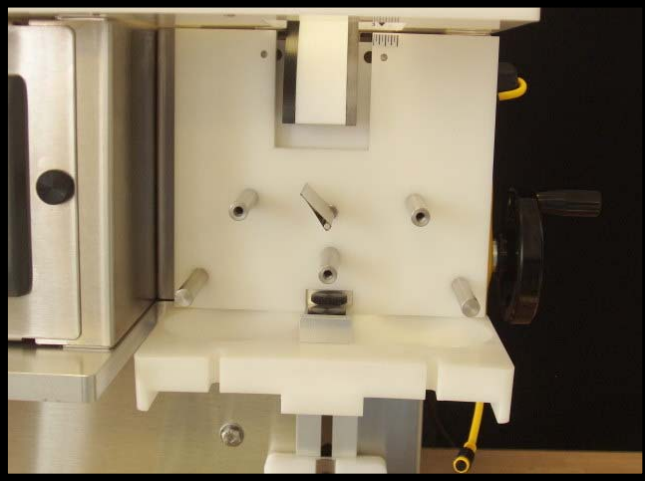
Remove the funnel holders and funnels – loosen the funnel knob and slide the funnel holder and funnel out.



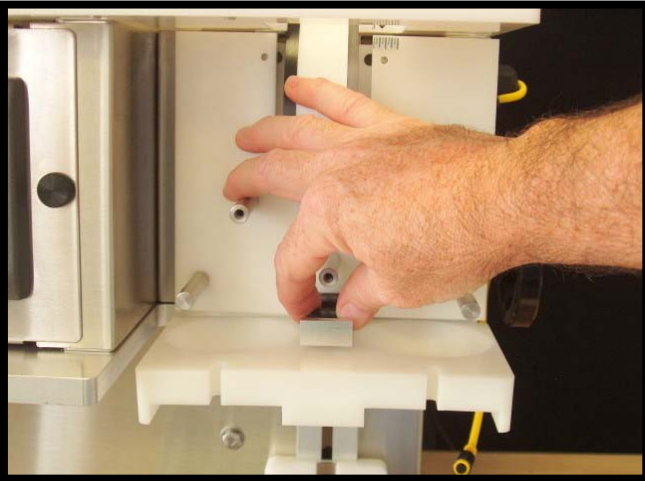
Counting head with funnel holders and funnels removed.



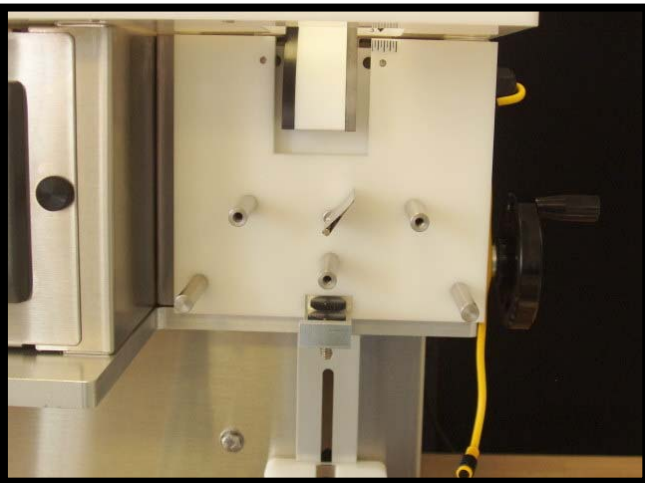
9.1.2 STEP-BY-STEP BREAKDOWN – HEAD SECTION (CONT'D)



Remove the left, right and center head blocks – slide the three blocks off the mounting posts.

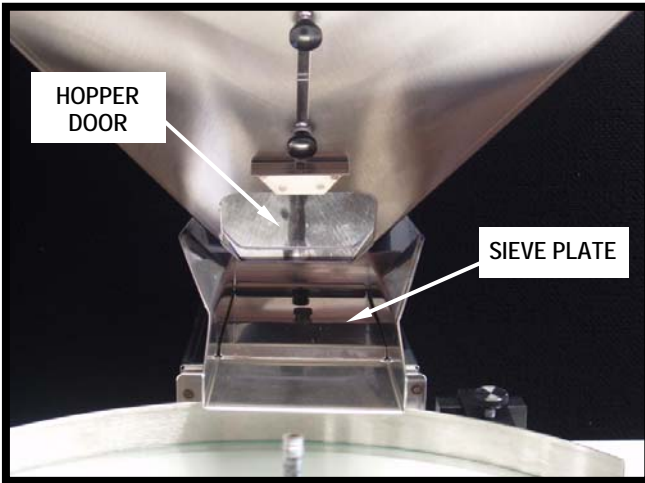


Remove the funnel block – loosen the two knobs, letting the block drop until it is free.



Counting head with funnel block removed.

9.1.2 STEP-BY-STEP BREAKDOWN – HEAD SECTION (CONT'D)



Remove the feeder pan sieve plate (if equipped with optional feeder) – loosen two knobs and remove sieve plate.

Remove the hopper door (if equipped with optional hopper) – remove two knobs and lift door out of hopper



## 9.2. BUILDUP OF REMOVE-TO-CLEAN CONTACT PARTS

Use the pictures in section 9.1.1 (Step-by-step Breakdown...) in reverse order to help with this procedure.

1. Install the hopper door (if applicable) – put the door in place and secure with two knobs.
2. Install the feeder sieve plate (if applicable) – Install sieve plate and tighten two knobs.
3. Install the funnel block – raise the block as you tighten two knobs.
4. Install the left, right and center head blocks – slide the blocks onto the mounting posts.
5. Install the funnel holder and funnel – slide in the funnel holder and tighten the knob.
6. Install the counting head clear front cover – install the cover and tighten the three knobs.
7. Install the counting window and sensor – Install the window and sensor as one piece and tighten the knob on the left side of the counting window. Install the counting sensor by snapping it down onto the mounting bracket. Connect the electrical cable by aligning the notch in the connector to the rear and pushing up onto the sensor. Push the black ring up to lock the connector.
8. Install the glass disc – carefully place the glass disc onto the hub, aligning the groove in the disc support ring with the pin on the hub. Install the cushioning washer and screw down the hold-down ring nut.
9. Install the rim band – starting at the front, place the band in the groove, working your way around to the back. Make sure it is seated down all around.
10. Install the product guide assembly – position assembly and tighten the knob.
11. Install the center hub – Place the hub onto the center port, making sure to align the pin in the hub with the hole in the post. Tighten the knob.
12. Rotate the air manifold assembly into place– rotate the assembly down and press the release pin to assure that it has engaged the locating hole.
13. Install the clear rim cover – Slide the cover onto the rear knobs and tighten. Close the cover and tighten the front hold-down knob.
14. If equipped with the optional automatic feeder control, connect the electrical cable to the AFC sensor by aligning the connector and screwing it on.

### 9.3. CLEAN-IN-PLACE CONTACT PARTS

The following must be cleaned in place unless further disassembly is done using tools. Contact the factory if you need assistance.

1. Hopper (optional, if equipped) – wipe down inside surfaces.
2. Feeder pan (optional, if equipped) - wipe down inside surfaces.
3. Inner chute – wipe down the all visible inside surfaces
4. Divider Flag
5. Counting head Back Plate

### 9.4. NON-CONTACT AREAS

1. Feeder pan dust chute and dust box – clean out dust box by removing four screws from the rear cover and wiping or blowing with compressed air (wear eye protection, please).
2. All other surfaces – follow guidelines in the next section.

### 9.5. CLEANING RECOMMENDATIONS

#### Washdown

This machine is not waterproof and is not intended for full wash down. If full washdown is performed on the equipment near the machine, it must be completely protected by a waterproof cover or by other means. Washdown will void the warranty.

#### Cleaning solutions

Glass and stainless steel are resistant to most cleaning solutions. Other contact materials such as aluminum and nonmetallics (plastics, or rubber) are generally less corrosion-resistant and care should be exercised in their cleaning. Aluminum is readily attacked by acids as well as highly alkaline cleaners, which can render the surface non-cleanable. Plastics are subject to stress cracking and clouding from prolonged exposure to corrosive cleaning agents. Use a USDA approved sanitizing solution that is safe for all materials listed below, in a spray bottle, by lightly wiping down all contact surfaces. In the absence of such a cleaner, recommendations follow.

#### Recommendations

Glass (tempered): This material is resistant to damage from most cleaners. Routine cleaning can be done with soap and water, alcohol or acetone.

Stainless steel: This material is resistant to damage from most cleaners. Routine cleaning can be done with soap and water, alcohol or acetone.

Anodized aluminum: Any highly acidic or alkaline cleaner will etch the aluminum over time and damage it. Soap and water, or alcohol is acceptable.

Clear plastic: The clear plastic material is polycarbonate (known as Lexan). Cleaning with alcohol or acetone will damage it and should never be used. Ammonia or any strong cleaner will make it cloudy over time. It may be safely cleaned with soap and water.

Other plastic: All other manufactured plastic parts are made from acetal (known as Delrin). It is resistant to damage from most cleaners. Routine cleaning can be done with soap and water, or alcohol. White acetal will yellow over time due to exposure to ultraviolet light in the environment. This is normal and cannot be removed by cleaning. Some cleaner may accelerate this process.

## 10. TECHNICAL INFORMATION

### 10.1. PRINCIPLE OF OPERATION

The Pharmafill Model TC4 is an electronic pill counter/filler. It can count objects other than pills, but the primary purpose is to count pills (tablets, capsules, caplets, most solid oral dose products). The pills are counted using photoelectric sensing. Once counted the pills are directed into pre-staged bottles. It may be used as a check counter, as a manual bottle-filling machine (one bottle at a time), or as a semi-automatic filler (one bottle after another, continuously).

A supply of product to be counted is distributed to a rotating glass disc. A single-file stream of pills is guided off the edge of the glass and down a curved chute, where the pills space out as they fall. As the pills exit the chute, they pass through the counting window, containing a light source and light receiver that are connected to a counting sensor. As each pill briefly blocks the light source, the counting sensor detects the change in light level and sends a count signal to the PLC computer, which maintains the tally.

The PLC compares the tally against two pre-set values: slowdown count and target count. The slowdown count must be less than the target count. When the slowdown count is met, the rotation speed of the glass disc slows down. This aids in the action of the divider flag (see below). When the target count is matched, the glass disc resumes full speed.

After passing through the counting window, the pills strike the divider flag, which directs the stream of pills into one of two exit funnels, one on the left and one on the right. When the tally matches the target count, the divider flag switches sides, starting a new count at zero on the alternate side. The action of the divider flag is must be timed perfectly to split the stream of pills precisely after last pill of the target count and before the first pill of the next count.

When used as a manual filler (MANUAL mode), the machine will stop each time the target count is met. The divider flag will flip and any excess pills will be tallied but the stream will stop.

When used as a semi-automatic filler (AUTO mode), the stream will be continuous to the right or left funnels alternately. The operator must take away filled bottles and supply empty ones when required.

When used for count verification only (CHECK COUNT Mode), the machine will only deliver and count the product. It will not automatically reset to zero or flip the divider flag; the user must press RESET to do this. The Target and Slowdown counts are not used.



## 10.2. CYCLE OF OPERATION

When power is on, the counting function is active and anything that passes through the counting window will be tallied.

### Automatic Cycle

1. If RUN button is pressed (latch)
2. Glass disc rotates at HIGH speed (set by potentiometer)  
Feeder starts (if equipped)  
If tally  $\geq$  SLOWDOWN COUNT,
3. Glass disc rotates at LOW speed (set by potentiometer)  
If tally=TARGET COUNT
4. Divider flag flips  
Count tally reset to zero  
Glass disc resumes HIGH speed
5. If RUN button is pressed again (unlatch)  
Glass disc stops  
Feeder stops (if equipped)

### Manual Cycle

1. If MANUAL button is pressed (latch)
2. Glass disc rotates at HIGH speed (set by potentiometer)  
Feeder starts (if equipped)  
If tally  $\geq$  SLOWDOWN COUNT,
3. Glass disc rotates at LOW speed (set by potentiometer)  
If tally=TARGET COUNT
4. Divider flag flips  
Count tally reset to zero  
Glass disc stops  
Feeder stops  
Excess pills are counted and tally is maintained

### Check Count Cycle

1. If CHECK COUNT button is pressed (latch)
2. Glass disc rotates at HIGH speed (set by potentiometer)  
Feeder starts (if equipped)
5. If CHECK COUNT button is pressed again (unlatch)  
Glass disc stops  
Feeder stops (if equipped)  
Count tally reset to zero

### 10.3. TROUBLESHOOTING

- a. No power overall or to some components.
  - Check power cord is plugged in and in good condition.
  - Check Main Switch is on (at Power Entry Module).
  - Check STOP is released.
  - Check main fuse F1 in Power Entry Module.
  - Check all component fuses inside behind right side access panel (LED "on" indicates blown fuse).
  
- b. Front control panel does not light up.
  - Check component fuse F6 (OP1) inside behind right side access panel.
  - Check 24 VDC power connections at panel and at power supply.
  - Check that PS1 24 VDC power supply is working.
  
- c. Have power but no response to action keys on front control panel.
  - Check component fuse F2 (PLC) inside behind right side access panel (LED "on" indicates blown fuse).
  - Check PLC is in run mode and terminal position.
  - Check PLC is connected to front control panel via data cable.
  
- d. Disc does not rotate in any mode.
  - Check component fuse F4 (SC1) inside behind right side access panel (LED "on" indicates blown fuse).
  - Check speed control knobs for HIGH and LOW are set above 10%.
  - Check relays REL1 & REL2 next to PLC, inside front access door.
  - Check speed control SC1 behind right side access panel.
  
- e. Disc stops before target count is reached, but starts upon reset.
  - Check speed control knob for LOW is set above 10%.
  
- f. Feeder does not operate
  - Check the electrical connector between the back of the machine and the feeder.
  - Check component fuse F5 (SC2) inside behind right side access panel (LED "on" indicates blown fuse).
  - Check speed control knob for FEED is set above 10%.
  - Check relay REL3 next to PLC, inside front access door.
  - Check speed control SC2.
  
- g. Feeder stops too often (if equipped with Auto Feed Sensor)
  - Check the mechanical adjustments of the sensor target and product deflector.
  - Check the Auto-feed sensor for electrical function. Feeder should stop when yellow light sensor turns on.
  - Check that the red input light X1 on the PLC turns on whenever the yellow light on the sensor turns on.
  - Check the electrical connector between the back of the machine and the feeder.

- h. Auxiliary outlet has no power.
  - ❑ Check component fuse F3 (outlet) inside behind right side access panel (LED “on” indicates blown fuse).
  
- i. Divider Flag does not flip (does not switch sides alternately)
  - ❑ Power down and check that the flag moves freely back and forth.
  - ❑ Check the electrical connections to the left and right actuator solenoids.
  - ❑ Check that the red output lights Y4 and Y5 on the PLC turn on alternately for left and right.
  
- j. Count is not accurate – too many in container (sensor missing pills)
  - ❑ Check that the counting head is centered on the exit chute.
  - ❑ Check that the bar graph indicator lights on the counting sensor are dropping and rising as objects pass through the sensor.
  - ❑ Check that the product flow is consistently single file, one level high (no doubles or piggy backs)
  - ❑ Contact Deitz Company for more detailed troubleshooting help.
  
- k. Count is not accurate – too few in container
  - ❑ In the case of clear or translucent product, check the adjustment the one-shot delay.
  - ❑ Check that small chips are not being counted as whole
  - ❑ In the case of long or irregularly-shaped product, make sure that the product is not tumbling through the counting window and occasionally being counted twice.
  - ❑ Contact Deitz Company for more detailed troubleshooting help.
  
- l. Count is not accurate – random
  - ❑ Contact Deitz Company for more detailed troubleshooting help.

10.4. Index of Technical Notes/Drawings (document section begins after this page)

<u>Doc. No.</u>	<u>Title</u>	<u>No. of Pages</u>
TC4-AD1154-DIM	Dimensions and specification	2
TC4-AD1154-CCD	Contact Compliance Document	1
TC4-AD1154_PM-Safety	Preventative Maintenance & Safety Device	1
TC4-AD1154_Wear-Spare	Wear and Spare Parts	1
TC4-AD1154_woBOM	Bill of Materials	7
TN0099 CSS	Counting Sensor Specification	2
TN0101A	No Bottle Sensors (Optional)	2
SC 1011	TC4 Electrical Schematic	10

Addendums or additional technical data

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_____	_____	—
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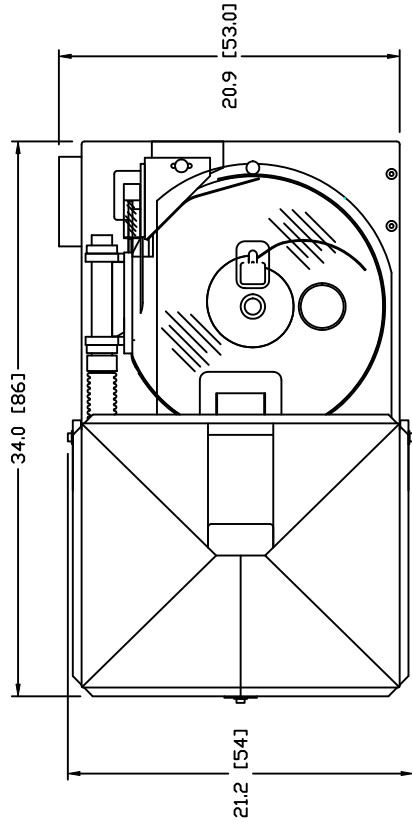
NOTE

REV DESCRIPTION

REV

DATE

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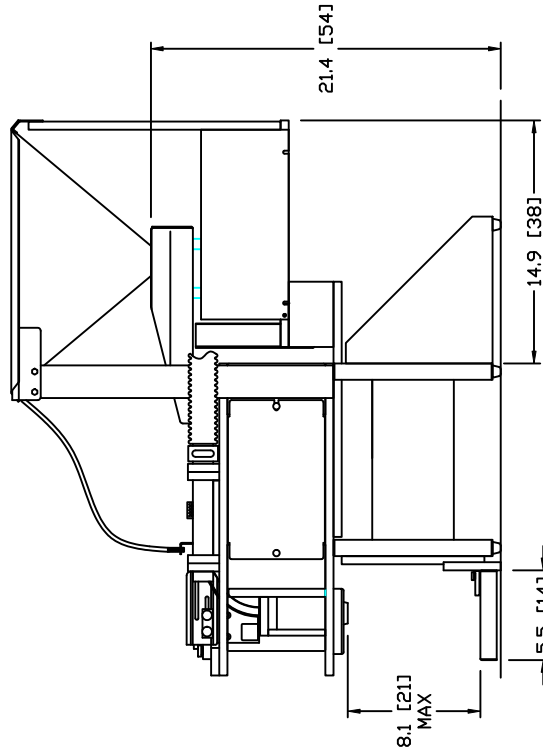
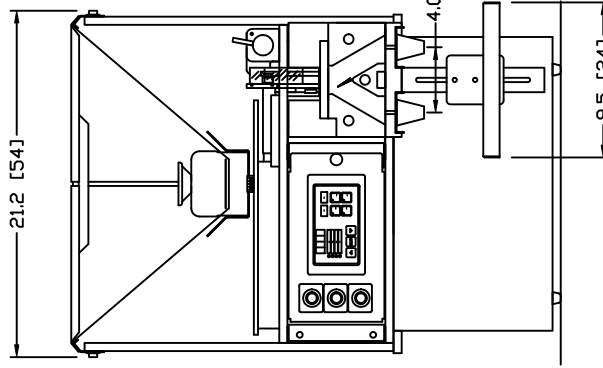
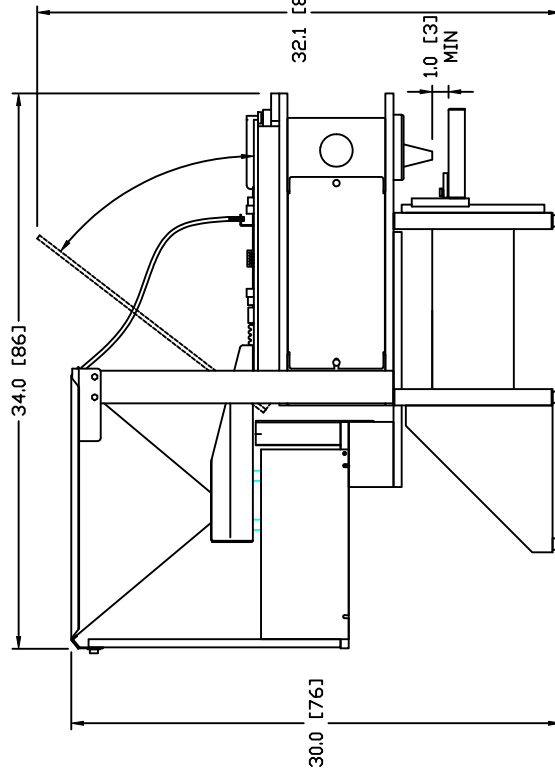
SPECIFICATIONS

ELECTRICAL

110 VAC 50/50 Hz  
 DRAWS 2.0A WITH NO AUXILIARY OUTLET LOAD  
 UP TO 7.0A WITH AUXILIARY OUTLET LOAD  
 (USUALLY AS1 AIR SUPPLY BLOWER)

WEIGHTS

BASE MODEL 83 Lbs (38 Kg)  
 WITH FEEDER 113 Lbs (52 Kg)  
 WITH FEEDER & HOPPER 120 Lbs (58 Kg)



FULLY OPTIONED MODEL SHOWN

BASE MODEL PLUS:  
 AIR GUIDE SYSTEM  
 VIBRATORY FEEDER  
 LARGE CAPACITY HOPPER  
 AUTO-FEEDER CONTROL  
 NOT SHOWN: AS1 AIR SUPPLY

NUMBER: AD1154-DIM

REVISION 1

**DEITZ COMPANY, INC.**  
**ROUTE 34, WALL, N.J.**  
 TECHNICAL DRAWING - PRODUCT INFO

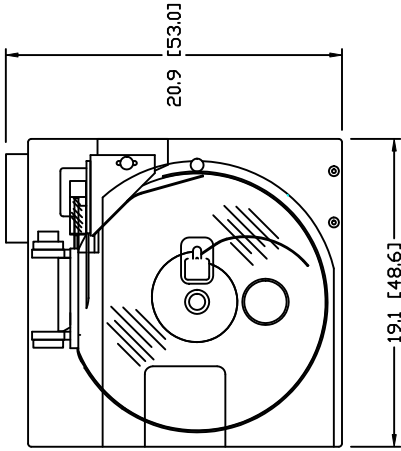
PRODUCT AD1154  
 TITLE MODEL TC4 DIMENSIONS & SPECIFICATIONS

BY SJD2 DATE: 2008-02-14  
 SHEET 1 OF 2  
 NUMBER AD1154-DIM  
 REVISION -

NOTE - REV - DESCRIPTION -

DATE

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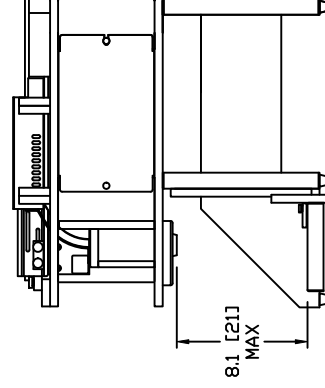
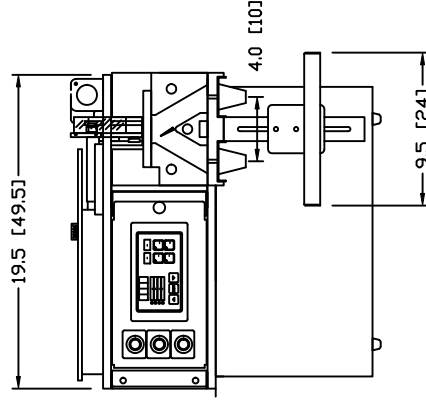
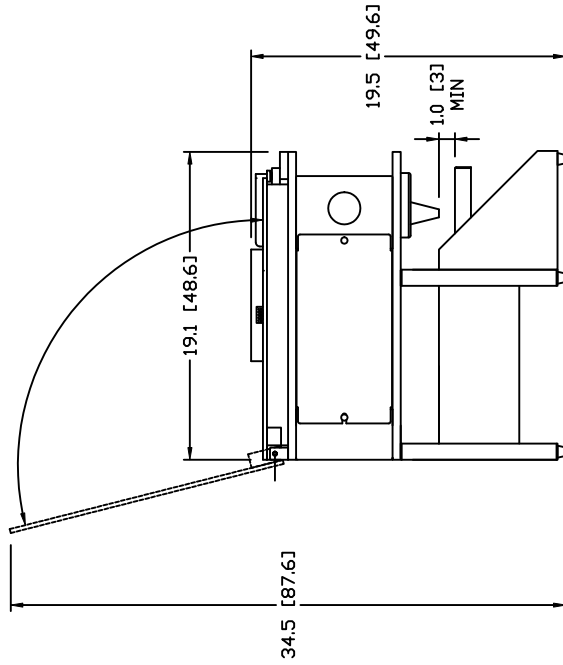
**SPECIFICATIONS**

**ELECTRICAL**

110 VAC 50/50 Hz  
 DRAWS 2.0A WITH NO AUXILIARY OUTLET LOAD  
 UP TO 7.0A WITH AUXILIARY OUTLET LOAD

**WEIGHTS**

BASE MODEL 83 Lbs (38 Kg)  
 WITH FEEDER 113 Lbs (52 Kg)  
 WITH FEEDER & HOPPER 120 Lbs (58 Kg)



BASE MODEL SHOWN

NUMBER:  
AD1154-DIM

REVISION  
-

**DEITZ COMPANY, INC.**  
**ROUTE 34, WALL, N.J.**

TECHNICAL DRAWING - PRODUCT INFO

PRODUCT AD1154

BY SJD2 DATE: 2008-02-14

TITLE MODEL TC4 DIMENSIONS & SPECIFICATIONS

SHEET 2 OF 2  
 NUMBER AD1154-DIM  
 REVISION -



JOHN DEITZ  
President

Deitz Company Inc.  
1750 Route 34 PO Box 1108  
Wall, NJ USA 07719

Tel 732-681-0200  
Fax 732-681-8468  
Email sjd2@deitzco.com

#### PRODUCT COMPLIANCE DATA

Model TC4 Electronic Counter Type AD1154

#### FOOD COMPLIANCE STATEMENTS

##### MATERIALS IN DIRECT CONTACT WITH PRODUCT

Deitz Company Inc hereby certifies that the list below contains all the parts of the above-cited machine that come in direct contact with the product, and that those parts are manufactured using raw materials and surface treatments which conform to the requirements of such parts as established by the Food and Drug Administration of the United States. Certificates of compliance for raw materials and treatments are maintained according to our internal Quality Control System or to that of our material and treatment suppliers.

#### CONTACT PARTS, MATERIALS AND TREATMENTS

PART NUMBER	DESCRIPTION	MATERIAL	CERTIFICATION
FA1021	Hopper	SS304	ASTM Standard
FM3567	Hopper Door	SS304	ASTM Standard
FM2192	Sieve Plate	SS304	ASTM Standard
P3508	Sieve Plate Knob	Polyethylene	FDA 21 CFR 177.1600
FM3474	Feed Tray	SS304	ASTM Standard
P2502	Disc	Float Glass	ASTM Standard
FM3540	Rim	SS304	ASTM Standard
FM3462	Center Hub	Acetal	FDA 21 CFR 177.2480
FM3481	Deflector	SS304	ASTM Standard
FM3548 (see AD1134)	Flow Guide	SS304	ASTM Standard
FM3528	Product Guide	SS304	ASTM Standard
FM3489	Adj. Guide Block Shield	SS304	ASTM Standard
FM3433 (see FA1018)	Fixed Chute Center	Acetal	FDA 21 CFR 177.2480
FM3432 (see FA1018)	Fixed Chute Left Side	Acetal	FDA 21 CFR 177.2480
FM3431 (see FA1018)	Fixed Chute Right Side	Polycarbonate	FDA 21 CFR 177.1580
FM3442	Ajd. Product Guide Plate	Acetal	FDA 21 CFR 177.2480
FM3456	Adj. Chute Side Plate	Acetal	FDA 21 CFR 177.2480
FM3458	Chute Cover, Clear	Polycarbonate	FDA 21 CFR 177.1580
FM3494	Counting Window Clear Cover	Polycarbonate	FDA 21 CFR 177.1580
FMA1386	Diverter Flag	SS304	ASTM Standard
FM3541	Head Back Plate	Acetal	FDA 21 CFR 177.2480
FM3543	Head Side Block L&R	Acetal	FDA 21 CFR 177.2480
FM3542	Head Center Block	Acetal	FDA 21 CFR 177.2480
FM3544	Head Front Cover, Clear	Polycarbonate	FDA 21 CFR 177.1580
FM3545	Head Funnel Block	Acetal	FDA 21 CFR 177.2480
FM1393-96	Funnel	SS304	ASTM Standard

**Legal disclaimer: Deitz Company believes the above information to be truthful, based on information provided to us from our suppliers. However, Deitz Company cannot guarantee the accuracy of the reporting, testing or procedures of our suppliers and assumes no liability or obligation as to the same. Deitz Company also assumes no liability as to the suitability of the above materials to the application for which the customer intends to use the machine. It is the customer's responsibility to assure that the above materials meet the customer's requirements.**



### Preventive maintenance

There is little preventative maintenance required on the machine other than routine cleaning and inspection. There are no lubrication points. All bearing are sealed and/or permanently lubricated.

Every six months –

1. Remove the right side access panel.
2. Visually inspect the condition and tightness of the disc drive belt. If the belt appears excessively loose, you may adjust it by loosening the motor assembly mounting screws and moving the motor assembly back. Adjust it so there is no slack. Since it is a toothed belt, there is no need for additional tension. If the belt is appears worn, replace it.
3. Visually inspect the condition of the flag linkage. If the hole in the linkage appears excessively worn, replace it. The shape of the hole should be a perfect obround (oval). Rounding of the hole indicates wear.

### Safety device

There are no hazardous aspects to the routine operation of the machine. There are no dangerous moving parts or sharp edges. Therefore there are no guards or interlocks to prevent operation.

For quick, convenient stoppage of the machine operation, there is a twist-to-unlock emergency stop button.

For safe internal inspection and service, there is a main power disconnect switch in the power entry module (along with main fuse).

<u>Part Number</u>	<u>Description</u>	<u>Type</u>	<u>Quan Used</u>	<u>Unit</u>	<u>Ref</u>	<u>Where Used</u>
	<b><u>AD1154 - TC4 Electroninc Counter</u></b>					
	<b><u>WEAR PARTS (1-year in service)</u></b>					
AD1085-1	CS1 Spare Fuse Kit	WEAR	1	EA		Electrical Panel
P5816	Relay, DPST 24VDC	WEAR	3	EA	REL1,2,3	PLC Panel
P0316	Bearing, Oilite .38L x .25OD	WEAR	1	EA		Diverter Flag Shaft
FM2199	Disc Hold Down Washer	WEAR	1	EA		Under Center Hub
FM3458	TC3 & TC4 Clear Chute Cover	WEAR	1	EA		Product Guide Chute
FM3494	TC3 & TC4 FibOp Clear Cover	WEAR	2	EA		Counting Window
SD1438	Actuator Link	WEAR	1	EA		Head Actuator Assy
	<b><u>CRITICAL SPARE PARTS</u></b>					
FM3056-2	TC3 & TC4 Vibrator Mod's	SPARE	1	EA		Optional Feeder
FM3057	TC Motor Mod	SPARE	1	EA		Disc Drive Unit
FM3512	TC3 & TC4 Manifold Adj Knob	SPARE	2	EA		Ait Manifold
FM3528-2	TC4 Product Guide	SPARE	1	EA		Adj Guide Assy
FM3566-1	TC4 "SC1" Motor Speed Ctrl	SPARE	1	EA		Electronics
FM3566-2	TC4 "SC2" Feeder Speed Ctrl	SPARE	1	EA		Electronics
FM3568	Actuator Solenoid, Deltrol	SPARE	2	EA		Head Actuator Assy
FMA1386	TC4 Flag Ass'y	SPARE	1	EA		Head Actuator Assy
FMA2197	TC Dual Actuator Sub-Ass'y	SPARE	1	EA		Head Actuator Assy
FMA2340	Flag Lever Sub-Ass'y	SPARE	1	EA		Head Actuator Assy
FMA2662-2	TC3 & TC4 Motor Pulley, 40T	SPARE	1	EA		Disc Drive Unit
P0102	Actuator Solenoid, Guardian	SPARE	2	EA		Head Actuator Assy
P0418	Belt,Gear - 150XL037	SPARE	1	EA		Disc Drive Unit
P1809	Controls Display Optimate 613	SPARE	1	EA		Electronics
P1811	Controls PLC 05 Series	SPARE	1	EA		Electronics
P2502	Glass Disc 15.970	SPARE	1	EA		Final Assy
P5028	Fiber Optic Cbl Pair w/Sqr Mnt	SPARE	1	EA		Counting Window
P5029	Fiber Optic Counting Sensor	SPARE	1	EA		Electronics
P6929-3	PB Emer Sw Contact Block	SPARE	1	EA		Electronics
P6981	Sensor - Proximity Switch PNP	SPARE	1	EA		Electronics
P6983	Sensor Cordset, 3-pin Straight	SPARE	1	EA		Electronics
P9035	Power Supply 24 VDC Reg	SPARE	1	EA		Electronics

03/11/08

Part No:	AD1154	Cust Code:	DEI002
Desc:	TC4 Tablet Counter w/Options	Name:	DEITZ COMPANY, INC.
Job No:	UM: EA	PO Number:	
Drawing:	Rev:	Sales Ord:	7816 Due Date: 03/11/08
Start Dt:	03/11/08	Fin Dt:	03/11/08
Quantity:	1.00	Contact:	
		Priority:	2 Change Order No: 0

**INSTRUCTIONS**

Options:

**BILL OF MATERIALS**

<u>Part Number</u>	<u>Description</u>	<u>UM</u>	<u>Quantity</u>	<u>Reference</u>
PHANTOM ASSY: AD0754-2 TC3/TC4 Vibratory Feeder Mod's				
FM3056-2	TC3 & TC4 Vibrator Mod's	EA	1.00	
FMA2132-2	TC3 & 4 Feed Tray Mtg SubAssy	EA	1.00	
LB0001	Labor&OH - Factory	HR	0.50	
LB0007	Gen&Admin - Office	HR	0.50	
P1303	Connector Plug, 4 Term,w/locks	EA	1.00	
PHANTOM ASSY: AD0797-2 TC3 & TC4 Drive Post & Hub				
FM2280	Wave Washer	EA	1.00	
FM2629-41	Drive Hub Mtg Block Standoff	EA	3.00	
FM2661-2	TC3 & TC4 Drive Hub Pulley,40T	EA	1.00	
FM2664	TC Drive Post Spacer	EA	1.00	
FM2755	TC Drive Post Shim	EA	2.00	
FM3522	TC3 & TC4 Drive Post Base Blk	EA	1.00	
FMA2440	Collar Mod (Mod of P1705)	EA	1.00	
FMA2441-3	Drive Post Assy, TC3 & TC4	EA	1.00	
LB0001	Labor&OH - Factory	HR	0.60	
LB0007	Gen&Admin - Office	HR	0.60	
P0418	Belt,Gear - 150XL037	EA	1.00	
P1705	Collar Shaft Clamp One-Pc .75	EA	1.00	
P2722	Hdwr Washer Fiber .75 x 1 x .0	EA	1.00	
P6028	Retaining Ring 3/4	EA	1.00	
P6103	Rubber O Ring 5/8 x .75	EA	1.00	
PHANTOM ASSY: AD1036 TC Dual Actuator Assy W/Bkt &				
LB0001	Labor&OH - Factory	HR	0.50	
LB0007	Gen&Admin - Office	HR	0.50	
AD0750	TC Actuator Terminal Board Ass	EA	1.00	
FM2126	TC1/TC2 Actuator Bracket	EA	1.00	
PHANTOM ASSY: AD1130-2 TC4 Motor Assembly				
FM3057	TC Motor Modifications	EA	1.00	
FM3526	TC3 & TC4 Motor Mount Block	EA	1.00	
FM3527	TC3 & TC4 Motor Mount Blk Base	EA	1.00	
FMA2662-2	TC3 & TC4 Motor Pulley, 40T	EA	1.00	
LB0001	Labor&OH - Factory	HR	1.00	
LB0007	Gen&Admin - Office	HR	1.00	
PHANTOM ASSY: AD1137-1 TC4 Product Chute Assy				
FA1018-1	TC4 Chute Assy Mods	EA	1.00	
FM3443-L	TC3/4 Fixed Chute Mtg Bkt,LH	EA	1.00	

03/11/08

Part No:	AD1154	Cust Code:	DEI002
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Drawing:	Rev:	Sales Ord:	7816 Due Date: 03/11/08
Start Dt:	03/11/08	Fin Dt:	03/11/08
Quantity:	1.00	Contact:	
		Priority:	2 Change Order No: 0

FM3443-R	TC3/4 Fixed Chute Mtg Bkt,RH	EA	1.00
LB0001	Labor&OH - Factory	HR	1.00
LB0007	Gen&Admin - Office	HR	1.00
PHANTOM ASSY: AD1138-2 TC4 Product Guide Assy			
FM3439	TC3/4 Mounting Base	EA	1.00
FM3440	TC3 & TC4 Adjustable Guide Blk	EA	1.00
FM3441	TC3/4 Adj Chute Side Mtg Block	EA	1.00
FM3442	TC3 TC4 Product Gd Mtg Blk	EA	1.00
FM3456	TC3 TC4 Adj Chute, Lower Side	EA	1.00
FM3457	TC3 & TC4 Chute Cover Mtg Blk	EA	1.00
FM3458	TC3 TC4 Chute Cover, Clear	EA	1.00
FM3473	TC3 & TC4 Guide Clamping Blk	EA	1.00
FM3489	TC3 & TC4 Adj Gd Blk Shield	EA	1.00
FM3528-2	TC4 Product Guide, Pointed	EA	1.00
LB0001	Labor&OH - Factory	HR	1.00
LB0007	Gen&Admin - Office	HR	1.00
P2749	Washer, Flat Nylon .252 ID x	EA	1.00
P3508	Knob Press-in 8-32	EA	2.00
P3512	Knob Press-in 1/4-20	EA	1.00
PHANTOM ASSY: AD1140-2 TC4 Center Hub & Deflector			
FM3462	TC3 & TC4 Center Hub	EA	1.00
FM3475-1	TC3 & TC4 Deflector Brkt,Upper	EA	1.00
FM3475-2	TC3 & TC4 Deflector Brkt,Lower	EA	1.00
FM3481-1	TC4 Deflector	EA	1.00
FM3498	TC3 & TC4 Center Hub Knob	EA	1.00
LB0001	Labor&OH - Factory	HR	1.00
LB0007	Gen&Admin - Office	HR	1.00
P2823	Dowel Pin, 3/16 x 7/16 S.S.	EA	1.00
PHANTOM ASSY: AD1141 TC3 & TC4 Scanner			
FM3493	TC3 & TC4 Scanner Mtg. Block	EA	1.00
FM3494	TC3 & TC4 Scanner Window	EA	2.00
FM3495	TC3 & TC4 Scanner Cover	EA	1.00
LB0001	Labor&OH - Factory	HR	1.00
LB0007	Gen&Admin - Office	HR	1.00
P3511	Knob Press-in 10-32	EA	1.00
P5028	Fiber Optic Cbl Pair w/Sqr Mnt	EA	1.00 #PIRS1X166U
PHANTOM ASSY: AD1145-1 TC4 Tablet Counter,w/o Options			
FM1347	Disc Holdown Nut	EA	1.00
FM1628	Disc Support Ring	EA	1.00
FM2199	Disc Hold Down Washer	EA	1.00
FM3539-1	TC4 Side Access Panel, Left	EA	1.00
FM3539-2	TC4 Side Access Panel, Right	EA	1.00
LB0001	Labor&OH - Factory	HR	1.00
LB0007	Gen&Admin - Office	HR	1.00

03/11/08

Part No:	AD1154	Cust Code:	DEI002
Desc:	TC4 Tablet Counter w/Options	Name:	DEITZ COMPANY, INC.
Job No:	UM: EA	PO Number:	
Drawing:	Rev:	Sales Ord:	7816 Due Date: 03/11/08
Start Dt:	03/11/08	Fin Dt:	03/11/08
Quantity:	1.00	Contact:	
		Priority:	2 Change Order No: 0

P2502	Glass Disc 15.970	EA	1.00
P4721	PHARMAFILL Aluminum Nameplate	EA	2.00
PHANTOM ASSY: AD1146	TC4 Base Assembly		
FM2629-42	TC3 & TC4 Head Adj Screw Bshng	EA	1.00
FM2950	CS1 Adjusting Wheel Mod's	EA	1.00
FM3521	TC3 & TC4 Head Adj Screw	EA	1.00
FM3531	TC4 Main Base Plate	EA	1.00
FM3532	TC4 Housing Rear Panel	EA	1.00
FM3533-1	TC4 Housing Left Panel	EA	1.00
FM3533-2	TC4 Housing Middle Panel	EA	1.00
FM3533-3	TC4 Housing Right Panel	EA	1.00
FM3536-1	TC4 Support Leg, Front	EA	1.00
FM3536-2	TC4 Support Leg, Rear	EA	1.00
FM3537	TC4 Support Leg Brace	EA	2.00
FM3552	TC4 Bottle Shelf Adjusting Bar	EA	1.00
FM3561	TC4 Front Sprt(when no Vibrtr)	EA	1.00
LB0001	Labor&OH - Factory	HR	1.00
LB0007	Gen&Admin - Office	HR	1.00
P1339	Connector Power Entry Module	EA	1.00
P1340	IEC LINE CORD, RIGHT ANGLE	EA	1.00 10086
P1360	Connector Power Outlet Panel,M	EA	1.00
P2717	Hdwr,Washer, Nylon, .44 ID	EA	1.00
P2718	Hdwr,Washer, Nylon .50 ID	EA	1.00
P5108	Nylon Plug for 13/16 Hole	EA	1.00
P5109	Nylon Plug for 11/16 Hole-WHT.	EA	1.00
P6106	Plastic Foot	EA	5.00
P6929-1	PB Emer Stop Actuator, Red	EA	1.00 #704-074.2
P6929-2	Emer Stop PB Yellow Nameplate	EA	1.00 #704-963.6
P6929-3	PB Emer Sw Contact Block	EA	1.00 #704-910.2
PHANTOM ASSY: AD1147	TC4 Main Electrical Panel		
FM2838-10.75	Din Rail, 10.75"	EA	1.00
FM3546	TC4 Main Electrical Panel Brkt	EA	1.00
LB0001	Labor&OH - Factory	HR	1.00
LB0007	Gen&Admin - Office	HR	1.00
P5802	Din Rail End Stop (PK/50)	EA	4.00
P9012	DIN Fuse Block w/LED 110 VDC	EA	5.00
P9013	DIN Fuse Block w/LED 24VDC	EA	1.00
P9020	DIN Term Blk Jumper 2 POLE	EA	2.00
P9022	DIN Term Blk Single (50/PK)	EA	4.00
P9023	DIN Term Blk Sngl Sprtr, Wht	EA	1.00
P9024	DIN Term Blk Triple	EA	1.00
P9025	DIN Term Blk Triple End Cover	EA	1.00
P9026	DIN Term Blk Triple Sensor	EA	2.00
P9035	Power Supply 24 VDC Reg	EA	1.00

03/11/08

Part No:	AD1154	Cust Code:	DEI002
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Quantity:	1.00	Contact:	
		Priority:	2 Change Order No: 0

PHANTOM ASSY: AD1148 TC4 PLC/Relay Panel(w/2 Relays)			
FM2838-5.75	Din Rail, 5.75"	EA	1.00
FM2838-6	Din Rail, 6Lg	EA	1.00
FM3547	TC4 PLC/Relay Mounting Bracket	EA	1.00
LB0001	Labor&OH - Factory	HR	1.00
LB0007	Gen&Admin - Office	HR	1.00
P1811	Controls PLC 05 Series	EA	1.00
P5802	Din Rail End Stop (PK/50)	EA	2.00
P5816	Relay, DPST 24VDC	EA	2.00
P6410	Socket Relay Screw Term	EA	2.00
PHANTOM ASSY: AD1149 TC4 Control Panel (w/2 Pots)			
FA1023	TC4 Control Door Sub-Assembly	EA	1.00
FM3289-27	PLC-Optimate Intcn Cable, 27"	EA	1.00
LB0001	Labor&OH - Factory	HR	1.00
LB0007	Gen&Admin - Office	HR	1.00
P1378	Conn, Mdlr Adptr SUBD15M-RJ12	EA	1.00
P1809	Controls Display Optimate 613	EA	1.00
P3502	Knob 1/4	EA	2.00
P5112	Steel Plug, 3/8 Hole, 1/2 Head	EA	1.00
P5241	Potentiometer Kit for Minarik	EA	1.00
PHANTOM ASSY: AD1150 TC4 Head Assembly			
FM2124-3	TC4 Flag Spacer, 1/4" Long	EA	1.00
FM3488	TC3 & TC4 Head Dust Shield	EA	1.00
FM3496	TC3 & TC4 Funnel Holder Bkt.	EA	2.00
FM3516-1	TC4 Head Adjusting Block	EA	1.00
FM3518-1	TC3 & 4 Head Blk Post, Blind	EA	2.00
FM3518-2	TC4 Head Block Post, Tapped	EA	3.00
FM3534	TC4 Head Slide Block	EA	1.00
FM3535	TC4 Head Mounting Block	EA	1.00
FM3541	TC4 Head Back Plate	EA	1.00
FM3542	TC4 Head Block, Center	EA	1.00
FM3543-1	TC4 Head Block, Right	EA	1.00
FM3543-2	TC4 Head Block, Left (Notch)	EA	1.00
FM3544	TC4 Head Front Cover, Clear	EA	1.00
FM3545	TC4 Head Funnel Block	EA	1.00
FM3551	TC4 Scanner Mounting Bracket	EA	1.00
FM3556	TC4 Scanner Spacer	EA	1.00
FMA1386	TC4/714/721 Diverter Flag Assy	EA	1.00
LB0001	Labor&OH - Factory	HR	1.00
LB0007	Gen&Admin - Office	HR	1.00
P0316	Bearing, Oilite .38L x .25OD	EA	1.00
P2665	Hdwr Shldr Blt.25x.188x#10-32	EA	2.00
P2806	Hdwr Roll Pin SS 1/8x5/8	EA	1.00
P3511	Knob Press-in 10-32	EA	5.00

03/11/08

Part No:	AD1154	Cust Code:	DEI002
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Start Dt:	03/11/08	Fin Dt:	03/11/08
Quantity:	1.00	Contact:	
		Priority:	2 Change Order No: 0

P3512	Knob Press-in 1/4-20	EA	2.00	
P5029	Fiber Optic Counting Sensor	EA	1.00	D10BFPQ-76879
PHANTOM ASSY: AD1151	TC4 Top Cover Assembly			
FM3477-1	TC3 & TC4 Cover Hinge,Btm Half	EA	2.00	
FM3477-2	TC3 & TC4 Cover Hinge,Top Half	EA	2.00	
FM3479	TC3 & TC4 Cover Hinge Pin	EA	2.00	
FM3482	TC3 & TC4 Cover Holddown Block	EA	1.00	
FM3483	TC3 & TC4 Cover Holddown Rod	EA	1.00	
FM3530	TC4 Top Plate	EA	1.00	
FM3540	TC4 Rim Band	EA	1.00	
LB0001	Labor&OH - Factory	HR	1.00	
LB0007	Gen&Admin - Office	HR	1.00	
P3512	Knob Press-in 1/4-20	EA	3.00	
PHANTOM ASSY: AD1152	TC4 Bottle Shelf			
FM3174-2	Strap Nut, TC4 Bottle Shelf	EA	1.00	
FM3174-3	Strap Nut, TC4 Bottle Locator	EA	1.00	
FM3553	TC4 Bottle Shelf Mtg Block	EA	1.00	
FM3554	TC4 Bottle Shelf	EA	1.00	
FM3555	TC4 Bottle Shelf Pad	EA	1.00	
FM3557	TC4 Bottle Locator	EA	1.00	
LB0001	Labor&OH - Factory	HR	1.00	
LB0007	Gen&Admin - Office	HR	1.00	
P2907	Ratchet Handle 1/4-20, Black	EA	1.00	#RH-10-OR-FP-1420
P3511	Knob Press-in 10-32	EA	2.00	
PHANTOM ASSY: FA1025	TC4 Rim Dust Cover Assembly			
FM3079	TC 3" Vacuum Flange	EA	1.00	
FM3549	TC4 Rim Dust Cover	EA	1.00	
LB0001	Labor&OH - Factory	HR	1.00	
LB0007	Gen&Admin - Office	HR	1.00	
PHANTOM ASSY: FM3566-1	TC4 "SC1" Motor Speed Ctrl Adj			
LB0001	Labor&OH - Factory	HR	1.00	
LB0007	Gen&Admin - Office	HR	1.00	
P1832	TC4 SCR Speed Cntrlr,w/6 Pots	EA	1.00	
PHANTOM ASSY: FM3566-2	TC4 "SC2" Vib Speed Ctrl Mods			
LB0001	Labor&OH - Factory	HR	1.00	
LB0007	Gen&Admin - Office	HR	1.00	
P1832	TC4 SCR Speed Cntrlr,w/6 Pots	EA	1.00	
PHANTOM ASSY: FMA2197	TC Dual Actuator Sub-Ass'y			
FM3568	Solenoid Mods, Deltrol brand	EA	2.00	
LB0001	Labor&OH - Factory	HR	0.10	
LB0007	Gen&Admin - Office	HR	0.10	
P2805	Hdwr Roll Pin SS 1/8x1/2	EA	2.00	
SD1438	TC Actuator Link	EA	1.00	
PHANTOM ASSY: FMA2278	TC Drive Hub Sub-AssOy			



03/11/08

Part No:	AD1154	Cust Code:	DEI002
Desc:	TC4 Tablet Counter w/Options	Name:	DEITZ COMPANY, INC.
Job No:	UM: EA	PO Number:	
Drawing:	Rev:	Sales Ord:	7816 Due Date: 03/11/08
Start Dt:	03/11/08	Fin Dt:	03/11/08
Quantity:	1.00	Contact:	
		Priority:	2 Change Order No: 0

P0334	1635DC BALL BEARING	EA	2.00
P2806	Hdwr Roll Pin SS 1/8x5/8	EA	1.00
SD1479	TC Drive Hub (ALL)	EA	1.00
PHANTOM ASSY: FMA2340	Flag Lever Sub-Ass'y		
LB0001	Labor&OH - Factory	HR	0.02
LB0007	Gen&Admin - Office	HR	0.02
P2810	Hdwr Roll Pin SS 1/8 x 3/4	EA	1.00
SD1496	TC Flag Lever	EA	1.00
PHANTOM ASSY: FMA2839-3	Term Strip, Euro-Style, 3 Pos.		
LB0001	Labor&OH - Factory	HR	0.05
LB0007	Gen&Admin - Office	HR	0.05
P7229	Terminal Block Euro .394x2x12	EA	0.25
	OPTIONS SELECTED:		
AD1134-2	.TC4 Air Manifold Assy w/1-1/4	EA	1.00
PHANTOM ASSY: AD1133-2	TC4 Vibratory Feeder Assembly		
FA1022-2	TC4 Dust Chute Assembly	EA	1.00
FM2178	Feed Tray Bolt	EA	2.00
FM3459-2	TC4 Feeder Base Plate	EA	1.00
FM3465-2	TC4 Feeder Vert Support Bar	EA	2.00
FM3466	TC3 & TC4 Feeder Mtg Bar	EA	1.00
FM3471	TC3 & TC4 Feeder Enclosure	EA	1.00
FM3474	TC3 & TC4 Feed Tray	EA	1.00
FM3497-2	TC4 Chip Box Rear Cover	EA	1.00
FM3560	TC4 Base Support Extention	EA	2.00
FM3561	TC4 Front Sprt(when no Vibrtr)	EA	-1.00
LB0001	Labor&OH - Factory	HR	1.00
LB0007	Gen&Admin - Office	HR	1.00
P5816	Relay, DPST 24VDC	EA	1.00
P6106	Plastic Foot	EA	2.00
P6410	Socket Relay Screw Term	EA	1.00
P7151	Strain Relief Nylon 1/2 NPT	EA	1.00
P7902	Vibrator FMC FTO-C	EA	1.00
PHANTOM ASSY: AD1153	TC4 Hopper Assembly		
FA1021	TC4 Hopper Assy	EA	1.00
FM3470-3	TC4 Hopper Support, Rear,50deg	EA	1.00
FM3470-4	TC4 Hopper Support, LH Side	EA	1.00
FM3470-5	TC4 Hopper Support, RH Side	EA	1.00
FM3558-1	TC4 Hopper Support Bar, Rear	EA	1.00
FM3558-2	TC4 Hopper Support Bar, Side	EA	2.00
FM3567	TC4 Hopper Door	EA	1.00
LB0001	Labor&OH - Factory	HR	1.00
LB0007	Gen&Admin - Office	HR	1.00
PHANTOM ASSY: AD1155	TC4 Auto Feeder Control (AFC)		
FM2837	Deflector Flag (Auto-Feeder)	EA	1.00

Part No: AD1154  
 Desc: TC4 Tablet Counter w/Options  
 Job No: UM: EA  
 Drawing: Rev:  
 Start Dt: 03/11/08 Fin Dt: 03/11/08  
 Quantity: 1.00

Cust Code: DEI002  
 Name: DEITZ COMPANY, INC.  
 PO Number:  
 Sales Ord: 7816 Due Date: 03/11/08  
 Contact:  
 Priority: 2 Change Order No: 0

FM3476	TC3 & TC4 Deflctr Sensor Brkt	EA	1.00
LB0001	Labor&OH - Factory	HR	1.00
LB0007	Gen&Admin - Office	HR	1.00
P6981	Sensor - Proximity Switch PNP	EA	1.00
P6983	Sensor Cordset, 3-pin Straight	EA	1.00
P7150	Strain Relief Nylon 3/8 NPT	EA	1.00

## **Software technical specification for Modified Banner D10BFPO Fiber Optic Sensor**

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New generation Pharmafill Pill Counter machines use a specially modified sensor, custom-engineered for Deitz Company by Banner Engineering, the world-class manufacturer of photoelectric sensors. The following information describes the Deitz Company custom software specification.

### Definitions

Threshold - the percentage the light level must drop before a count signal output turns on. A threshold value of 40% means the light level must drop to under 60% (compared to 100% when unblocked) to turn on the output signal.

One-shot delay – the uniform time that the output signal stays on, regardless of how long the light level actually stays below the threshold. This adjustment is used to compensate for the possibility of double counts with clear or translucent product, by increasing the signal duration so that it stays on until after the clear center has passed through the counting window. For solid products, the signal duration is minimized.

Wrap – when making adjustments on the sensor, as indicated by the 8-segment light bar, if you attempt to increase the value above 8, it will “wrap” down to 1. If you attempt to decrease the value below 1, it will “wrap” up to 8.

### **Modifications to the standard Banner Model D10BFPO Photoelectric Sensor (also see standard Banner literature)**

#### 1. Removed Features

1.1. The following standard features of the Banner D10B have been removed

- 1.1.1. Dynamic Teach
- 1.1.2. Static Teach
- 1.1.3. Set-up mode (light/dark operate, 0/30 ms off-delay, normal/high speed)

#### 2. Modified Features

2.1. Manual threshold adjustment -Configurable with settings from 5 to 40 percent (See Table 1)

2.1.1. Push-button adjustment – Click and release the (+) push-button. The light bar will display the current threshold

- 2.1.1.1. Click the (+) push-button to increase threshold - (will wrap 8 to 1)
- 2.1.1.2. Click the (-) push-button to decrease threshold - (will wrap 1 to 8)

2.1.2. Remote adjustment (not used at this time) - Press and hold the remote line greater than 2 seconds

- 2.1.2.1. Single-click remote line to increase threshold - (will wrap 8 to 1)
- 2.1.2.2. Double-click remote line to decrease threshold - (will wrap 1 to 8)

2.1.3. Adjustment mode will time-out in 4 seconds of inactivity

- 2.1.3.1. Value indicated on light bar will be saved
- 2.1.3.2. The sensor will optimize the emitter power (see item 3.2.1)

#### 3. Added Features

3.1. One-shot delay adjustment - Configurable with settings from 5 to 40ms (see Table 2)

3.1.1. Push-button access - Single-click (-) push-button. The light bar will display the current one-shot value

- 3.1.1.1. Click (+) push-button to increase one-shot time - (will wrap 8 to 1)
- 3.1.1.2. Click (-) push-button to decrease one-shot time - (will wrap 1 to 8)

3.1.2. Remote Access (not used at this time) - Double-click the remote line. The light bar will display the current value

- 3.1.2.1. Single-click remote line to increase one-shot time - (will wrap 8 to 1)
- 3.1.2.2. Double-click remote line to decrease one-shot time - (will wrap 1 to 8)

3.1.3. Adjustment mode will time-out in 4 seconds of inactivity

- 3.1.3.1. Value indicated on light bar will be saved
- 3.1.3.2. The sensor will optimize the emitter power (see item 3.2.1)

3.2. Clear signal tracking algorithm software

- 3.2.1. Each power up, or after time-out of adjustment mode, automatically matches the emitter power (light source) to the light receiver, for maximum sensitivity, regardless of dust buildup or other environmental considerations
  - 3.2.1.1. The light bar will turn off and remain off until the process is complete
  - 3.2.1.2. The sensor light source (emitter) will cycle from low to high power and reset at the proper level
  - 3.2.1.3. After approximately 2 seconds the process is complete and the sensor returns to normal.
  - 3.2.1.4. Push-button access - Press and hold (+) push-button for greater than 2 seconds to initiate
- 3.2.2. Dynamically regenerates the threshold level every 100ms based on a low-pass filtered clear signal level, to compensate for dust buildup, etc., between optimization cycles
- 3.2.3. Drift Alarm - If the filtered clear signal level degrades (drifts down slowly) to the point that the system may soon become unreliable, the outputs will alarm (lock on) and remain on until the sensor is cleaned and an optimization cycle is performed.
  - 3.2.3.1. Light bar LEDs 5 – 8 (upper half) will flash
- 3.2.4. Blockage Alarm - If the peak clear signal level is darker than the dark threshold for more than 100ms, the outputs will alarm (lock on) and remain on until the blockage is removed
  - 3.2.4.1. Light bar LEDs 1 – 4 (lower half) will flash

4. Fixed default settings – the following setting may not be changed

- 4.1.1. Dark operate
- 4.1.2. High speed operation

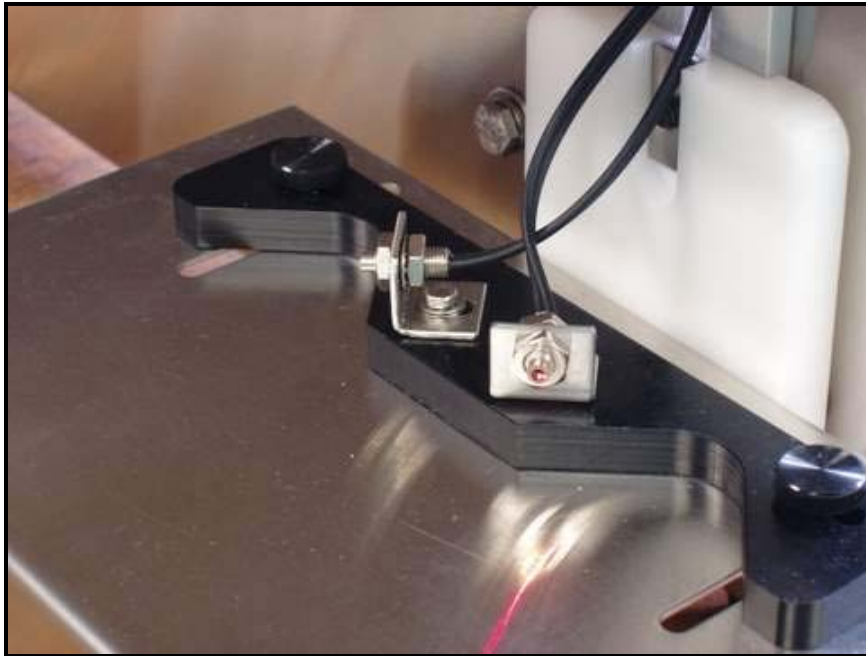
**TABLE 1 - THRESHOLD SETTING (for sensitivity)**

LED	Value	Note
8	40%	Factory setting
7	35%	
6	30%	
5	25%	
4	20%	
3	15%	
2	10%	
1	5%	

**TABLE 2 - ONE-SHOT DELAY SETTING (for clear or translucent product)**

LED	Delay	Note
8	40 ms	
7	35 ms	
6	30 ms	
5	25 ms	
4	20 ms	
3	15 ms	
2	10 ms	
1	5 ms	Factory setting

1. Bottle Locator with fiber optic cables.



2. Fiber optic sensors (far left end of terminal board). The right sensor is “SN4 Right Bottle”. The left sensor is “SN5 Left Bottle”. Yellow knob adjusts sensitivity (gain): turn clockwise to increase.



### 3. Sensor Test

- a. Place an object in front of the left bottle sensor. On the PLC, the red light marked X2 should turn on.
- b. Place an object in front of the right bottle sensor. On the PLC, the red light marked X3 should turn on.

### 4. Function Test

- a. Using the front panel, set the Target Count to 10, set the Slowdown Count to 5. Press RESET. Observe which side will be filling first (LEFT or RIGHT)
- b. Set the disc speed to HIGH=50 and LOW=25.
- c. Remove the clear chute cover and open the guides wide, so that you can use your finger to make count signals.
- d. Place bottles in the left and right filling positions. Observe that red lights X2 and X3 turn on.
- e. Press AUTO. The disc should turn at the higher speed.
- f. Remove the bottle from the filling side. The disc should stop, indicator light should flash.
- g. Replace the bottle. The disc should start turning again.
- h. Remove the bottle from the non-filling side. The disc should not stop.
- i. Use your finger to raise the count to the Slowdown count of 5. The disc should stop, indicator light should flash.
- j. Replace the bottle. The disc should start turning again at the slower speed.
- k. Use your finger to raise the count to the target count of 10. The diverter flag should switch sides.
- l. Repeat the test from step “f.”, filling to the opposite side.

### 5. Functional Description

- a. When using Slowdown Count (Slowdown Count is greater than zero and less than Target Count) and Current Count = Slowdown Count and NEXT bottle is missing, stop.
- b. When NOT using Slowdown Count (Slowdown Count equals zero, or is equal to or greater than Target Count) and Current Count = Target Count and FILLING bottle is missing, reset and stop
- c. Flash appropriate indicator light to show which side is causing error.

REVISIONS

A --

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- 1. NOTES AND REVISIONS
- 2. COMPONENT IDENTIFICATION
- 3. 110VAC POWER ENTRY
- 4. 110VAC LOADS
- 5. 24VDC DISTRIBUTION
- 6. INPUTS: X0-X1
- 7. OUTPUTS: Y1-Y5
- 8. RELAY AND POTS DETAILS
- 9. SPEED CONTROL DETAILS
- 10. CONTROLLER (PLC)

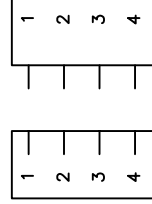
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+24VDC → 004-1      NICKNAME → PAGE REFERENCE

---      JUMPED TERMINALS

====      INTERFACE CABLE

⋈ ⋈      MULTI-PIN CONNECTOR (MOLDED)



NUMBER  
SC1011

PAGE  
001

NOTE  
-

REV  
-

DESCRIPTION  
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DATE  
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**DEITZ COMPANY, INC.**  
**ROUTE 34, WALL, N.J.**

TECHNICAL DRAWING - PRODUCT INFO

SECTION      NOTES AND REVISIONS

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 WIRING SCHEMATIC  
 SERIAL NO. 001 AND UP

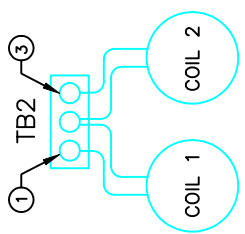
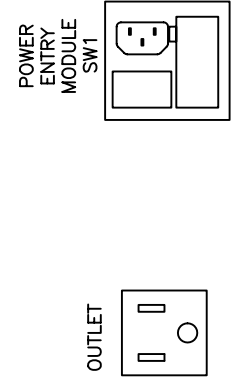
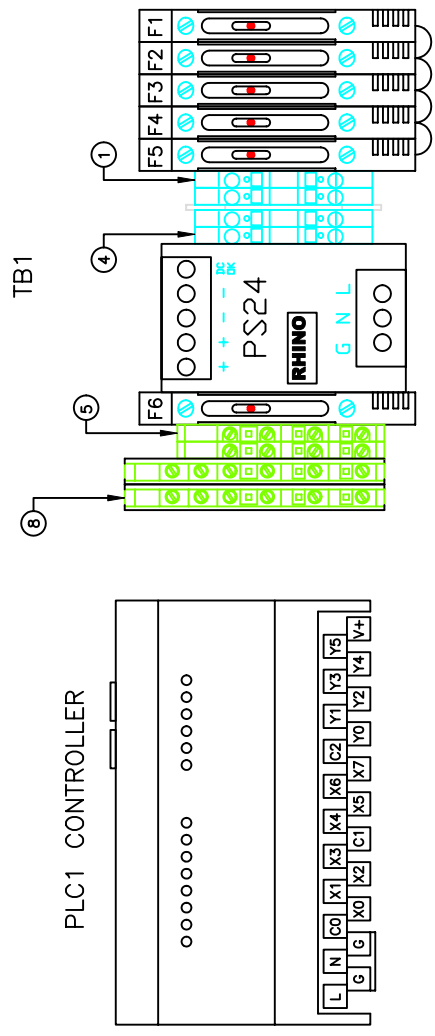
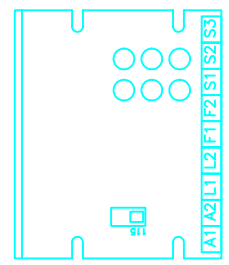
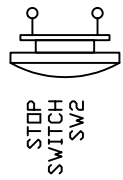
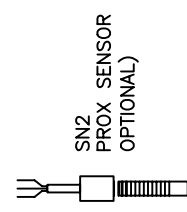
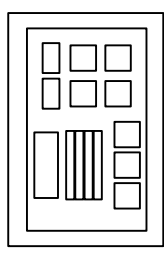
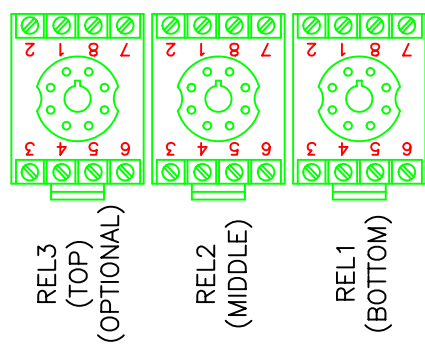
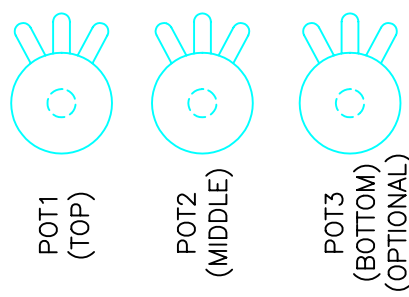
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SHEET      001 OF      010

NUMBER      REVISION

SC1011      -





FEEDER1 (OPTIONAL)

MOTOR1

SN1 COUNTING SENSOR

SC1 SPEED CONTROL - MOTOR  
SC2 SPEED CONTROL - FEEDER (OPTIONAL)

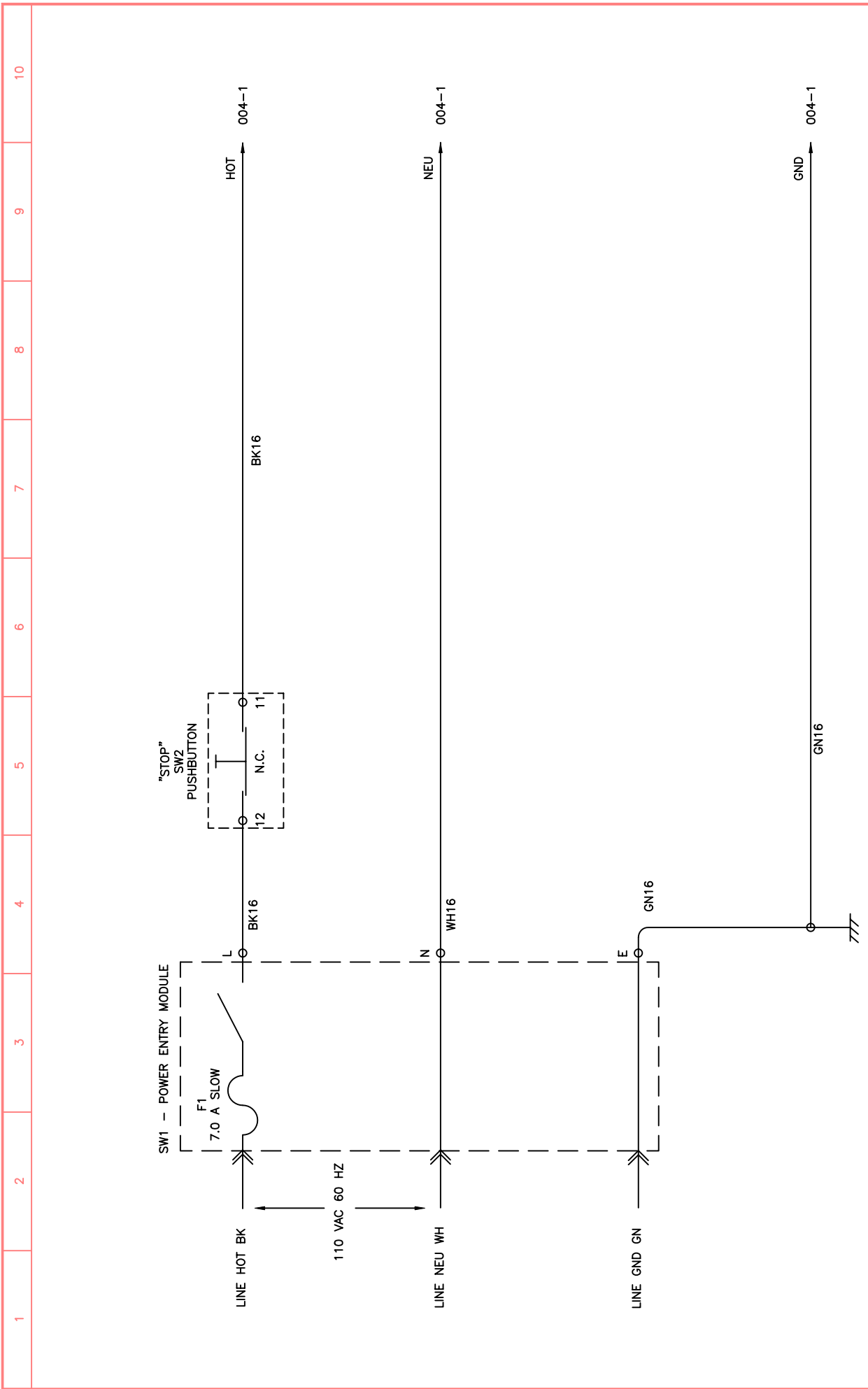
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SERIAL NO. 001 AND UP		SC1011	

DEITZ COMPANY, INC. ROUTE 34, WALL, N.J.	TECHNICAL DRAWING - PRODUCT INFO
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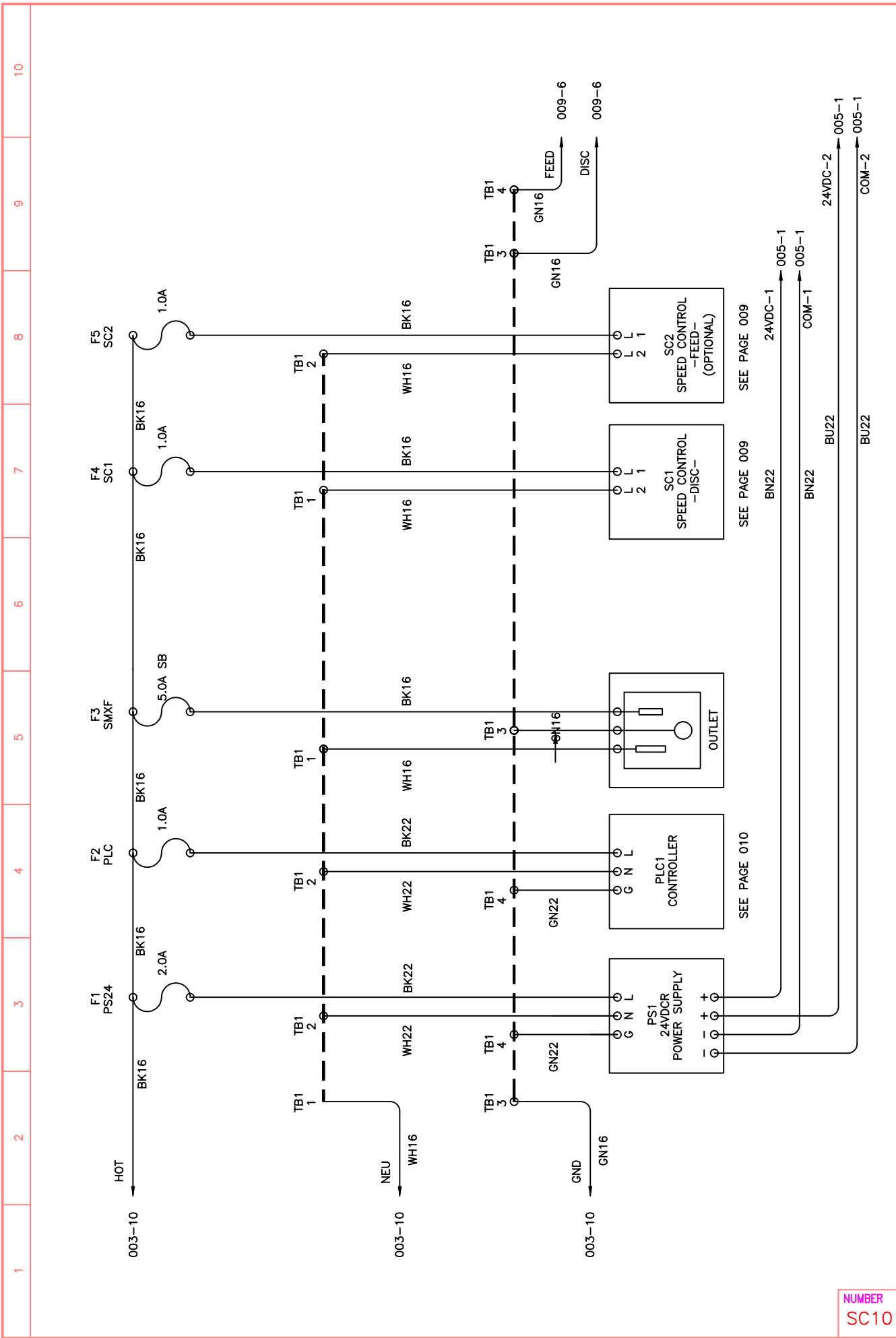
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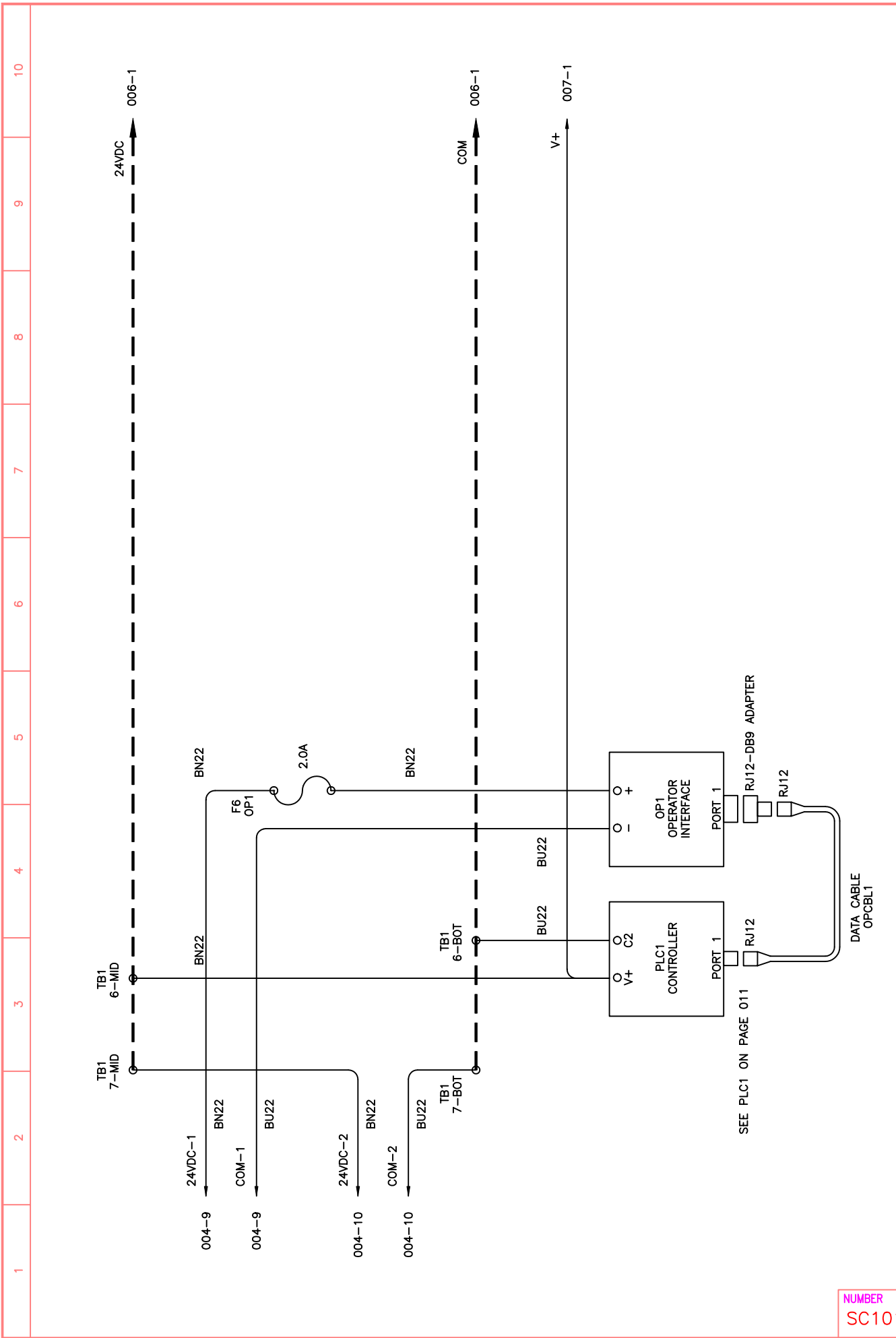
**DEITZ COMPANY, INC.**  
**ROUTE 34, WALL, N.J.**

TECHNICAL DRAWING - PRODUCT INFO

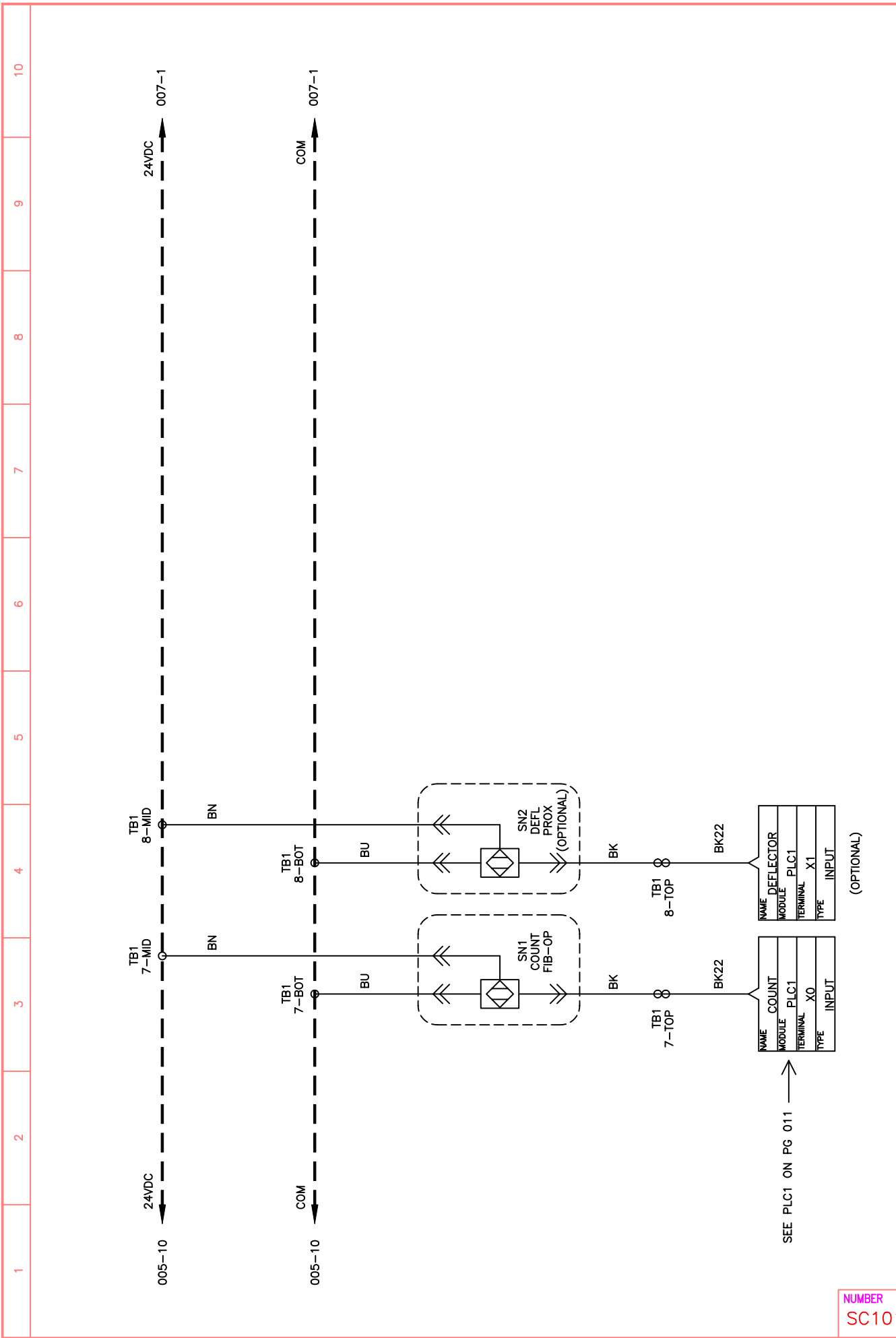
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NUMBER	SC1011	PAGE	004						
NOTE	REV	DESCRIPTION	DATE						



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<p><b>DEITZ COMPANY, INC.</b>  <b>ROUTE 34, WALL, N.J.</b>          TECHNICAL DRAWING - PRODUCT INFO</p>										
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SC1011	-	-	---							005

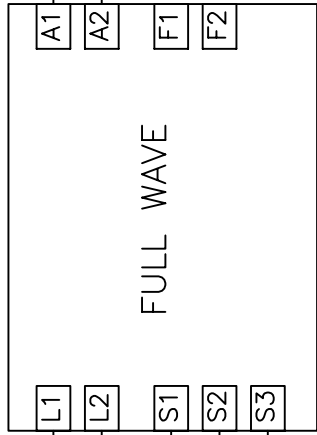


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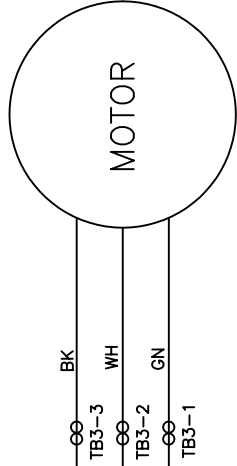




SC1 SPEED CONTROL  
(MOTOR)



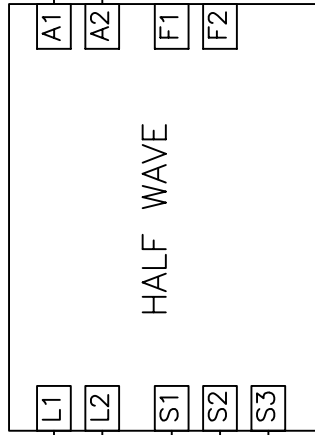
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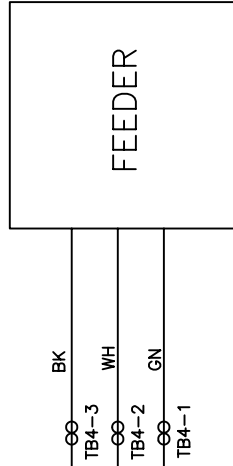
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STANDARD  
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SC2 SPEED CONTROL  
(FEEDER)



SEE PG 004 - SC2  
SEE PG 004 - SC2  
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008-10  
008-10



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009

DEITZ COMPANY, INC.  
ROUTE 34, WALL, N.J.  
TECHNICAL DRAWING - PRODUCT INFO

SECTION  
SPEED CONTROLS DETAILS

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MODEL TC4 PILL COUNTER  
WIRING SCHEMATIC  
SERIAL NO. 001 AND UP

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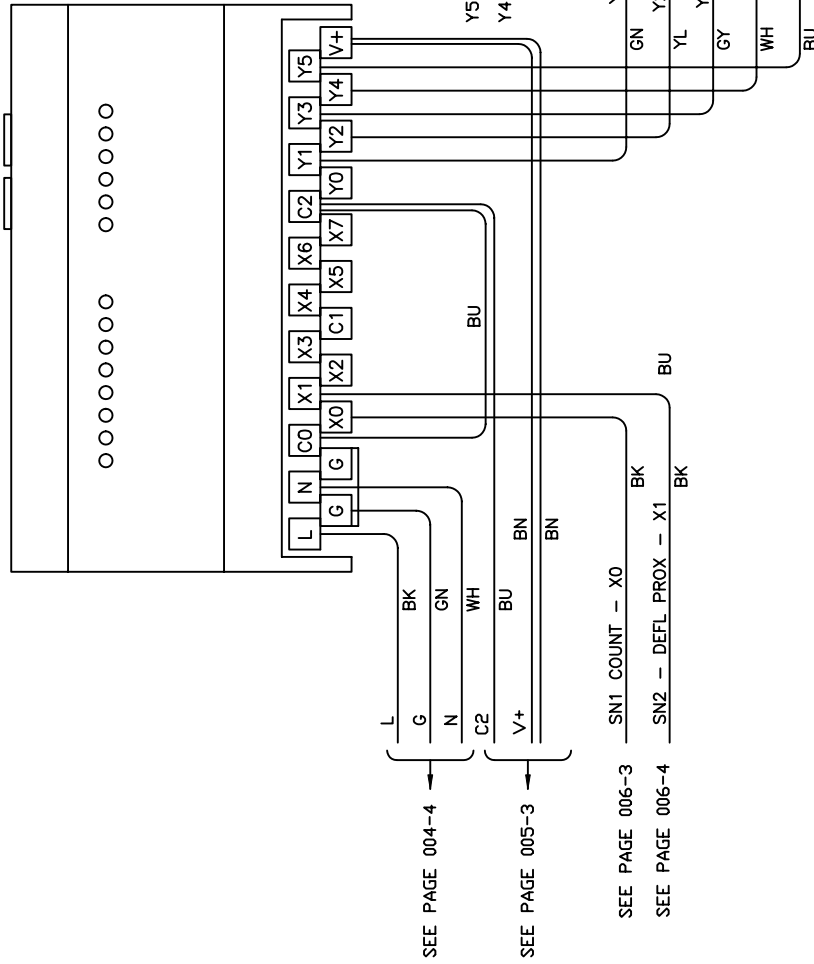
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# PLC1 CONTROLLER



BY SJD2	DATE: 2007-11-09
SHEET 010	REVISION -
NUMBER SC1011	

**DEITZ COMPANY, INC.**  
**ROUTE 34, WALL, N.J.**  
 TECHNICAL DRAWING - PRODUCT INFO

SECTION	CONTROLLER (PLC)
TITLE	MODEL TC4 PILL COUNTER WIRING SCHEMATIC SERIAL NO. 001 AND UP
DATE	---
DESCRIPTION	---
REV	---
NOTE	---