PHARMAFILL™

DEITZ COMPANY, WALL, NJ, USA

# *Model CS10 Cotton Inserter*

## Operation Manual

CONTENTS

# 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.**

## Section 1: INTRODUCTION

Thank you for purchasing a Pharmafill Model CS10 Cotton Inserter. We at Deitz Company hope you will find that the Model CS10 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 began directly marketing 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.

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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.

## Section 2: SPECIFICATIONS

| | |
|---|---|
| MODEL | CS10 COTTONER |
| TYPE | AD 1070 |
| TURRET TUBE LENGTH | 3, 4 or 5 inches |
| TURRET TUBE DIAMETER | .75 or 1 inch |
| COTTON TYPE | Natural or Synthetic (Rayon, Polyester) Coil |
| COTTON WEIGHT | 6 TO 20 gm |
| COTTON LENGTH OUTPUT | 2 to 9 inches |

| TURRET LENGTH | TURRET INSIDE DIAMETER | COTTON WEIGHT | COTTON LENGTH MAX |
|---|---|---|---|
| 3 inch | .75 inch | 6 to 12 gm | 5 inch |
| 3 | 1.00 | 9 to 20 | 5 |
| 4 | .75 | 6 to 12 | 7 |
| 4 | 1.00 | 9 to 20 | 7 |
| 5 | .75 | 6 to 12 | 9 |
| 5 | 1.00 | 9 to 20 | 9 |

| | |
|---|---|
| MAX. OUTPUT SPEED (3” turrets) | 175 per minute |
| MAX. OUTPUT SPEED (4” turrets) | 162 per minute |
| MAX. OUTPUT SPEED (5” turrets) | 150 per minute |

Maximum output speed will vary with input air pressure, quality of input air and the age and/or condition of the machine components. Final (actual) output will also depend on the characteristics of the particular cotton used and the speed at which cotton and bottles are fed to the machine.

| | |
|---|---|
| HEIGHT ADJUSTMENT RANGE | 9” |
| MINIMUM BOTTLE HEIGHT | 1” (for standard conveyor height of 36”) |

(Continued on next page)

## INPUT REQUIREMENTS

| | |
|---|---|
| VOLTAGE* | 115 VAC |
| CYCLES | 50/60 HZ |
| PHASE | 1 |
| AMPERAGE | 20 AMPS |
| COMPRESSED AIR** | 3.0 $FT^3$/MIN AT 80 $LB/IN^2$ |
| ROOM HUMIDITY | 85% RH NON CONDENSING |

*Other input voltages are available as factory options if specified at the time of order

** Compressed air must clean and dry, free of moisture (water) and oil.

## PHYSICAL DIMENSIONS

| | |
|---|---|
| WEIGHT | 800 LBS |
| FLOOR FOOT PRINT | 49” WIDE X 40-1/2” DEEP |
| HEIGHT | ADJUSTABLE FROM 56” TO 64” *** |
| FILLING HEIGHT | ADJUSTABLE FROM 37-1/4 TO 45-/14” *** |
| STANDARD CONVEYOR HEIGHT | 36” TO TOP SURFACE *** |
| BOTTLE HEIGHT | FROM 1” TO 9” *** |

*** May be adjusted further by adjusting or modifying leveling feet.

## Section 3. INSTALLATION

A. Unpacking
B. Commissioning
C. Compressed Air
D. Electric

### 3A. Unpacking

- Carefully remove equipment from crate and remove all packing materials.
- Inspect all supplied equipment for damage (if any damage is present please notify DEITZ COMPANY immediately).
- Assemble any components such as control panels, etc. using the drawings in this manual as a guide for mechanical, electrical and pneumatic assembly.
- Position the machine on the line and adjust the legs of the machine to level the machine. Note that the machine is designed for a standard conveyor height of 36 inches from the floor to the top of belt.

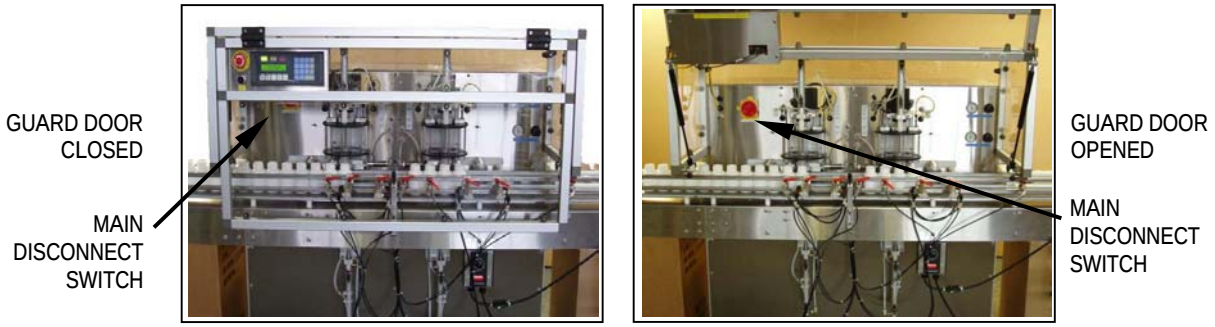
### 3B. Commissioning

- Check that the machine is correctly installed, levelled up and aligned.
- Check that there are no loose bolts, screws and that all electrical connections are tight.
- Ensure that the machine isolator (main disconnect switch) is in the OFF position.
- Do not “megger” the machine (high voltage insulation test) as damage to electronic components may result.
- Apply power to the machine and check polarity and voltage of the incoming supply.
- Check that all emergency stops work correctly.
- Check that all guard switches operate correctly.
- Check that the machine operates correctly.

### 3C. Compressed Air


- Compressor must be adequate to meet the specifications (see Section 2).
- The supply air should be clean and dry, free of condensation and oil.
- Connect up the pneumatic supply.
- Apply compressed air to the machine and turn both pressure regulators to 80 PSI.
- Check for air leaks and rectify any leaks found.

## 3D. Electric


- Power source must be adequate to meet the specifications (see Section 2).
- Check the polarity and voltage of the incoming supply.
- The machine must be solidly earthed.
- Make sure the Main Disconnect Switch is in the OFF position. If it is not, no action will take place, but this is good practice.
- Connect up the main electrical supply.
- Turn the Main Disconnect Switch to the ON position. No action will take place.
- To confirm that the machine is powered up, the Operator Interface panel should be lighted.
- Machine is now ready for operation.

## Section 4. FEATURES

A. General
B. Operator Interface (Control Panel)
C. Safety Enclosure
D. Turrets
E. Rollers
F. Shelf
G. Air Pressure Controls
H. Bottle Indexing and Bottle Sensors
I. Optional Tamper – contact Deitz Co. for availability
J. Lift Platform

### 4A. General

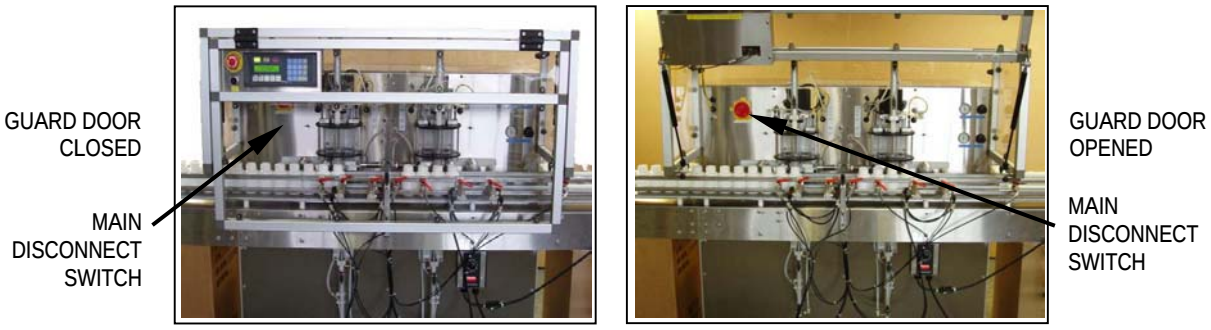
The Model CS10 is an automatic dual station cotton inserter designed to convert continuous cotton coil to individual pieces and place them inside a bottle or other container at each station. The cotton coil is cut by the tearing action of two sets of pinch rollers, so that uniform lengths are produced. The cut piece is the pushed up into a tube, so that it is folded in half to form an inverted-U shape. The tube is then moved under a sensor to confirm the presence of the cotton piece. If confirmed, the tube then is moved into position to align with the bottle filling station. If a bottle is present, the cotton is inserted. Because of the inverted-U shape, the ends of the cut piece are inside the bottle and only the fold is visible at the top. Once a bottle is filled, the machine automatically releases the bottle and repeats the cycle. These actions are typical of each station.

In addition to the inserting function, there are several secondary functions, which aid in using and setting up the machine. All functions are detailed in Section 5.

### 4B. Operator Interface (Control Panel)

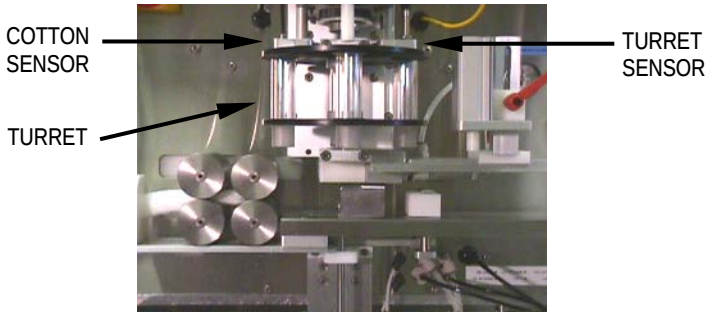

The machine operation is controlled with an Operator Interface Panel, or simply a Control Panel. This is a flat panel device with membrane push buttons, alert indicator lights and a 2-line text display for input and output. See Section 5 for a full explanation. Next to the Control Panel are two pushbutton switches labeled “Emergency Stop” and “Start”.

4C. Safety Enclosure




The operator is protected from coming in contact with the moving parts of the machine by the safety enclosure, which is made of clear polycarbonate with a metal and plastic frame. The front of the enclosure is a hinged door and swings up to provide full access to the components. The Guard Door contains the Control Panel and has an interlock device, which will prevent the machine from operating once the door is opened.

4D. Turrets

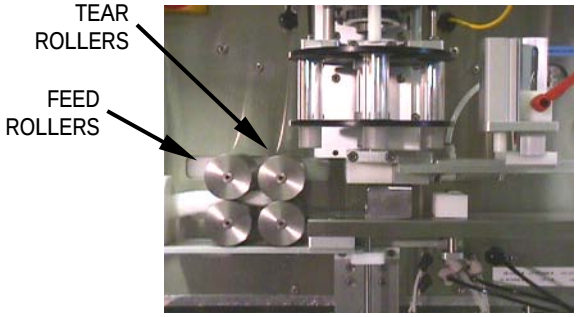



Each turret assembly transports and inserts the cut cotton pieces. Each turret itself consists of four clear tubes, arranged vertically, 90 degrees apart, between two discs. A stepper motor rotates the turret 90 degrees per cycle. The turrets come in different sizes and lengths and are easily changed over.

There are two sensors built into each turret assembly. On the right is the Turret Sensor (proximity), which measures and confirms the movement and position of the turret each cycle. If either turret fails to rotate, the machine will stop and an error message will be displayed (see Sec. 9A). On the left is the Cotton Sensor (fiber optic), which confirms the presence of cotton after each cycle. If cotton is not detected at the end of each cycle when in automatic mode, the machine will stop and an error message will be displayed (see Sec. 9A).

The lower insertion air cylinder (under the shelf) pushes cut cotton up into the rear tube. At the same time, the upper insertion air cylinder (on the turret) pushes cut cotton down out of the front tube and into the bottle. The motion of both air cylinders in confirmed by cylinder sensors (magnetic).

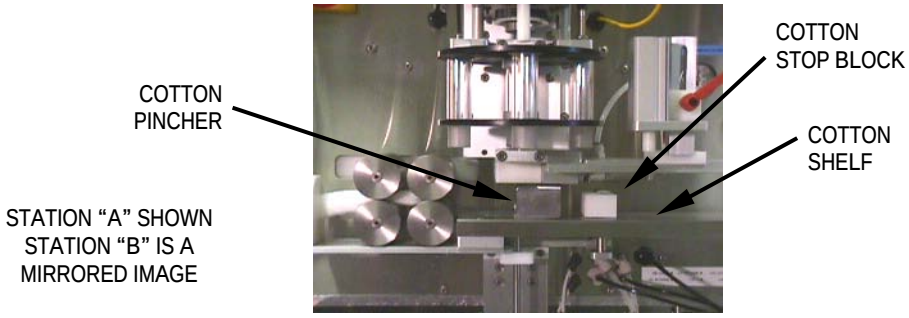
4E. Rollers




Two sets of pinch rollers control the cotton cutting process at the “A” (left) and “B” (right) stations. At station A, the set at the left are the feed rollers and the set at the right are the tear rollers. At the station B, the set at the right are the feed rollers and the set at the left are the tear rollers. Separate stepper motors drive each set. The feed rollers feed an exact length of cotton coil into the tear rollers, which tear the cotton to length and places the cut piece on the cotton shelf. The amount of force pressing the rollers together is controlled by air pressure and may be changed. Air pressure is also used to open the rollers for loading or unloading cotton coil. See Section 5E.

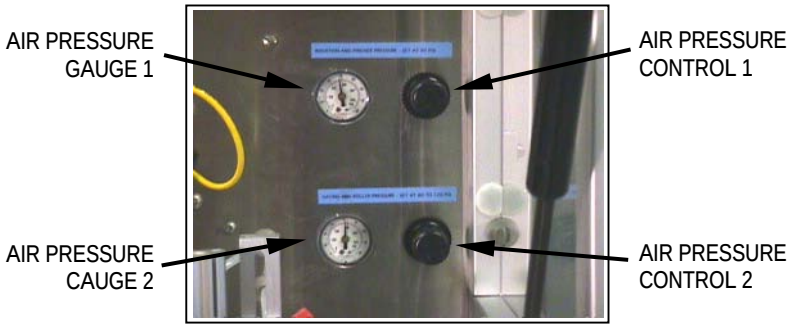
When a new length of cotton is selected, the roller assembly automatically repositions itself to assure that the cut cotton piece is centered under the rear tube. A stepper motor controls this motion.

4F. Shelf



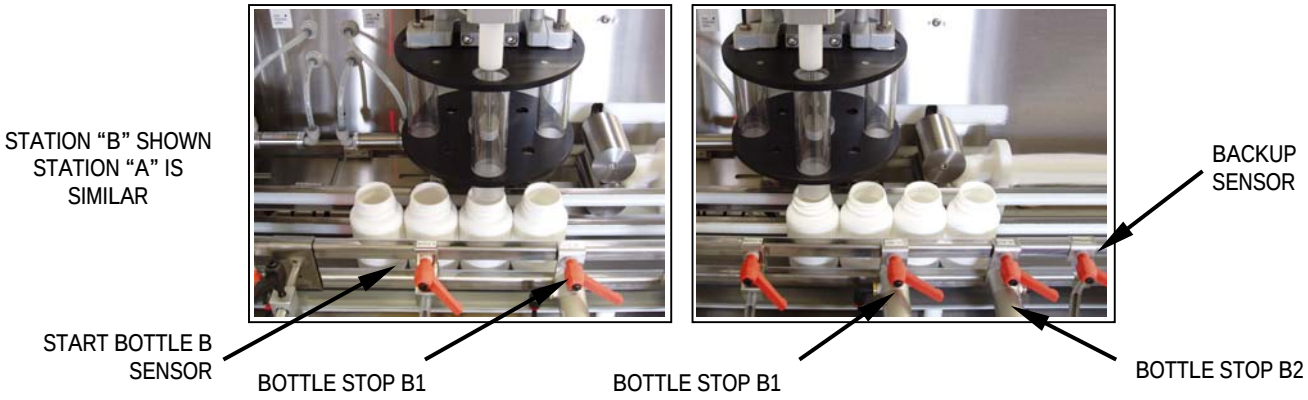

The Cotton Shelf is where the cut cotton piece is placed prior to being inserted into the rear tube. The lower insertion air cylinder is mounted under the shelf. The Cotton Stop Blocks are part of each opposing shelf. These blocks limit the distance the cut piece can travel away from the tear rollers, assuring correct centering of the piece under the tube. The Cotton Stop Block adjusts automatically when a new length is selected. Directly above each shelf is a Cotton Pincher assembly. Each has an air cylinder and two moving arms that hold the cotton in place as it is inserted into the rear tube.

## 4G. Air Pressure Controls




There are two air regulators with gauges that control pressure to two separate air circuits in the machine. Air Pressure Control 1 controls the insertion air cylinders and the pincher mechanisms. Air Pressure Control 2 controls the bottle stops and pinch roller pressure.

## 4H. Bottle Indexing and Bottle Sensors




The machine controls the bottle flow on the conveyor by using air controlled bottle indexing. This system uses two bottle stop air cylinders at each station, mounted on the conveyor rail, which can be adjusted manually side to side. The air cylinder pushes a finger out to stop the bottle. The first stop is positioned to center the bottle under the filling tube. The second stop is positioned to allow one bottle to move past the filling point.

There are three sensors (fiber-optic) that detect the presence of bottles. The first two are the START BOTTLE sensors, which are positioned ahead of station A and B. In automatic mode, whenever the sensors detect a bottle (and if all other conditions are correct), the machine will perform an insertion cycle at that station. The third one is the BACKUP sensor, which is positioned down line after station B. If a downline process stops, bottles will accumulate on the conveyor. When this sensor detects a bottle, it stops automatic or manual insertion. Once the bottle backup is cleared, insertion will resume without operator intervention.

4I. Optional Tamper - contact Deitz Co. for availability

4J. Lift Platform

The machine incorporates an electrically operated lift platform, which is used to adjust the height of the filling tube over the conveyor. The height must be set by visual observation, as there is no feedback or digital readout of relative height. There is also a manual override feature in case of an electrical problem. A manual crank handle is stored inside the machine, accessible through the rear access door.

## Section 5. OPERATION

A. Control Panel
B. Insert Cotton
    Show Values
C. Adjust Settings
    Cotton Length
    Number Of Pieces
    Release Time
    Dwell Time
D. Change Height
E. Open Rollers
F. Clear Tubes
G. Extend Insert Rods
H. One Step Index
I. Index Bottles Only
J. Set Count To Zero
K. Options
L. Technician Only

*(Section begins on next page)*

***Section 5A: CONTROL PANEL***

***This is the operator interface for control functions and message display***


1. Note the locations of the EMERGENCY STOP button, the START button, and the CONTROL PANEL.


2. The right side of the control panel contains:
   - Numeric keypad (not used by operator)
   - UP and DOWN ARROW keys
   - ENTER key


3. The left side of the control panel contains:
   - Three indicator lights: OK (green), WAIT (yellow) and ALERT (red)
   - Two-line x 20 character message display
   - Five keys: F1 AUTO, F2 MAN, MENU, CLEAR/ABORT and SELECT

   *(See section 4-B for more info)*


4. When the message “STOPPED- Press Start” is displayed, twist and release the STOP button and then press the START button. The machine will now initialize and the turrets will execute the “find home” routine. The guard door must be down.

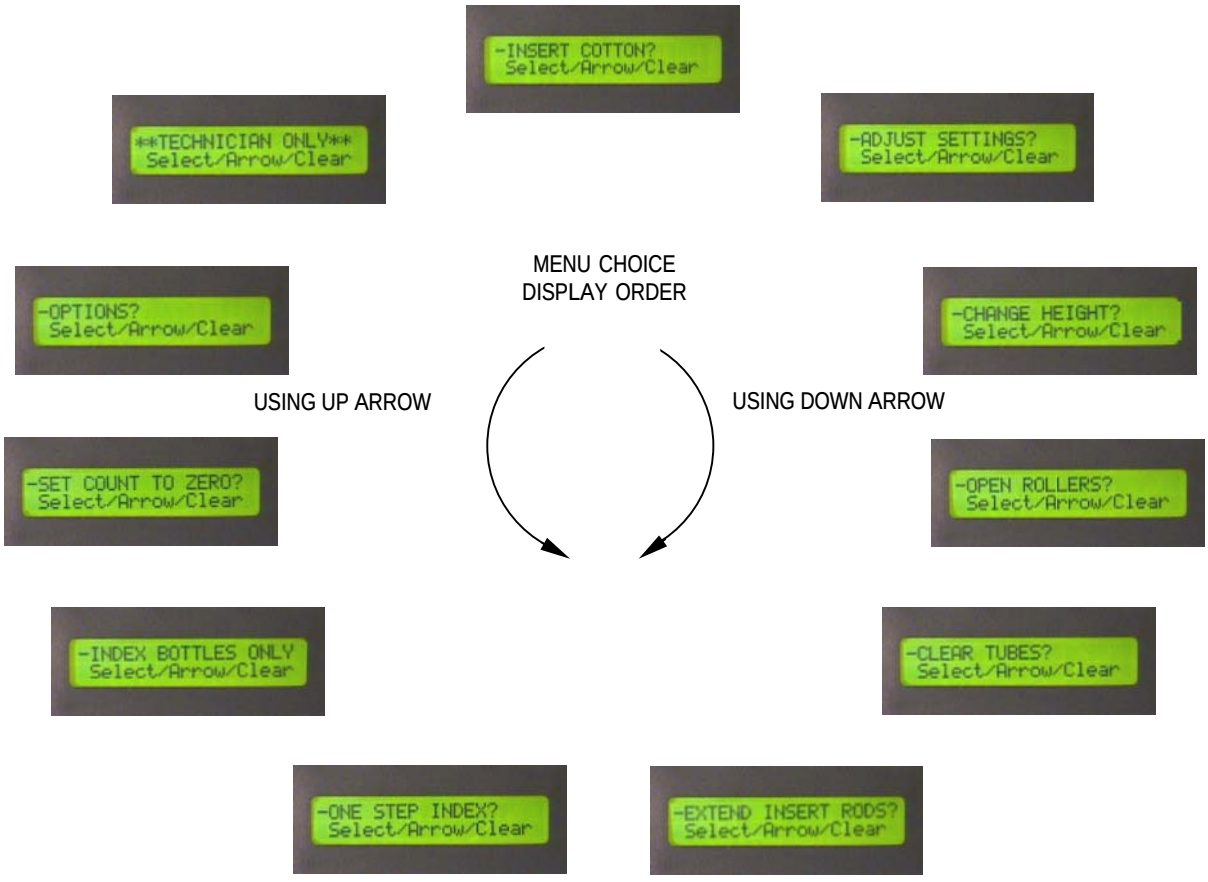

5. When the “find home” routine is complete, you will see the top menu. The machine is now ready to operate.

*Continued on Next Page*


6. From the top menu, press MENU to select the mode of operation. At any time press the CLEAR to return to the top menu.


7. Press UP or DOWN ARROW to scroll through the available menu choices, as shown in the diagram below. You may use SELECT or ENTER to make your choice. The choices are explained in the following sections.

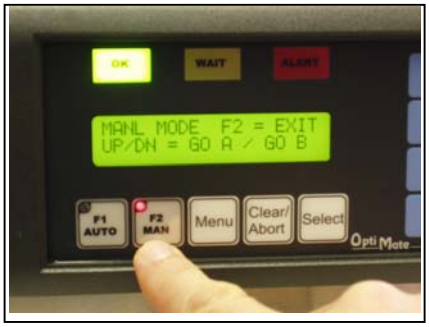
*(End 5-A)*



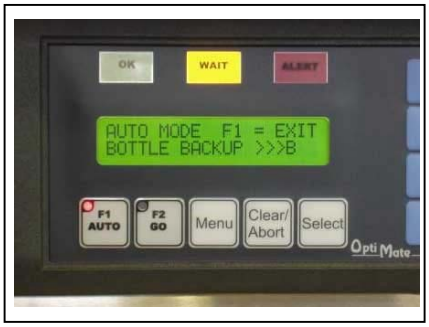
***Section 5B: INSERT COTTON***
***This function controls the inserting process***


1. Press MENU. If you don't see INSERT COTTON?, press UP or DOWN ARROW to scroll through the menu choices. Normally, this is not necessary.


2. When you see INSERT COTTON?, press SELECT or ENTER. You will then see the INSERT COTTON choices.




3. To start a single insertion cycle, press and release F2 MAN. On the second line of text you will then see "UP/DN = GO A / GO B" choices. Press the up arrow for A or the down for B. The machine will make one complete cycle, including indexing the bottles. To cycle continuously, press and hold the up or down arrow.




4. If the BACKUP SENSOR detects an object, the cycle will not start and you will then see "BOTTLE BACKUP >>>B". Remove the object and try again.


5. To start full automatic operation, press F2 MAN to exit MANL MODE and then press F1 AUTO. If all conditions are correct, cotton will be inserted (cotton present in tube, bottle present, no backup.)

(*See Section 4-H for more info.)*

***Section 5B: INSERT COTTON***
***(Continued)***


6. When the second line displays the message "ENTER = SHOW VALUES", the SHOW VALUES feature is available.

(*See later in this section for more info.)*


7. If there is no bottle at either of the BOTTLE SENSORS, the machine will pause and display the message "NEED BOTTLE A<<<", or "NEED BOTTLE >>>B". As soon as bottles are detected at both sensors, insertion will begin.


8. If the BACKUP SENSOR detects a bottle staying in place downline of station B, the machine will pause and display the message "BOTTLE BACKUP >>>B". As soon as the backup clears, insertion will BEGIN.


9. If either of the COTTON SENSORS fails to detect cotton in the left-hand tubes, the machine will stop and display the message "NO COTTON SIDE A<<<", or "NO COTTON SIDE >>>B". Insertion will not resume. Open the guard and correct the situation, then select INSERT COTTON again from the top menu.


10. To exit automatic operation, press F1 AUTO again or press CANCEL. Note that F1 AUTO can only be reset by hand, or by power off. If you exit by pressing the CLEAR key, F1 AUTO will not reset. If you later select INSERT COTTON mode, the machine will already be in AUTO mode.
*(Continued on Next Page)*

***Section 5B: INSERT COTTON***
***(Continued)***


11.The SHOW VALUES feature is available whenever you are in the INSERTION mode and the message “ENTER = SHOW VALUES” is displayed.


12. Press the ENTER to scroll through the available values, as shown in the diagram below. These values are for information only and cannot be changed in this mode.

*(End 5-B)*

SHOW VALUES
DISPLAY ORDER

***Section 5C: ADJUST SETTINGS***

***This function sets the values for length of cotton and other parameters***



1. Press MENU and use the UP and DOWN arrows to scroll through the menu choices.


2. When you see ADJUST SETTINGS?, press SELECT or ENTER.

Change values by pressing the UP ARROW to increase or DOWN ARROW to decrease.

Press ENTER to save the value and continue.


3. "Cotton Length" ranges from 2.0 inches to 6.0, 7.5 or 9.0 inches (depending on turret size).

This is the straight length that is fed through the rollers. The length is approximate and varies with the qualities of the cotton.


4. When you press ENTER, the computer will briefly update the drive system with the new length. The lengths will be similar for station A (left side) and station B (right side). When this is done you will see the next message.


5. "Number of Pieces" ranges from 1 to 9.

This is the number of pieces of cotton that will be inserted into each bottle and will be similar for station A (left side) and station B (right side).

***Section 5C: ADJUST SETTINGS***
***(Continued)***


6. "Release Time" ranges from 0.10 to 2.00 seconds.

This is the time delay the bottle indexing mechanism allows for a filled bottle to move out of either of the filling positions, before starting a new cycle. The correct value is depends on conveyor speed and bottle diameter.


7. "Dwell Time" ranges from .00 to 2.00 seconds.

This is the time delay after the insertion rods are extended and before they are withdrawn at each station. Sometimes cotton springs up out of the bottle. This is used to give the cotton a "set" after it is inserted in the bottle.


8. After you view or change the Dwell Time and press ENTER, the machine will first reset the position of the pinch rollers and cotton stop blocks for the current length and then "home" the turrets.

9. You may CLEAR at any time to exit this mode. If you press CLEAR any time after "the system update" (step 4) has been completed, the machine will reset the rollers as in step 8. This way, if you only wish to change the length, you can exit without going through the other values.

*(End 5-C)*

***Section 5D: CHANGE HEIGHT***

***This function raises or lowers the machine height over the conveyor***



1. Press MENU and use the UP and DOWN arrows to scroll through the menu choices.



2. When you see "CHANGE HEIGHT?" press SELECT or ENTER. You will now see the CHANGE HEIGHT options.


3. Press the UP arrow to raise the machine. Press the DOWN arrow to lower the machine. The machine is equipped with limit switches that will stop the lift motor at the ends of the adjustment range.


4. Exercise caution and common sense so as to not cause personal injury and also to not damage any equipment. You must visually assure that there is no interference.


5. Press CLEAR to exit this function and return to the top menu.

*(End 5-D)*

***Section 5E: OPEN ROLLERS***

***This function separates the pinch rollers to allow the cotton coil to be fed in***

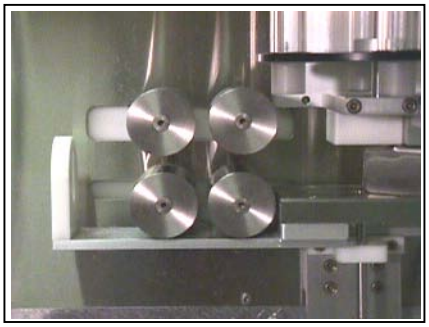


1. Press MENU and use the UP and DOWN arrows to scroll through the menu choices.


2. When you see OPEN ROLLERS?, press SELECT or ENTER.


3. You will now see the OPEN ROLLERS options.

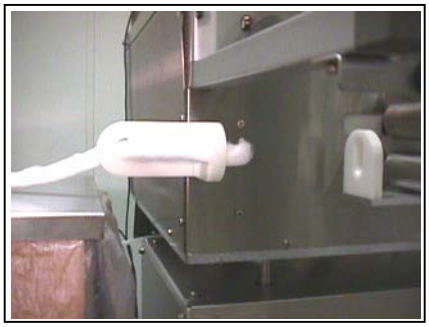

4. Press the UP arrow to open the rollers. The guard door must be closed or no action will take place.

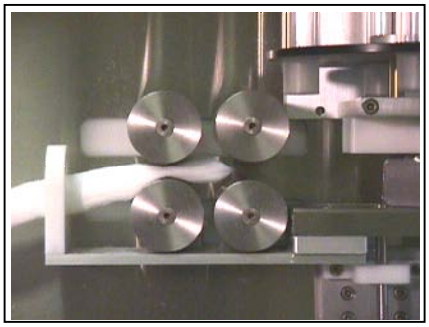


5. Open the guard door. The rollers are now in the open position. Station A (left side) is shown in this and the following views. The procedures at station B (right side) will be similar but in a mirrored image.

***Section 5E: OPEN ROLLERS***
***(Continued)***

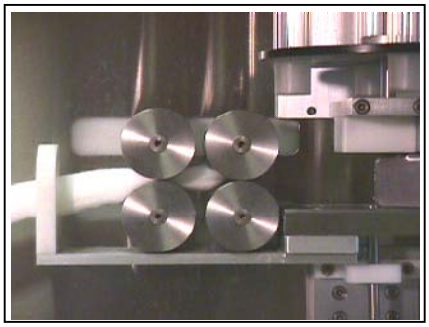
6. Feed the cotton coil through the optional cotton box top (if equipped), then through the 1st cotton guide loop.





7. Feed the cotton through the 2nd and 3rd cotton guide loops and then the first pair of rollers, stopping just before the second set of rollers.


8. Close the guard door. Press the DOWN arrow to close the rollers.



9. The rollers will now close on the cotton coil.


10. Press CLEAR to exit this function and return to the top menu. If the rollers are in the open position when you do this, they will then close.

*(End 5-E)*

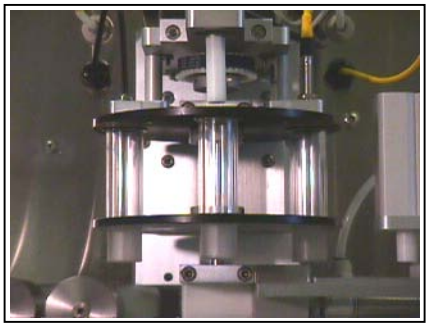
***Section 5F: CLEAR TUBES***
***This function empties the cotton from the tubes***



1. Press MENU and use the UP and DOWN arrows to scroll through the menu choices.


2. When you see CLEAR TUBES?, press SELECT or ENTER.


3. You will now see the CLEAR TUBES options. The second line of text will be “UP/DN = GO A / GO B”. Press the UP arrow to clear the tubes at station A (left side) or the DOWN arrow to clear the tubes at station B (right side).



4. The machine will now execute four cycles without feeding any cotton. This will result in all tubes being emptied at either station A or B.


5. Press CLEAR to exit this function and return to the top menu.

*(End 5-F)*

***Section 5G: EXTEND RODS***

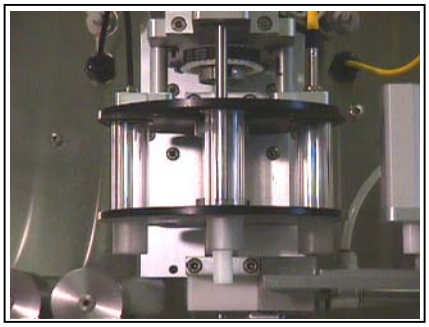
***This function extends the insertion air cylinders rods for setup purposes***



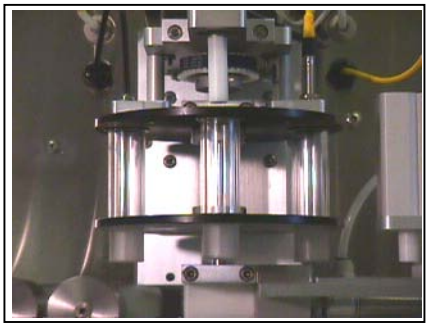
1. Press MENU and use the UP and DOWN arrows to scroll through the menu choices.


2. When you see EXTEND RODS?, press SELECT or ENTER.


3. The second line of text will be “UP/DN = GO A / GO B”. Press the UP arrow to cause the insertion air cylinders at station A (left side) to extend fully and hold in that position or press the DOWN arrow for station B (right side). The guard door must be closed or no action will take place. You may open the guard while the cylinder is extended. (Note that the pincher air cylinder is also actuated.)



4. With the rod in the fully extended position, you may test a filled bottle to see that the contents are not being crushed by the cotton insertion action. You may also see that the rods are extending properly and that the associated position sensors (mounted on the cylinders) are adjusted and functioning correctly.



5. Close the guard and press the UP arrow for station A or the DOWN arrow for station B to retract the insertion air cylinders.

***Section 5G: EXTEND RODS***
***(****Continued)*


6. Press CLEAR to exit this function and return to the top menu. If the rods are extended when you do this, they will then retract.

*(End 5-G)*

***SECTION 5H: ONE STEP INDEX***

***This function jogs the bottle indexing mechanism for setup purposes***



1. Press MENU and use the UP and DOWN arrows to scroll through the menu choices.


2. When you see ONE STEP INDEX?, press SELECT or ENTER.


3. You will now see the ONE STEP INDEX options. The second line of text will read “UP/DN = GO A / GO B”. Press the UP arrow to cause the bottle gating mechanism at station A (left side) to switch to the release position and hold there or press the DOWN arrow for the same action at station B (right side).


4. Press the UP arrow for station A or the DOWN arrow for station B again to return to the hold position. By doing this several times, you may test the accuracy and smoothness of the bottle indexing action and make mechanical adjustments to the gating accordingly.


5. Press CLEAR to exit this function and return to the top menu.

*(End 5-H)*

***Section 5I: INDEX BOTTLES ONLY***
***This function cycles the bottle gating mechanism without inserting cotton***



1. Press MENU and use the UP and DOWN arrows to scroll through the menu choices.


2. When you see INDEX BOTTLES ONLY?, press SELECT or ENTER. You will now see choices for "F1=AUTO" and "F2=MANUAL"


3. Press F2 MAN. The second line of text will read "UP/DN = GO A / GO B". Press the UP or DOWN arrows and the machine will now execute a single bottle index cycle at the appropriate station. The gating mechanism will release one bottle and load another into the filling position. Press F2 MAN again to exit.


4. Press F1 AUTO. The machine will automatically execute one bottle index cycle at each station each time a bottle is detected by the bottle sensor. This is useful when making a production run which does not use cotton and must bypass the cottoner. Bottles will have a uniform minimum spacing as they leave the machine.


5. Press F1 AUTO again to stop automatic operation.

6. Press CLEAR to exit this function and return to the top menu

*(End 5-I)*

***Section 5J: SET COUNT TO ZERO***
***This function will reset the internal batch counter value to zero***



1. Press MENU and use the UP and DOWN arrows to scroll through the menu choices.


2. When you see SET COUNT TO ZERO?, press SELECT or ENTER.


3. The current machine cycle count will be displayed. Press F2 MAN to RESET or CLEAR to EXIT.


Note: The count value is only visible when in the INSERT COTTON mode, using the SHOW VALUES feature, as shown at left.

(*See Section 5-B for more info)*

*(End 5-J)*

***Section 5K: OPTIONS***

***FOR FUTURE EXPANSION ONLY. This model currently does not have any software options***



1. Press MENU and use the UP and DOWN arrows to scroll through the menu choices.


2. When you see OPTIONS?, press SELECT or ENTER.


3. Use the UP or DOWN arrows for the option to “Enable Both Sides”, “Disable Side A”, or “Disable Side B”. Once a choice is made press SELECT and then press ENTER.

***Section 5L: TECHNICIAN ONLY***
***THIS FUNCTION CAN ONLY BE ACCESSED BY A QUALIFIED TECHNICIAN***



1. Press MENU and use the UP and DOWN arrows to scroll through the menu choices.


2. When you see **TECHNICIAN ONLY**, press SELECT or ENTER.


3. At this point you cannot proceed without a passcode. Technicians should refer to the ***Technical Notes*** at the end of this manual.

*(End 5-L)*

## Section 6. SETUP FOR A RUN

QUICK START

- A. Start Up
- B. Setup Conveyor
- C. Adjust Settings
- D. Adjust Machine Height
- E. Load Cotton Coil
- F. Setup Bottles
- G. This Section intentionally left blank
- H. Test Cotton Inserting

DETAILED EXPLANATION

6A. Start Up

- Lift open the Guard Door.
- Turn the Main Disconnect Switch ON.
- Close the Guard Door.
- Press the STOP Button.
- Twist and release the STOP Button.
- Press the START Button. The turrets will “find home”.

6B. Setup Conveyor

- Raise the machine so that it clears the bottles by several inches.
- Adjust the conveyor rails so the bottles move freely, but with minimum side clearance.

6C. Adjust Settings for Length, Etc.

- Follow the procedure under Section 5C Adjust Settings

6D. Adjust Machine Height

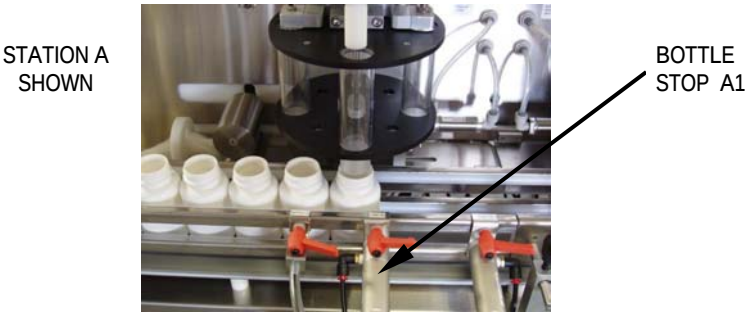
- Place a bottle directly under the front Turret Tube.
- Lower the machine using the Change Height function (Sec. 5D) until the bottom of the front tube is 1/8 to 1/4 inch above the bottle.

6E. Load Cotton Coil

- Place a box of cotton coil on the left and right sides of the machine
- If equipped with the optional Cotton Box Lids, feed the cotton through the lids and place the lids securely on the boxes.
- Load the cotton as explained in Section 5E Open Rollers.
- If there is any cotton from the previous run in the turret, use the Clear Tubes function (Sec. 5F) to remove it.
- Use the Manual Insert function (Sec. 5B) to make one piece of cut cotton. This will make a clean starting cut on the end of the coil.
- Open the Guard Door and remove this piece, to be discarded. Close the door.
- Use the Manual Insert function (Sec. 5B) to make several pieces of cut cotton.
- Check that the cut cotton pieces meet expectations for length and proper inverted-U fold.
- With the conveyor turned off (not moving), place a bottle (filled with product, to the specified level) under the front tube of either turret.
- Extend the insertion rods using the Extend Rods function (Sec. 5G).
- Open the Guard Door and confirm that the plunger inserts cotton into the bottle without crushing or damaging the product.
- Close the door and withdraw the insertion rods.

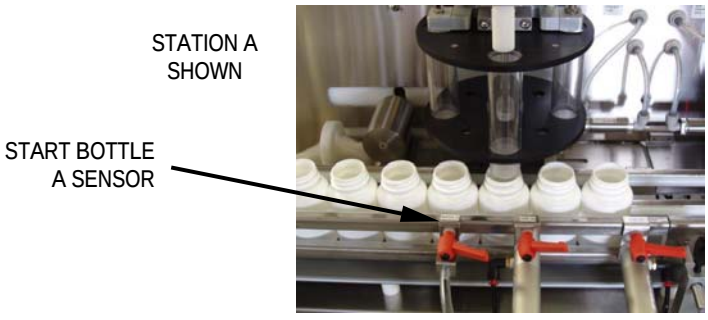
6F (a). Setup Bottles – Station "A" (see technical drawing Sec. 9E)

- Turn on conveyor, set to operating speed.



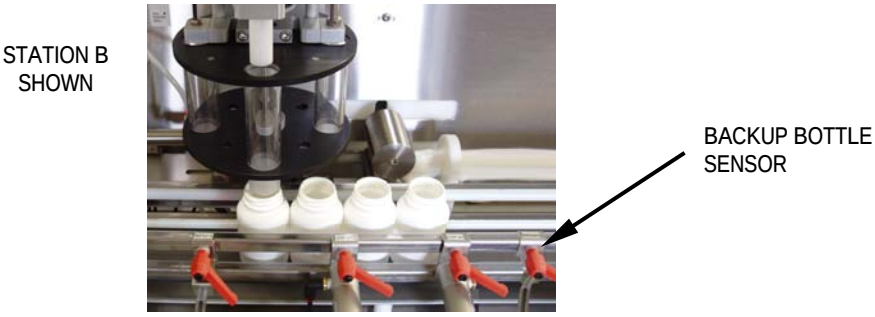

- With several bottles on the conveyor, adjust Stop A1 (normally extended) so the first bottle is centered directly under the front tube
- Use the One Step Index function (Sec. 5H) to extend Stop A2.


- Set Stop 2 so that the third bottle is centered under the front tube, or just 1/8 to 1/4 inch upstream from centered position.
- Alternately extend the stops several times using the One Step Index function to see if the indexing action is smooth, without any bottles jumping or being crushed.
- Make any necessary further adjustments until the indexing is smooth
- With the conveyor on and moving at the desired speed, use the Auto Index function (Sec. 5I) to index several bottles. Confirm that the Release Time is adequate to allow the bottles to leave the filling station before a new bottle is brought in.




- Position the station START BOTTLE "A" sensor so it is centered on and empty bottle. This bottle may be the one directly under the filling tube or any bottle upstream of the filling position. It is recommended that the sensor be positioned at

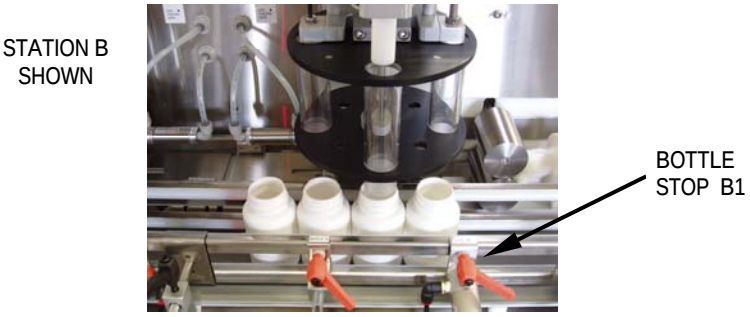
least 3 bottles upstream. In that way the bottle in the filling position, is stabilized by the other bottles pressing on it.



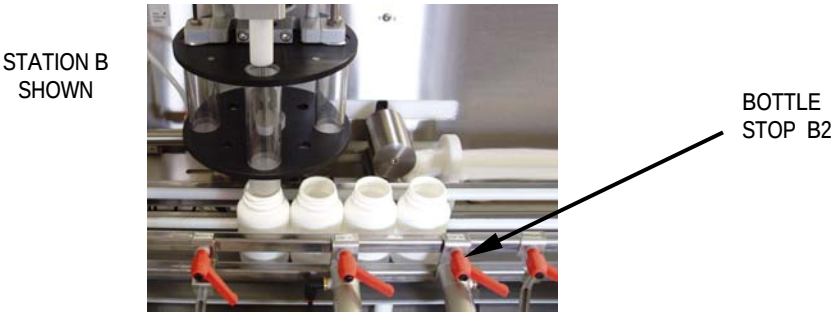

- Position the BACKUP SENSOR downstream from filling position of station B (right side) to detect any bottle which may be baking up from a downstream function which has stopped or is slower than the cottoner.

6F (b). Setup Bottles – Station "B" (see technical drawing Sec. 9E)

- Turn on conveyor, set to operating speed.

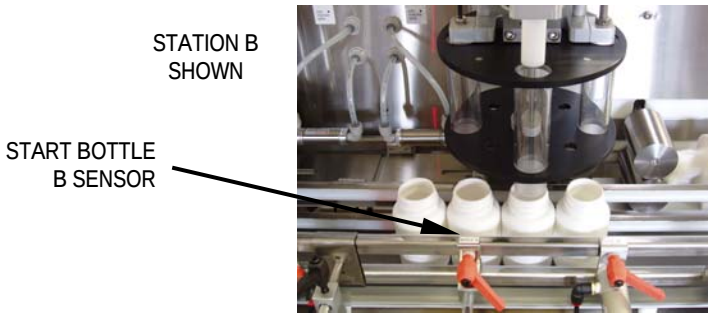



- With several bottles on the conveyor, adjust Stop B1 (normally extended) so the first bottle is centered directly under the front tube.
- Use the One Step Index function (Sec. 5H) to extend Stop B2.




- Set Stop 2 so that the third bottle is centered under the front tube, or just 1/8 to 1/4 inch upstream from centered position.
- Alternately extend the stops several times using the One Step Index function to see if the indexing action is smooth, without any bottles jumping or being crushed.
- Make any necessary further adjustments until the indexing is smooth

- With the conveyor on and moving at the desired speed, use the Auto Index function (Sec. 5I) to index several bottles. Confirm that the Release Time is adequate to allow the bottles to leave the filling station before a new bottle is brought in.




Position the station START BOTTLE "B" sensor so it is centered on and empty bottle. This bottle may be the one directly under the filling tube or any bottle upstream of the filling position. It is recommended that the sensor be positioned at least 3 bottles upstream. In that way the bottle in the filling position, is stabilized by the other bottles pressing on it.

6G. This Section intentionally left blank

6H. Test Cotton Inserting

- Use the Manual Insert function (Sec. 5B) several times to check the complete operation.

## Section 7. RUNNING PRODUCTION

QUICK START

- A. Start Up
- B. Check Cotton
- C. Check Bottles
- D. Test Operation
- E. Begin Operation
- F. Stopping the Machine Manually
- G. When the Machine Stops Automatically

7A. Start Up

- Lift open the Guard Door.
- Turn the Main Disconnect Switch ON.
- Close the Guard Door.
- Press the STOP Button.
- Twist and release the STOP Button.
- Press the START Button. The turrets will “find home”.

7B. Check Cotton

- Check that there is adequate cotton coil in the box
- Check that it is the correct cotton (material and gram weight)
- Check that the cotton is present on the cotton shelf and in the rear and left tubes. The turrets will “find home”.

7C. Check Bottles

- Check that there is an adequate supply of bottles.
- Check that they are the correct type of bottle

7D. Test Operation

- Use the Manual Insert function (Sec. 5B) to make several test cycles.

7E. Begin Operation

- Use the Auto Insert function (Sec. 5B) to begin production.

7F. Stopping the Machine Manually

- To stop the machine after the current cycle is complete and stay in INSERT mode, press F1 AUTO to stop automatic operation. To resume, Press F1 AUTO again.
- To stop the machine after the current cycle is complete, you may also press CANCEL to stop automatic operation. To resume, you will have to enter the INSERT mode again (Sec. 5B).
- To stop the machine after the current cycle is complete, you may also raise the GUARD DOOR, which cancels automatic operation. To resume, you will have to close the door and enter the INSERT mode again (Sec. 5B).
- To stop the machine instantly, press the STOP button. The machine will stop in the middle of the cycle. All air cylinders will return to the normal positions. All motors will power down. To resume, release the STOP button and press START. Then you will have to enter the INSERT mode again (Sec. 5B).

7G. When the Machine Stops Automatically

- If you raise the guard door while in automatic mode, the machine will stop. To resume, you will have to close the door and enter the INSERT mode again (Sec. 5B).
- If no cotton is present in the left tube, the message “NO COTTON SIDE A<<<” or “NO COTTON SIDE >>>B” will be displayed. You must correct the situation by opening the guard door. See previous paragraph.

- If the bottles begin to backup from the downline direction of station B, the Backup Sensor will cause the machine to pause and display the message “BOTTLE BACKUP >>>B”. Once the backup is cleared, automatic operation will resume immediately.
- If there is no bottle in front of the START sensor of either station when in automatic mode, the message “NEED BOTTLE A<<<” or “NEED BOTTLE >>>B” will be displayed and the machine is paused. When a bottle is detected, automatic operation will resume immediately. If the START sensors are positioned several bottles upstream from the filling station (as recommended), the machine may have several bottles ready to be filled while it waits for the missing bottle. This is normal.

## Section 8. ROUTINE MAINTENANCE

A. Insertion Air Cylinders
B. Compressed Air Filters
C. Cooling Fan Air Filters
D. Lubrication
E. General Cleaning

### 8A. Insertion Air Cylinders

NOTE: Do not add lubrication to the air cylinders or air supply. Cylinders are pre-lubricated. If the lubrication fails, the cylinder has reached the end of its life and must be re-built.

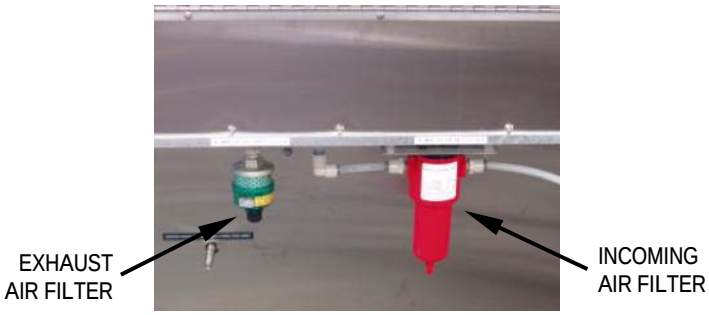
Insertion **a**ir cylinder life expectancy varies widely with each installation, usually due to air supply quality (oil, water). Insertion **a**ir cylinders may be returned to the factory to be rebuilt, at no charge other than shipping costs for the 2-year warranty period (from date of machine purchase) and for a small charge thereafter. Typically, replacing the cylinder and wiper will take up to 20 to 30 minutes each. You may also purchase the seal kit to do-it-yourself, but we are not responsible for the quality of your work. Typically, rebuilding alone will take 20 minutes plus replacement time.

| | |
|---|---|
| CS2 or CS10 Air Cylinder<br>(Also buy one P0157 per cylinder) (where x is the stroke in inches 4,5,6,7 or 8) | P0158-x |
| CS2 or CS10 Cylinder Rebuild Parts Kit<br>- consists of (1) FM3283F, (2) P0156, (2) P0157 | AD1071-1 |
| Cylinder Internal Seal Set (1 per cylinder) | FM3283F |
| Brass Air Fitting 10-32 to ¼" Tube (2 per cylinder) | P0156 |
| Air Cylinder Rod Wiper (1 per cylinder) | P0157 |

*(Also see service parts list in Section 9D)*

## 8B. Compressed Air Filters

There are two replaceable filters in the compressed air system, one for the incoming air filter and one for the exhaust filter. They are found at the lower rear of the machine.



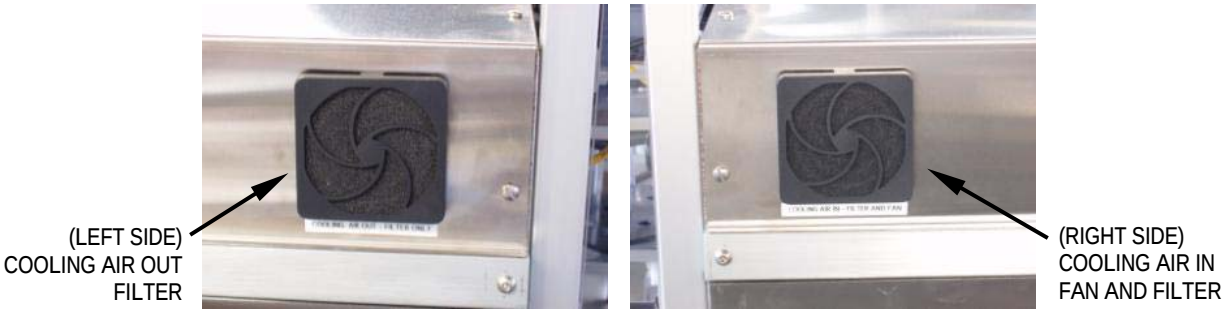

Incoming Compressed Air Filter – Specially designed stainless steel elements to remove condensate and contamination down to 1 micron. It has an automatic float style drain and a filter-service indicator (on top of filter behind glass) that tells you when to replace the filter (Green = good, Red = bad). It has a metal bowl and is rated to 150 PSI. Replace when the indicator changes color to red or once per month, whichever occurs first.

CS2 or CS10 Air In Filter Element P9052-1

Exhaust Filter/Silencer – Reduces noise contamination by 35 dB. It has a drain cock that exhausts 99.9% of all oil mist. Replace the element once every 6 months

CS2 or CS10 Air Exhaust Filter Element P9051-1

## 8C. Cooling Fan Air Filters




The upper cabinet is fan cooled. There are two replaceable foam-type filter elements, one for the inflow and one for the outflow. These are located on the sides of the machine. Replace them when they appear dirty or once per month, whichever occurs first.

CS2 or CS10 Cooling Fan Foam Filter Element FM3049-2

## 8D. Lubrication

There are no lubrication points on the machine. All bearings are permanently lubricated and/or are sealed. Feed screws for the roller carriage travel (one, behind turret assembly inside upper cabinet) and lift platform (two, inside lower cabinet) may occasionally need to be coated with any common grease. The pneumatic system should NOT add lubricant to the incoming air.

## 8E. General Cleaning

You may use any typical surface cleaner on all stainless steel parts and all white or black plastic parts (acetal). Do not use acetone, alcohol or any highly evaporative cleaner on any clear plastic parts (polycarbonate), such as the turret tubes or the safety enclosure. Instead use a mild solution of water and soap, or a mild solution of water and ammonia.

## Section 9. TECHNICAL INFORMATION

A. Cycle of Operation
B. Troubleshooting
C. Options
D. Technical Notes/Drawing Index

### 9A. Typical machine cycle (insertion process sequence of operations)

TO START CYCLE - Press F2 RUN (manual) or detect a START BOTTLE (automatic).

SEQUENCE OF OPERATIONS:

1. PINCH - Pincher arms close.

2. INSERT – After a very short delay, the lower and upper insertion cylinders extend.

3. DWELL - Upon sensing both insertion cylinders are extended, wait for dwell time delay. then both cylinders withdraw and pincher opens.

4. INDEX BOTTLES– As soon as the upper insertion cylinder begins to withdraw, start bottle indexing cycle:

    a. INDEX - Stop 1 withdraws and Stop 2 extends. All bottles move up.

    b. RELEASE - After release time delay, Stop 2 withdraws and Stop 1 extends. Filled bottle is released.

5. FEED and ROTATE- Upon sensing both cylinders are withdrawn:

    a. Turret rotates 90 degrees.

    b. Rollers produce a new cut piece of cotton.

CYCLE COMPLETE, NEW CYCLE MAY BE STARTED IMMEDIATELY

## 9B. Troubleshooting

1. Bottles fall over or jump suddenly
   - Check the positioning of the Bottle Stops. Use the One Step Index function (Sec. 5H) to test the action.
   - Check that the Release Time is adequate for the conveyor speed and bottle size (Sec. 5C). Use the Index Bottles Only function to test the action (Sec. 5I). Increase the Release Time or increase conveyor speed.

2. Cotton comes out top of bottle
   - Check that the Cotton Length is correct for bottle and contents (Sec. 5C).
   - Check that the plunger tip is the correct size for the application.
   - Check that the cotton is being properly folded into the inverted-U configuration, with equal length on each side of fold (folded in middle).
   - Check that there is adequate space in the bottle, above the contents for cotton to occupy. Cotton is best inserted below a shoulder, not only within the neck of the container.
   - Install the optional Tamper Assembly – contact Deitz Co. for availability.

3. Synthetic cotton issues: Rayon and polyester
   - Pure cotton coil always runs best, though it produces the most dust. It cuts most easily and consistently.
   - Synthetics have longer fibers and stretch and great deal before parting. This makes less dust. Synthetics in larger gram sizes do not make good pieces in the shorter lengths (2 or 3 inches).

4. Turret not centered on insertion cylinders
   - Normally the turret will stop so the plunger is closest to the left side of the hole. This is normal and necessary for high-speed operation.
   - Plunger hits the turret, turret has play when power is on: sprocket collars or setscrew on the turret drive belt sprockets may have come loose. Check and tighten them. Do not worry about timing the belt sprockets. They are self-timing each cycle.
   - Plunger hits turret, turret has no play when power is on: Turret Sensor (proximity) may have failed on connector may have come loose.

Insertion cylinders extend, then machine stops in extended position
   - Turret sensor may be out of position or is defective. Consult drawing TN 0000.

Insertion cylinders extends, then retracts then machine stops, will not cycle again
   - Turret sensor may be out of position or is defective. Consult drawing TN 0000.

Message: “TURRET ROTATE ERROR”
   - If turret can be easily manually rotated with power on, sprocket collars or setscrew on the turret drive belt sprockets may have come loose. Check and tighten them. Do not worry about timing the belt sprockets. They are self-timing each cycle.

- Turret electronic component may be defective or becoming defective. Stop the machine, CLEAR TUBES and try again. If it continues to occur, contact a technician.

Message: “ROLLER TRAVEL ERROR”

- Roller carriage drive electronic components may be defective or becoming defective. Stop the machine and try again. If it continues to occur, contact a technician.

9C. Options

| | |
|---|---|
| Cotton Box Cover Assembly (center draw, no breaks) | AD1035 |
| CS10 Secondary Tamper Assembly – contact Deitz Co. for availability | |

9D. Technical Notes/Drawing Index

(Technical Notes/Drawings Begin After Last Page)

| Number | Title | No. of Pages |
|---|---|---|
| TECH NOTES | | |
| TN0076 | Using ***Technician Only*** Menu | 5 |
| TN0075-3 | CS10 Service Parts List | 4 |
| DRAWINGS | | |
| 2006-19 | CS10 Dimensional Drawing | 1 |
| 2006-22 | CS10 Bottle Gating Setup - No Tamper | 1 |
| SC1007 | CS10 Wiring Schematic | 23 |
| SC1008 | CS10 Air Line Schematic | 6 |
| Addendums or additional technical data | | |
| _____ | _____ | __ |
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# Using the ***TECHNICIAN ONLY*** Menu Item

## 1A. Explanation

This function allows the qualified technician to access some settings within the PLC that can be used to fine-tune the characteristics of the machine's operation. This function should never be used by the operators or by any personnel who are not authorized to service the machine. Using this function incorrectly can make the machine operate poorly. For most applications, there is never any need to access the function. Section 3-B details how to access and adjust the settings. Factory settings are noted there and should be adequate for most situations.

The following explains the purpose of each setting:

-PASSCODE: in order to limit access to this function, a passcode is required to use it. The passcode is set at the factory to 0 (zero) and should be changed to any 4-digit number by the technician. Make sure you record this number. If you lose the passcode, please call Deitz Company and we will tell you how to recover it.

-OFFSET TURRET: the exact position of the turret after each 90° move is controlled by a prox sensor that detects a metal pin on the top of the turret assembly. As the turret moves, the metal pin is detected and the stepper motor will come to a stop at a fixed number of steps after the pin is detected. This is the "turret offset" relative to the pin. The theoretical number would be 100, but the actual number to center the turret is around 106. In order to get higher speeds, we prefer that the turret tube come to a stop a bit past center, so the insert cylinder can fire earlier. Therefore, the actual range is 106 to 110. The units are "steps".

***NOTE: The ideal position of the turret relative to the insertion plunger is slightly past center.***

- OFFSET ROLLERS: this is a not used at this time and should be left at 0 (zero).

- PINCH TIME DELAY: After the cotton is fed out of the rollers, the pincher arms compress it before it is inserted into the rear tube. This setting controls the time delay between the pincher action and the insertion action. Any change to this number directly affects cycle time (a larger value increases cycle time). Units are "hundredths of a second".

- FEED LENGTH FACTOR: When the operator selects a number for cotton length, the PLC converts that number to the corresponding number of motor steps for the feed rollers. This setting changes a number that is used to calculate the steps. A value of 10 represents 100%; that is, the feed rollers will turn the exact length selected. Due to stretching, the actual length produced may be longer. If you wish to compensate for this stretch, you may change this setting. To under feed, make the number lower (such as 9 = 90%). To over feed, make the number higher (11 = 110%). There are no units for this value.

- TEAR LENGTH ADDER: The tear rollers must tear the cotton from the feed rollers and deliver it to the insertion area. Therefore, they must turn more than the feed rollers. The setting sets the number of additional steps the tear rollers will make after the feed roller have stopped. Units are “steps”. One roller revolution = 800 steps.

- TURRET TIME: In order to maximize the top speed of the machine, the insertion plunger will actually begins it’s motion before the turret has come to rest. This value sets the time delay between the start of turret rotation and the action of the insertion plunger. The shorter the delay, the faster the machine can cycle; but if the delay if too short, the plunger will strike the turret. This is only effective when the machine is cycling continuously, such as when the MANUAL insertion mode is held on, or when bottles are coming in at the maximum rate in the AUTO insertion mode. Any change to this number directly affects cycle time (a larger value increases cycle time). Units are “hundredths of a second”.

- MAXIMUM LENGTH: this value is set according to the type of turret assembly that is installed on the machine. For 3 inch long turret tubes, it is set to 6. For 4 inch long tubes, it is set to 7. For 5 inch long tubes, it is set to 9.

- HIGHCNT, MIDCNT & LOWCNT: (display only) This value displays the numbers of insertion cycles the machine has made since new. It is like the odometer on a car. Due to limitations of the display panel itself, only a 4 digit number can be displayed, so this number had been broken down into three parts. HighCnt shows hundreds of millions; MidCnt shows tens of thousands; and LowCnt shows ones.

Section 1B: ***TECHNICIAN ONLY***

***This function adjusts special values in the PLC control program***



1. Press MENU and use UP and DOWN arrows to scroll through the menu choices.


2. When you see ***TECHNICIAN ONLY***, press SELECT or ENTER.

**(NOTE: Please read section 1A to get a complete understanding of this function before making any adjustments.)**



3. You are now requested to enter the passcode to continue. Enter up to 4 digits with the keypad and press ENTER. (The passcode is set to 0 when new)


4. You are now given the option of entering a new passcode. It is recommended that you change the passcode to something other than 0. Enter up to 4 digits with the keypad and press ENTER. If you do not want to change it, just press ENTER,

Write down the NEW PASSCODE _____


5. Change values by using the UP and DOWN arrows.

"Offset Turret A" ranges from 50 to 150. Normal values are from 100 to 110. Factory default is 106.

*(Continued on Next Page)*


6. “Offset Turret B” ranges from 50 to 150. Normal values are from 100 to 110. Factory default is 106.


7. “Offset Rollers” is not used. Leave this value at 0.


8. “Pinch Time Delay” ranges from 1 to 100. Normal values are from 0 to 10. Factory default is 5.


9. “Feed Length Factor” ranges from 5 to 15. Normal value is 10. Factory default is 10.


10. “Tear Length Adder” ranges from 500 to 1500. Factory default is 800.


11. "Turret Time" ranges from 0-99. Normal values are 5 to 25. Factory default is 18.


12. "Maximum Length" ranges from 6.0 to 9.0. Set according to the length of turret tubes installed on the machine.


13. The following values display the number of insertion cycles the machine has seen since it was new. The information is for display only and cannot be changed. The number is broken into 3 segments due to display limitations.

"HighCnt" displays hundred millions.


14. "MidCnt" displays tens thousands.


15. "LowCnt" displays ones.

*(END 1-B)*

| Part Number | Description | Type | Quan Used | Call for Prices | Ref | Where Used |
|---|---|---|---|---|---|---|
| AD1071-1 | CS2/10 Cylinder Rebuild Kit | WEAR | 4 | | | Incl. (1) FM3283F, (2) P0156, (2) P0157 |
| AD1085-3 | CS10 Spare Fuse Kit | WEAR | 1 | | | |
| FM3049-2 | Cooling Fan Foam Filter Element | WEAR | 12 | | | Upper cabinet, both sides, towards front |
| P0158-4 | Lower Insertion Air Cyl, Stroke 4", 5", 6" | WEAR | 2 | | | Upper for 3" turret tube length |
| P0158-6 | Upper Insertion Air Cyl, Stroke 6", 7", 8" | WEAR | 2 | | | Upper for 5", lower for 3" turret tube length |
| P0182 | Grease, Synthetic, for cylinder rebuilds | WEAR | 1 | | | Use when rebuilding air cylinders |
| P5816 | Relay, DPST 24VDC | WEAR | 4 | | REL2, 3 | Electronics panel, top |
| P9029 | PLC Battery | WEAR | 1 | | | Electronics panel, rear (see P9064) |
| P9051-1 | Air Exhaust Filter Element | WEAR | 1 | | | Rear of machine, below cabinet |
| P9052-1 | Air In HD Filter Element | WEAR | 1 | | | Rear of machine, below cabinet |
| **AD1088-1** | **CS10 Wear Parts Kit (Quan Used X Price)** | | | | | |
| | | | | | | |
| AD0918-2 | Motor Speed Control, LPC2/10 | SPARE | 1 | | SC1 | Lift Platform |
| FA1014-1 | Pincher Arm Assembly LH Inner | SPARE | 2 | | | Pincher assembly |
| FA1014-2 | Pincher Arm Assembly RH Outer | SPARE | 2 | | | Pincher assembly |
| FM3015-2 | Pincher Slide Block | SPARE | 2 | | | Pincher assembly |
| FM3216-1 | Cylinder Tip, Upper, .75 diam x 1.75 | SPARE | 2 | | | Upper insertion cylinder assembly |
| FM3264F | Air Cylinder-20mm x 1" Stroke (Modified) | SPARE | 2 | | | On conveyor railing, to index bottles |
| FM3270-1 | Air Cyl Sensor, 13", Upper | SPARE | 4 | | SN4, SN5 | Upper insertion cylinder |
| FM3270-2 | Air Cyl Sensor, 20", Lower | SPARE | 4 | | SN6, SN7 | Lower insertion cylinder |
| FM3283F | CS1 Cylinder Internal Seals Set | SPARE | 8 | | | For rebuilding insertion air cylinder |
| FM3297-1 | Step Motor Indexer, Modified PCL511 | SPARE | 6 | | INDX1, 2, 3 | Electronics panel, rear |
| P0142 | Air Valve 4 Way 24VDC 1/4 Tube | SPARE | 8 | | VAL1,2,3,4 | Electronics panel, rear |
| P0416 | Belt, Gear - 80T | SPARE | 4 | | | Roller drive assembly |
| P0417 | Belt, Gear - 100T | SPARE | 2 | | | Turret drive assembly |

| Part Number | Description | Type | Quan Used | Call for Prices | Ref | Where Used |
|---|---|---|---|---|---|---|
| P0418 | Belt, Gear - 150T | SPARE | 1 | | | Carriage drive assembly |
| P1822-1 | Step Motor Driver/Translator, Small | SPARE | 3 | | SMDT1, 2 | Electronics panel, top |
| P5016 | Fib-Op Cable (use w/P5018) | SPARE | 6 | | | Cotton, bottle and backup sensors |
| P5018 | Fib-Op Sensor (use w/P5016) | SPARE | 6 | | SN1,2,3 | Electronics panel, rear (see P5016) |
| P5703 | Power Supply 24 VDC (PS2) | SPARE | 2 | | PS2 | Electronics panel, top |
| P6981 | Sensor - Proximity PNP (use w/P6983) | SPARE | 3 | | SN8,9,11 | Turret & carriage drive assemblies (A SIDE ONLY) |
| P6984 | Sensor - Proximity NPN (use w/P6983) | SPARE | 1 | | SN8,9,11 | Turret (B SIDE) |
| P9027 | Step Motor Driver/Translator, Large | SPARE | 4 | | LGDT1,2 | Electronics panel, top |
| P9034 | PLC Operator Interface OP1510 | SPARE | 1 | | OPTINTF | Front control panel (must be programmed) |
| P9035 | Power Supply 24 VDC Class 2 (PS1) | SPARE | 1 | | PS1 | Electronics panel, rear |
| P9036 | Relay Power-Type-25amp, 25vdc | SPARE | 1 | | REL1 | Electronics panel, rear |
| P9064 | PLC Main Controller DL-06 | SPARE | 1 | | PLC1 | Electronics panel, rear (must be programmed) |
| **AD1088-2** | **CS10 Critical Spare Parts Kit (1 Each X Price)** | | | | | |
| | | | | | | |
| AD1054-2 | Stepper Mtr 2 Stk w/Std Conn | REPAIR | 2 | | M3 | Turret drive motor |
| AD1054-3 | Stepper Mtr 3 Stk w/Lock Conn | REPAIR | 4 | | M1, M2 | Roller drive assembly |
| AD1054-4 | Stepper Mtr 2 Stk w/Lock Conn | REPAIR | 1 | | M4 | Carriage drive motor |
| FM2891-1 | Gearbelt Pulley Mods 16T | REPAIR | 3 | | | Turret & carriage drive assemblies, motor |
| FM2891-4 | Gearbelt Pulley 14T | REPAIR | 4 | | | Roller drive assembly, motor |
| FM2891-5 | Gearbelt Pulley 28T | REPAIR | 4 | | | Roller drive assembly |
| FM2951-1 | Clear Turret Tube, 3", 4" or 5" | REPAIR | 4 | | | Turret tube assembly |
| FM2953 | Pivot Block | REPAIR | 8 | | | Roller drive assembly (req. 4 pcs P0308) |
| FM2958-1 | CS1/CS2 Roller Gear, Steel | REPAIR | 4 | | | Roller drive assembly |
| FM2958-2 | CS1/CS2 Roller Gear, Nylon | REPAIR | 4 | | | Roller drive assembly |
| FM2977 | Turret Disc Hub | REPAIR | 4 | | | Turret tube assembly |

| Part Number | Description | Type | Quan Used | Call for Prices | Ref | Where Used |
|---|---|---|---|---|---|---|
| FM3031 | LP Bevel Gear | REPAIR | 2 | | | Lift Platform |
| FM3155-1 | Turret Disc Upper | REPAIR | 2 | | | Turret tube assembly |
| FM3155-2 | Turret Disc Lower | REPAIR | 2 | | | Turret tube assembly |
| FM3156-1 | Tube Extension, ID .75", 1.00", 1.25" | REPAIR | 1 | | | Turret tube assembly |
| FM3157-1 | Primary Idler/Pivot Shaft | REPAIR | 2 | | | Turret drive assembly |
| FM3157-2 | Primary Upper Roller Shaft | REPAIR | 2 | | | Turret drive assembly |
| FM3157-3 | Primary Lower Driven Shaft | REPAIR | 2 | | | Turret drive assembly |
| FM3157-4 | Secondary Upper Roller Shaft | REPAIR | 2 | | | Turret drive assembly |
| FM3157-5 | Secondary Driven Pivot Shaft | REPAIR | 2 | | | Turret drive assembly |
| FM3157-6 | Secondary Lower Roller Shaft | REPAIR | 2 | | | Turret drive assembly |
| FM3157-7 | Secondary Driven Idler Shaft | REPAIR | 2 | | | Turret drive assembly |
| FM3196 | Turret Shaft Bearing Retainer Block | REPAIR | 4 | | | Turret drive assembly |
| FM3202-1 | Turret Shaft, for Tube Length 3", 4", 5" | REPAIR | 1 | | | Turret drive assembly |
| FM3213 | Roller Subass'y | REPAIR | 8 | | | Roller drive assembly |
| FM3238 | CS2/CS10 Air Cyl Mtg Bar | REPAIR | 4 | | | Insertion air cylinders |
| FM3250 | Lower Cylinder Ext Guide Bar | REPAIR | 2 | | | Lower insertion cylinder assembly |
| FM3251-1 | Lower Cyl Extension Rod, for 6", 7", 8" | REPAIR | 1 | | | Lower insertion cylinder |
| FMA2890 | Gearbelt Pulley 32T | REPAIR | 3 | | | Turret & carriage drive assemblies |
| P0135 | Cooling Air Fan | REPAIR | 1 | | FAN1 | Upper cabinet, right side, towards front |
| P0156 | Brass Air Fitting 10-32 To 1/4 Tube | REPAIR | 16 | | | Insertion, pincher & roller air cylinders, 2 per |
| P0157 | Insertion Air Cylinder Rod Wiper | REPAIR | 8 | | | Upper & lower insertion cyl ass'ys, 2 per |
| P0175 | Roller Pressure Air Cyl 1/2" Stroke | REPAIR | 4 | | | Roller drive assembly |
| P0308 | Bearing, Oilite .50x.62x.50 | REPAIR | 16 | | | Roller drive assembly (4 per FM2953) |
| P0320 | Bearing, Ball 1604DS 3/8 I.D. | REPAIR | 4 | | | Turret drive assembly |
| P0321 | Bearing, Ball 1/2 I.D. 1621DS | REPAIR | 20 | | | Roller drive assembly |

| Part Number | Description | Type | Quan Used | Call for Prices | Ref | Where Used |
|---|---|---|---|---|---|---|
| P0337 | Bearing Mounted, 1 Flange Type #1A399 | REPAIR | 4 | | | Lift platform |
| P0338 | Bearing Mounted .50 #1A396-9 | REPAIR | 8 | | | Main frame (2 per) & Lift platform (6 per) |
| P0347 | Bearing Frelon Lined-Open 1/2" | REPAIR | 8 | | | Main Frame |
| P1718 | Shaft Coupler, Lower Cyl Extension Rod | REPAIR | 2 | | | Lower insertion cylinder |
| P1822-3 | Step Motor Transformer - Small | REPAIR | 2 | | SMXF1 | Electronics panel, top |
| P4420 | Motor, Gearhead, 1/8 HP | REPAIR | 1 | | M-L1 | Lift Platform |
| P5019 | Cordset 4pin (use w/P5018) | REPAIR | 6 | | CS-SN1,2,3 | Electronics panel, rear (see P5016) |
| P6713 | Spring, Gas Filled | REPAIR | 2 | | | Guard door |
| P6924 | Switch PB Blk 22 mm | REPAIR | 1 | | SW3 | START switch |
| P6929-1 | Emer Stop Actuator Red (use w/P6929-2&3) | REPAIR | 1 | | SW2 | STOP switch |
| P6929-3 | Emer Stop Contact Blk (use w/P6929-1&2) | REPAIR | 1 | | SW2 | STOP switch |
| P6931 | Switch, Micro w/roller, 20amp | REPAIR | 2 | | SWL1,2 | Lift Platform |
| P6983 | Sensor Cordset, 3-pin (use w/P6981) | REPAIR | 3 | | CS-SN8,9,11 | Electronics panel, top (see P6981) |
| P7006 | Switch Contact Blk SPST NO | REPAIR | 1 | | SW3 | START switch |
| P7508 | Step Motor Transformer - Large | REPAIR | 2 | | LGXF1 | Electronics panel, top |
| P9011 | DIN Circuit Breaker 20A | REPAIR | 1 | | CB1 | Electronics panel, rear |
| P9039 | Switch, Main Disconnect | REPAIR | 1 | | SW1 | Front panel, rotary switch |
| P9048 | Pincher Air Cylinder | REPAIR | 2 | | | Pincher assembly |
| P9051 | Air Exhaust Filter Housing | REPAIR | 1 | | | Rear of machine, below cabinet |
| P9052 | Air In HD Filter Housing | REPAIR | 1 | | | Rear of machine, below cabinet |
| P9055 | Air Needle Valve | REPAIR | 2 | | | Below Roller Air Valves |
| P9057 | Air Pressure Regulator, Panel Mount | REPAIR | 2 | | | Front panel |

| NOTE | REV | DESCRIPTION | DATE |
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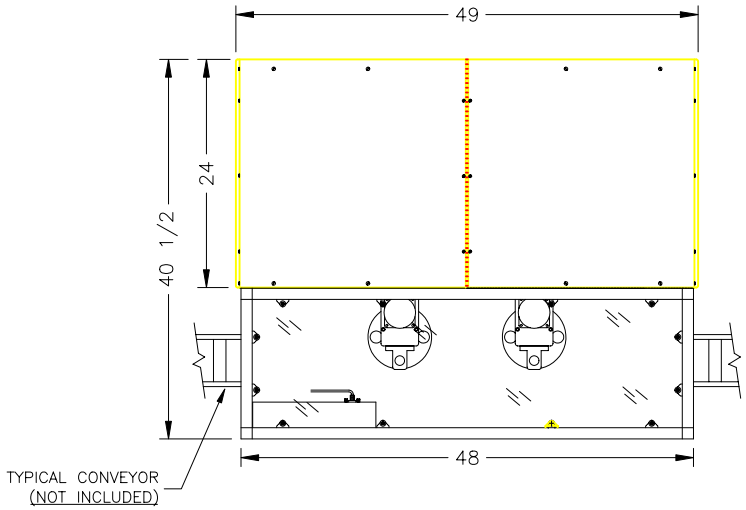
REVISION –

NUMBER: 2006–19

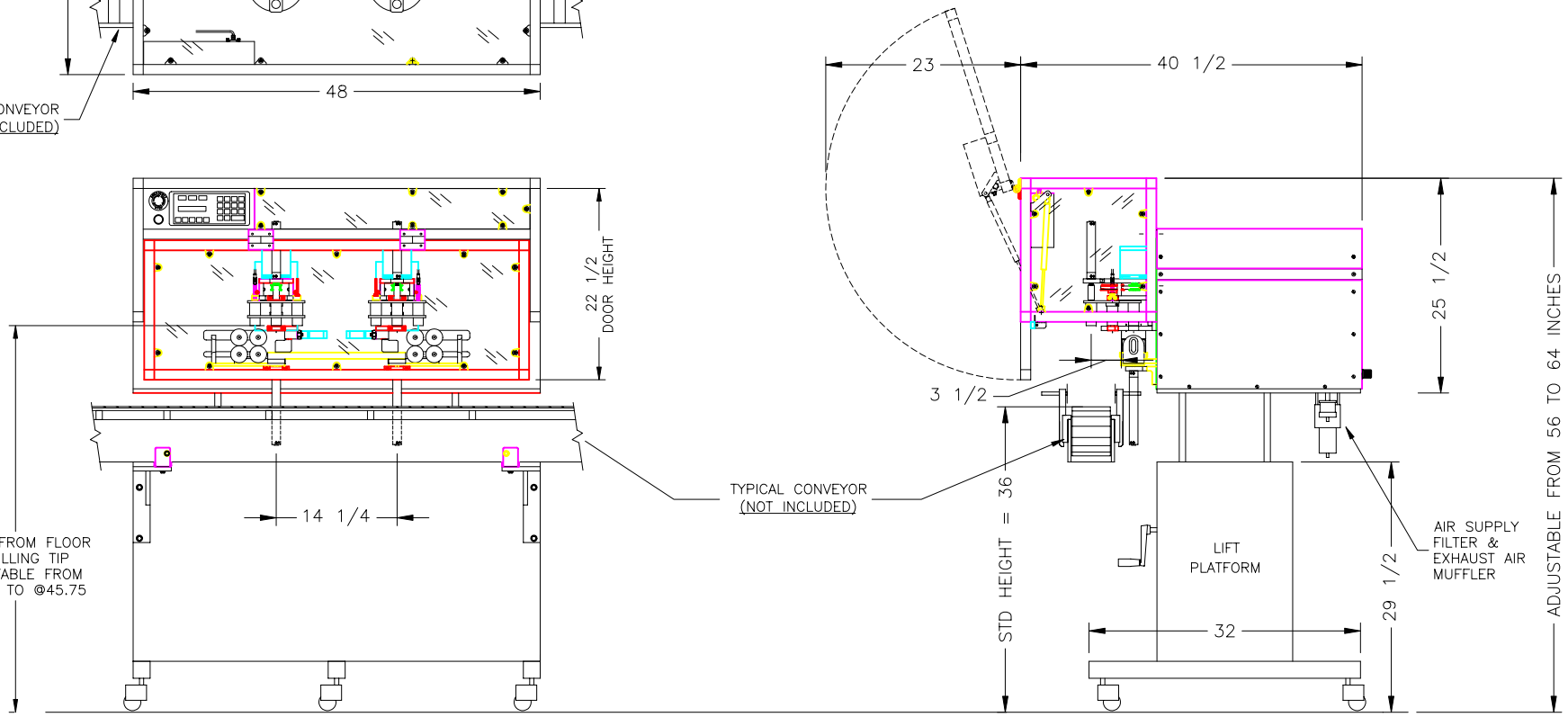



## INSTALLATION SPECIFICATIONS

WEIGHT: 450 LBS.

ELECTRIC: 115 VAC, 50/60 HZ, 30 AMP

COMPRESSED AIR: 3.0 CFM, CLEAN AND DRY




NOTES:

1.) THIS DRAWING TO BE USED AS A GENERAL OVERVIEW OF MAJOR COMPONENTS.

2.) NOT ALL DETAILS ARE SHOWN.

3.) ALL DIMENSIONS ARE IN INCHES AND ARE APPROXIMATE.

NUMBER: 2006–19

REVISION –

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

TECHNICAL DRAWING – PRODUCT INFO

| | | | |
|---|---|---|---|
| PRODUCT | CS10 | BY SJD2 | DATE: 01/17/02 |
| TITLE | CS10 COTTONER DIMENSIONS AND SPECIFICATIONS | SHEET 1 OF 1 | |
| | | NUMBER 2006–19 | REVISION – |

## FIBER-OPTIC SENSORS

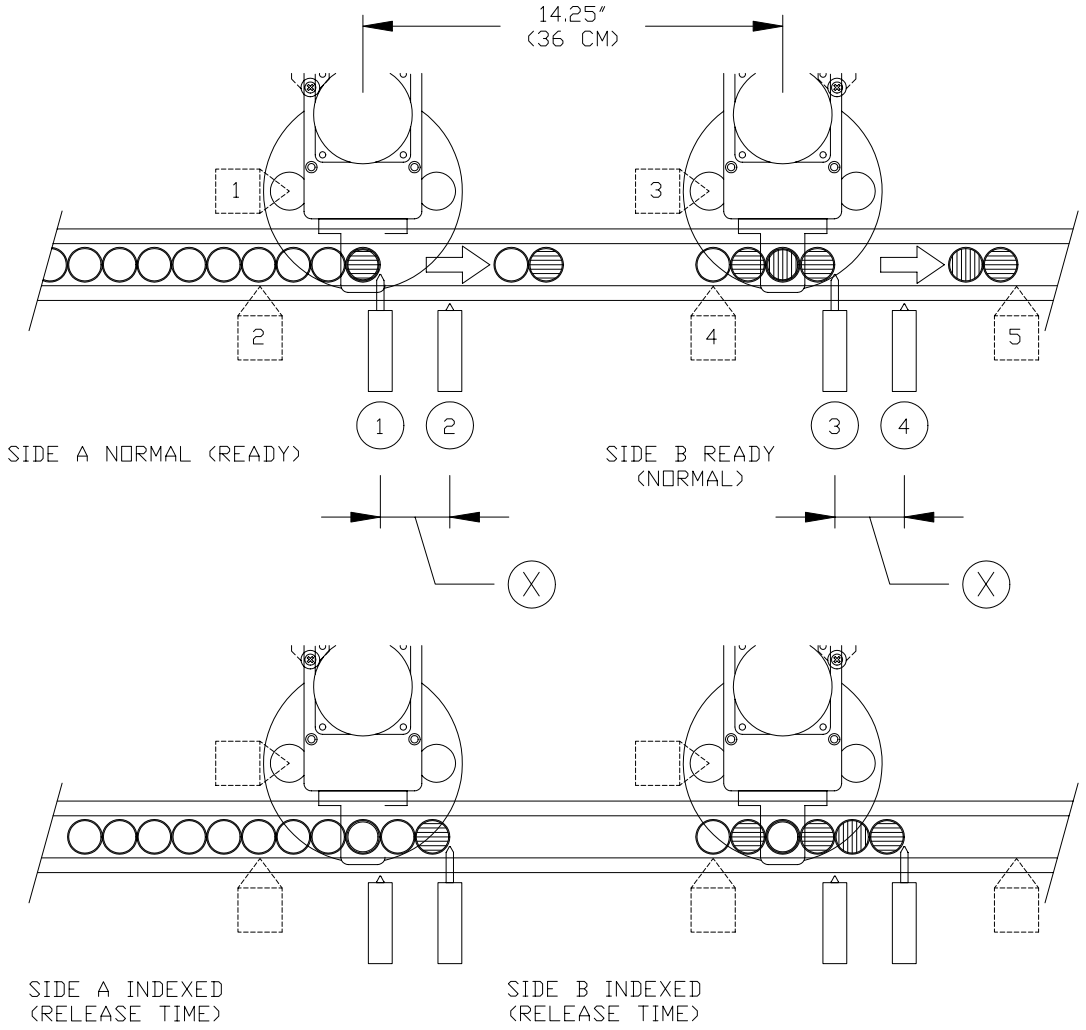
1 – COTTON PRESENT IN TUBE, SIDE A
2 – BOTTLE SUPPLY PRESENT, SIDE A
3 – COTTON PRESENT IN TUBE, SIDE B
4 – BOTTLE SUPPLY PRESENT, SIDE B
5 – BOTTLE BACKUP DOWNLINE

## BOTTLE INDEXING (GATING) CYLINDERS

CYLINDER SPACING: (X) = WIDTH OF 2 BOTTLES

(1) – (A1) FILLING POSTION SIDE A
(2) – (A2) INDEX POSITION, SIDE A
(3) – (B1) FILLING POSTION SIDE B
(4) – (B2) INDEX POSITION, SIDE B

| NOTE | REV | DESCRIPTION | DATE |
|---|---|---|---|
| – | A | UPDATED | 12/01/04 |




| – | – | – | – | – |
|---|---|---|---|---|
| PART NO | QTY. REQ. | DESCRIPTION | NEXT ASSEMBLY | USED ON |

*UNLESS OTHERWISE SPECIFIED:*
TOL: DEC= .XXX ±.005 FRAC= ±1/64
.XX ±.01

MATL – –
FIN – –

BY SJD2 | DATE: 2/5/02
SCALE NONE
SHEET 1 OF 1

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

TITLE BOTTLE INDEXING AND SENSORS CS10

NUMBER 2006–22 | REVISION A

NUMBER: 2006–22
REVISION A

2006–22

REVISIONS

| NOTE | REV | DESCRIPTION | DATE |
|---|---|---|---|
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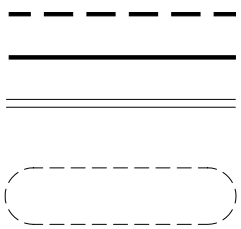
KEYS




NUMBER SC1007

PAGE 001

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

SECTION NOTES AND REVISIONS

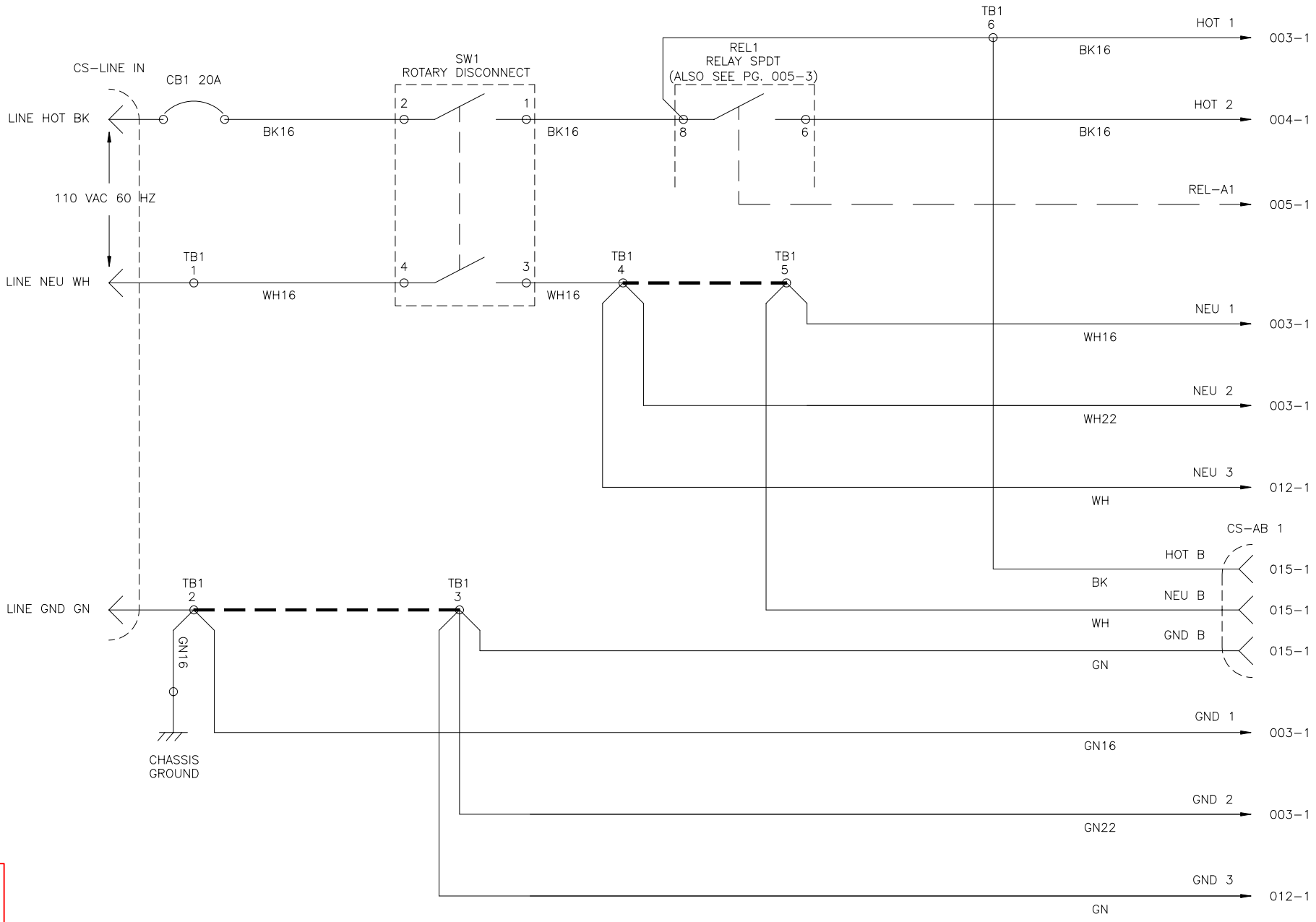
TITLE MODEL CS10 COTTONER
WIRING SCHEMATIC
SERIAL NO. 002 AND UP

BY SJD2 DATE: 12–01–04

SHEET 001 OF 023

NUMBER SC1007

REVISION –

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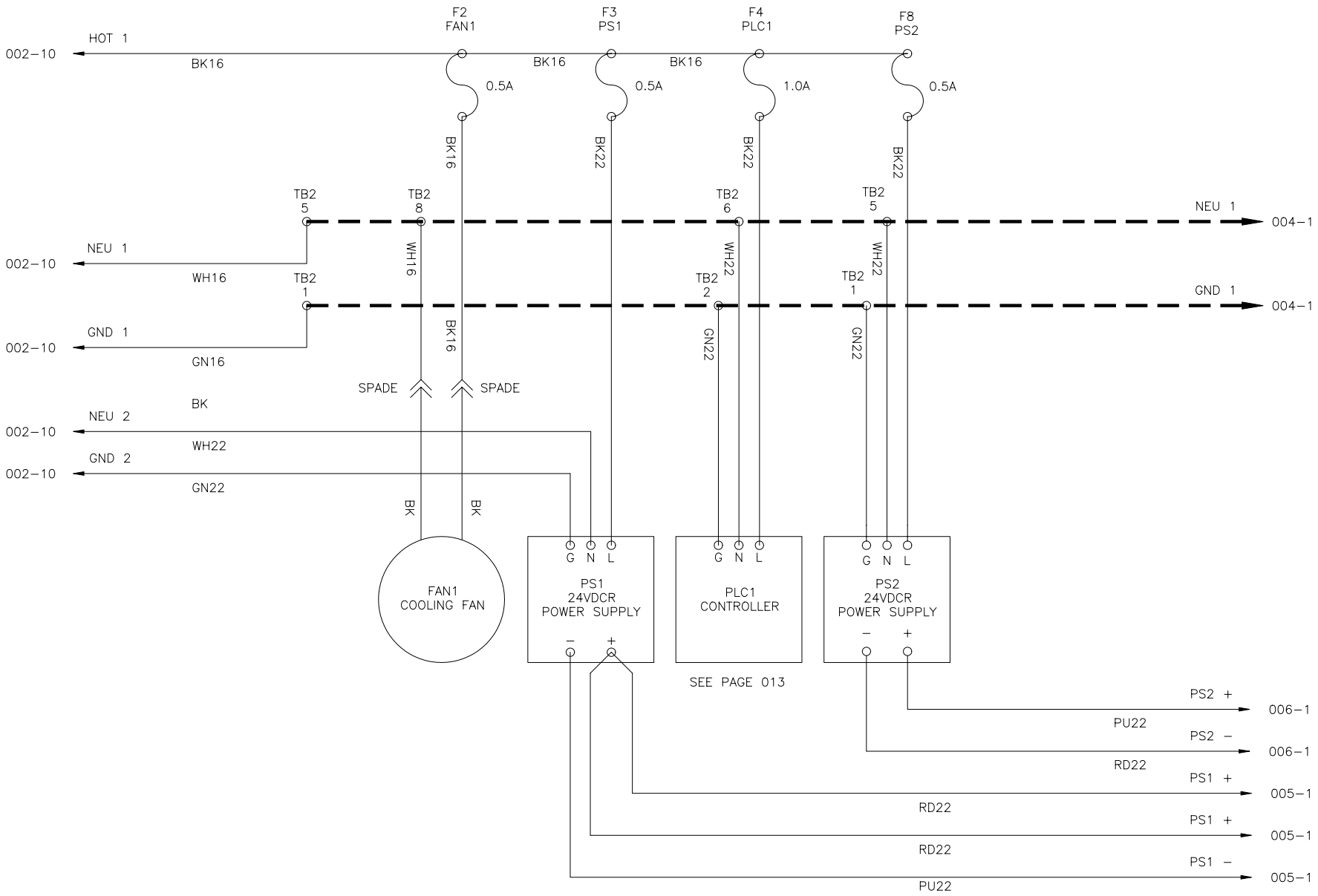
**DEITZ COMPANY, INC.**
**ROUTE 34, WALL, N.J.**
TECHNICAL DRAWING – PRODUCT INFO

| | | | |
|---|---|---|---|
| SECTION | AC POWER ENTRY – MAIN | BY SJD2 | DATE: 12–01–04 |
| TITLE | MODEL CS10 COTTONER WIRING SCHEMATIC SERIAL NO. 002 AND UP | SHEET 002 OF 023 | |
| | | NUMBER SC1007 | REVISION – |

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

SECTION UNSWITCHED AC LOADS – A
BY SJD2 DATE: 12-01-04
TITLE MODEL CS10 COTTONER
WIRING SCHEMATIC
SERIAL NO. 002 AND UP
SHEET 003 OF 023
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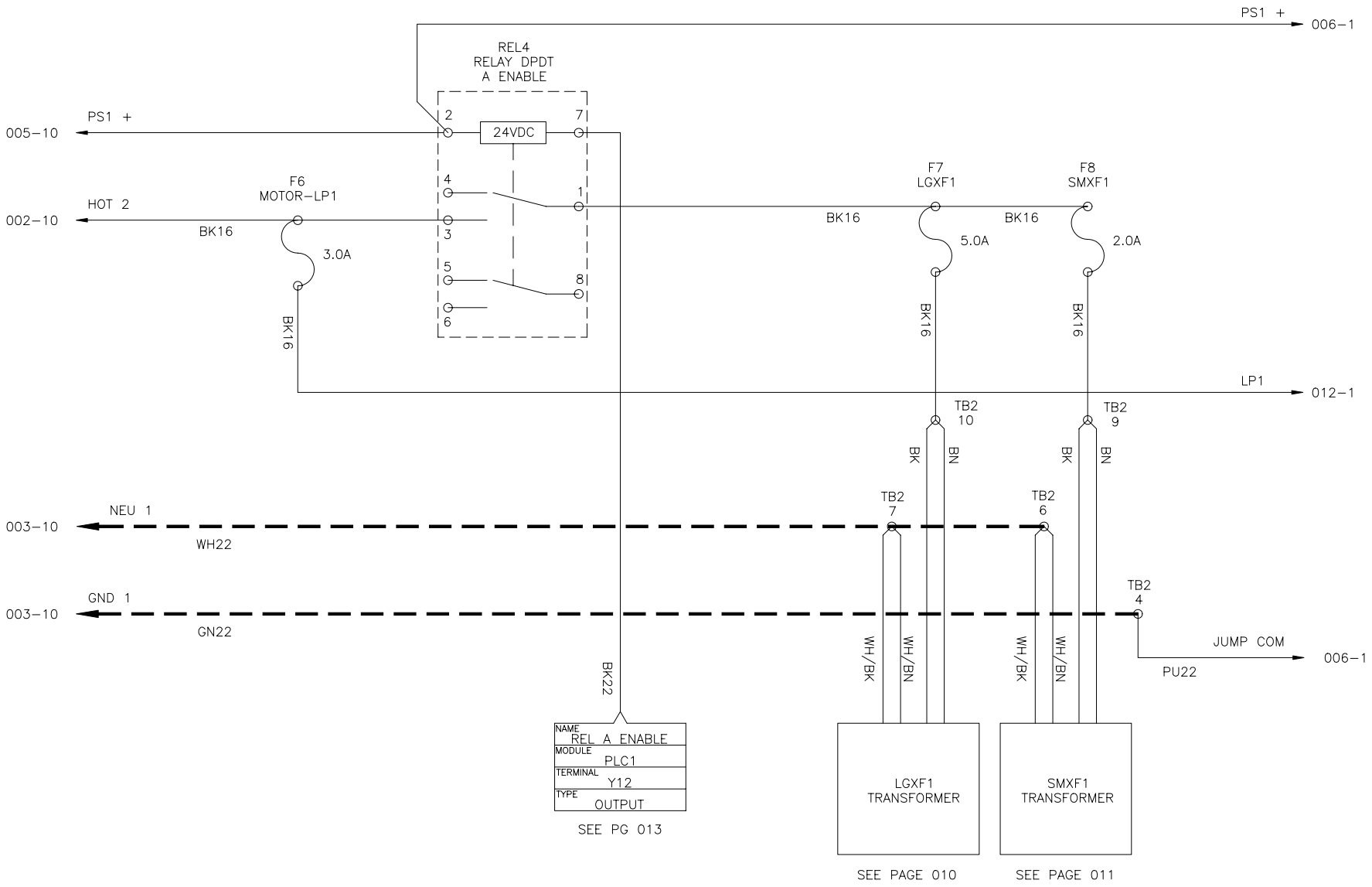
REVISION –

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

SECTION SWITCHED AC LOADS – A

TITLE MODEL CS10 COTTONER
WIRING SCHEMATIC
SERIAL NO. 002 AND UP

BY SJD2 DATE: 12-01-04

SHEET 004 OF 023

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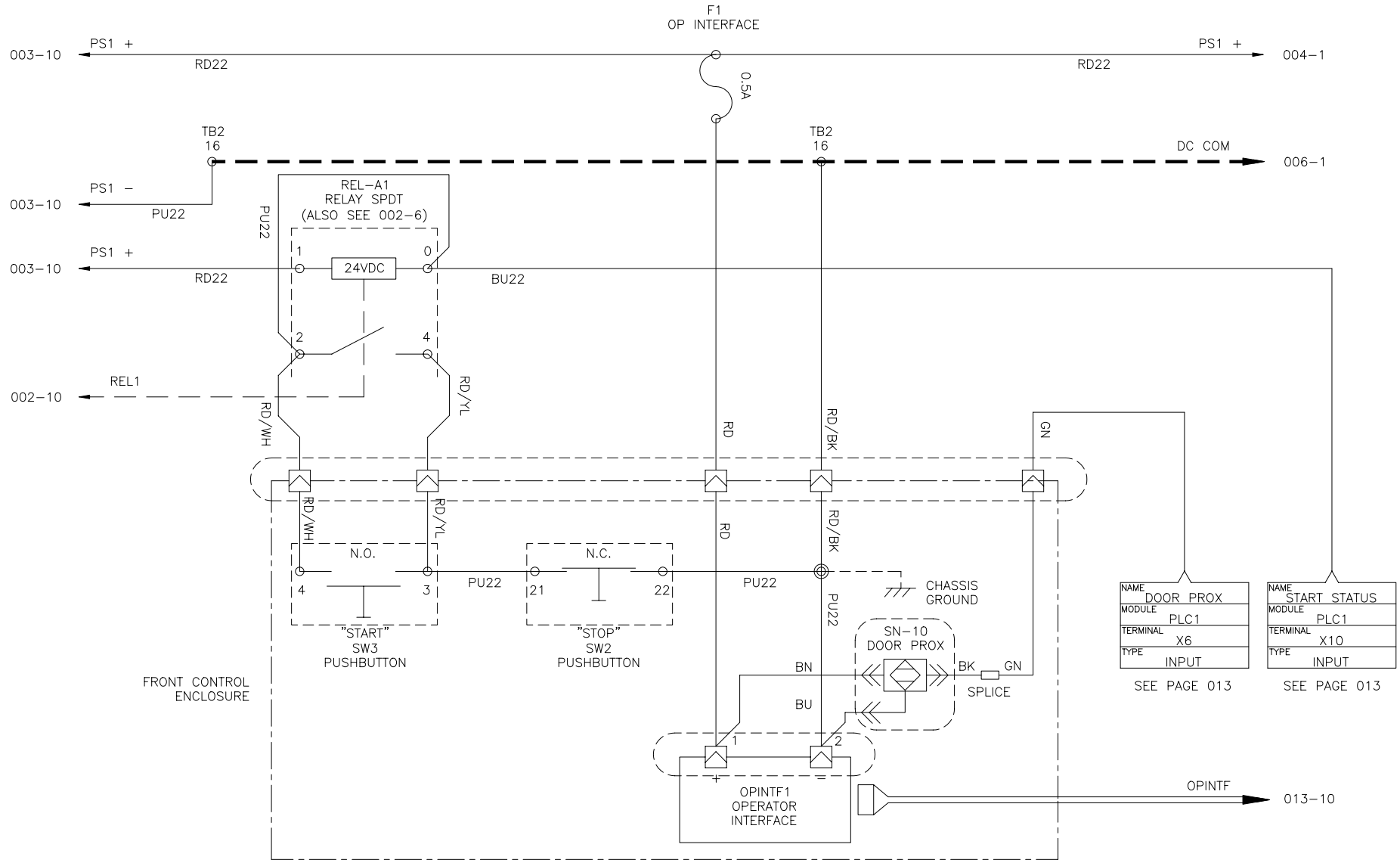
REVISION –

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

| | | | |
|---|---|---|---|
| SECTION | START/STOP/OP INTERFACE | BY SJD2 | DATE: 12–01–04 |
| TITLE | MODEL CS10 COTTONER<br>WIRING SCHEMATIC<br>SERIAL NO. 002 AND UP | SHEET | 005 OF 023 |
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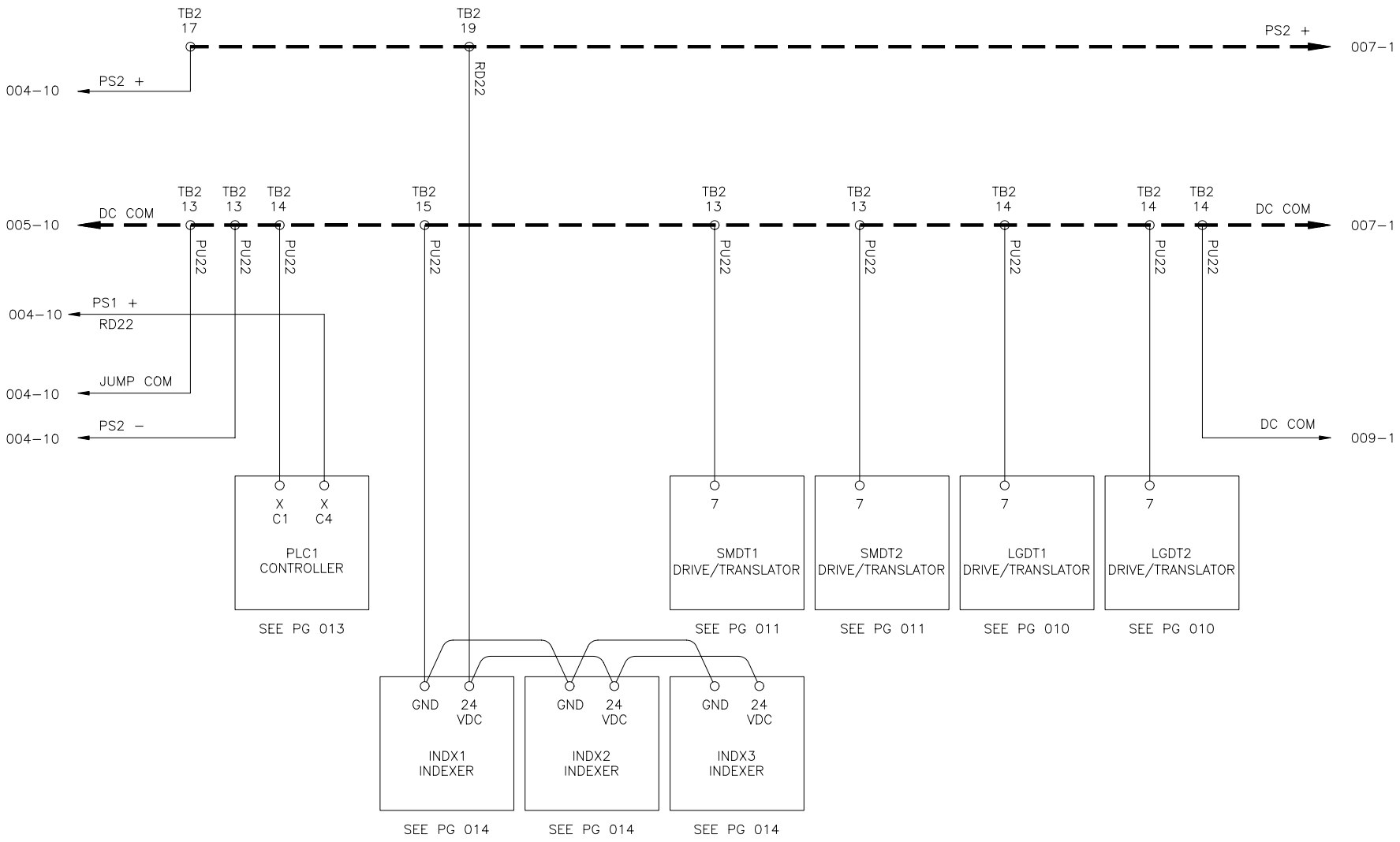


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**DEITZ COMPANY, INC.**
**ROUTE 34, WALL, N.J.**
TECHNICAL DRAWING – PRODUCT INFO

SECTION DC POWER DISTRIBUTION – A 1

TITLE MODEL CS10 COTTONER
WIRING SCHEMATIC
SERIAL NO. 002 AND UP

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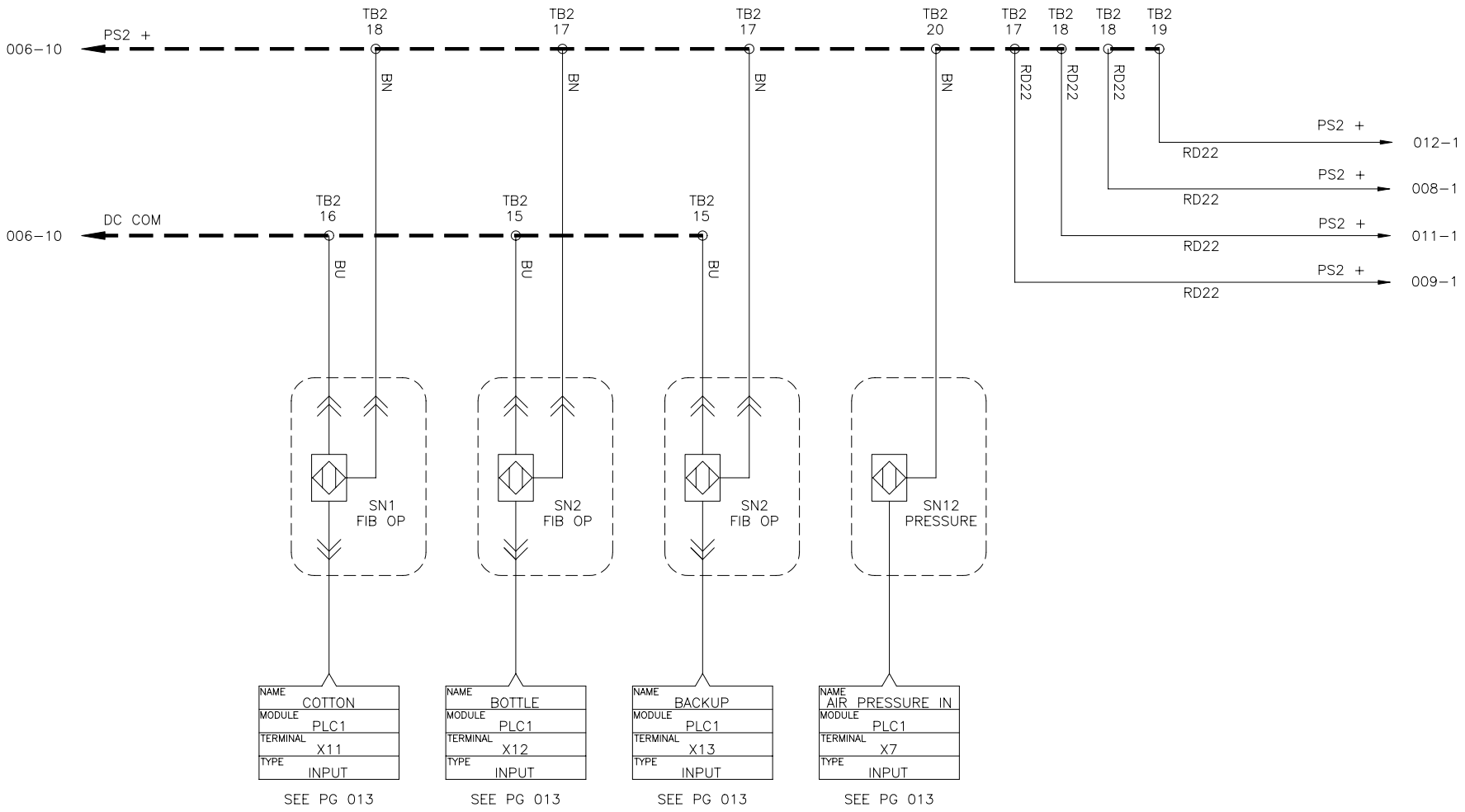


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**DEITZ COMPANY, INC.**
**ROUTE 34, WALL, N.J.**
TECHNICAL DRAWING – PRODUCT INFO

SECTION DC POWER DISTRIBUTION – A 2

TITLE MODEL CS10 COTTONER
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SERIAL NO. 002 AND UP

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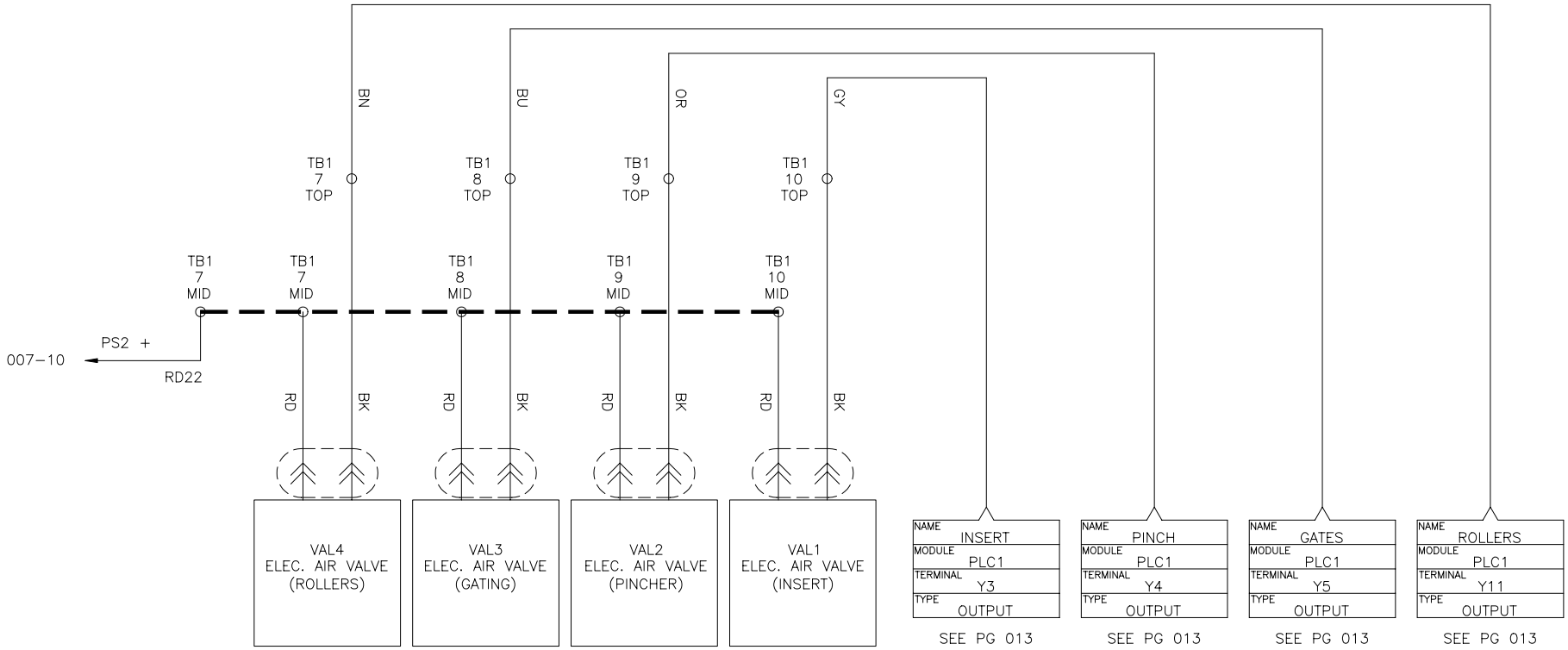


SEE AIR SCHEMATIC DIAGRAM SC1008

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

SECTION AIR VALVES – A

TITLE MODEL CS10 COTTONER
WIRING SCHEMATIC
SERIAL NO. 002 AND UP

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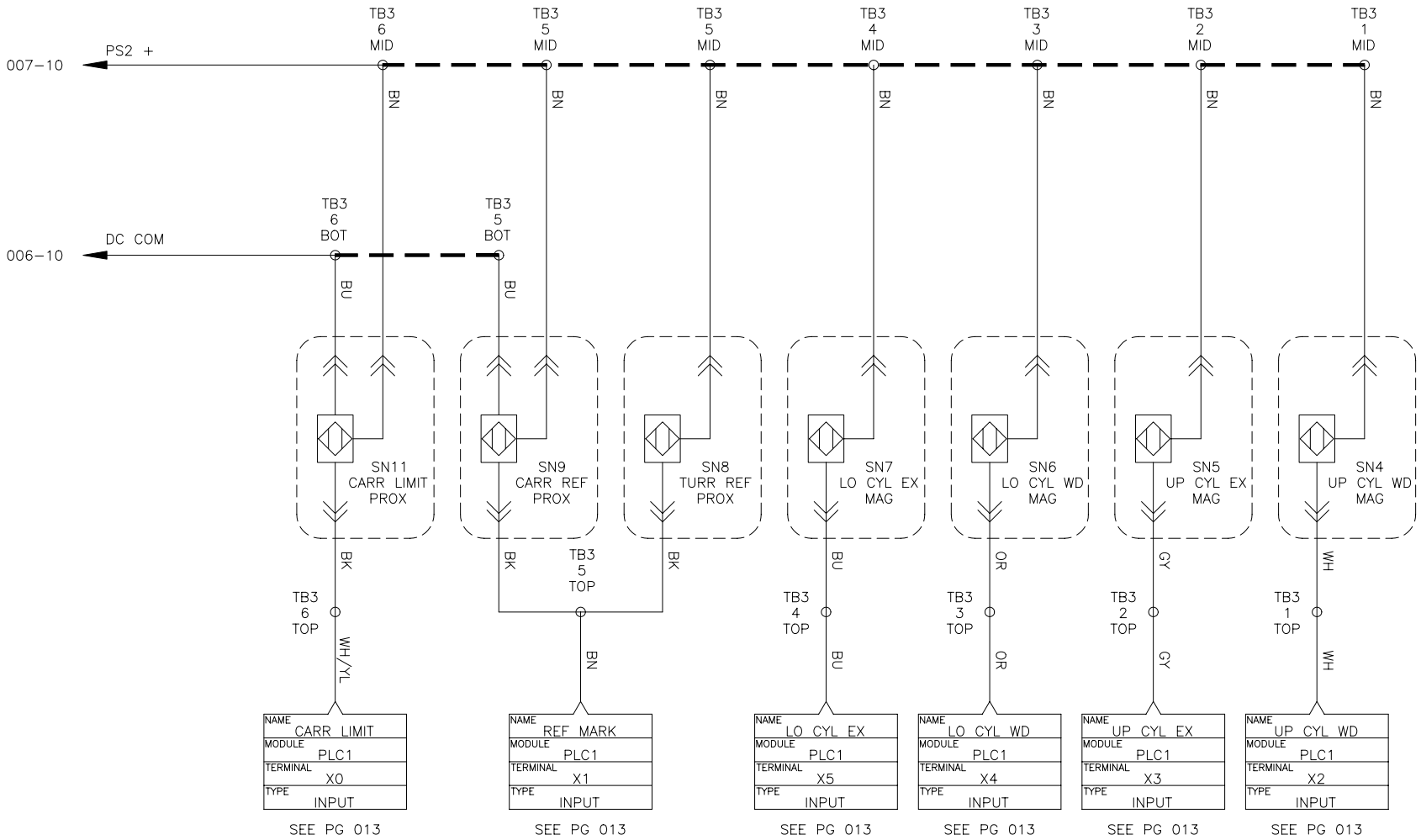


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**DEITZ COMPANY, INC.**
**ROUTE 34, WALL, N.J.**
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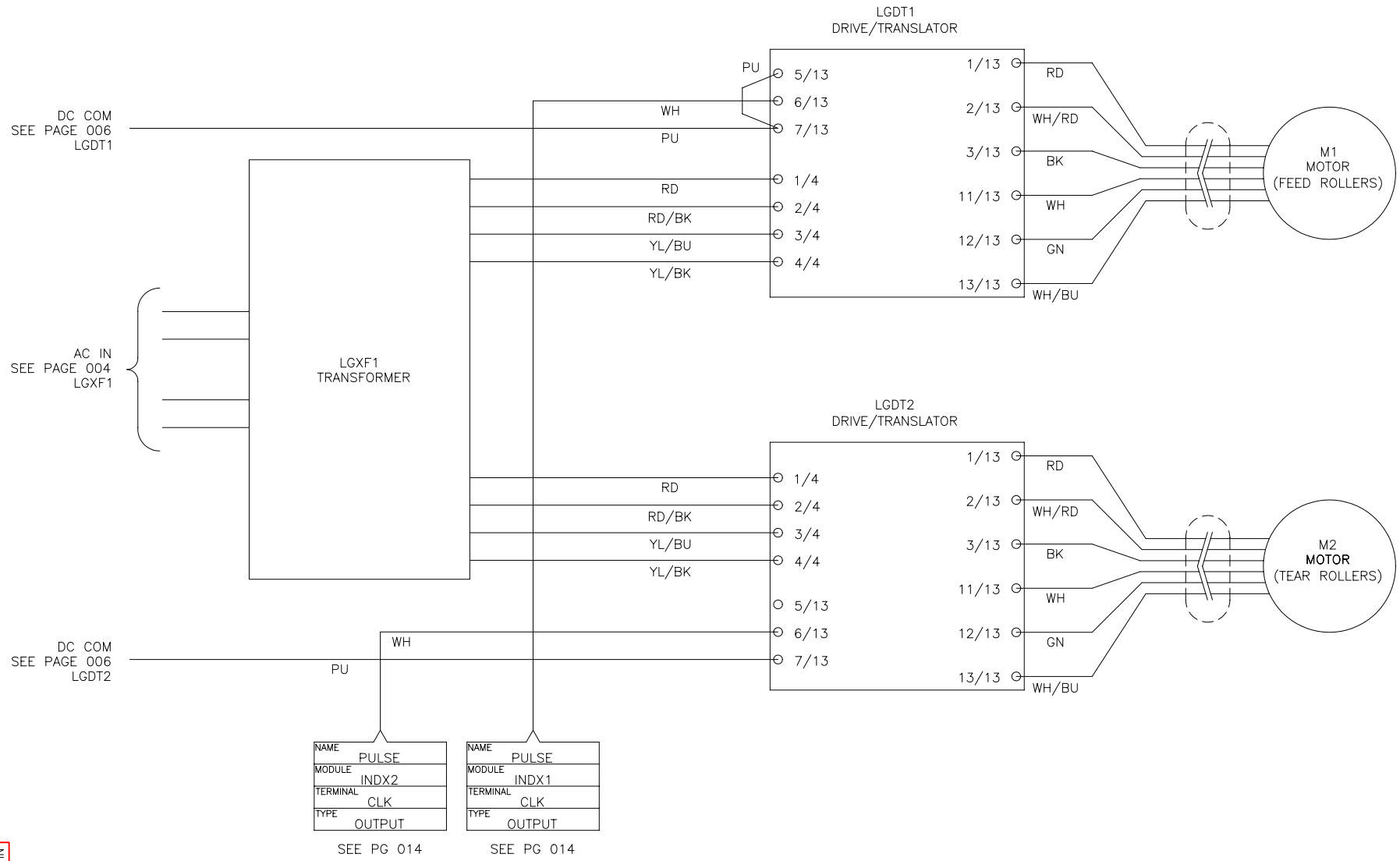
| SECTION | POSITION SENSORS – A | BY SJD2 | DATE: 12–01–04 |
| TITLE | MODEL CS10 COTTONER WIRING SCHEMATIC SERIAL NO. 002 AND UP | SHEET 009 OF 023 | |
| | | NUMBER SC1007 | REVISION – |

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

SECTION ROLLER DRIVES – A
TITLE MODEL CS10 COTTONER WIRING SCHEMATIC SERIAL NO. 002 AND UP

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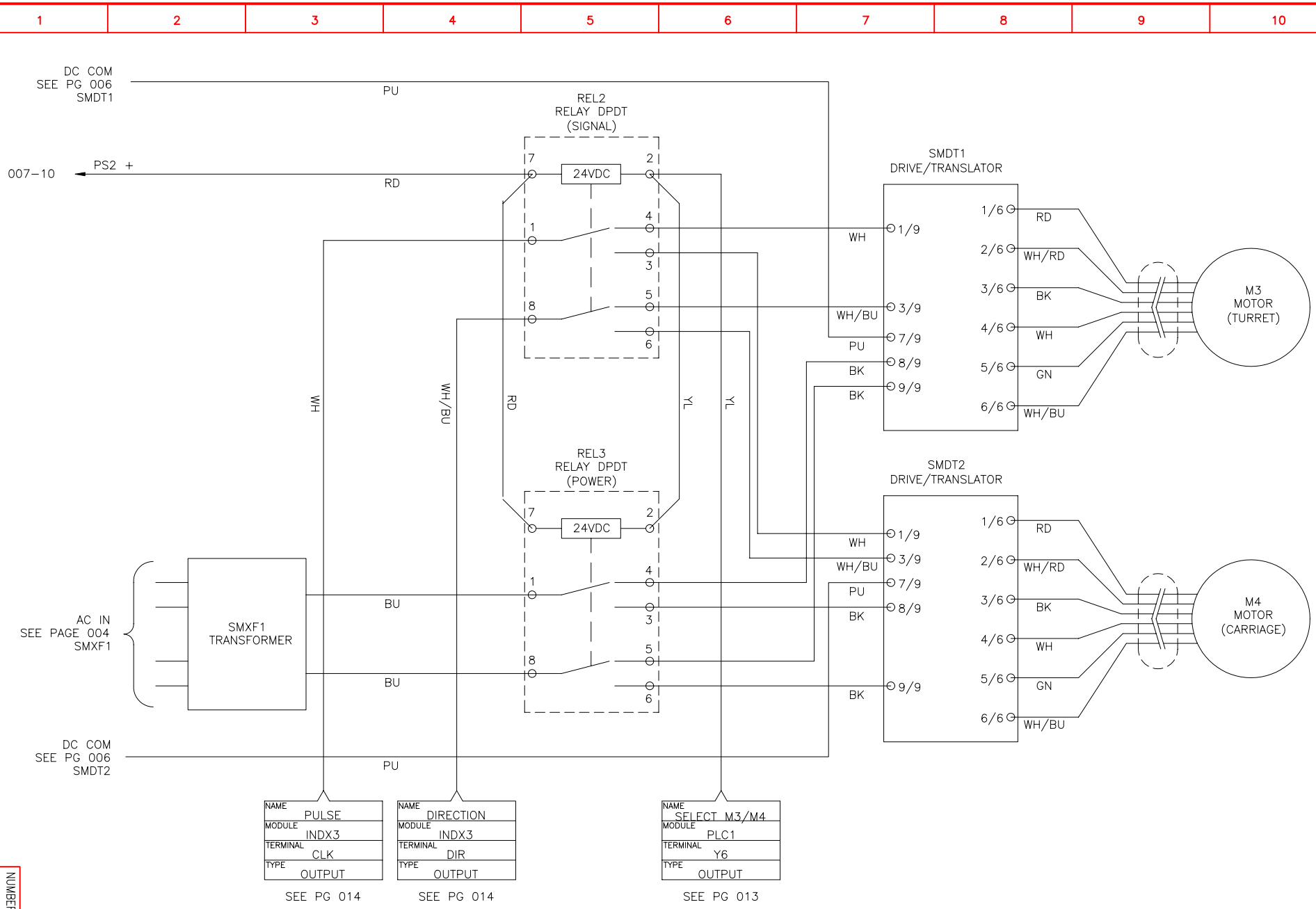
NUMBER SC1007
REVISION –

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

SECTION TURRET & CARRIAGE DRIVES – A
BY SJD2 DATE: 12–01–04
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SERIAL NO. 002 AND UP
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NUMBER SC1007
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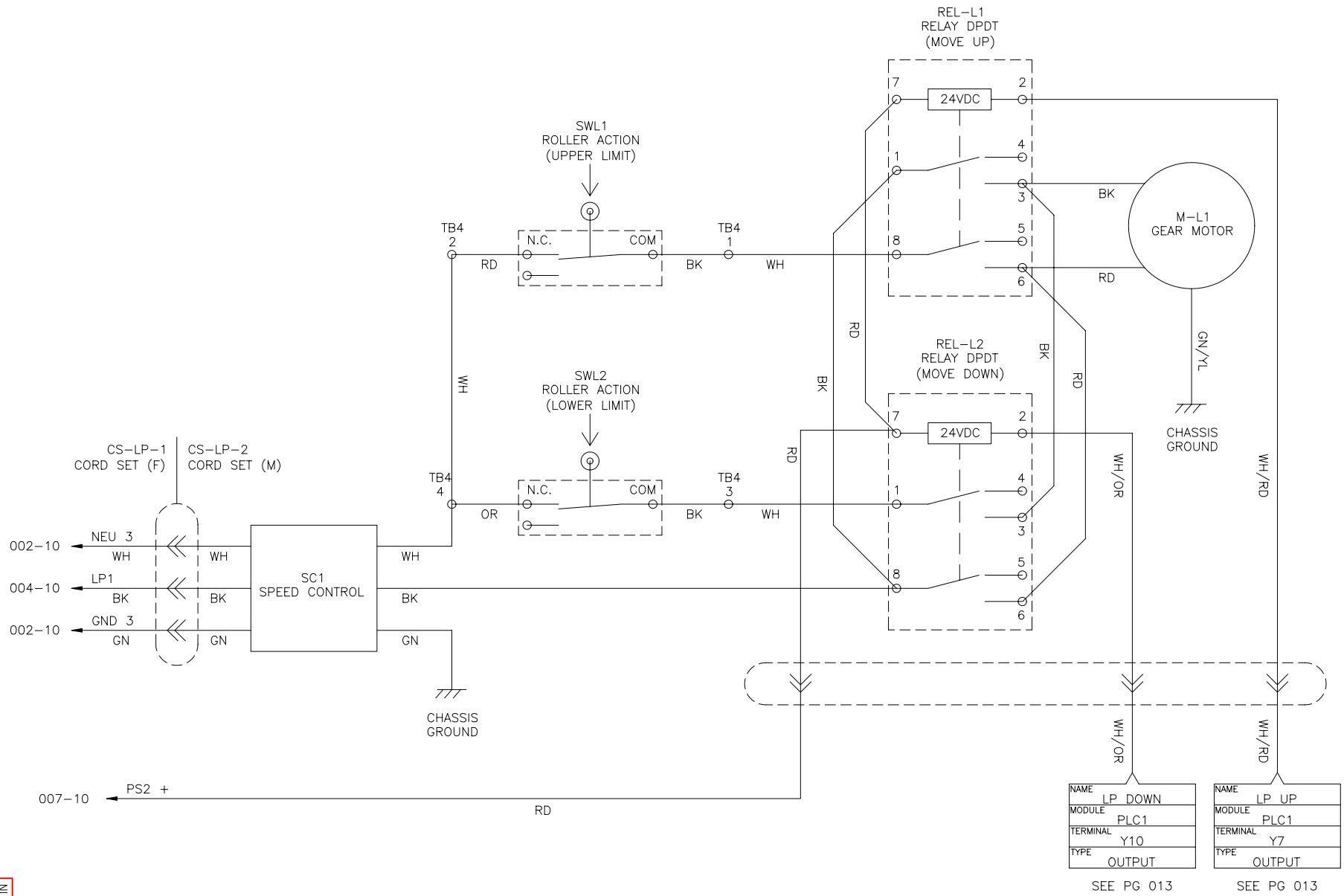


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**DEITZ COMPANY, INC.**
**ROUTE 34, WALL, N.J.**
TECHNICAL DRAWING – PRODUCT INFO

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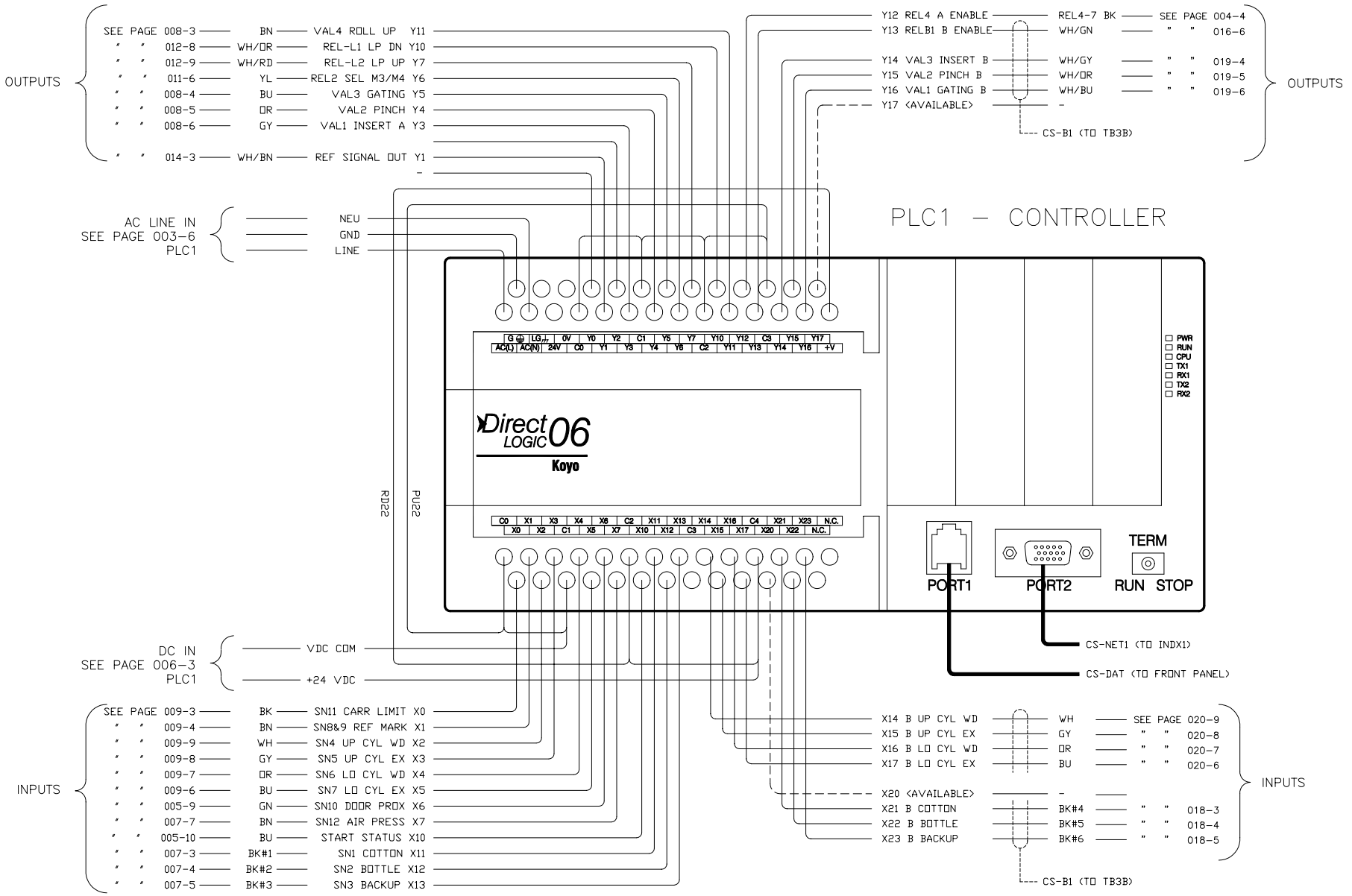
| SECTION | LIFT PLATFORM | BY SJD2 | DATE: 12–10–04 |
| TITLE | MODEL CS10 COTTONER<br>WIRING SCHEMATIC<br>SERIAL NO. 002 AND UP | SHEET 012 OF 023 | |
| | | NUMBER SC1007 | REVISION – |

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**ROUTE 34, WALL, N.J.**
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| SECTION | MASTER PLC | BY SJD2 | DATE: 12-01-04 |
| TITLE | MODEL CS10 COTTONER WIRING SCHEMATIC SERIAL NO. 002 AND UP | SHEET 013 OF 023 | |
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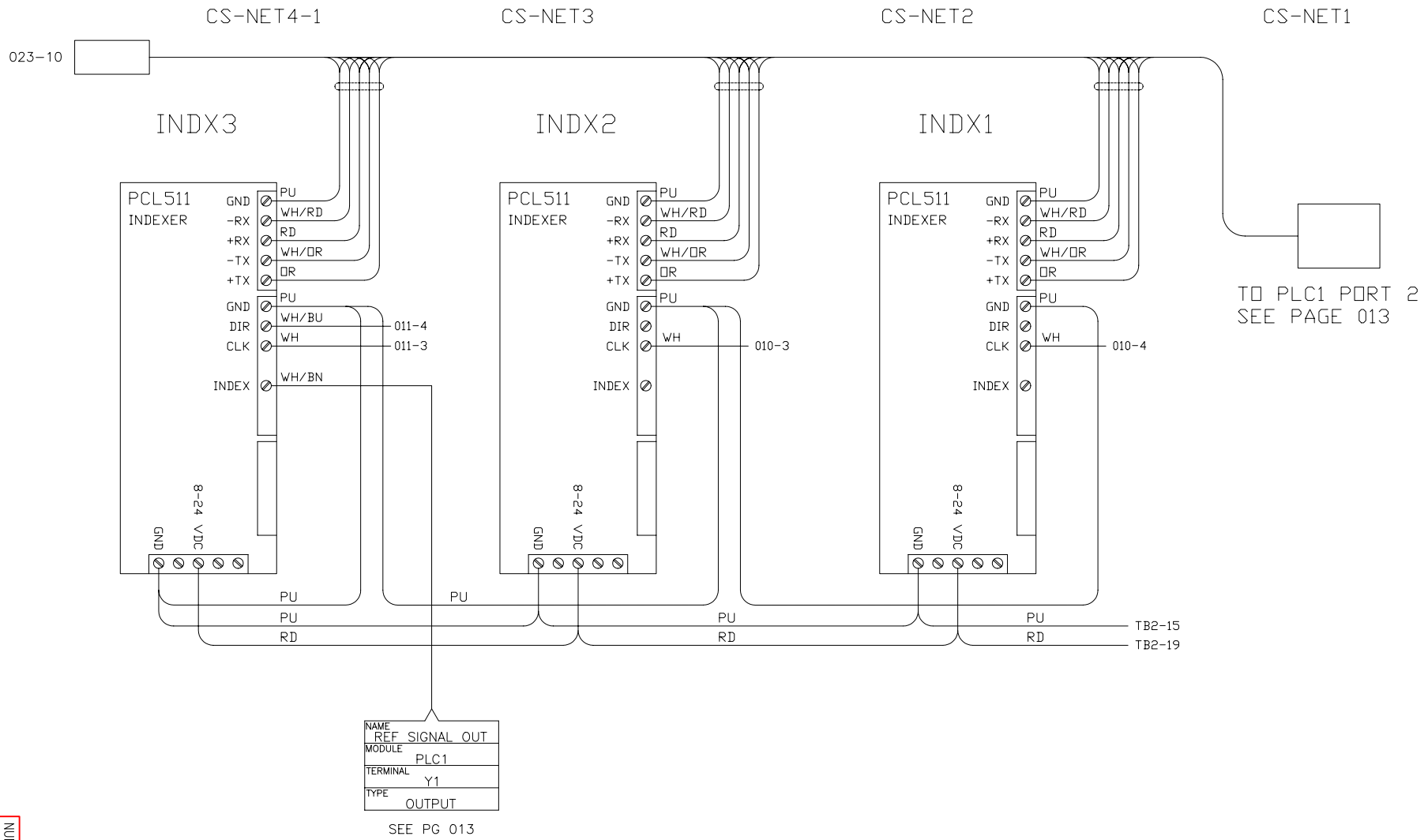


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**DEITZ COMPANY, INC.**
**ROUTE 34, WALL, N.J.**
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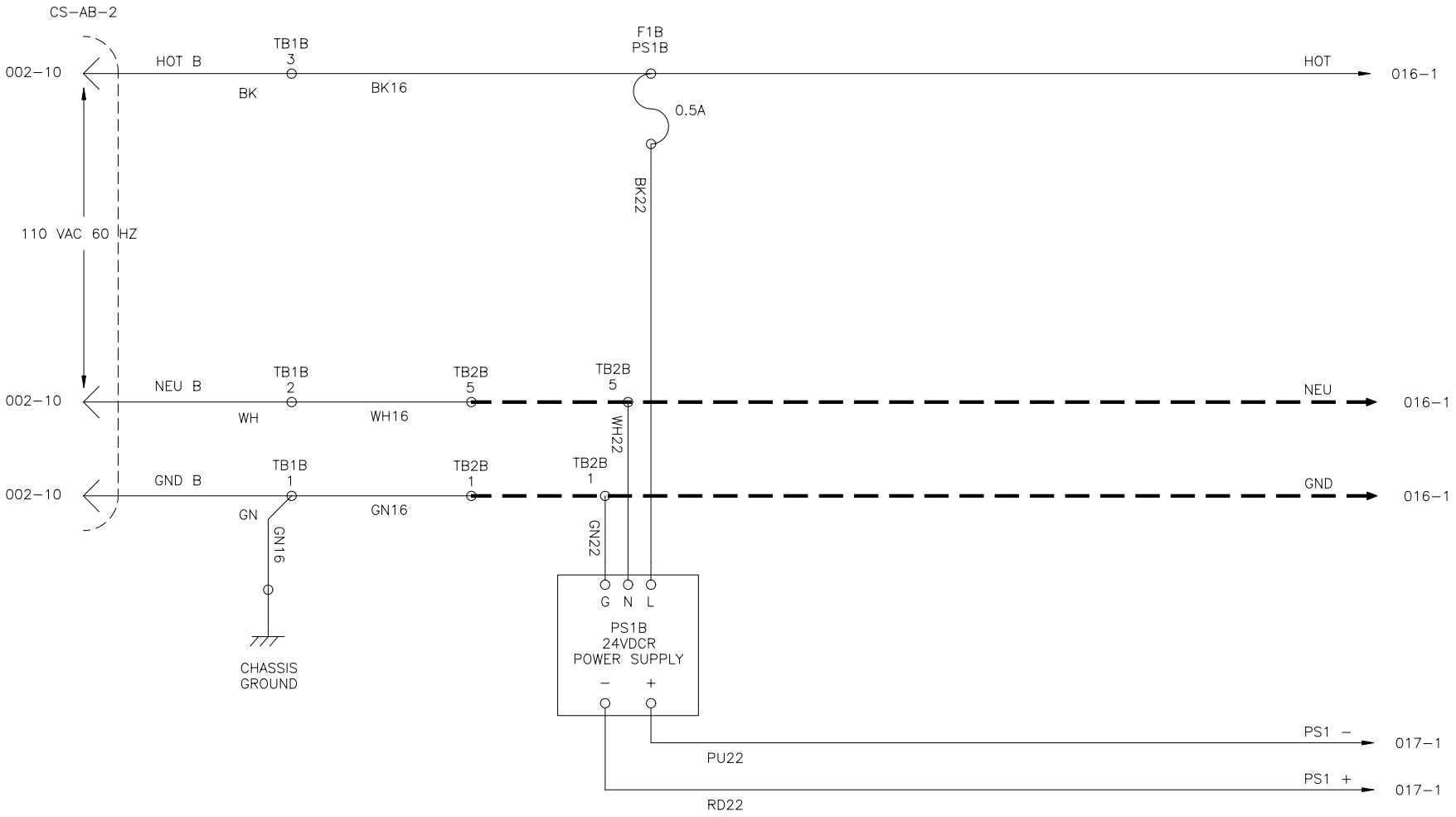
| TITLE | MODEL CS10 COTTONER WIRING SCHEMATIC SERIAL NO. 002 AND UP | SHEET 014 OF 023 | |
| | | NUMBER SC1007 | REVISION – |

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**DEITZ COMPANY, INC.**
**ROUTE 34, WALL, N.J.**
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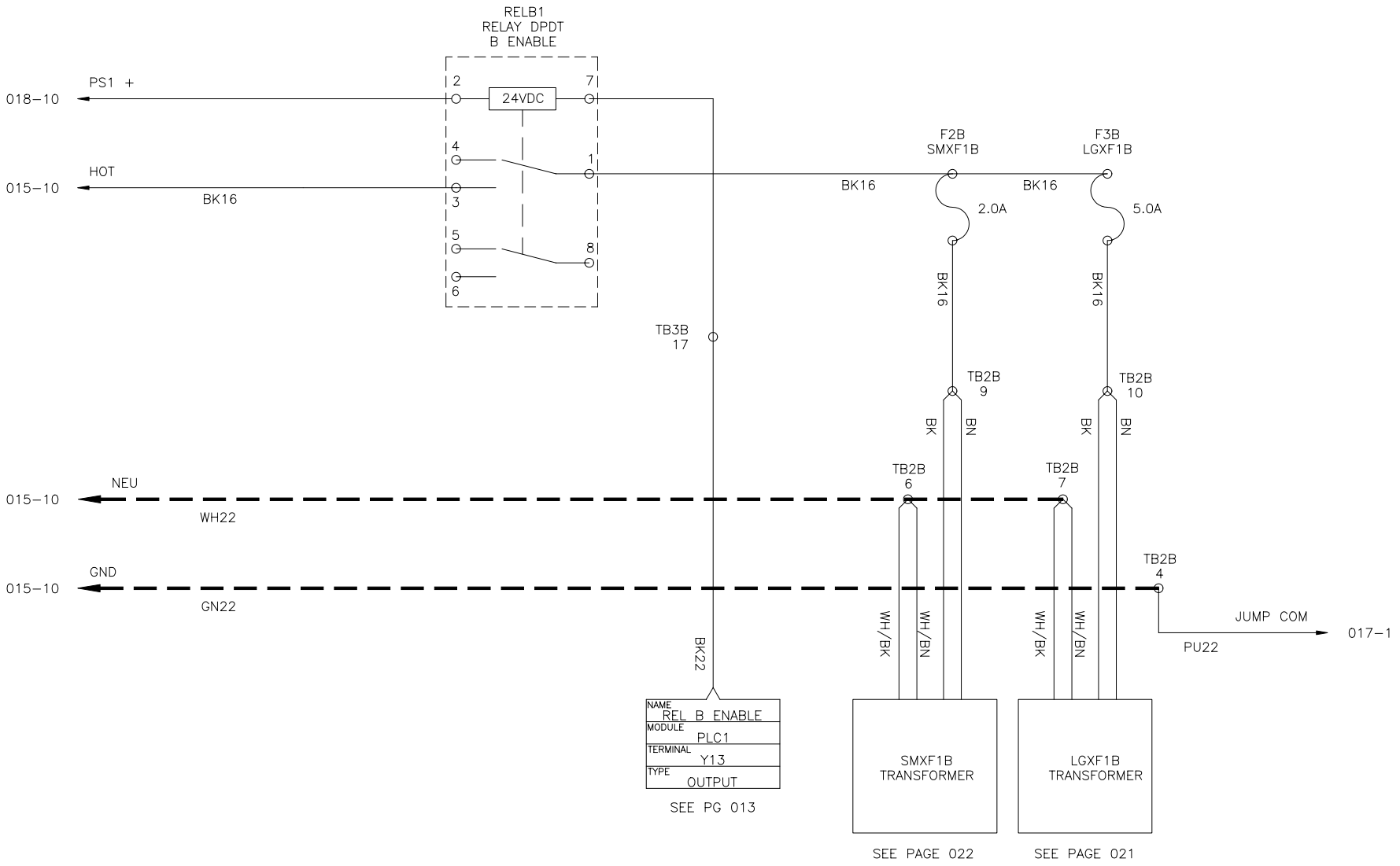
| SECTION | AC POWER ENTRY – B | BY SJD2 | DATE: 12–01–04 |
| TITLE | MODEL CS10 COTTONER WIRING SCHEMATIC SERIAL NO. 002 AND UP | SHEET 015 OF 023 | |
| | | NUMBER SC1007 | REVISION – |

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

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| TITLE | MODEL CS10 COTTONER WIRING SCHEMATIC SERIAL NO. 002 AND UP | SHEET 016 OF 023 | |
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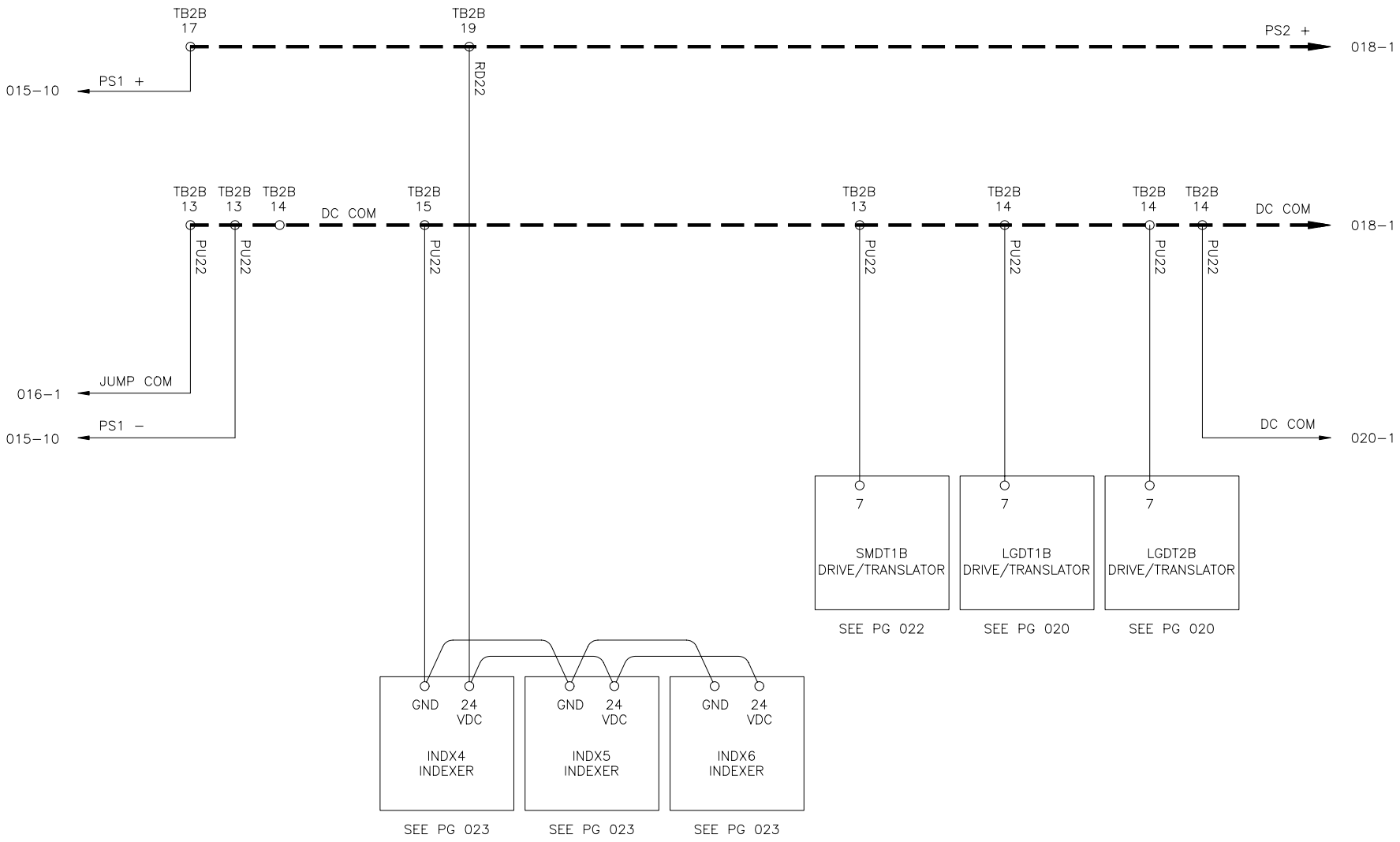


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**DEITZ COMPANY, INC.**
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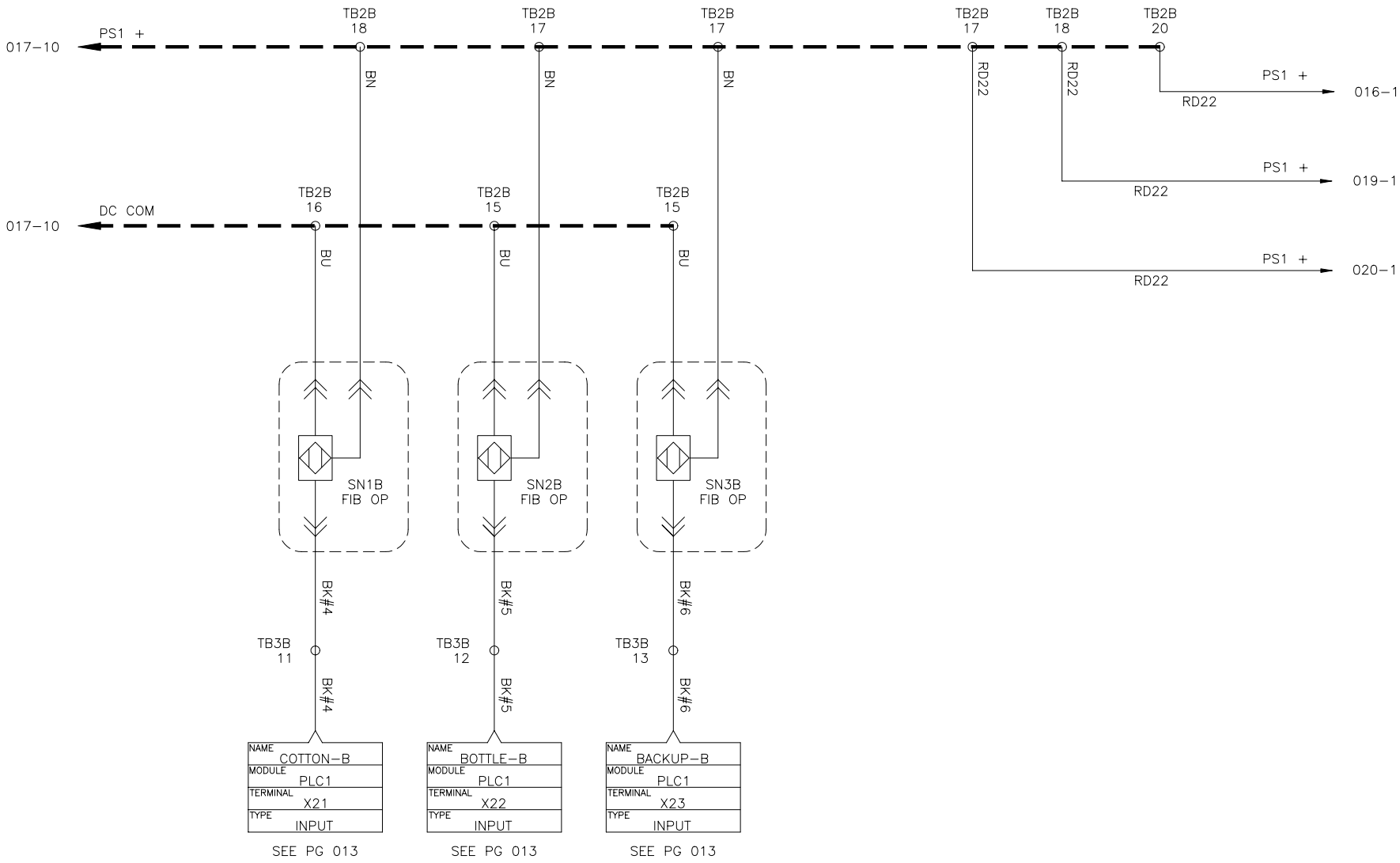
| | | NUMBER SC1007 | REVISION – |

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**DEITZ COMPANY, INC.**
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SECTION DC POWER DISTRIBUTION – B 2

TITLE MODEL CS10 COTTONER
WIRING SCHEMATIC
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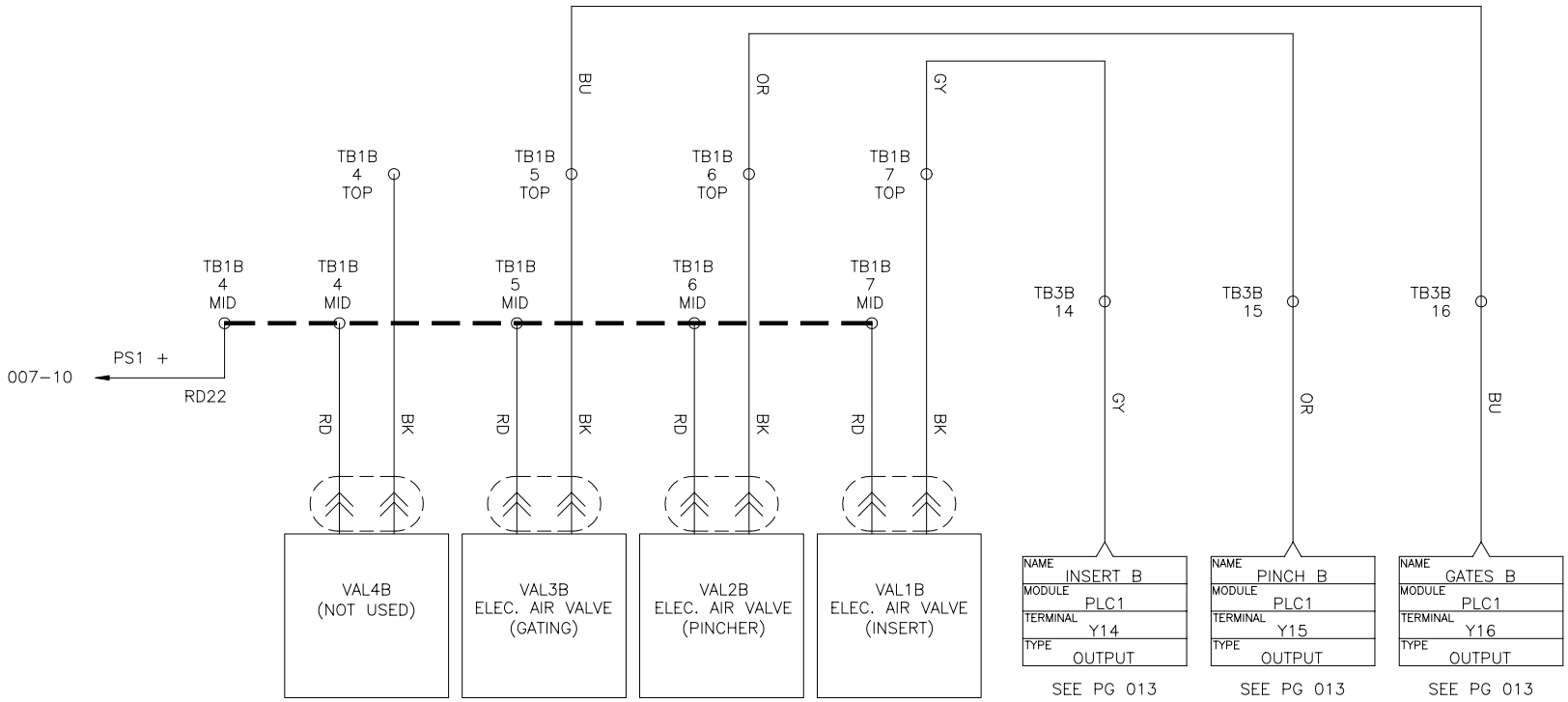


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**DEITZ COMPANY, INC.**
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| SECTION | AIR VALVES – B | BY SJD2 | DATE: 12-01-04 |
| TITLE | MODEL CS10 COTTONER WIRING SCHEMATIC SERIAL NO. 002 AND UP | SHEET 019 OF 023 | |
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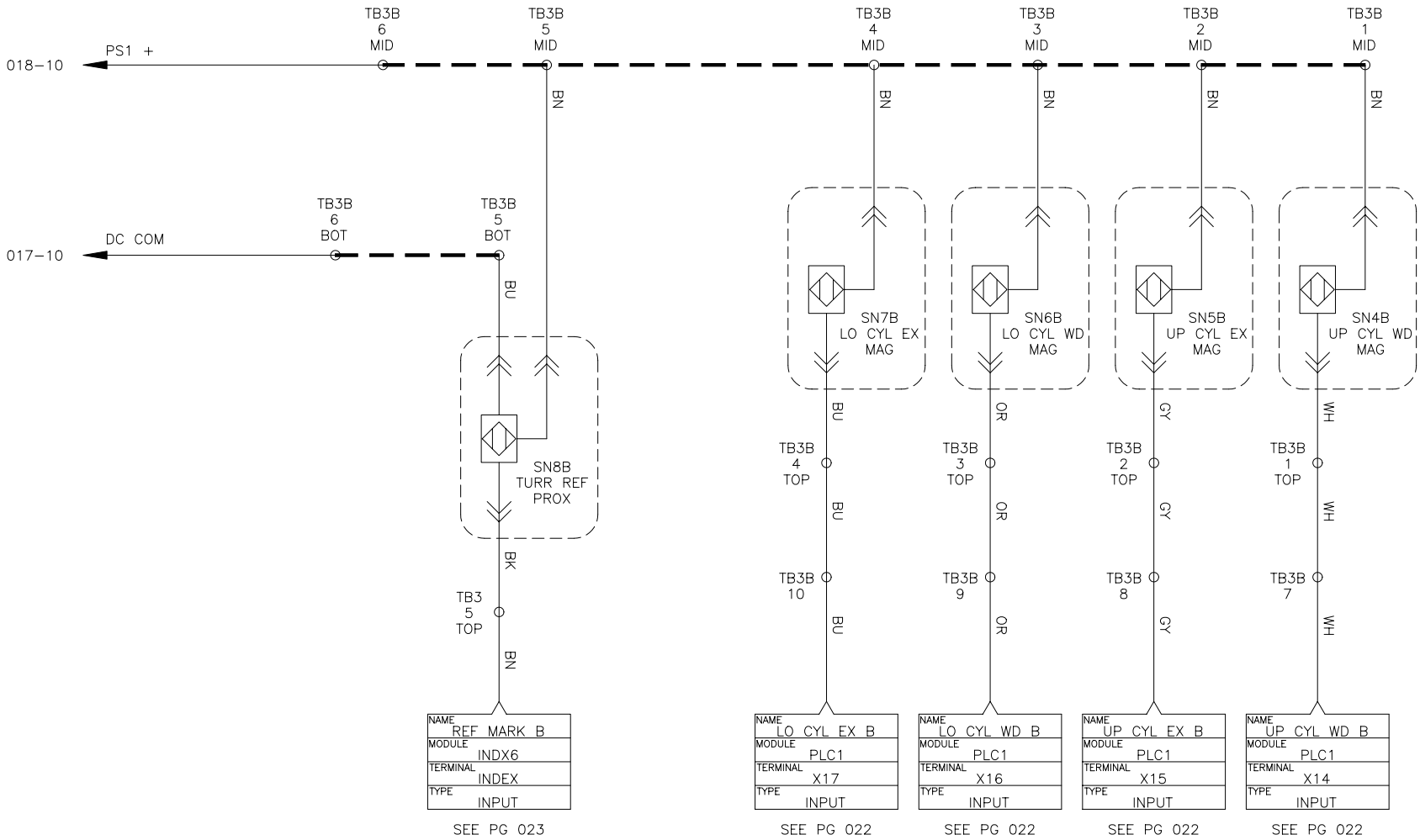


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**DEITZ COMPANY, INC.**
**ROUTE 34, WALL, N.J.**
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SECTION POSITION SENSORS – B

TITLE MODEL CS10 COTTONER
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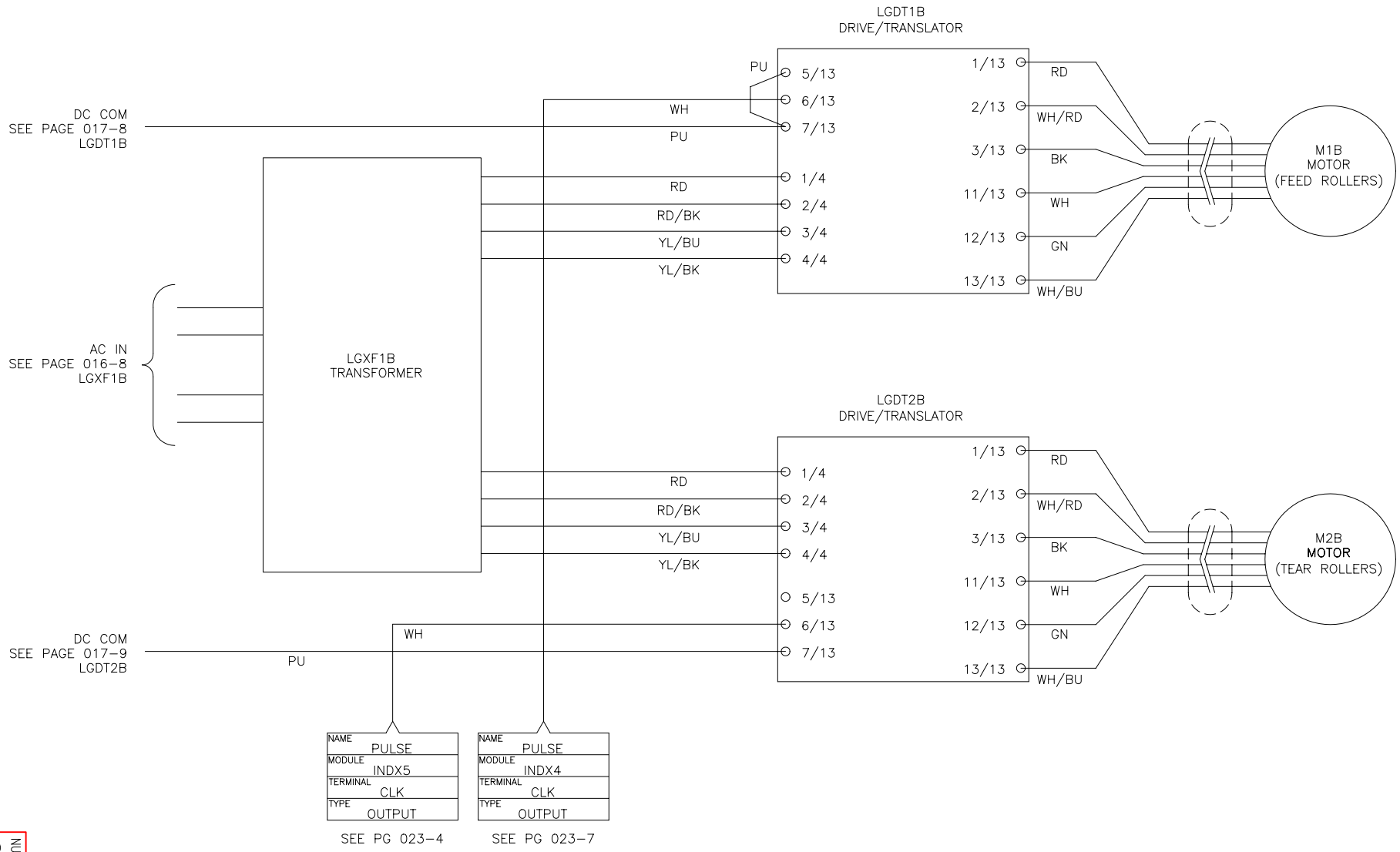


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**DEITZ COMPANY, INC.**
**ROUTE 34, WALL, N.J.**
TECHNICAL DRAWING – PRODUCT INFO

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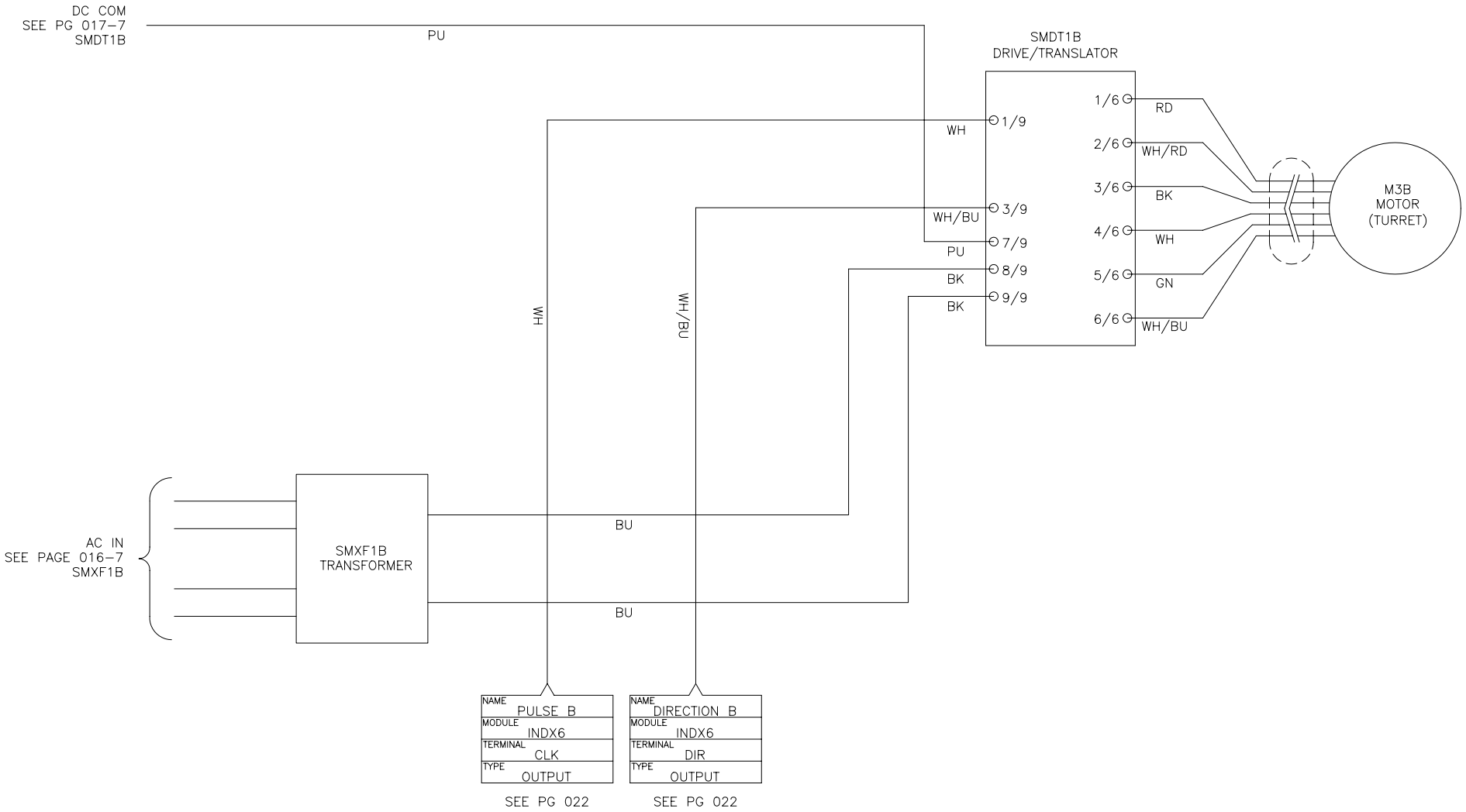


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**DEITZ COMPANY, INC.**
**ROUTE 34, WALL, N.J.**
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SECTION TURRET & CARRIAGE DRIVES – B

TITLE MODEL CS10 COTTONER
WIRING SCHEMATIC
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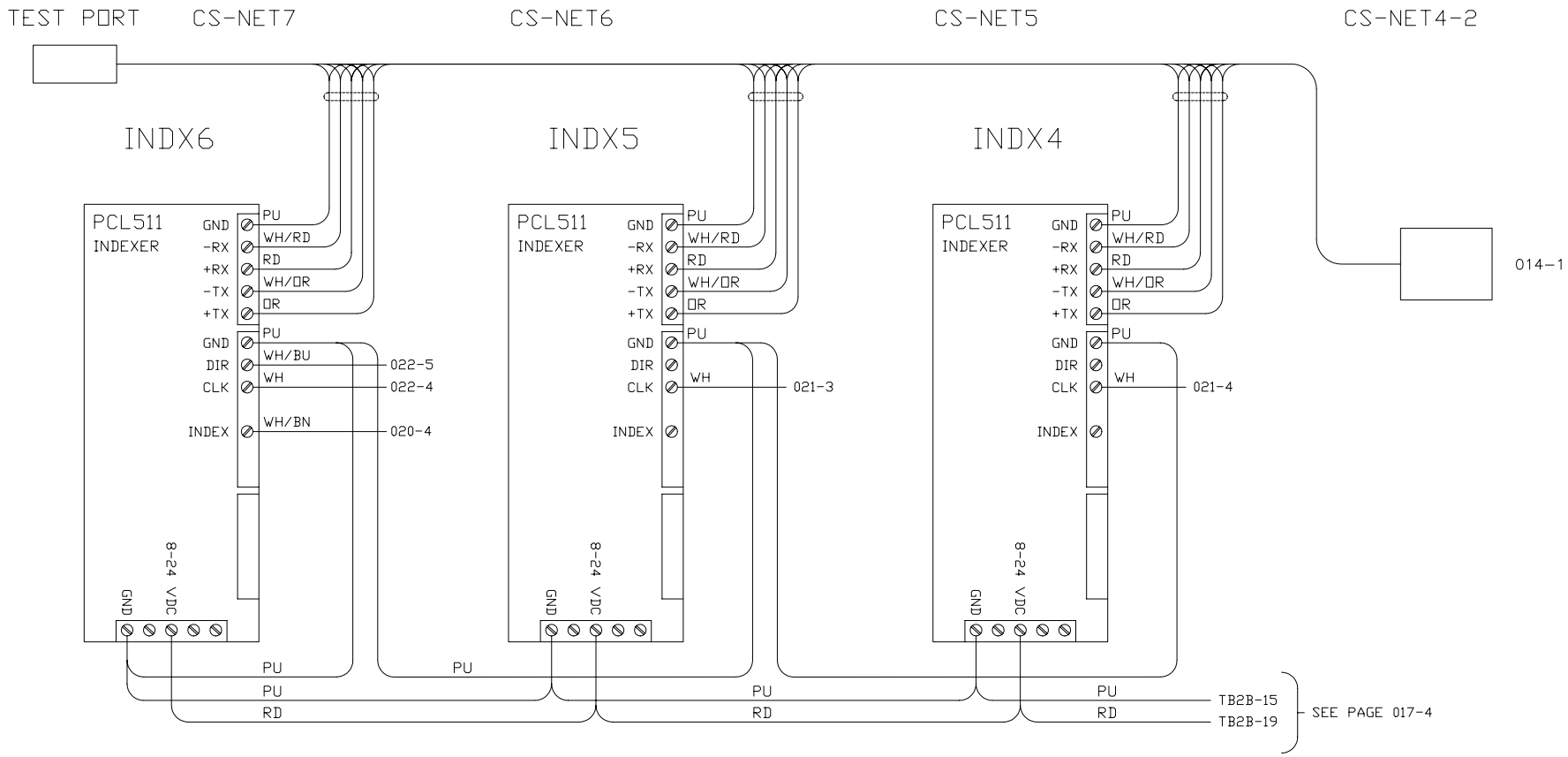


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**DEITZ COMPANY, INC.**
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TECHNICAL DRAWING – PRODUCT INFO

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| SECTION | INDEXERS – B | BY SJD2 | DATE: 12-01-04 |
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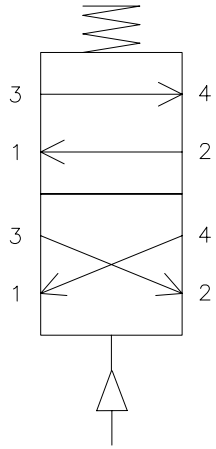


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**DEITZ COMPANY, INC.**
**ROUTE 34, WALL, N.J.**
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SECTION NOTE AND REVISIONS
TITLE MODEL CS10 COTTONER
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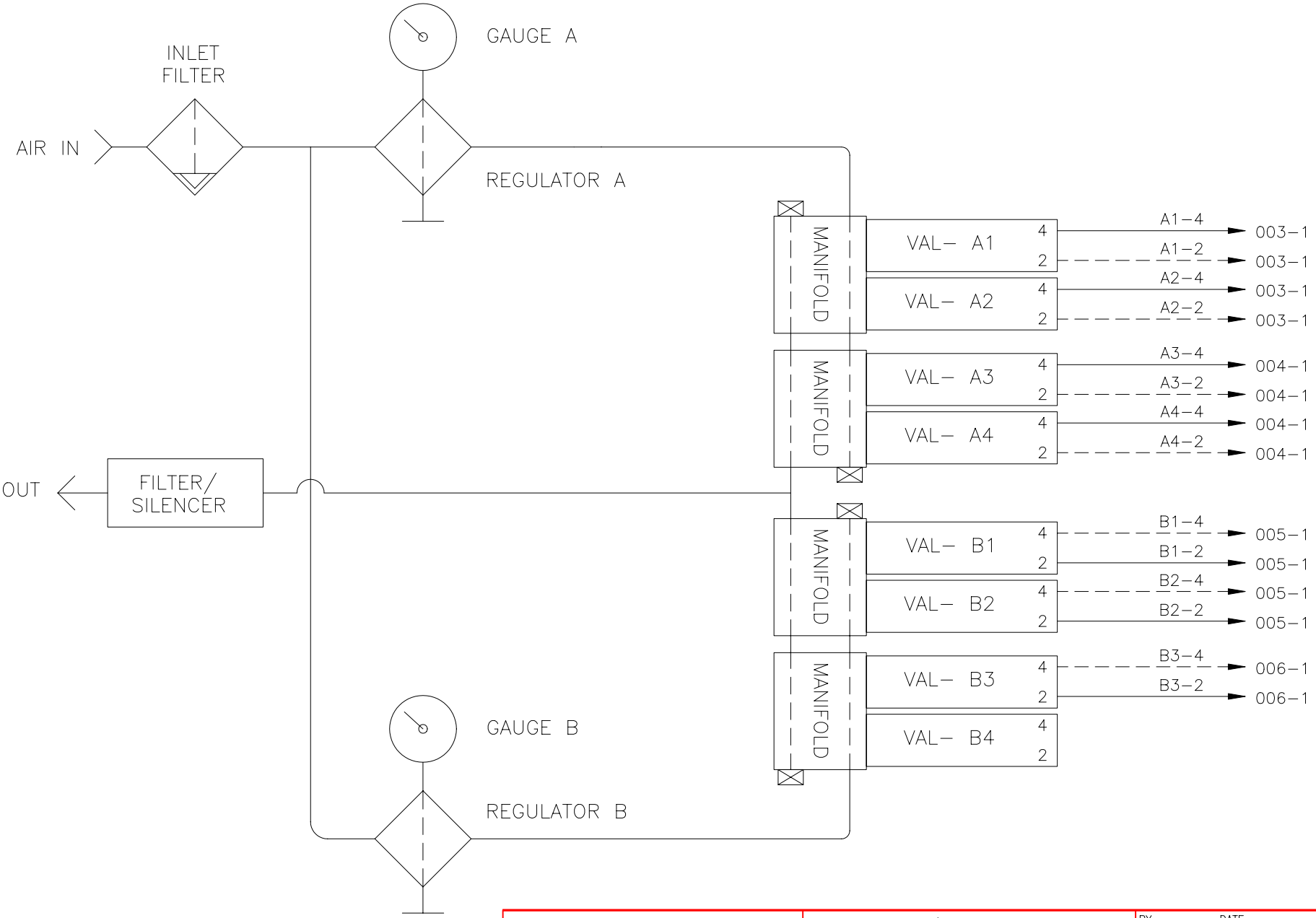


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**DEITZ COMPANY, INC.**
**ROUTE 34, WALL, N.J.**
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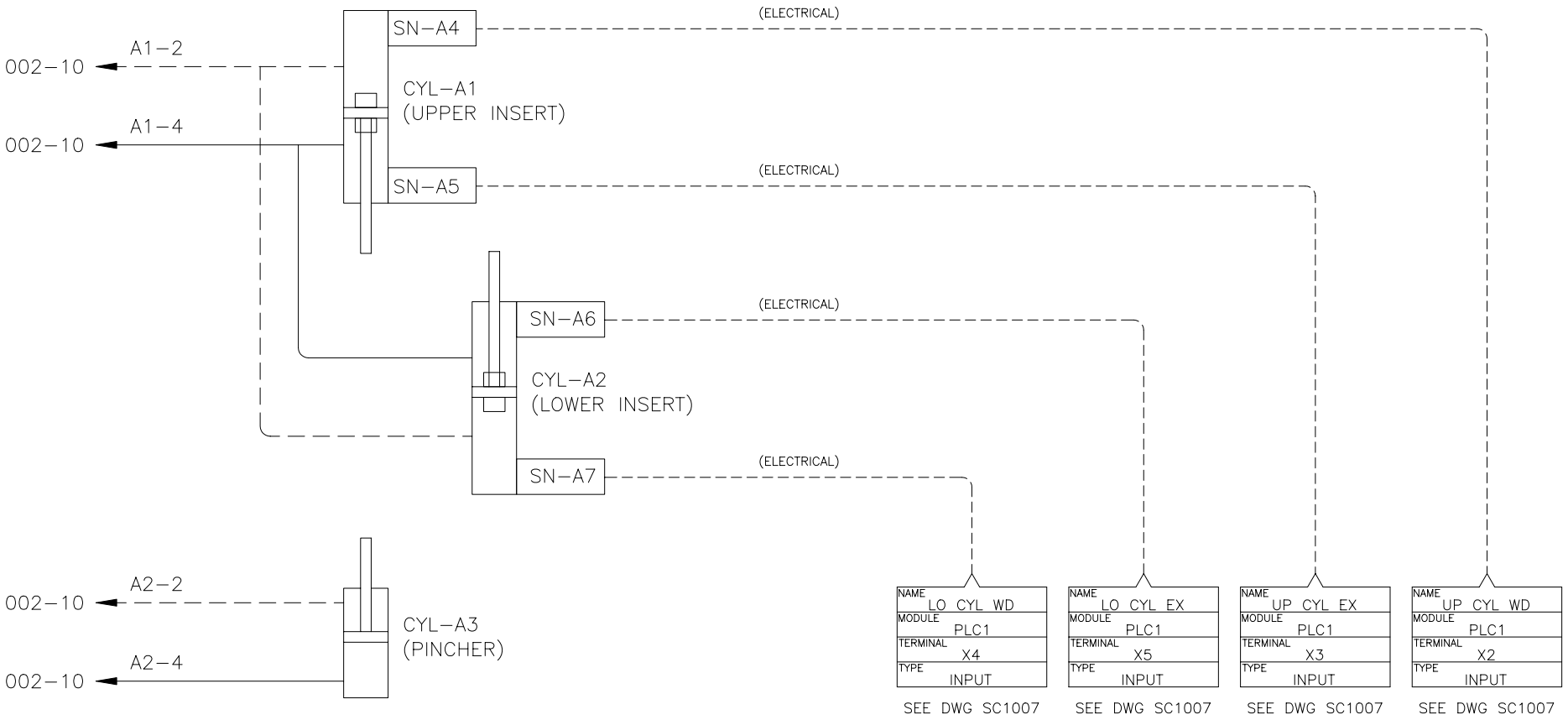


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**DEITZ COMPANY, INC.**
**ROUTE 34, WALL, N.J.**
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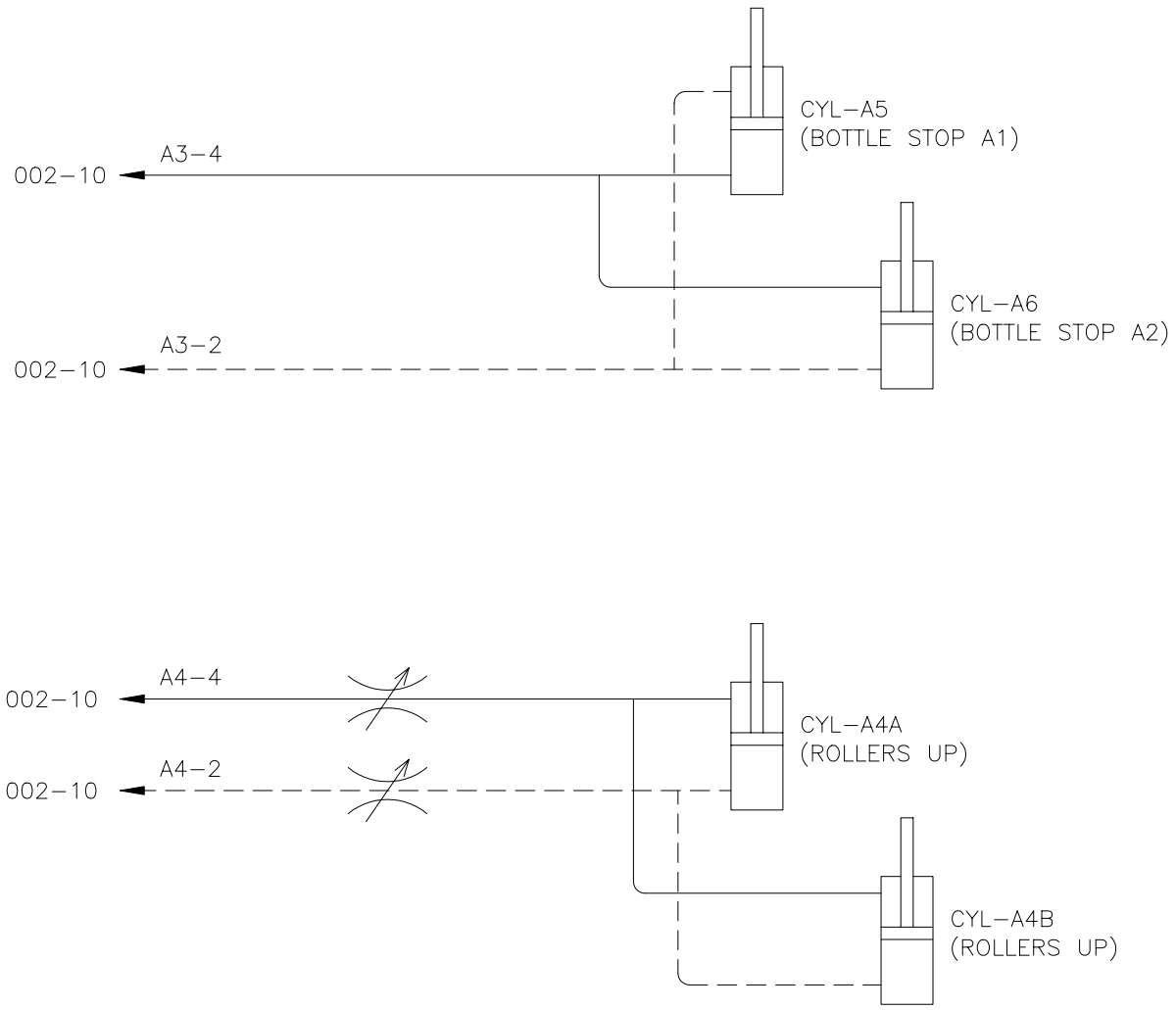


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**DEITZ COMPANY, INC.**
**ROUTE 34, WALL, N.J.**
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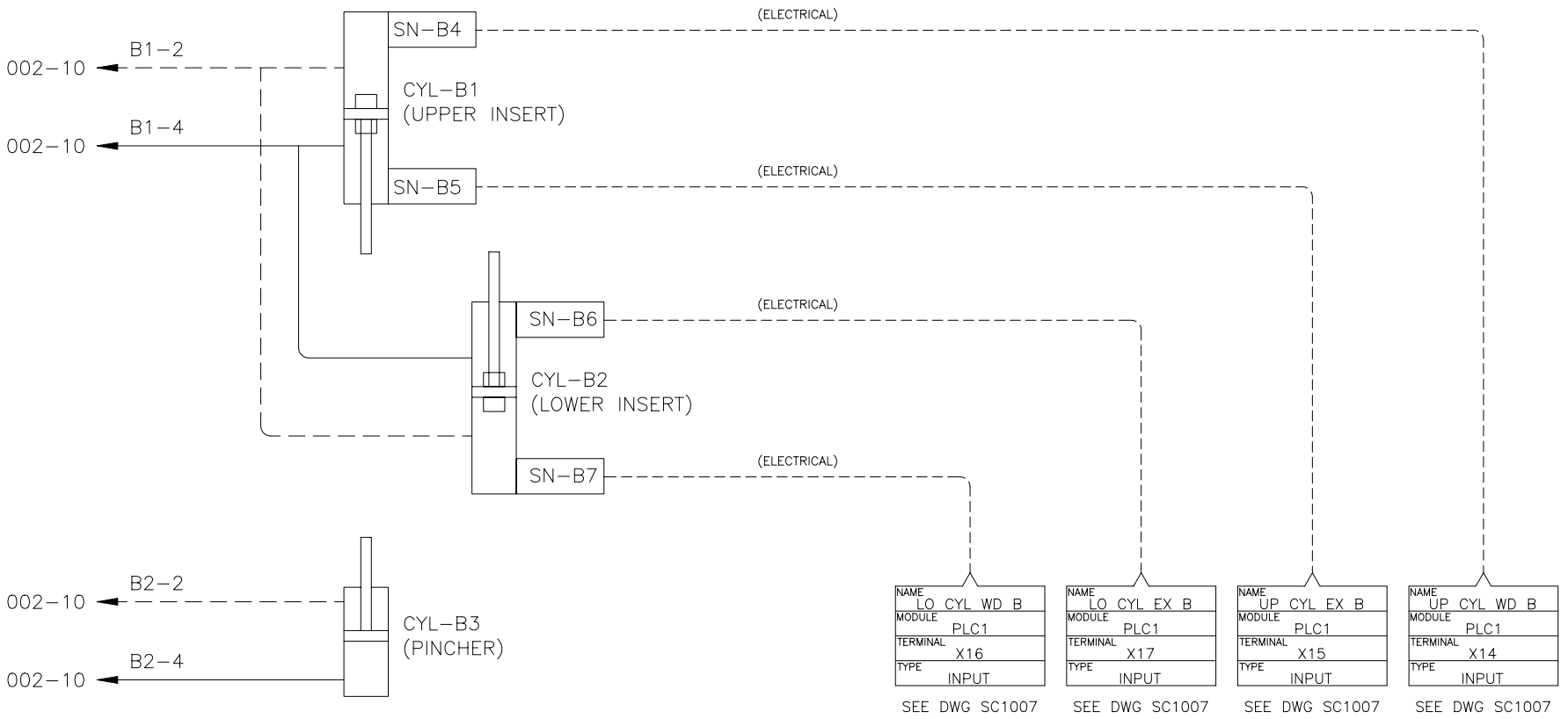


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**DEITZ COMPANY, INC.**
**ROUTE 34, WALL, N.J.**
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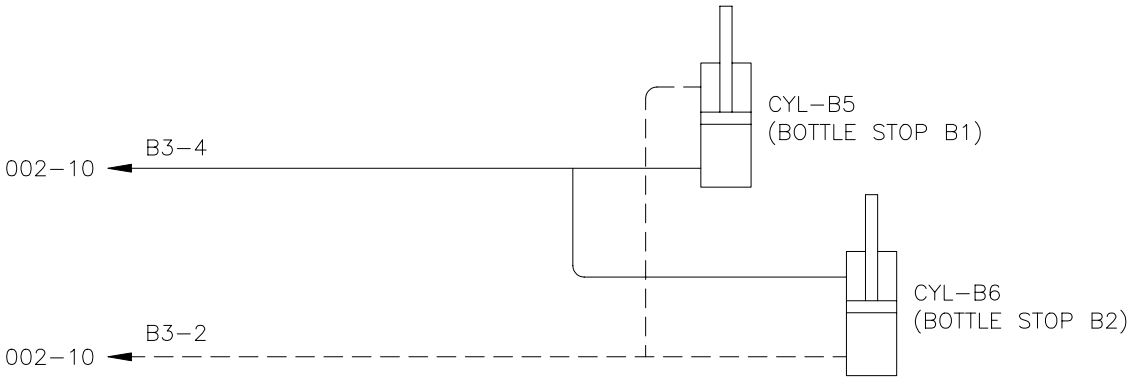


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**DEITZ COMPANY, INC.**
**ROUTE 34, WALL, N.J.**
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