ATTACHER
MODEL AT 2

OPERATION AND MAINTENANCE MANUAL

Pitney Bowes
SURE-FEED ENGINEERING
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VERSION HISTORY

The table below summarizes the history of this document as it is published onto the company website(s). It identifies the version, date of issue and revisions and changes.

VERSION	DATE	CHANGES
at2_attacher042307_2003_nontuv		1st Preliminary release
at2_attacher062007	6/21/07	Disclaimer added-rev'd file name
At2_attacherops112707	11/27/07	Corrected electrical schematic
AT2_attacherops020508	02/05/08	Corrected HMI screens/ schematics

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SPECIAL NOTES, DEFINITIONS AND DISCLAIMERS

Special Note:

Some pictures and illustrations may have color, hue and contrast graphically altered for clearity when printing in black and white and may not necessarily reflect the actual color of the product when viewed on compact disk.

DEFINITIONS

1	ON
0	OFF
Ø or PH	PHASE
~	VAC (volts alternating current)
⎓	VDC (volts direct current)
!	WARNING or CAUTION
	**HAZARDOUS**
	**HEAT**

DISCLAIMER

Pitney Bowes does not manufacture the hot melt glue machine. The end customer can purchase the Glue gun through Pitney Bowes for the AT2 and AT3 systems. The end customer may purchase or specify another manufacturer's model.

WARNING: The hot melt glue machine used with the card attacher contains extremely hot liquid material that may cause injury. Operators and service must understand and follow all the hot melt glue machine manufacturer's instructions regarding installation and use of this equipment which are contained in the manufacturer's manual. Special personal protective equipment (PPE) must be worn when servicing this equipment. Pitney Bowes is not responsible for failure to comply with the glue machine manufacturer's instructions.

Basic material specifications

As a basic specification, the Attacher will run material ranging from 20 lb to 1/8” thick and from 4-3/4” to 14” wide by 4-3/4” to 14” long as a carrier. The Card Feeder will run cards ranging from 20 lb to 1/16” thick and from 2-1/8 to 3-3/8 wide by 2-1/8” to 3-3/8” long.

Section I

Installation of the

ATTACHER
MODEL AT 2

Section - I

Installation

PITNEY BOWES ATTACHER MODEL AT 2

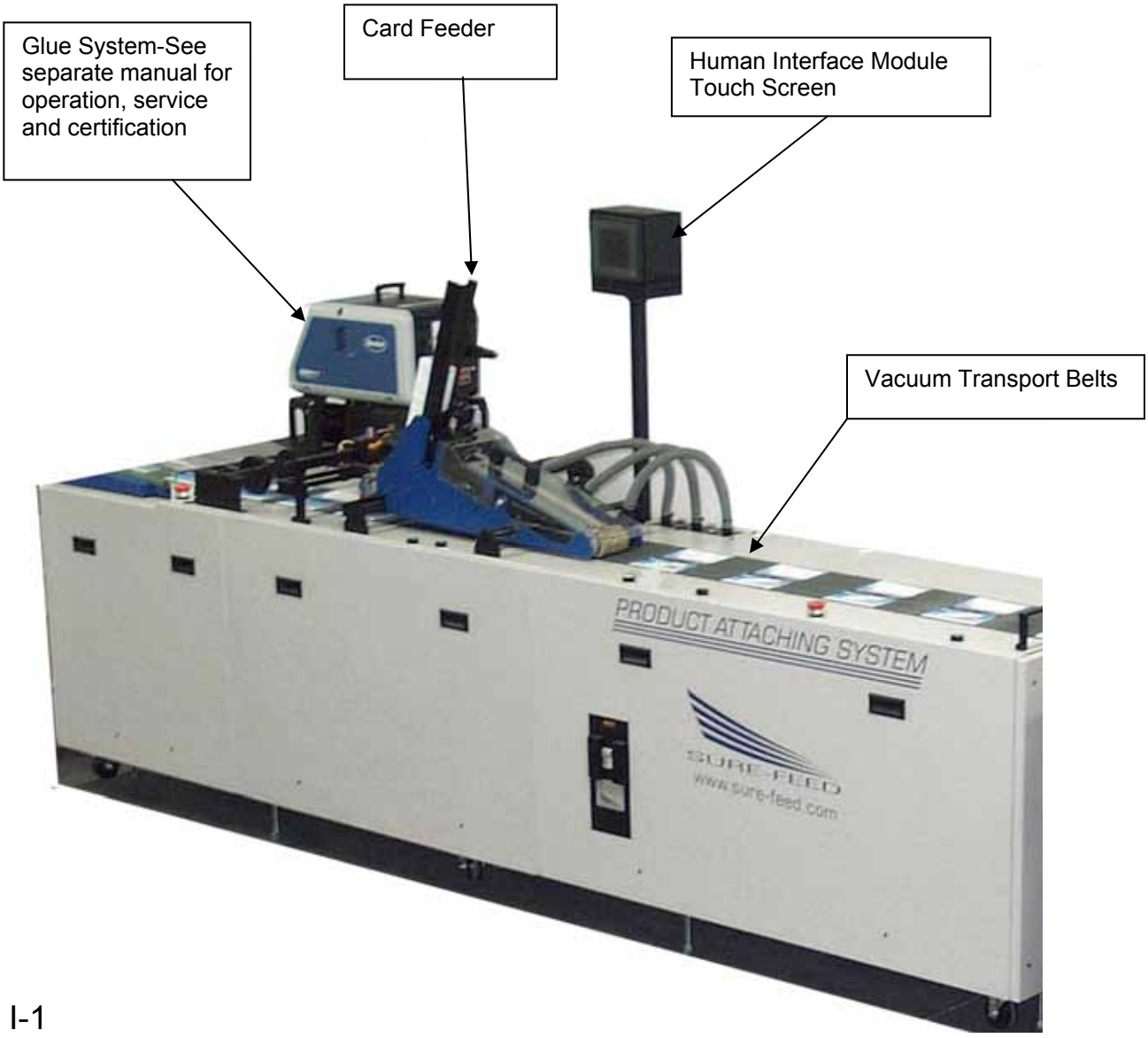
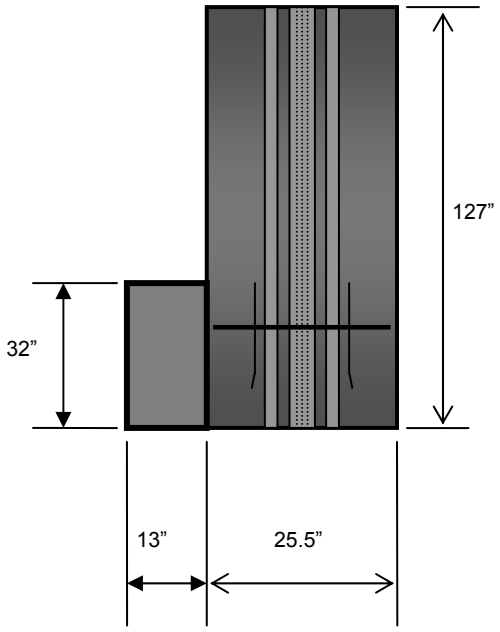


Figure I-1

ATTACHER AT 2 Base Floor Plan
(Shown without other conveyors)



Requirements

Floor Space = 25.4 sq. Ft.

Electrical = 230 V~, 1 PH, 50/60 HZ, 20 A

Air = 2 CFM @ 90 PSI

Vacuum = None

Weight = 1300 #

Figure I-2

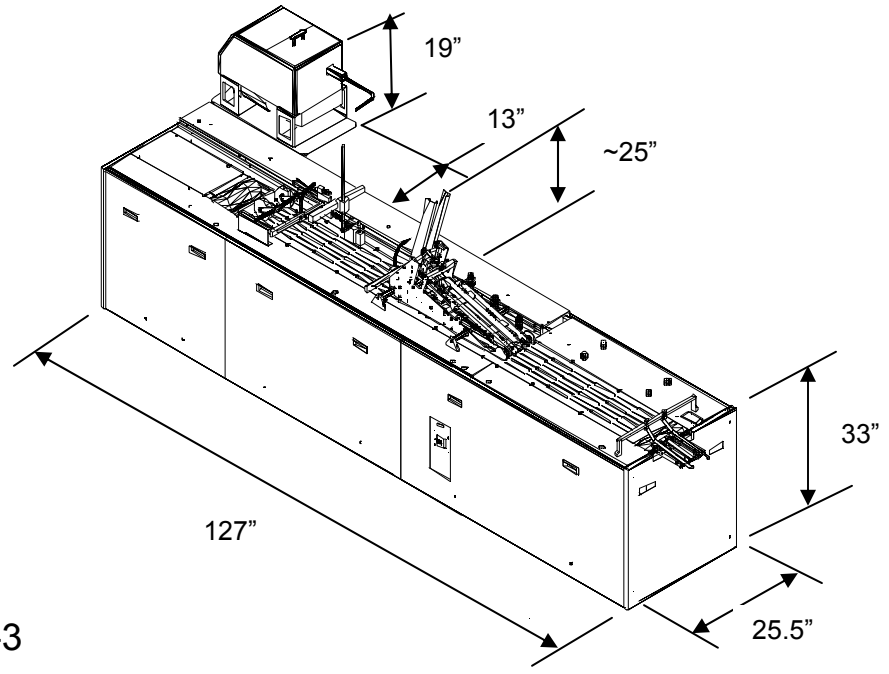


Figure I-3

Environment:

The installation of the attacher is intended for operation in a specific environment. See Operating Environment Table below for details.

Operating Environment Table

ITEM		SPECIFICATION
Environmental Conditions	Ambient Operating Temperature	0 to 55º C
	Storage Temperature	-25 to 85º C
	Ambient Operating Humidity	30% to 95% RH (with no condensation)
	Ambient Storage Humidity	5% to 95% RH (with no condensation)
	Pollution Level	Pollution level 1 (conforming to JIS B3501)
	Corrosion Gas	There must be no combustible or corrosive gas.
	Operating Altitude	2,000 m above sea level or lower
Electrical Operating Conditions	Noise Resistance	Conforming to JIS B 3502 1,500 V (p-p) in either normal or common modes with a pulse width of 100 ns/11 µsec and a rise time of 1 ns (tested with impulse noise simulator)
Mechanical Operating Conditions	Vibration Resistance	Conforming to JIS B 3502: 10 to 57 Hz with single-amplitude of 0.075 mm 57 to 150 Hz with fixed acceleration of 9.8 m/s² 10 sweeps each in X, Y, and Z directions (sweep time: 1 octave/min)
	Shock Resistance	Conforming to JIS B 3502: Peak acceleration of 147 m/s ²twice for 11 ms each in the X, Y, and Z directions
Installation Requirements	Ground	Ground to 100Ω max.
	Cooling Method	Natural cooling

Figure I-3

Installation: Positioning the Components

Once the attacher base has been removed from the shipping container, perform the following:

1. Inspect the location where the machine is to be set up.
(Note: The manufacture recommends that the area be a relatively flat and smooth concrete or hard wood surface, similar substrates are acceptable. The area should be free of holes, divots, loose floorboards, etc. and not subject to retaining moisture from water seepage.) (Warning: In the event the floor does not meet the recommended requirements, seek an alternate location or reschedule the installation after repairs to the floor have been completed.)

2. The glue tank feeder and its associated mounting (removed from normal operating position during shipment) must be re-mounted. See figure I-4.

Figure I-4

Installation, operation, service, warranty and safety concerns are addressed under separate cover documentation by NORDSON: See disclaimer on page 3 of this document

a. Re-install both gusseted style brackets (packed in separate container) onto left side of attacher base at infeed end of conveyor. Use Allen socket head screws (4) provided. Note: Tapped holes are provided for mounting.

b. Re-mount anodized glue tank mounting plate (packed in separate container) to above brackets using provided Allen socket countersunk screws (4).

c. Re-mount glue tank (packed in separate container) to mounting plate using Allen socket head screws and hex nuts (4 each) provided.

d. Attach all electrical, pneumatic and product piping/tubing. Reference separate manual for glue tank (Nordson DuraBlue Melter).

3. The touch screen assembly (packed in separate container) must be re-mounted. See figure I-5.

Figure I-5

a. Pull the (2) cables (power and communication) associated with the touch screen from the attacher base and run through the post into touch screen enclosure. Enclosure access panel must be opened.

b. Install post/enclosure onto attacher base (pipe thread connection).

c. Insert power and communication termination plugs into proper enclosure mounted socket and close access panel.

4. The side guides (left and right hand) must be re-attached to the material feeder (i.e. card feeder). See later section for details.

Installation: Electrical Setup Connections

5. Inspect the line current at the point where the power cable of the machine is to be plugged in. (Note: Conventional wall sockets, ceiling line drops and D-Boxes should be free of cracks, rust, visible signs of heat stress and flash marks.) (Special Note: For installations in Europe check the condition of the voltage converter box or other voltage reducing device that may be in use. In the event of a line voltage inspection failure, report your findings to the person or persons in charge of the building and postpone the installation until corrections are made.)

6. Check the line voltage to ensure that the minimum and maximum requirements are present. SUPPLY VOLTAGE MUST BE 230VAC +/- 10%

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Installation: Leveling the Attacher Base

7. Position the attacher base in the designated location then lower the leveler pads to raise the base to a comfortable operating height, see figure I-6.

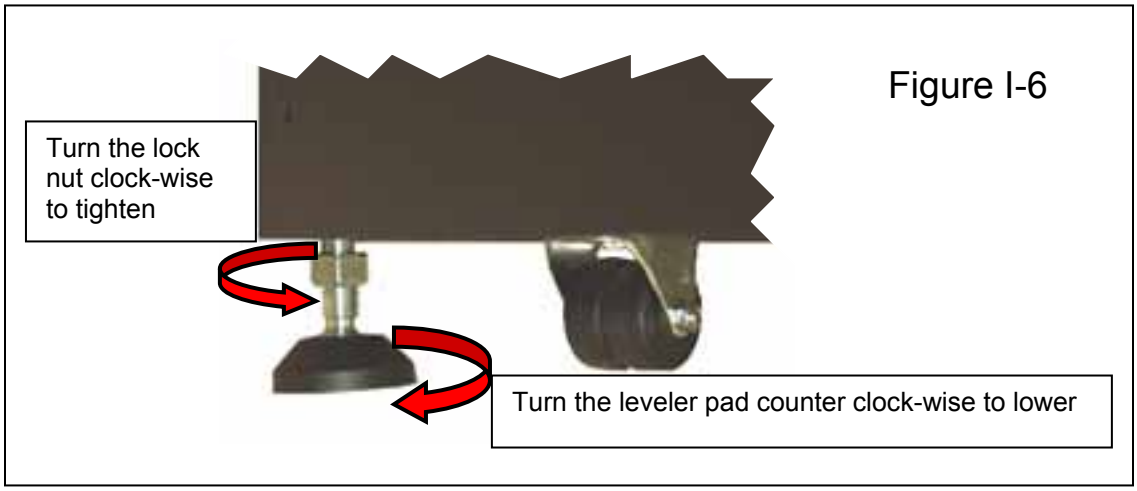

Figure I-6

8. Place a level in the center of the attacher base and adjust the leveler pads as needed to level the machine at the desired height. Once the machine has been leveled, tighten the leveler pad lock nuts, see figure I-7.

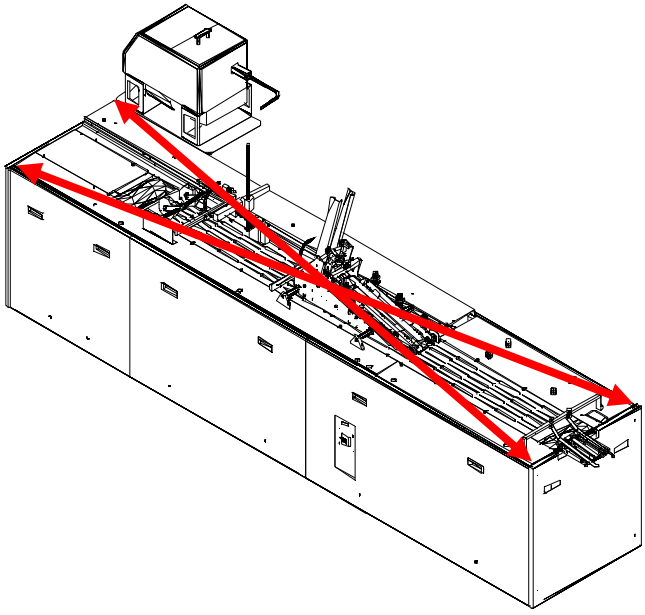

Figure I-7

9. Check entire machine for any items that may be obstructing proper operation. This includes packing/shipping components.

10. Plug the power cables for the glue applicator and the attacher system (remove front panel to access) into the proper sized site receptacle.

⚠ (**Warning:** To avoid possible damage to the machine and prevent possible injury, keep the work areas free of all packing material and other debris.)

Section II

Safety Features
&
Warnings

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Section II

Safety Locks and Warning Stickers

All attachers have been designed with safety locks on all doors to cabinets containing moving parts as well as caution or warning labels or stickers to safeguard persons operating and or working on or around this equipment. These are as follows:

All doors to cabinets containing moving parts are equipped with a mechanical lock that requires the use of a flat blade screwdriver to open.

The main power or electrical box door is equipped with a safety lock that requires a specific key to open.

General Warning
Symbol indicating possible safety hazards. Found posted on the left front service door of the Attacher base above the door lock

Label shown at actual size

Figure II-1

Shock Hazard
Symbol indicating possible shock hazard. Found posted above the lock of the service door on the Electrical box mounted on the backside of the Attacher base.

Label shown at actual size

Figure II-2

Mechanical Warning
Symbol indicating pinch hazard. Found posted on the mounting plate of the vacuum belt, drive motor.

Label shown at actual size

Figure II-3

Note: This symbol ⚠ appears as a visual alert in the text of this manual next to written warnings regarding possible safety issues and or possible machine damage that may occur as a direct result of failure to follow specific instructions as written.

(Note: The safety devices, door locks, warning labels and stickers are installed by the manufacturer to safeguard all persons operating and or working on or around the Attacher. Removing, altering or disabling any of these items will void any and all warranties, either real or implied, purchased or offered with the Attacher. All companies connected with the manufacturing, promotion and sale of the Attacher shall be held harmless for any and all injuries and damage in the event the safety devices, door locks, warning labels and stickers are removed, altered or disabled)

In addition to the safety devices and warnings installed on the Attacher by the manufacture, the following recommendations for safe operation and maintenance of the Attacher are as follows:

- Any persons designated to operate, work on or near the Attacher must be fully trained by a factory-authorized representative.
- Do not operate or perform any type of maintenance on the Attacher while under the influence of drugs or alcohol.
- Do not operate or perform any type of maintenance on the Attacher in or around freestanding water.
- Do not wear loose or baggie fitting shirts, shirts with bellowing sleeves, bracelets, rings, necklaces, neckties or other loose apparel that may come into close proximity with moving parts of the machine.
- Do not place any items near or over the “Emergency Stop Switches” that might inhibit or obstruct line of sight or access to the Emergency Stop Switches. The “Emergency Stop Switches” must be clearly visible and accessible at all times.
- Ware protective safety eyeglasses or goggles and use a particle mask or similar device when cleaning off the Attacher with compressed air. Alert all other persons in the area to stand a minimum of thirty (30) feet from the area where compressed air is put to such use.
- Hearing protection is not required for safe operation of the Attacher. Typically, decibel levels have been found to be less than 85 decibels in machines properly maintained and in good operating condition.
- All persons having hair greater than shoulder length who operate, work on or near the Attacher should keep their hair pulled back in ponytail fashion then pinned up or otherwise contained to the top of their head or confined under the back of their shirt.
- Turn off the main power to the Attacher before opening any of the service doors for general cleaning and or general maintenance. Follow the “Lock Out Procedures” as stated on page 16 for extensive repairs involving disassembly of the machine either in whole or in part or replacing any of the electrical components.

- Any persons working near any of the electrical motors or pump motors of the Attacher should use caution. Electrical motors and product heaters give off heat, contact with or exposure to bare skin may result in burns.

- The Attacher was designed to feed and transport paper only. Do not attempt to feed and / or run materials made of or containing glass, metal, wood, plastics, liquids, foods, powders, gasses, explosives or toxic and hazardous chemicals on the Attacher. (Note: The manufacture recognizes and acknowledges that the Attacher is capable of successfully running and / or transporting compact disk and audio cassettes inserted into paper envelopes, however the manufacture and other companies connected with the promotion and sale of the Attacher do not assume any responsibility for any damage to the Attacher or product and shall be held harmless for any damages and or injuries resulting in this practice.)

Special Advisement:

The manufacturer and other companies connected with the promotion and sale of the Attacher shall be held harmless for any and all injuries sustained to any person or persons as a result of failure to comply with the recommendations for safe operation and maintenance of the Attacher as shown and / or described herein.

The Lithium batteries used in our products may contain Perchlorate Material --- special handling may apply.
See www.disc.ca.gov/hazardouswaste/perchlorate.

If any equipment is provided with a replaceable battery and if replacement by an incorrect type could result in an explosion (for example, with some lithium batteries), the following applies:

- If the battery is placed in an 'operator access area', there shall be a marking close to the battery or a statement in both the operating and servicing instructions;

- If the battery is placed elsewhere in the equipment, there shall be a marking close to the battery or a statement in the servicing instructions.

This marking or statement shall include the following or similar text:

CAUTION

RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE

DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS

Machine Lock Out Procedure

Before beginning extensive repairs involving disassembly of the machine either in whole or in part, performing general maintenance or replacing any of the electrical components, the machine must be locked out of service to ensure that power will not be restored to the machine while the work is being performed. To lock a machine out of service, perform the following:

⚠ **Warning:** The following procedure is published herein for the expressed purpose of providing a safe work environment conducive to persons performing repairs and or maintenance and or general cleaning of the Attacher and or any other components connected to or associated with the Attacher. This procedure must be followed without exception to ensure the safety of any person or persons performing the previous stated task.

The manufacturer and other companies connected with the promotion and sale of the Attacher shall be held harmless for any and all injuries sustained to any person or persons and or damage to the Attacher and or any other components connected to or associated with the Attacher as a result of failure to comply with the “Lock Out Procedure”.

1. Turn the main power switch to the off position.

2. Disconnect the power cable from its source by performing the following:

    a. Follow the main power line from the machine back to the receptacle or source of supplied power and disconnect it at the source.

    b. Place the plug connecter close to the machine in such a position that will remain in your field of vision while repairs or maintenance is being performed.

3. Notify all other persons in the area where the work is being performed that the machine will be out of service, especially if the work you are performing requires you to be crouched behind or beside the machine or in some other way obscured from the sight of other persons in the area.

4. When the work has been completed reconnect the plug to the power source and then test cycle the machine to ensure that power has properly restored and the machine is fully functional.

5. Notify all other persons in the area that the machine is fully operational and that the drive motors will become enabled when the power switch is placed in the on position.

Suggested Lock Out Devices

The following are some suggested devices specifically designed to provide a greater degree of safety when locking out the power supply to a machine. These devices can be purchased from most safety equipment suppliers and vendors.

Lock Box designed for power cord plug connectors, commonly used in combination with a key style padlock.

Note: Appearance of Lock-Out devices may vary depending on vendor

Figure II-4

Breaker Lock designed for use inside electrical breaker boxes, commonly used in combination with a key style padlock.

Note: Appearance of Lock-Out devices may vary depending on vendor

Figure II-5

Warning Alert tags, commonly used in combination with all lock out devices.

Front View of Lock Out Tag

Back View of Lock Out Tag

Figure II-6

Section III

General Set-Up

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Section – III

This Attacher system is comprised of a belt conveyor, a gluing applicator and a material feeder (i.e. card feeder) and is designed to run off line or in line with most feeders, inserters, inkjets and conveyors.

AT 2_ATTACHER SETUP

1. Place a piece of the material (that is to be run under the glue applicator) onto the vacuum transport belt just beneath the nip rollers upstream of the glue applicator. Adjust guide rollers per the following: See figure III-1.

    a. Loosen thumbscrews on each guide roller bracket to locate rollers across the conveyor.

    b. Loosen thumbscrew on both side mounting brackets to move guide rollers back-and-forth along conveyor to adjust guide rollers so material piece hits rollers and vacuum belt at same time.

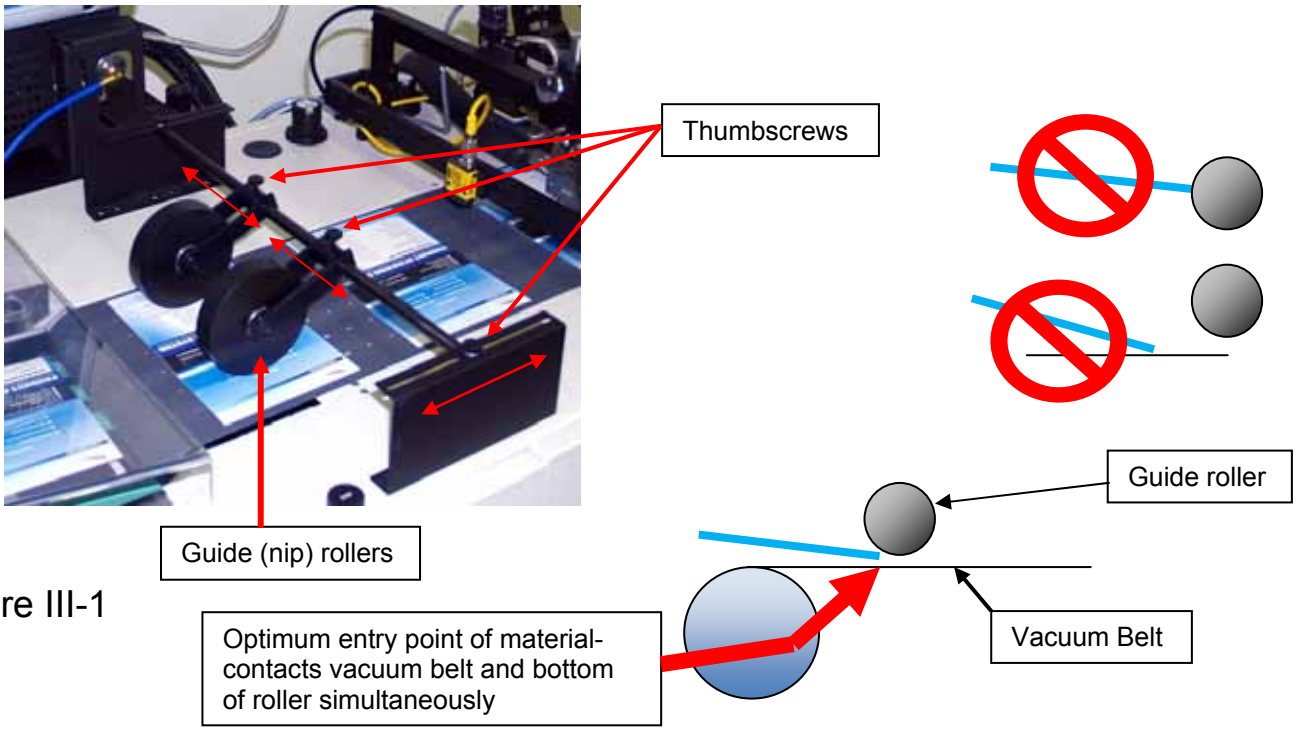


Figure III-1

Paper Sensor Adjustment- Main Conveyor (ATTACHER)

The paper sensors are located at the “In-Feed” end of the attacher base above the vacuum belt and upstream of and on the centerline of the glue nozzle and card feeder. These sensors are set to detect and confirm the presence of paper before passing under the glue applicator tip and material feeder. These sensors do not normally need to be adjusted for each job, once the setting has been made, it should remain set unless otherwise disrupted. In the event the settings have been disrupted, perform the following:

1. Position the sensor directly above the vacuum belt by turning the thumbscrew in the sensor mounting block in a counter clock-wise direction and sliding the sensor assembly across the sensor support bar. Once the desired position is acquired, tighten the thumbscrew in the sensor mounting block in a counter clock-wise direction.

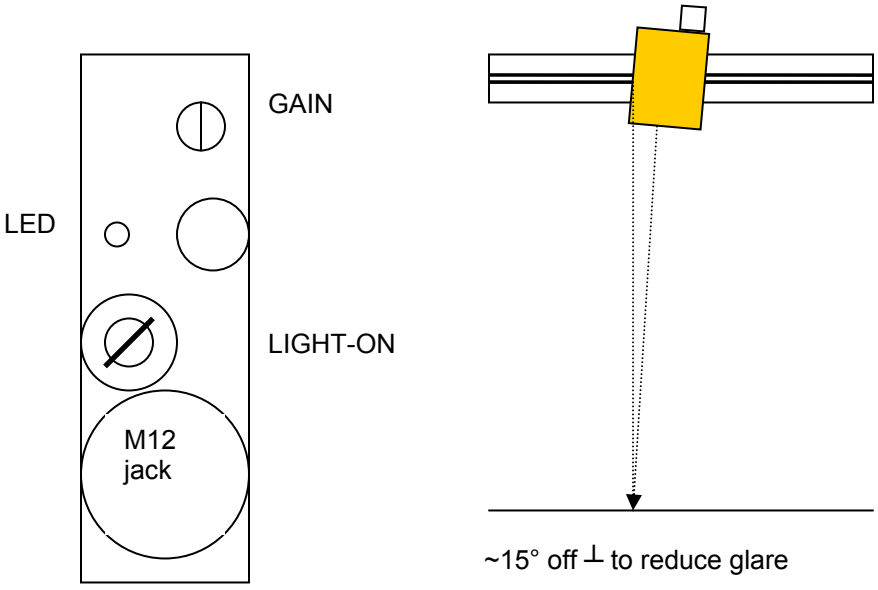
⚠ (**Warning:** The stop point of this pot setting can be damaged if excessive force is applied.)

2. Set the "Gain" pot setting by performing the following;

   a. Tilt the paper sensor's mounting plate within the sensor bar to be slightly off-perpendicular with the vacuum belt. See figure below.

   b. Jog the vacuum belt until the seam is underneath the paper sensor. Remove plastic cover from sensor's top.

   c. Using a small flat blade screwdriver, set the paper sensor's LIGHT-ON/DARK-ON control to LIGHT-ON. See figure below.



Paper Sensor Controls

   d. With the paper sensor reading the vacuum belt seam, use a small flat screwdriver to adjust the sensor's GAIN to find the point where the sensor will not trigger (LED) on the seam. Test this adjustment at speed by jogging the vacuum belt without material on the belt (turn off Feeder). The sensor should not trigger on the seam.
   e. Turn on the feeder and test the sensor adjustment with material.

   f. Replace the paper sensor's plastic cover.

Remove the plastic cover from the sensor to gain access to the pot settings.

(Sensor shown has detachable electrical cable fitting)

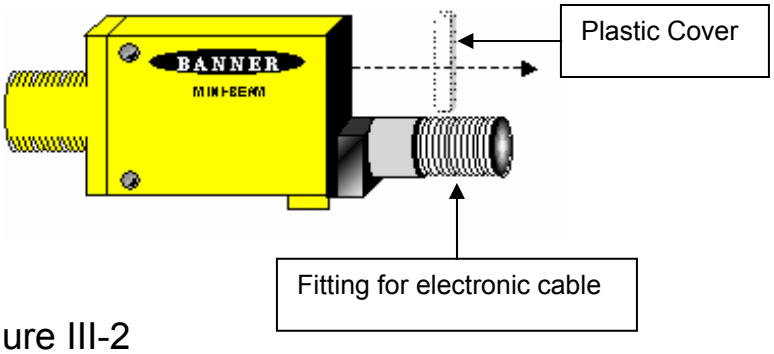
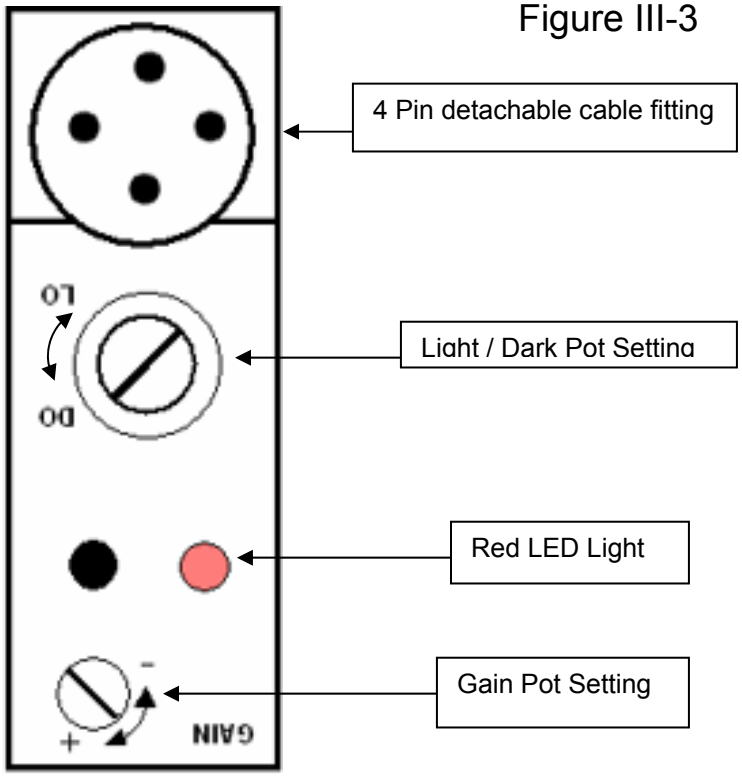


Figure III-2

View of Detachable Cable style Sensor

(Shown in actual orientation as it appears on the attacher base)

Figure III-3



View of Hard Wired Cable style Sensor

(Shown in reverse orientation as it appears on the attacher base)

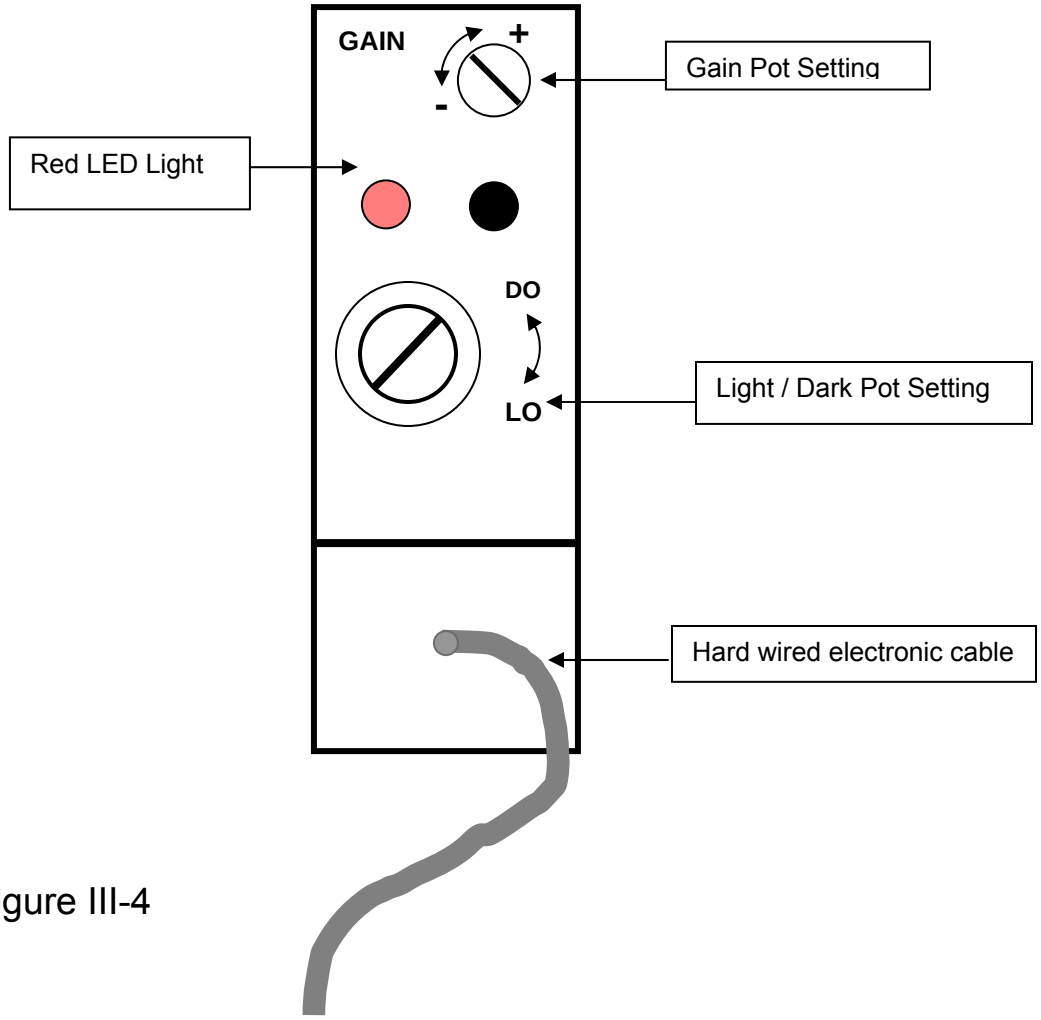


Figure III-4

Card Feeder Set-Up

1. Loosen the ratchet handles and the thumb lock knob, found on each of the material side guides (The ratchet handle at the top of the clamp, aligns the side guide vertically, the thumb lock knob at the back of the clamp, aligns the side guide horizontally. See figure III-5.

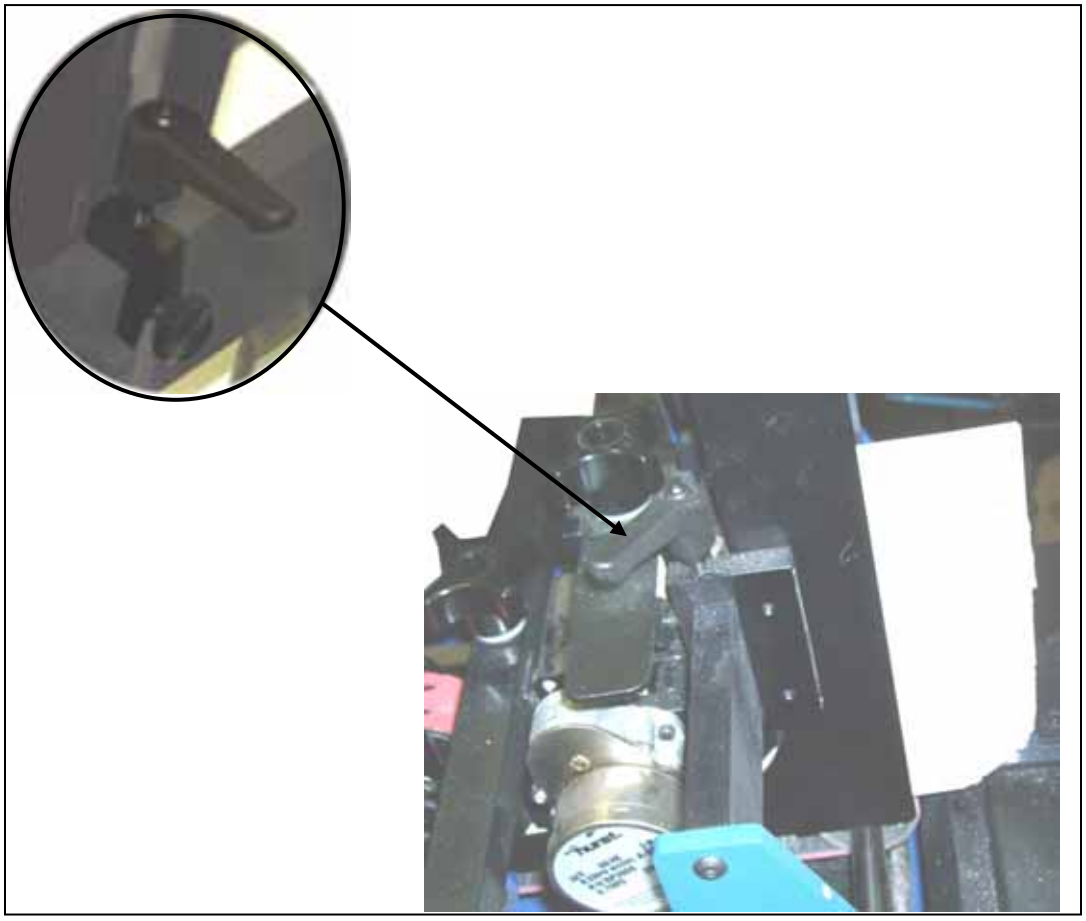


Figure III-5

2. Mark the center of the card and place the marked piece on the feeder friction belt, see figure III-5.

3. Align the mark with the center of the friction belt of the material separator, see figure III-6.

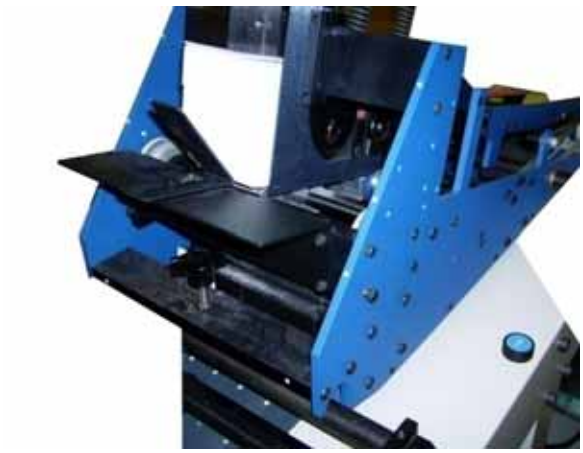


Figure III-6

4. Set the side guides of the feeder, to the width of the material to be run. Allow approximately 1/8" of space between the material and the material side guides to enable the material can slide freely to the friction belts of the feeder.

5. Set the "Wedge" under the material to obtain the proper stack angle for feeding, see figure III-7. The variables of this setting are dependent on the characteristics of the material. (Helpful Tip: The more the wedge is pushed under the material, the less critical the material separator setting becomes. If the wedge is placed out from the material, the separator setting will become more critical)

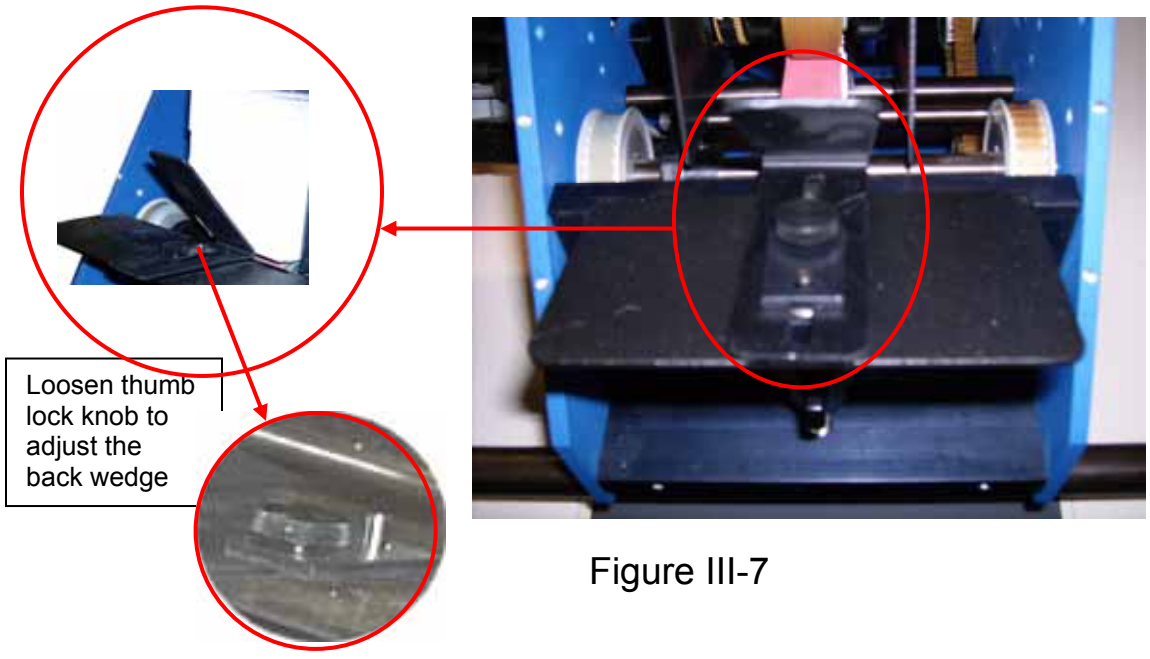


Figure III-7

6. Set the height of the “Material Separator” to allow the thickness of one (1) piece of material to pass under it. To do this, turn the adjustment knob clock wise to raise the separator, counter clock wise to lower the separator, see figure III-8. (Note: There should be a little resistance felt by hand, when the material is directly under the material separator, when this is properly set) (Helpful Tip: The thinner the material is, the more critical this setting is.)

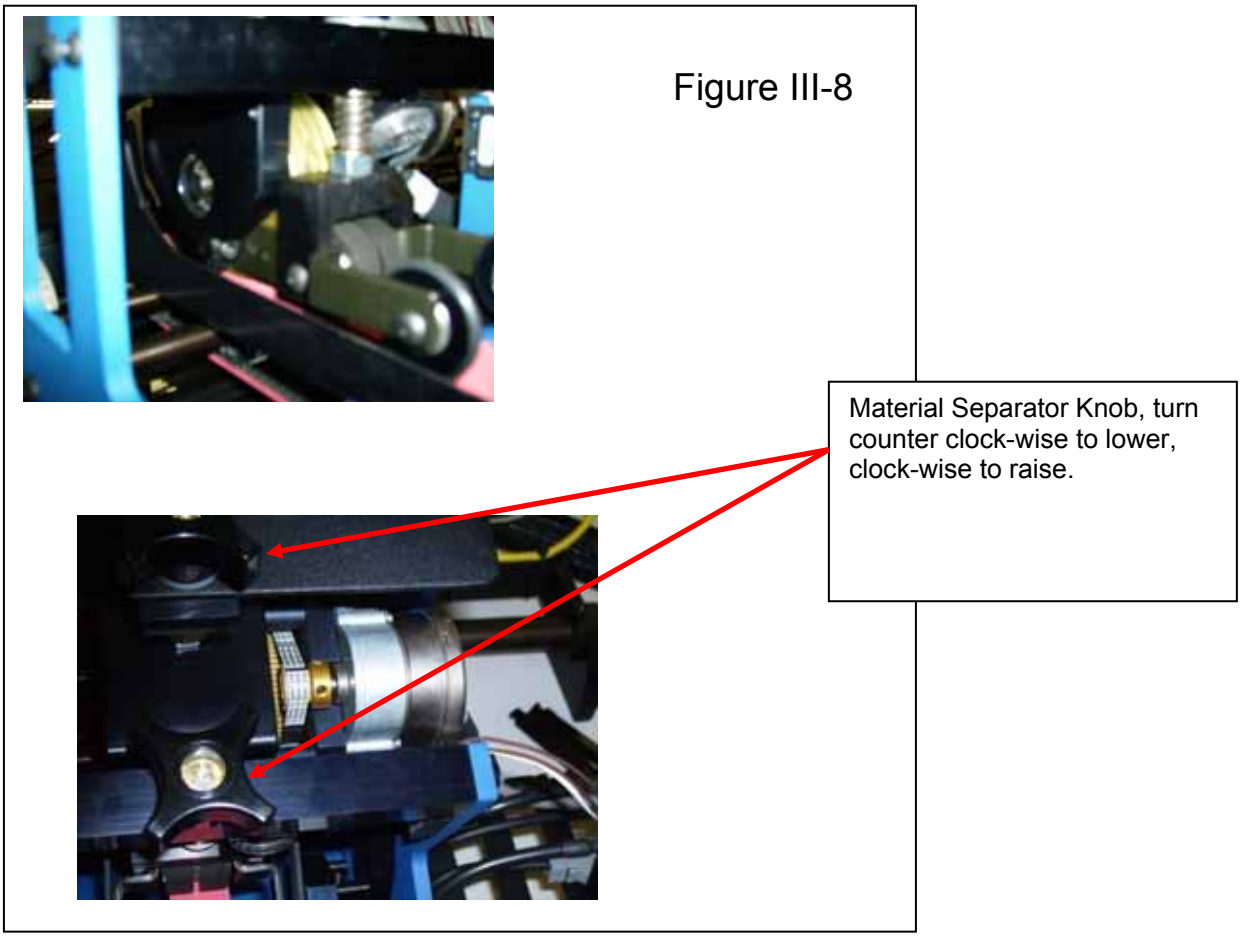


Figure III-8

7. Fill the feeder with material. The feeders are designed to hold a stack of material up to eighteen (18) inches in height or fifteen (15) pounds in weight, depending on the characteristics of the material.

8. Test the set up by pressing the “Yellow “Jog” button, found on the control panel to advance one piece at a time. Check the pieces as they feed to ensure proper separation has taken place. See figures III-12 & 14 for details.

Paper Sensor Adjustment – Card Feeder

The paper sensor is located inside the feeder, beneath the elevator belt. This sensor is set to detect and confirm the presence of paper (card) before passing onto the card feeder's vacuum belt. This sensor does not normally need to be adjusted for each job, once the setting has been made, it should remain set unless otherwise disrupted. In the event the settings have been disrupted, perform the following:

1. Place a blank piece of white paper on the elevator belt directly above the paper sensor.

2. Set the "Light / Dark" pot setting; using a small flat blade screw driver, slowly and very carefully turn the pot setting, located next to the electronic cable connection, in a counter clock-wise direction until full range of motion is felt, see figure III-9. (Note: If this adjustment is performed correctly, the screw driver slot in the pot setting should be pointing towards the "DO" in the range scale next to the pot setting.)

   ⚠ (**Warning:** The stop point of this pot setting can be damaged if excessive force is applied.)

3. Set the "Gain" pot setting by performing the following;

   a. Using a small flat blade screw driver, slowly and carefully turn the pot setting located furthest from the electronic cable connection, in a counter clock-wise direction until fill range of motion is felt, see figure III-9. (The green LED indicator light should be off at this point.)

   b. Using a small flat blade screw driver, slowly and carefully turn the pot setting located furthest from the electronic cable connection, in a clock-wise direction until the green LED light comes on, continue turning the pot setting in a clock-wise direction another half turn.

View of Hard Wired Cable style Sensor

Figure III-9

OMRON E3Z-D61

Control Panel and Switch Operation

Attacher Base Operator Control Panel

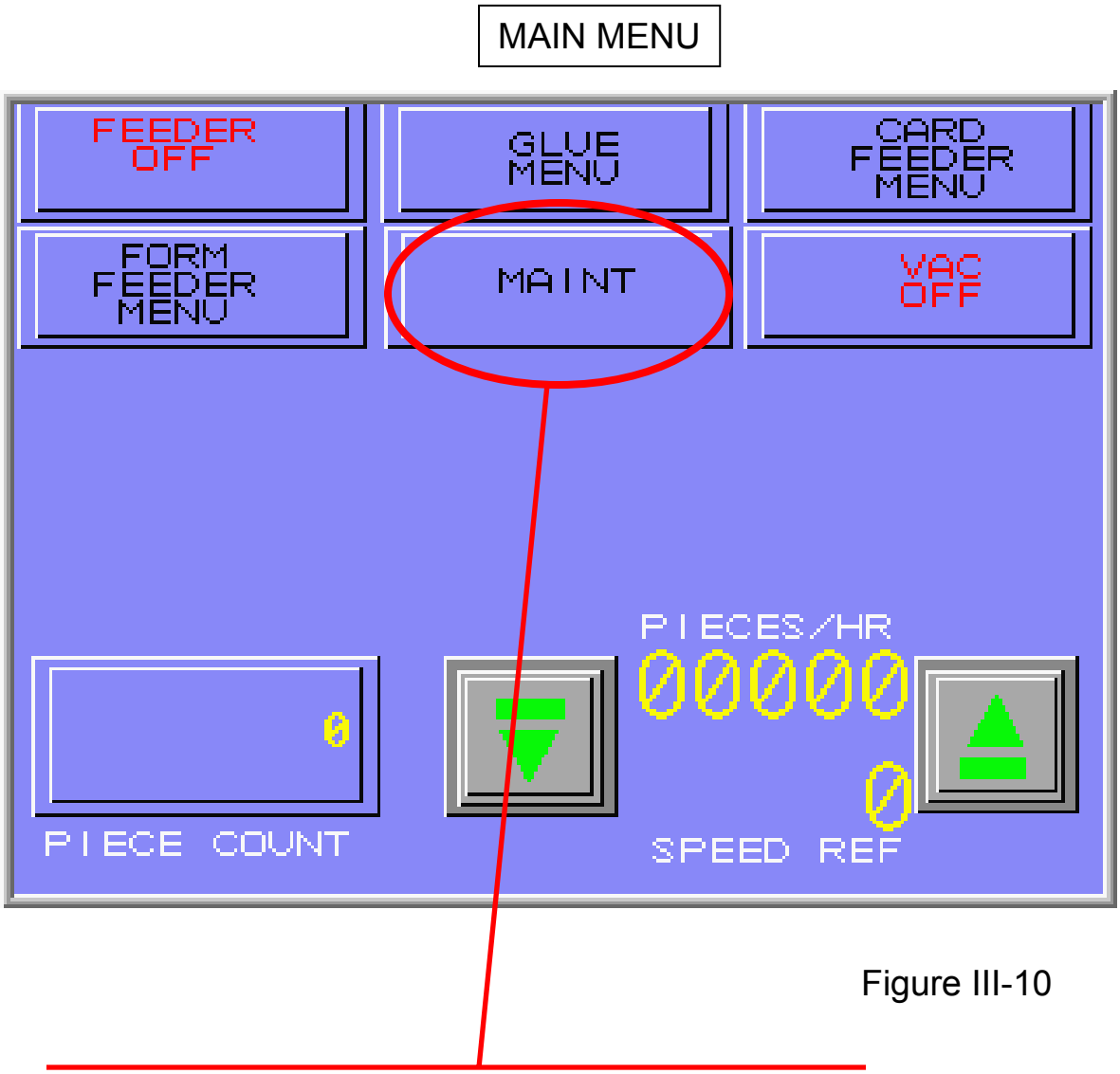


Figure III-10

NOTE A: One of the following will be displayed if English language has not be chosen-
HAUPT (German), SERVICE (French), and MANTENIMIENTO (Spanish)

Press this touch screen area to access maintenance screen then press language menu
SPRACHE (German), LANGUE (French), and IDIOMA (Spanish)

Press flag to select language then press main to return to Main (Operator) screen

Setting and Re-Setting the Emergency Stop Switch

Figure III-11

Set Emergency Stop Switch by pushing downward

Re-Set Emergency Stop Switch by lifting upward

⚠ **Warning:**

The Emergency Stop Switches Must Be Visible and Accessible at all times

Special Note: Pursuant to Community Legislation on Machinery, Comments on Directive 98/37/EC 1.2. Controls and 1.2.1 Safety and reliability of control systems

The “E-Stop” button / buttons found on the Attacher Base are by design in compliance to meet and / or exceed the mandates and requirements as stated in the Community Legislation on Machinery, Comments on Directive 98/37/EC.
By manufacture design the E-Stop buttons are to be used in the event of an emergency, once the E-Stop button has been depressed a delay of 5 to 7 seconds must elapse before the E-Stop button can be re-set. Once the E-Stop button has been re-set another delay of 5 to 7 seconds must elapse before normal machine operation can be resumed. In the event the delays are not strictly observed before attempting to resume normal machine operation, a conflict in the logic program may result causing an operator to power down the system and re-boot to clear the conflict before resuming normal machine operation.

For a selective stop to interrupt normal machine operation, depress the “Black” control Stop button. The machine can be re-started without delay at the operator’s discretion. See figure III-13.

Start Switch

To engage the Main Conveyor Run switch, depress the switch and release. The switch will automatically return to normal height.

Figure III-12

Stop Switch

To engage the Stop switch, depress the switch and release. The switch will automatically return to normal height.

Figure III-13

Jog Switch

To engage the Jog switch, depress the switch and release. The switch will automatically return to normal height.

Figure III-14

Operating the Attacher

Power:

1. Turn power to the machine on by flipping the white power switch, located on the electrical enclosure, in an upward direction. See figure III-15.

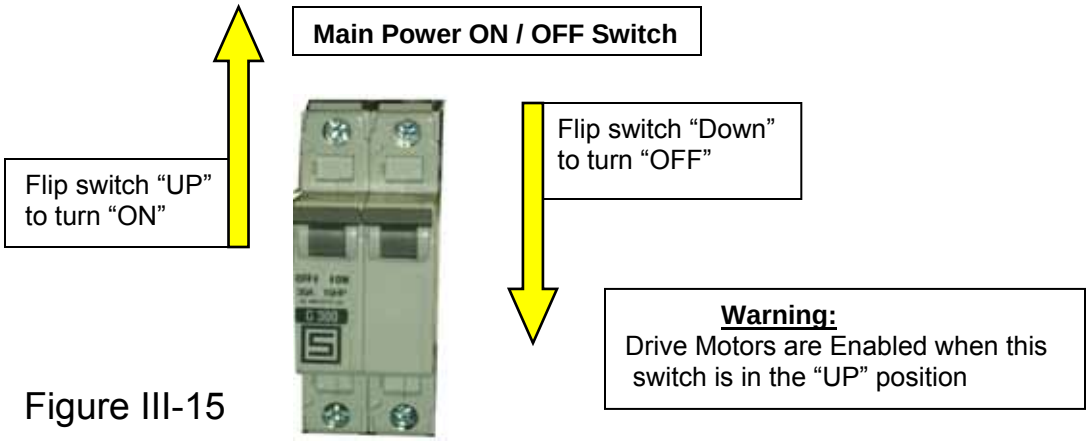


Figure III-15

2. Turn the vacuum pump motor on by pressing touch screen switch on **MAIN** menu displayed on Human Machine Interface (HMI). See figure III-16.

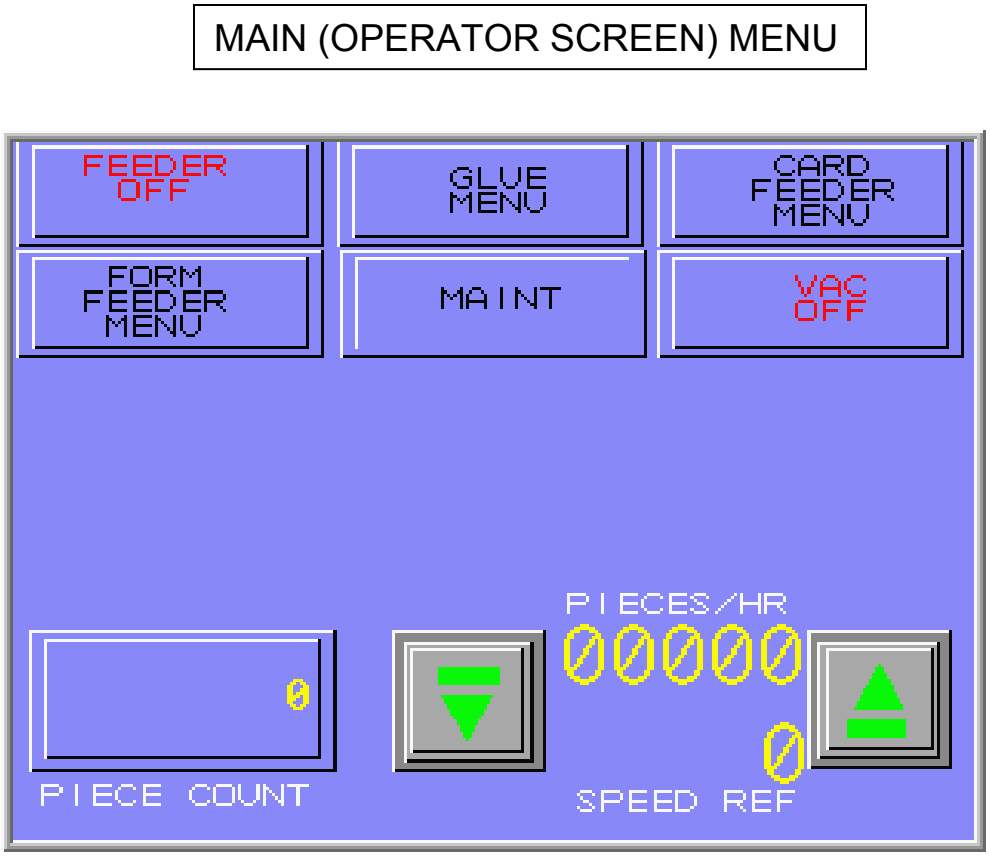


Figure III-16

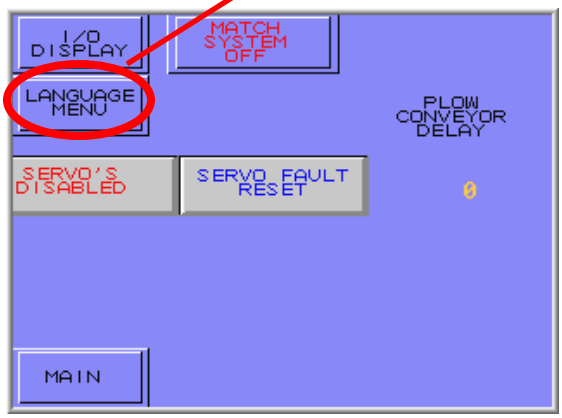
MAIN (OPERATOR SCREEN) MENU

DESCRIPTION	FUNCTION
FEEDER OFF	PRESS TO START FEEDER-CHANGES TO ON
FORM FEEDER MENU	PRESS TO ACCESS THE **FORM FEEDER MENU** SCREEN
GLUE MENU	PRESS TO ACCESS THE **GLUE MENU** SCREEN
MAINT (SEE NOTE A)	PRESS TO ACCESS THE **MAINTENANCE** SCREEN
CARD FEEDER MENU	PRESS TO ACCESS THE **CARD FEEDER MENU** SCREEN
VAC OFF	PRESS TO START VACUUM PUMPS-CHANGES TO ON
PIECE COUNT	DISPLAYS ACCUMULATED NUMBER OF PIECES
UP AND DOWN ARROWS	PRESS TO INCREASE OR DECREASE SPEED OF CONVEYOR- SPEED REFERENCE WILL BE MODIFIED
PIECES / HR	DISPLAYS PRODUCTION SPEED

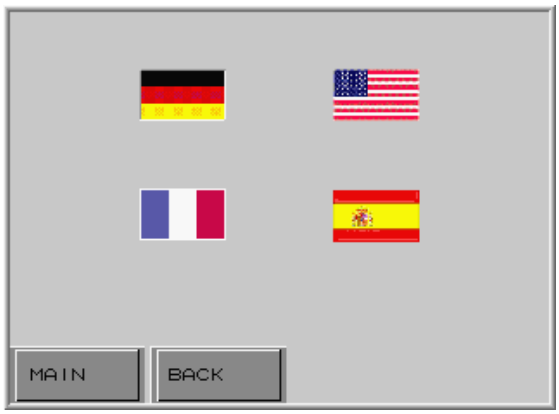
NOTE A: One of the following will be displayed if English language has not be chosen-
HAUPT (German), SERVICE (French), and MANTENIMIENTO (Spanish)

Press this touch screen area to access maintenance screen then language menu SPRACHE (German), LANGUE (French), and IDIOMA (Spanish)

Press flag to select language then press main to access Main (Operator) screen



MAINTENANCE SCREEN
HAUPT
SERVICE
MAINTENIMIENTO



LANGUAGE SCREEN
SPRACHE
LANGUE
IDIOMA

3. The **FORM FEEDER MENU** is now displayed on Human Machine Interface (HMI). See figure III-17.

FORM FEEDER MENU

Figure III-17

DESCRIPTION	FUNCTION
CARD FEEDER MENU	PRESS TO ACCESS THE **CARD FEEDER MENU** SCREEN
GLUE MENU	PRESS TO ACCESS THE **GLUE MENU** SCREEN
FORM FEEDER OFF	PRESS TO START INPUT FORM FEEDER-CHANGES TO ON
"Form Length"	PRESS TO ACCESS NUMERIC PAD FOR DATA ENTRY-SEE FIGURE III-18.
MAIN	PRESS TO ACCESS THE **MAIN** SCREEN
GAP CONTROL UP AND DOWN ARROWS	PRESS TO INCREASE OR DECREASE GAP BETWEEN FORMS-CONTROLS SPEED OF UPSTREAM FEEDER

NUMERIC ENTRY PAD

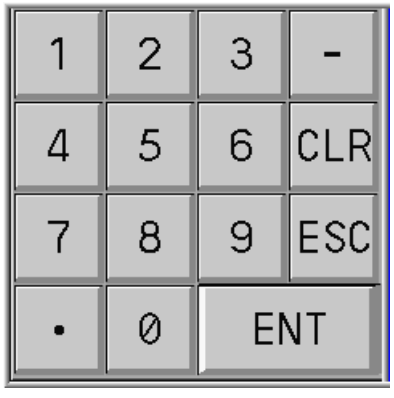


Figure III-18

4. The **CARD FEEDER MENU** is now displayed on Human Machine Interface (HMI). See figure III-19.

CARD FEEDER MENU

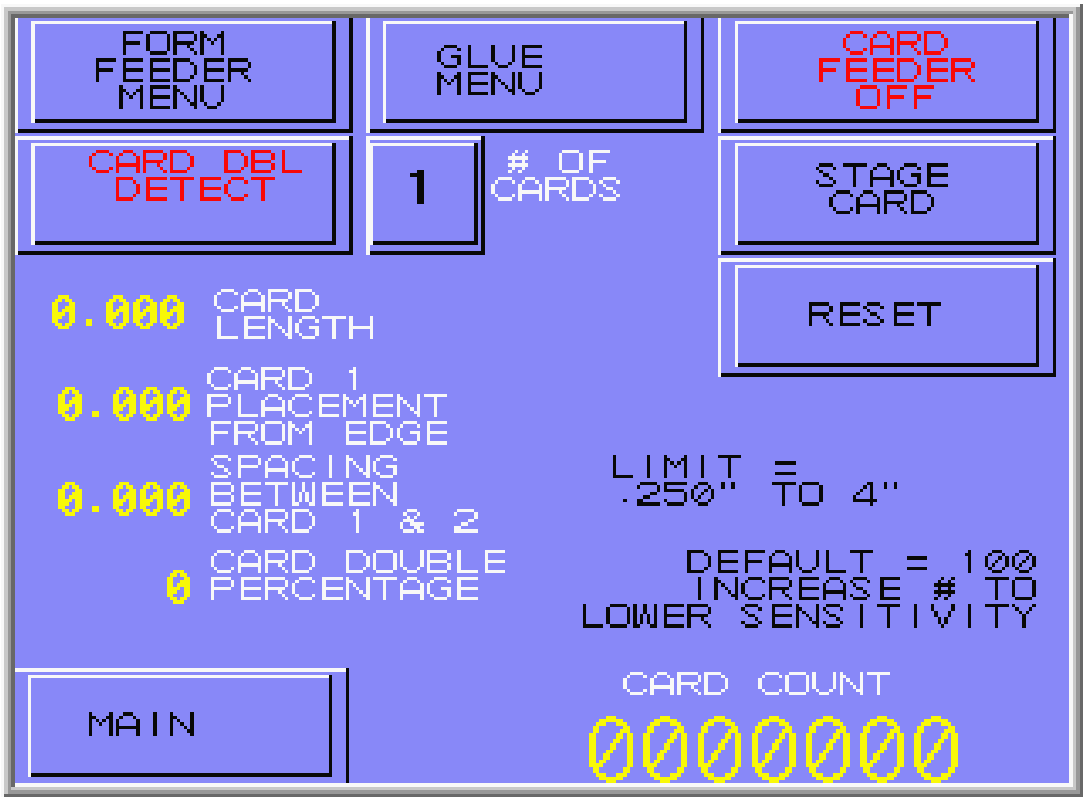


Figure III-19

DESCRIPTION	FUNCTION
FORM FEEDER MENU	PRESS TO ACCESS THE **FORM FEEDER MENU** SCREEN
GLUE MENU	PRESS TO ACCESS THE **GLUE MENU** SCREEN
CARD FEEDER OFF	PRESS TO START CARD FEEDER-CHANGES TO ON
CARD DBL DETECT OFF	PRESS TO STOP DETECTION-CHANGES TO ON
"# OF CARDS"	PRESS TO ALTERNATE BETWEEN (1) AND (2)
STAGE CARD	PRESS TO PRODUCE (1) CYCLE OF CARD FEEDER
Card length, Card 1 placement from edge, spacing between card 1 & 2 and card double %	PRESS TO ACCESS NUMERIC PAD FOR DATA ENTRY-SEE FIGURE III-18.
RESET	PRESS TO CLEAR THE "CARD COUNT"
MAIN	PRESS TO ACCESS THE **MAIN** SCREEN
CARD COUNT	DISPLAYS ACCUMIULATED COUNT FROM LAST "RESET"

5. The **GLUE MENU** SCREEN is now displayed on Human Machine Interface (HMI). See figure III-20.

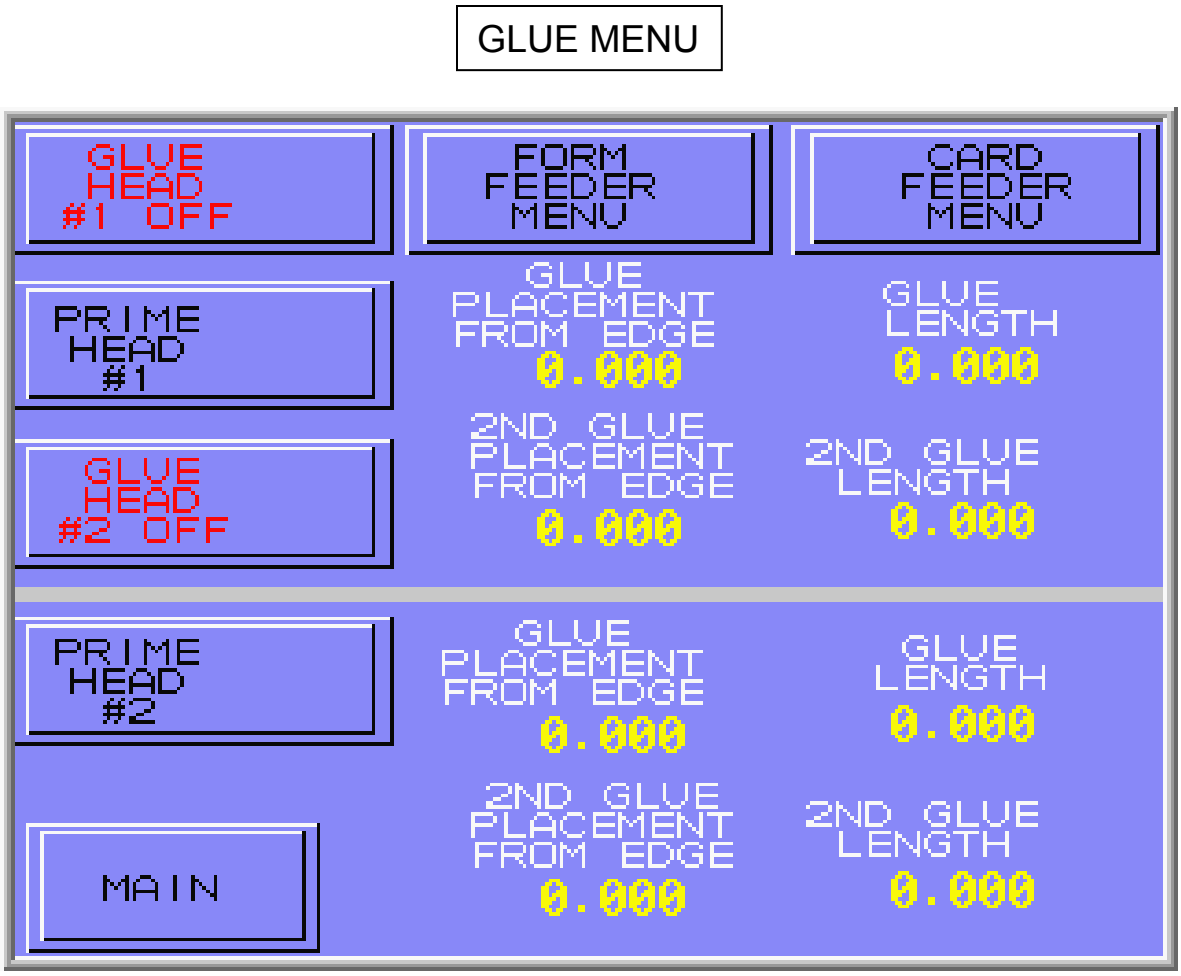


Figure III-20

DESCRIPTION	FUNCTION
FORM FEEDER MENU	PRESS TO ACCESS THE **FORM FEEDER MENU** SCREEN
CARD FEEDER MENU	PRESS TO ACCESS THE **CARD FEEDER MENU** SCREEN
GLUE HEAD #1 / #2 OFF	PRESS TO ENABLE THE GLUE HEAD-CHANGES TO ON
PRIME HEAD #1 / #2	PRESS and HOLD TO MANUALLY OPERATE THE GLUE HEAD
* Glue placement from edge and glue length	PRESS TO ACCESS NUMERIC PAD FOR DATA ENTRY-SEE FIGURE III-18.
MAIN	PRESS TO ACCESS THE **MAIN** SCREEN

NOTE: One (1) card feeder can feed (attach) either (1) or (2) cards in-line to the same form using (1) glue head-use upper part of HMI screen (HEAD #1) for data entry. If (2) card feeders are mounted to the attacher, then use lower part of HMI screen (HEAD #2) for second downstream card feeder /glue head

--OR--

One (1) product attacher that can feed (attach) wider materials onto a form using (2) glue heads mounted onto the same cross bar then use both upper and lower parts of the HMI screen.

6. The **MAINTENANCE** SCREEN is now displayed on Human Machine Interface (HMI). See figure III-21.

MAINTENANCE SCREEN

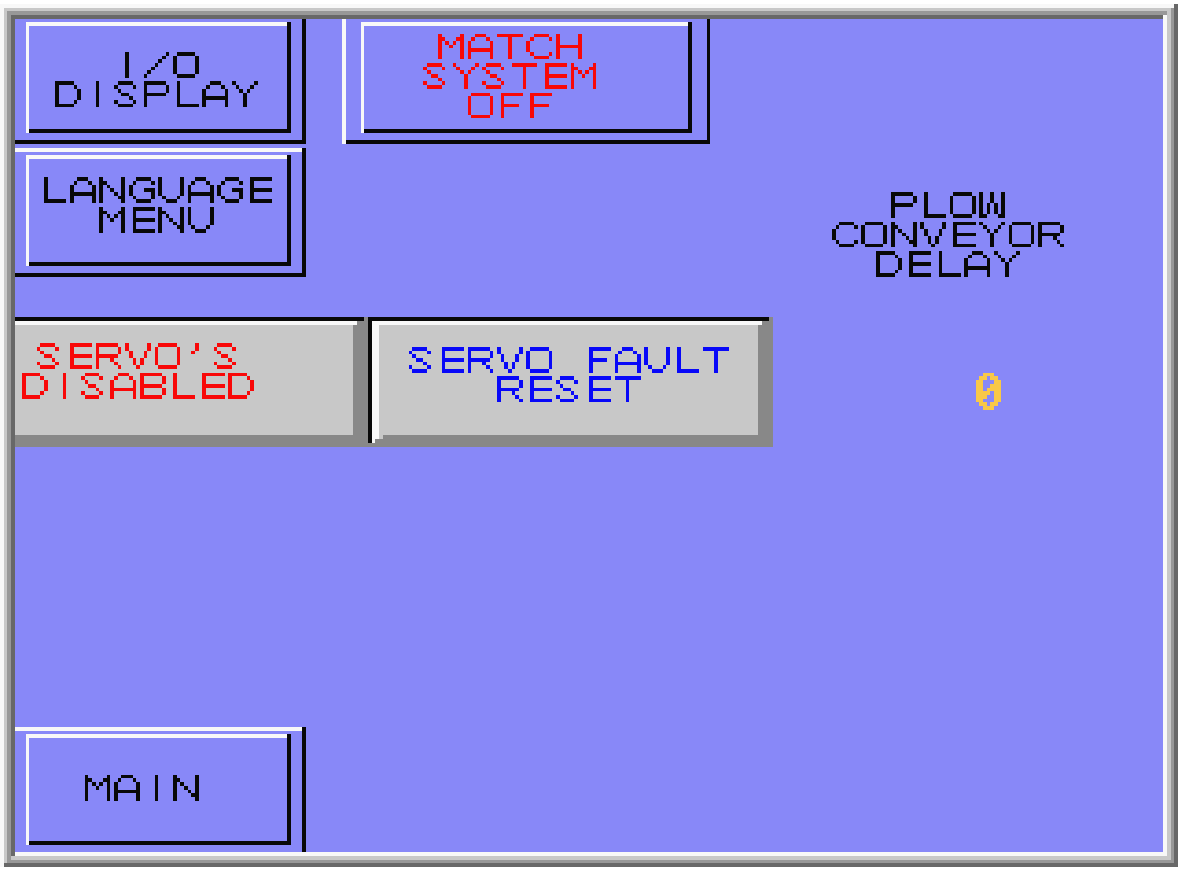


Figure III-21

DESCRIPTION	FUNCTION
I/O DISPLAY	PRESS TO ACCESS THE **INPUTS** and **OUTPUTS** SCREEN
MATCH SYSTEM OFF	PRESS TO ENABLE OTHER INPUTS (i.e. CAMERA)-CHANGES TO ON
LANGUAGE MENU	PRESS TO ACCESS THE **LANGUAGE (FLAG)** SCREEN
SERVO'S DISABLED	PRESS TO ENABLE ALL SERVOS
SERVO FAULT RESET	PRESS TO RESET SERVO-WARNING DISPLAYED ON **MAIN** SCREEN
DATA ENTRY WINDOW	PRESS TO ACCESS NUMERIC PAD FOR DATA ENTRY-SEE FIGURE III-18.
MAIN	PRESS TO ACCESS THE **MAIN** SCREEN

7. The **INPUTS** SCREEN is now displayed on Human Machine Interface (HMI). See figure III-22.

INPUTS SCREEN

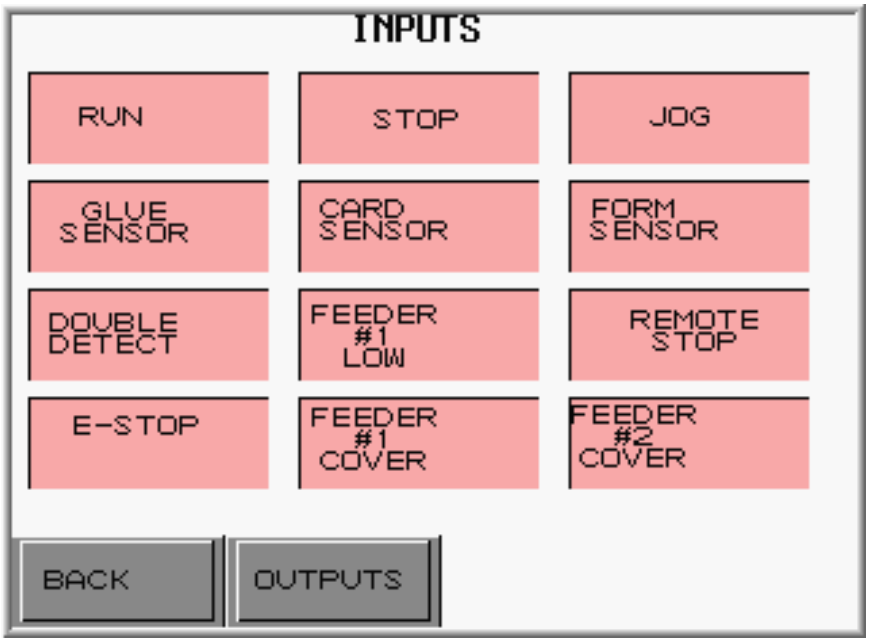


Figure III-22

DESCRIPTION	FUNCTION
OUTPUTS	PRESS TO ACCESS THE **OUTPUTS** SCREEN
BACK	PRESS TO RETURN TO THE **MAINTENANCE** SCREEN

8. The **OUTPUTS** SCREEN is now displayed on Human Machine Interface (HMI). See figure III-23.

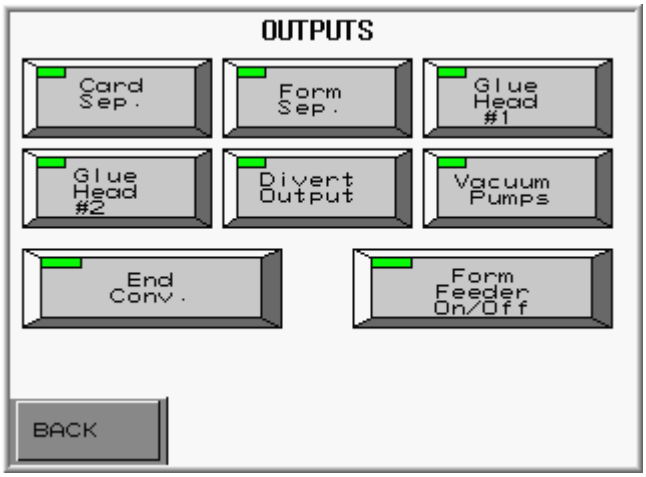


Figure III-23

DESCRIPTION	FUNCTION
BACK	PRESS TO RETURN TO THE **INPUTS** SCREEN

Section IV

General Maintenance

ATTACHER Model AT 2

Pitney Bowes
SURE-FEED ENGINEERING
12050 49th STREET NORTH - CLEARWATER, FL. 33762-4301
PHONE: 727.571.3330 - FAX: 727.571.3443 - TOLL FREE: 1.800.INSERTER
web: sure-feed.com

Section - IV

Attacher Base Maintenance:

The general maintenance of the attacher base is limited due to the design and materials used in manufacturing. The frequency of general cleaning required for the attacher base is dependent on the amount of running time put on the machine.

General Cleaning:

Removing debris from the machine with compressed air

1. Acquire and use eye protection, safety goggles or safety glasses with side guards. Also use respiratory protection, a simple disposable cloth or paper style particle mask is sufficient.

2. Alert all other people in the area to stand clear of the work area a minimum of 30 feet, (7.7 meters) where compressed air is being used to blow off machines.

3. Turn off the machine and disconnect the power line.

⚠ (**Warning:** To prevent accidental injury, refer to "The Lock Out / Tag Out Procedure" in **Section II.**)

4. Remove any loose items from the surfaces of the machine, i.e. ballpoint pens, pencils, tape dispensers, paper clips rubber bands etc.

5. Open all service doors located on the front side of the machine and remove any loose items that might have been left inside, i.e.; spare parts, tools, personal effects such as purses car keys etc. (**Note:** After a complete visual inspection has been completed and loose items removed, leave the service doors open.)

6. Cover the Touch Screen enclosure with plastic to prevent air borne particles from getting into it. (**Note:** if the base cabinet is being used to house a computer, remove the computer from the cabinet.)

7. Hold the air nozzle firmly at arms length and clean off the machine beginning with the top surfaces then work your way down.

⚠ (**Warning:** Be sure to keep the direction of compressed air blowing away from you.)

(**Note:** High volume businesses running three (3) shifts five (5) days a week should plan this function once a week. Businesses producing light to moderate volume should plan this function once a month.)

Cleaning Friction Belts, Vacuum Belts and Conveyor Belts:

1. Acquire and use eye protection, safety goggles or safety glasses with side guards.
2. Turn off the machine and disconnect the power lines.
3. Clean the following material belts;
   - ✓ Red Gum Friction Belts of the material Feeder
   - ✓ Vacuum Transport Belts of the Attacher Base
   - ✓ Transport Belt of the Discharge Conveyor

Apply a liberal amount of "Simple Green" general-purpose cleaner or ("Isopropyl Alcohol", 70% by volume see warning below) to a soft cloth and wipe down the belt you wish to clean. Advance the belt being cleaned by hand until the entire belt surface has been cleaned.

⚠ (**Warning:** Do not spray or pour Simple Green general-purpose cleaner or Isopropyl Alcohol directly onto the belts, free flowing liquids may seep into some electronic components and cause damage)

(**Note:** "Simple Green" general-purpose cleaner and / or "Isopropyl Alcohol" can be purchased at most local grocery stores and drug stores.)

⚠ **(Warning: Isopropyl Alcohol is FLAMABLE, do not use near an open flame or any other source or device that gives off heat.)**

Attacher Vacuum Transport Belt Replacement

Prepare the work area, clear off the top surface of the attacher base.

1. Turn the main power switch to the off position.
2. Disconnect the power cables from their sources by performing the following:
   a. Follow the main power line and all other power cables from the machine back to the receptacle or source of supplied power and disconnect it at the source.
   b. Place the plug connecter close to the machine in such a position that will remain in your field of vision while repairs or maintenance is being performed.
3. Notify all other persons in the area where the work is being performed that the machine will be out of service, especially if the work you are performing requires you to be crouched behind or beside the machine or in some other way obscured from the sight of other persons in the area.
4. It may be necessary to move the attacher base clear of other equipment. Ensure that all interconnect cables (electric power, communication, etc) and any mechanical connecting devices have been removed and protected from damage during this process.
5. Shut off compressed air supply upstream of attacher system and disconnect air line from main filter-regulator mounted on attacher base.

6. Remove fasteners from panel covers and lift up and remove all panel covers from attacher base to facilitate removal of subsequent components. The infeed panel does not need to be removed. The discharge end panel should be detached but electrical cables, wiring does not need to be disconnected.

3. Remove the glue tank then its mounting plate from angle brackets on attacher base. See figure IV-1. Disconnect all electrical, air line and product piping/tubing from glue tank ports.

⚠ (**Warning:** To prevent accidental injury, allow component to cool for several hours.)

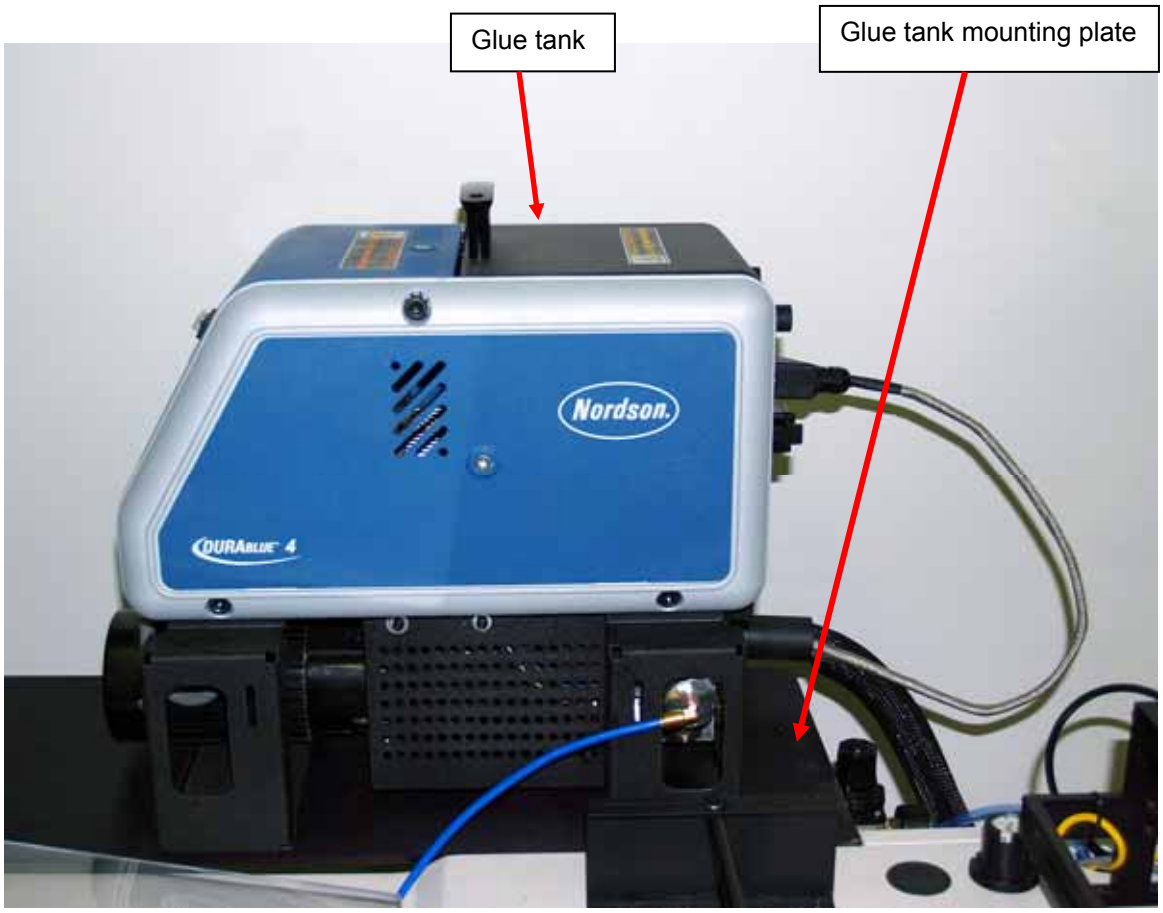


Figure IV-1

a. Detach glue tank from mounting plate by removing Allen socket head screws and hex nuts (4 each).

b. Detach mounting plate from gusseted style brackets by removing Allen socket countersunk screws (4).

c. Detach both brackets (not necessary to detach filter-regulator from bracket) from left side of attacher base by removing Allen socket head screws.

4. Remove Touch Screen assembly from the attacher base. See figure IV-2.

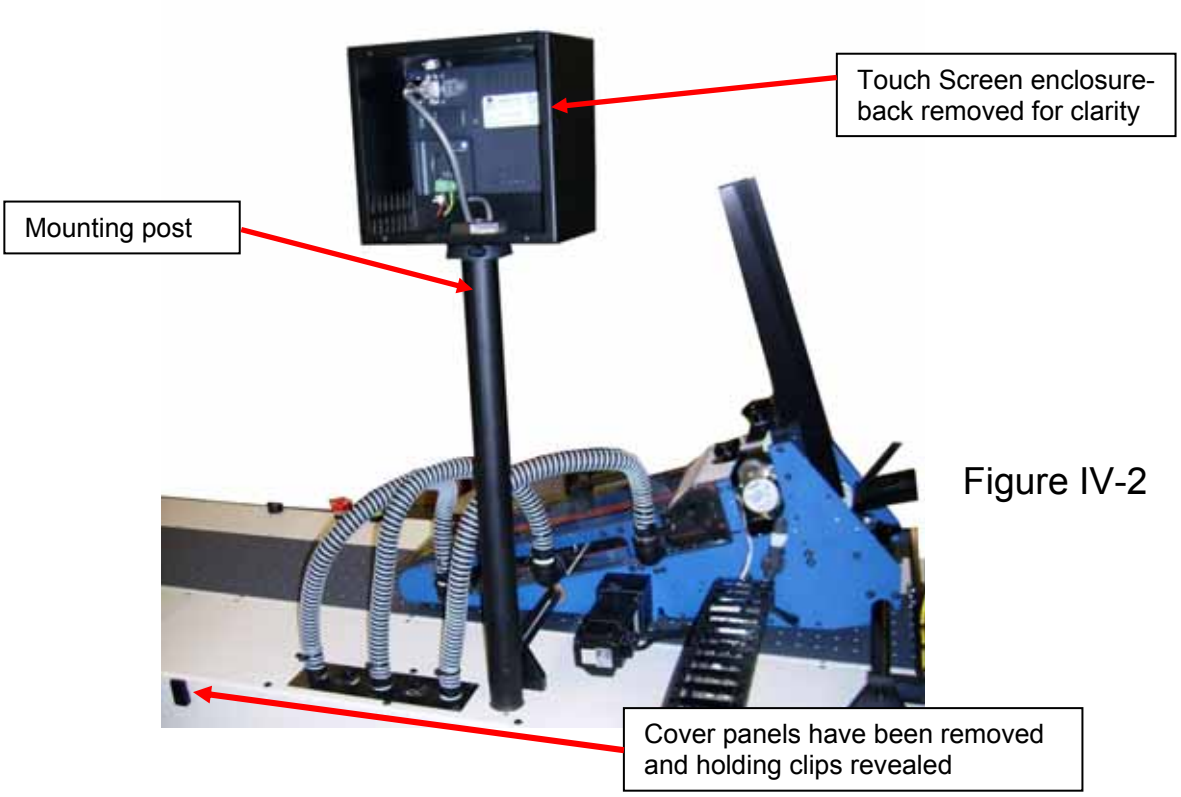


Figure IV-2

a. Open back access door to touch screen enclosure and disconnect power and communication cables from mounting terminals.

b. Pull cables carefully through mounting post.

c. Remove Touch Screen assembly from attacher base by turning post counter-clockwise (ccw). Carefully store assembly to not cause damage to the touch screen.

9. Remove nip roller assembly from infeed end of attacher base. Remove thumb screws (2) from crossbar on each bracket. See figure IV-3.

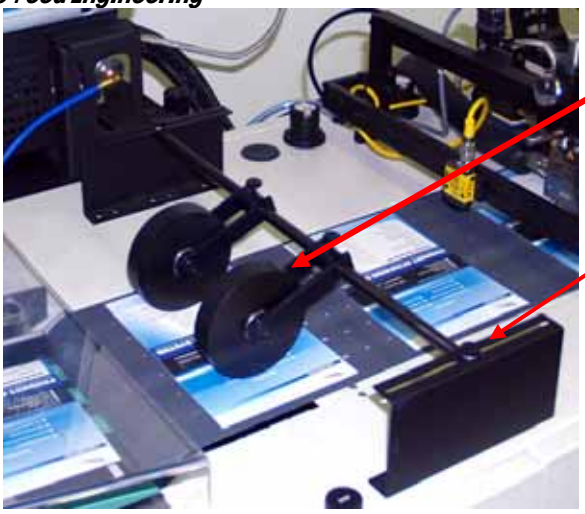


Figure IV-3

10. Remove glue head bracket from attacher base by performing the following:

    a. Disconnect all detachable type cable connections from paper sensors.

    b. Loosen knurled knob on glue head mounting assembly then rotate disc to permit entire glue head's removal. See figure IV-4.

    c. Detach glue head mounting bracket from attacher base by removing Allen socket head screws (4) from both ends. See figure IV-5.

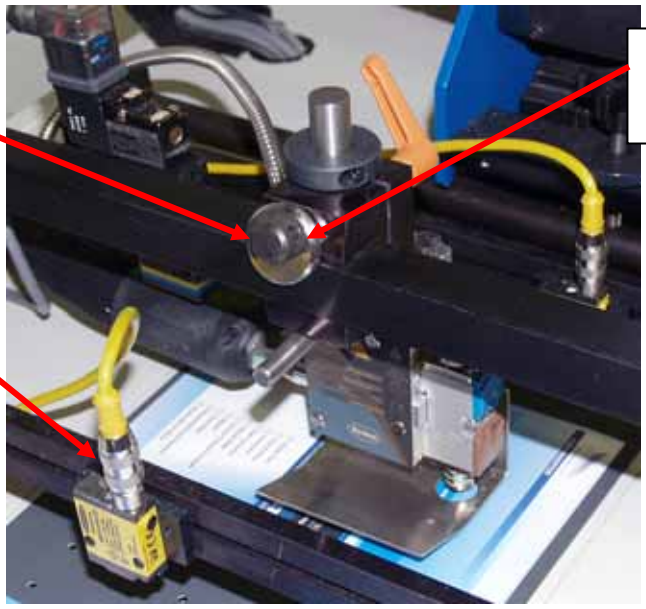


Figure IV-4

Figure IV-5

11. Remove material feeder (CARD FEEDER) from attacher base by performing the following:

    a. Disconnect all electrical wiring in flexible wireway from card feeder.

    b. Remove Allen socket button head screws (2) attaching wireway to card feeder.

    c. Disconnect all vacuum hoses between top mounted connection plate and card feeder by cutting ty-wrap clamp on hose.

    d. Remove Allen socket head screws (4) from upstream mounting brackets. See figure IV-6.

    e. Place card feeder on table, cart or suitable flat surface away from the operator side of the attacher base.

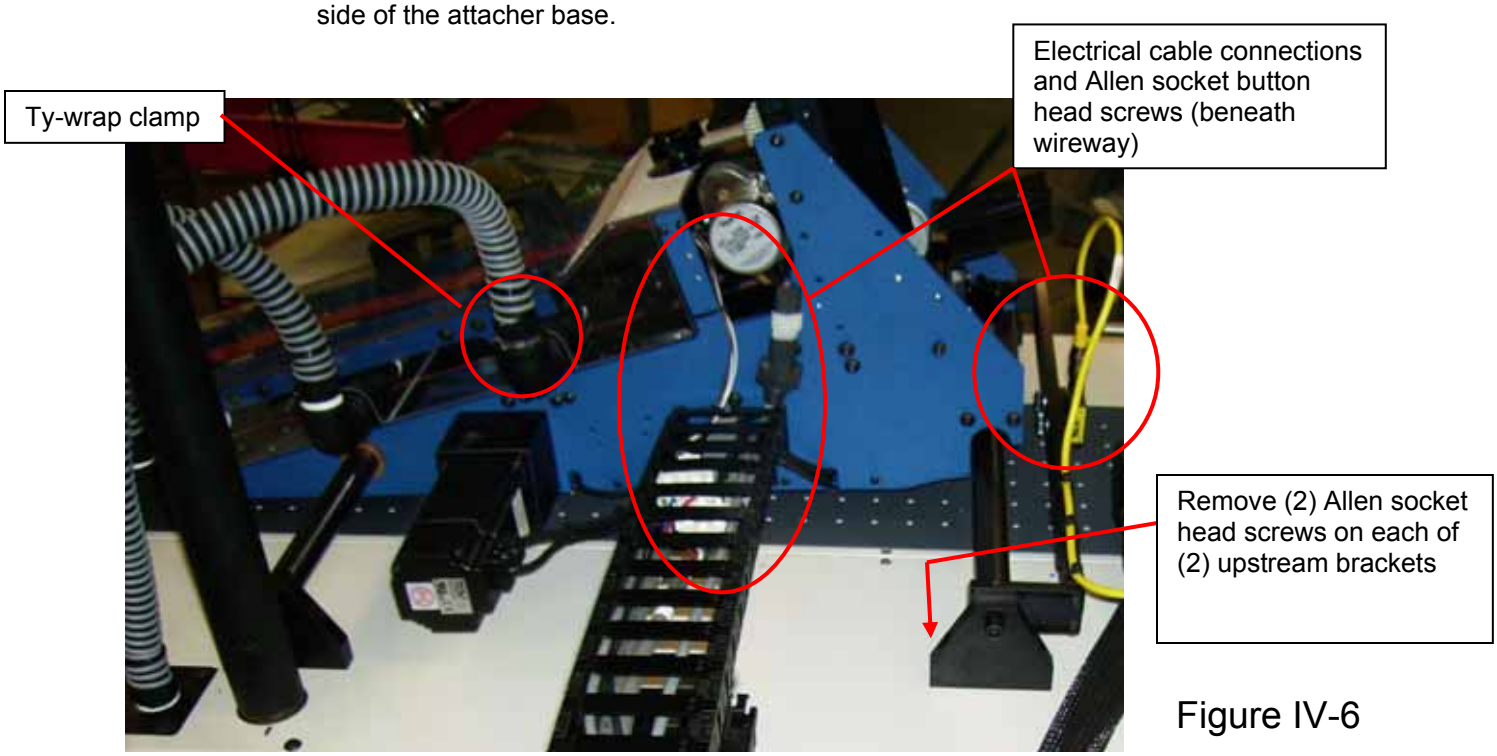


Figure IV-6

12. Disconnect operator switch cables from attacher base by turning knurled nut on quick disconnect and the pulling plugs apart. See figure IV-7.

Figure IV-7

13. Detach all top side covers on attacher base by removing the Allen socket head screws located on each vertical surface of the covers and the Phillips- head countersunk machine screws located on each horizontal surface of the covers. See figure IV-8. Remove covers and set aside.

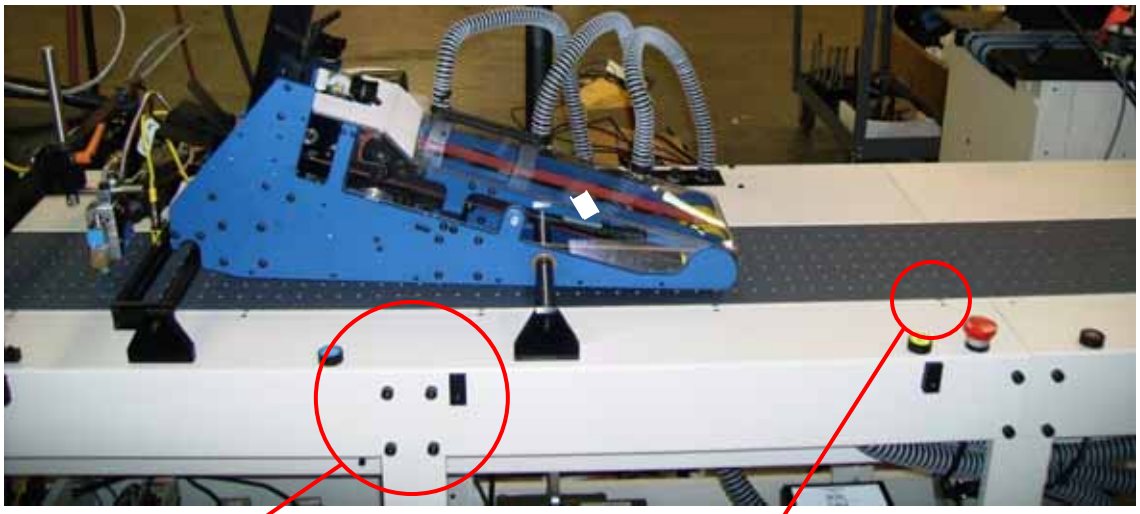


Figure IV-8

14. The vacuum transport belt's drive and shaft mounting is now accessible for disassembly. The first step is to release the belt tension. See figure IV-9.

    a. Back off the jam nut (turn ccw) on the adjusting screw of both shaft mounted belt tensioners located on each end of the infeed conveyor pulley.

    b. Loosen bearing mounting screws slightly from inner retainer plate to permit tensioner movement.

    c. Turn adjusting screw (ccw) to move belt tensioner forward, thus loosening the belt.

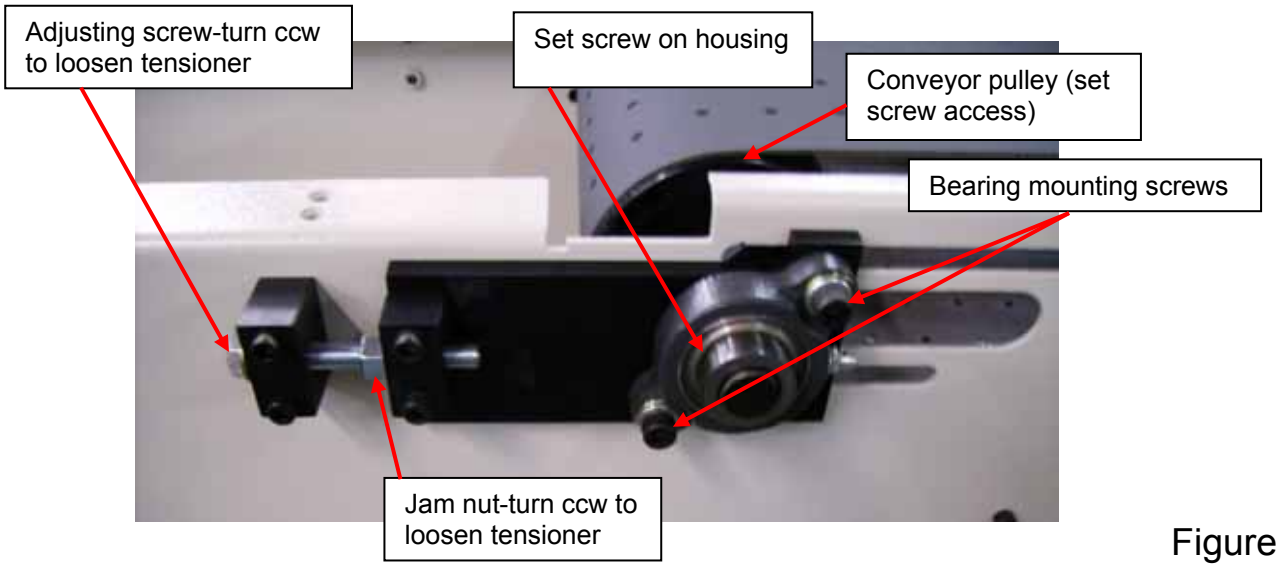


Figure IV-9

15. The infeed conveyor pulley is removed by the following steps:

    a. Loosen set screws on both bearing housings and on each end of the conveyor pulley. See figure IV-9.

    b. Support the conveyor pulley with one hand while pushing the pulley's shaft completely out of the bearings and pulley.

    c. Carefully store pulley and shaft to prevent damage to all surfaces.

16. The discharge conveyor pulley is removed by the following steps:

    a. Remove Allen socket head screws on encoder mounting bracket and slip timing belt from encoder pulley and discharge pulley shaft. Set assembly aside. See figure IV-10.

    b. Loosen Allen socket head screws (4) on main conveyor drive motor mounting plate. Slide plate up to slip timing belt from drive pulley and discharge pulley shaft

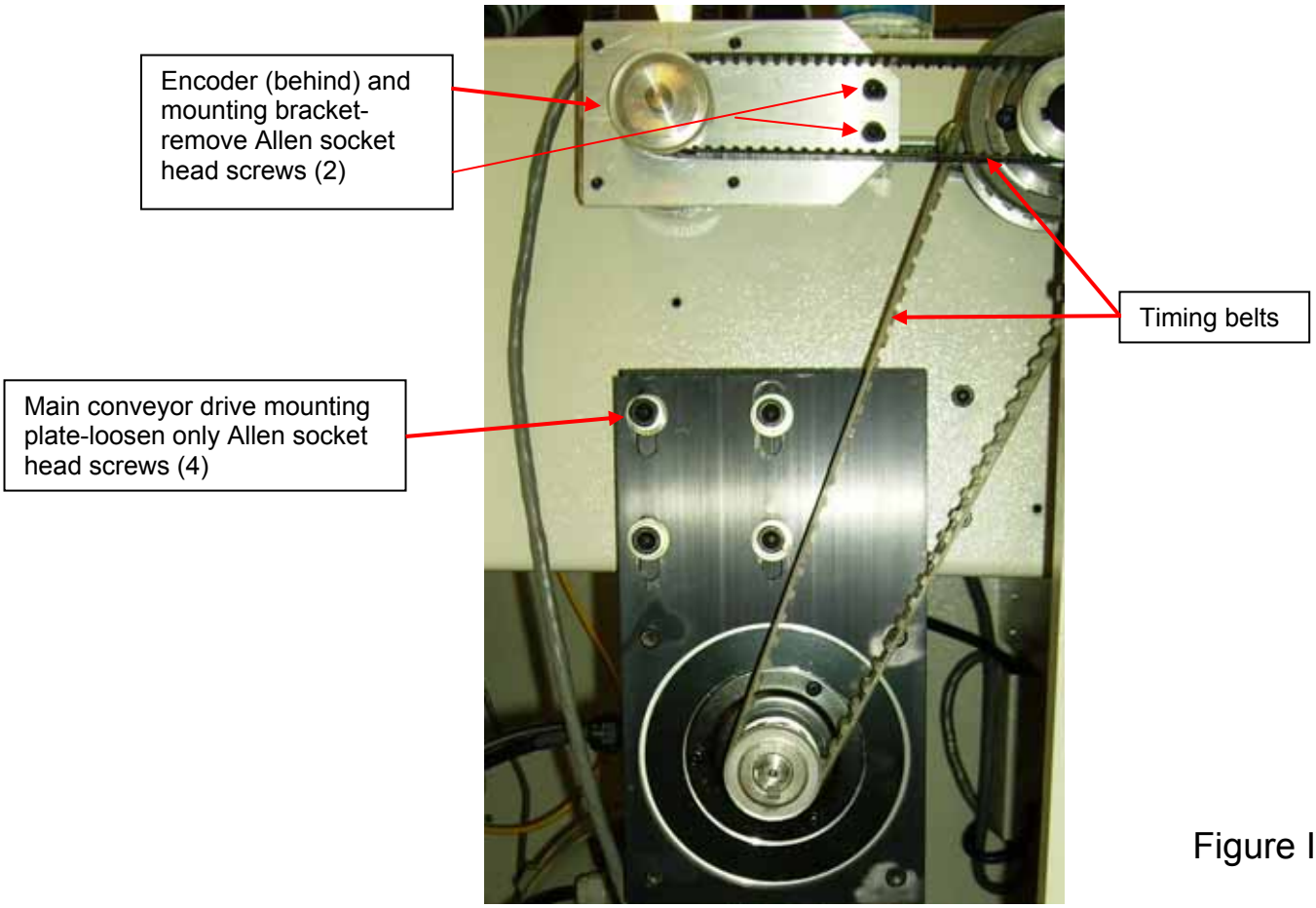


Figure IV-10

c. Back off the jam nut (turn ccw) and the adjusting screw (turn ccw) of both attacher base mounted shaft positioners located on each end of the discharge conveyor pulley. See figure IV-11.

d. Remove bearing mounting screws from attacher base to permit shaft movement.

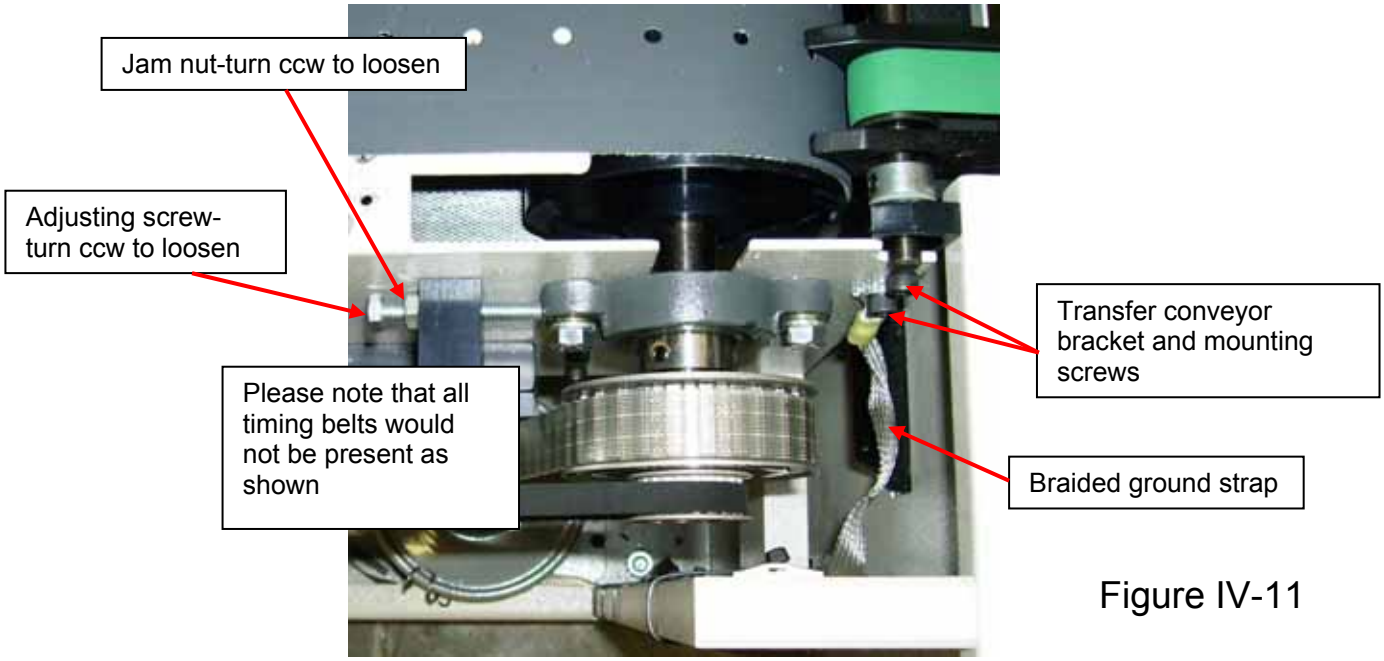


Figure IV-11

e. Remove Allen socket head screws from both ends of the transfer conveyor bracket. Note: Braided ground strap is attached by one of these screws and MUST be reapplied before operating the attacher.

f. Remove timing belt and lift out transfer conveyor and set aside. See figure IV-12.

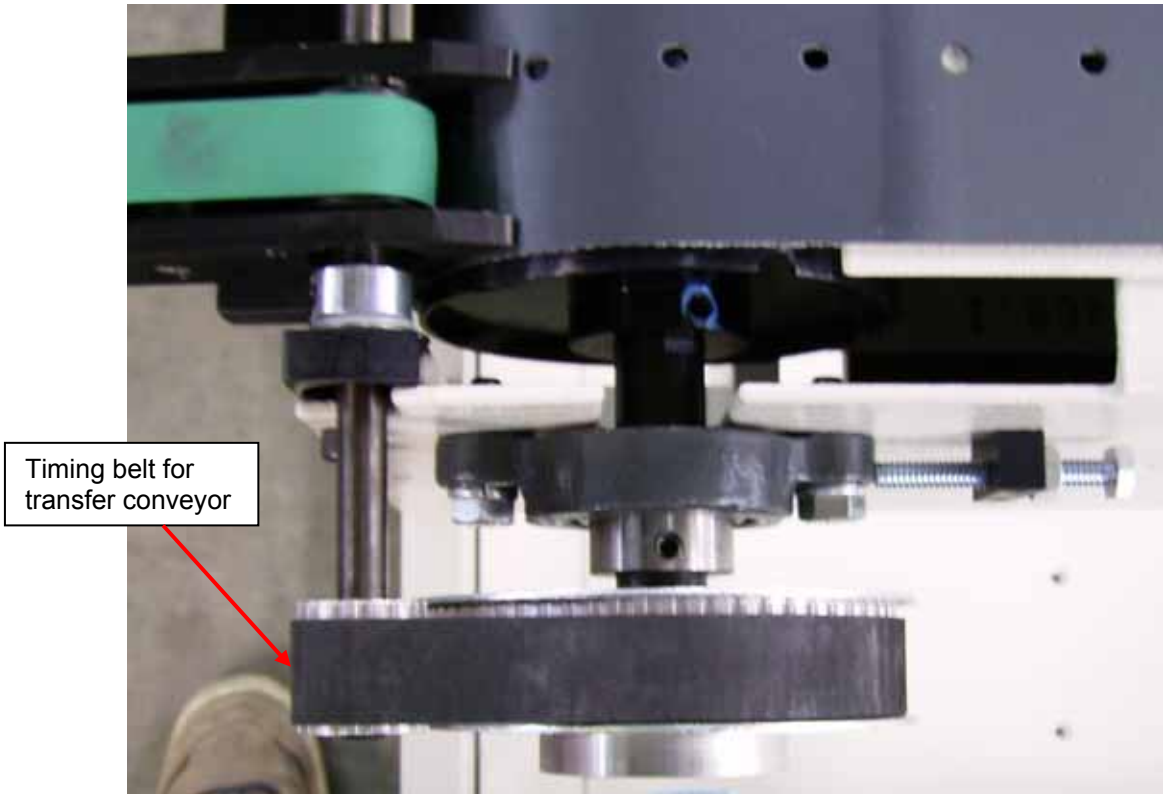


Figure IV-12

g. Discharge conveyor pulley can now be lifted up from the attacher base and then withdrawn from within the belt.

17. The vacuum belt internal tension take-up rollers are to be removed from the attacher base by removing the Allen socket head screw from each end of the (4) individual take-up rollers. Please note the actual location of rollers in relation to the belt. (NOTE: Photo is distorted; rollers are actually parallel to each other across conveyor) See figure IV-13.

Figure IV-13

18. Cut ty-wrap clamps from the vacuum hoses attached to the vacuum chamber on the conveyor. Remove hoses and all hose barbs that would interfere with removal of the conveyor bed from the attacher frame. See figure IV-14.

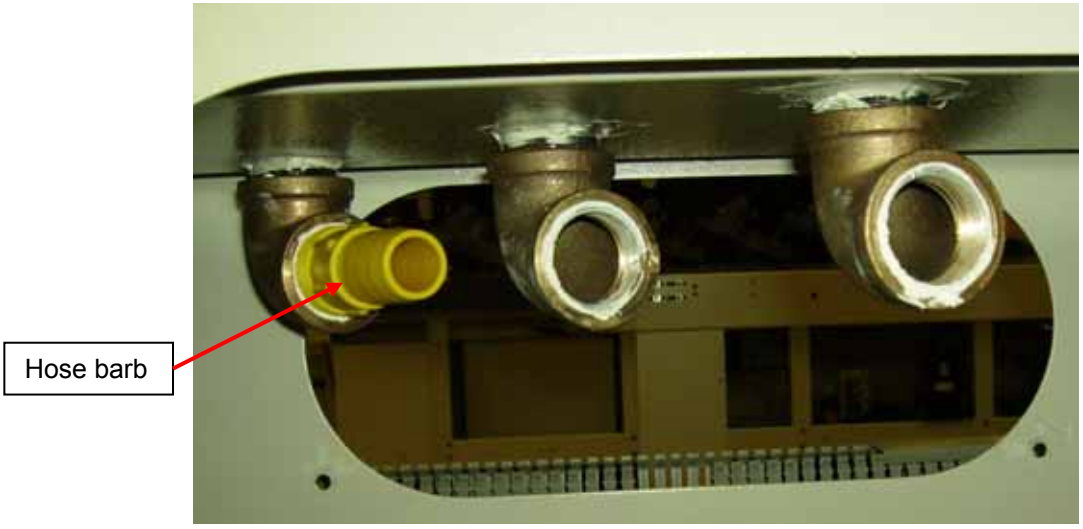
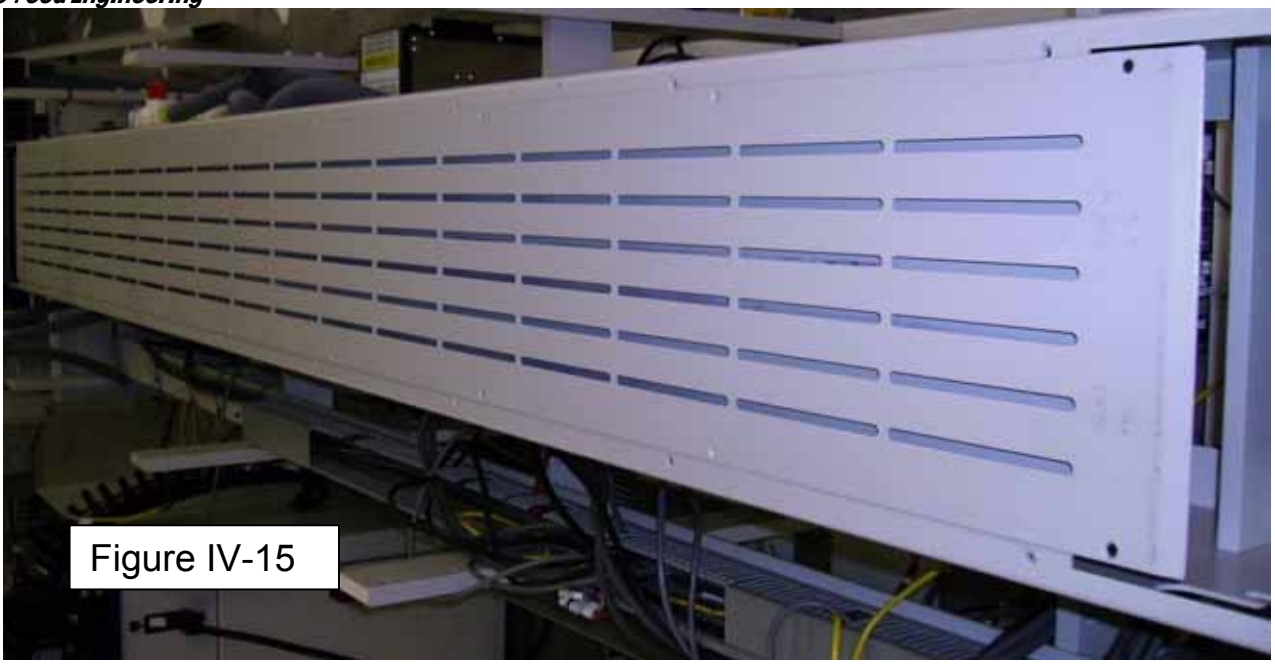


Figure IV-14

19. Lift each end of the conveyor bed (with belt) and tilt toward operator side to clear attacher base. Slide old belt off conveyor bed. Check for damage to bed that might cause premature wear of new belt. See figure IV-15.

⚠ Caution! This step may be awkward or cumbersome, acquire assistance for lifting to avoid possible injury.



Re-assembly of Attacher Material Vacuum Transport Conveyor

Follow the previous instructions in reverse order to re-assemble the conveyor section.

Card Feeder Model

Replacing: Red Gum Belts

1. Disconnect the power and signal cables from the left side plate feeder by pulling apart the plug connectors. See figure IV-16.

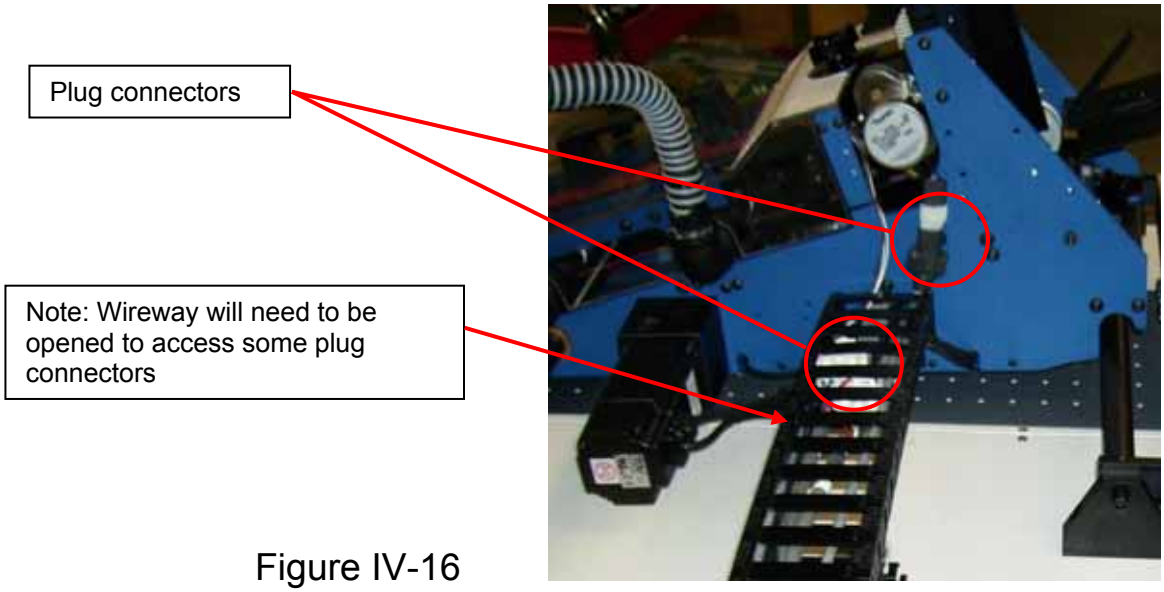


Figure IV-16

2. Open plastic guard covering material separator assembly by lifting up on handle.
3. Detach plastic guard from its mounting by removing button head Allen screws (4).
4. Disconnect one (1) end of the gas-filled shock absorber from the side plate of the card feeder. See figure IV-17.

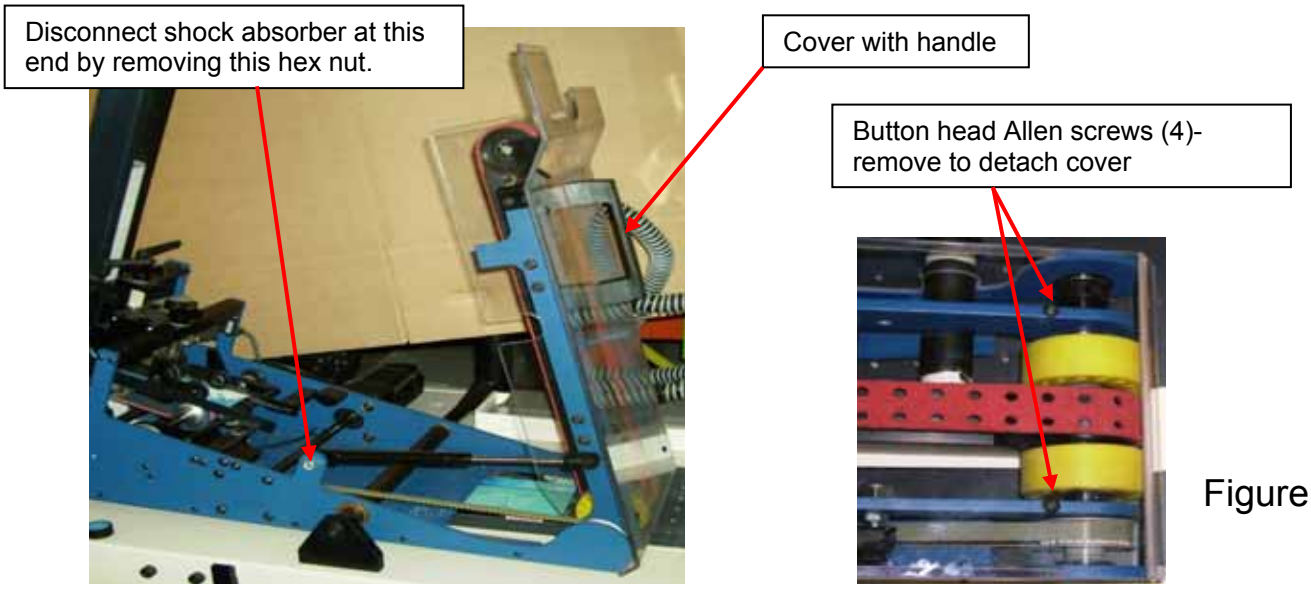


Figure IV-17

5. Remove the side guides (left and right hand) from its mounting. See figure IV-18.

   a. Loosen each ratchet handle with stud.

   b. Loosen each thumbscrew.

   c. Remove both button head Allen screws holding rear extension of each side guide. Lift out the side guides.

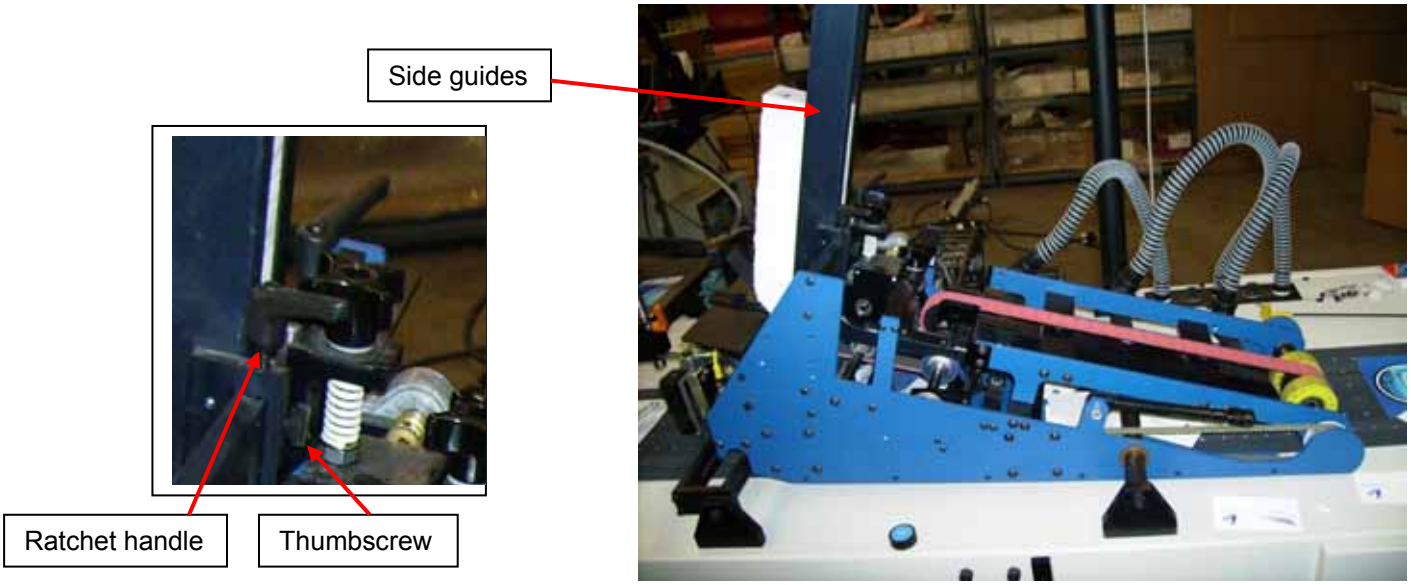


Figure IV-18

6. Remove the material separator assembly by the following:

   a. Detach square cross bar from side plates by removing button head Allen screws from each end.

   b. Detach rectangular crossbar from side plates by removing button head Allen screws from each end. Carefully lift out the separator ensuring that motor leads clear all obstructions. See figure IV- 19.

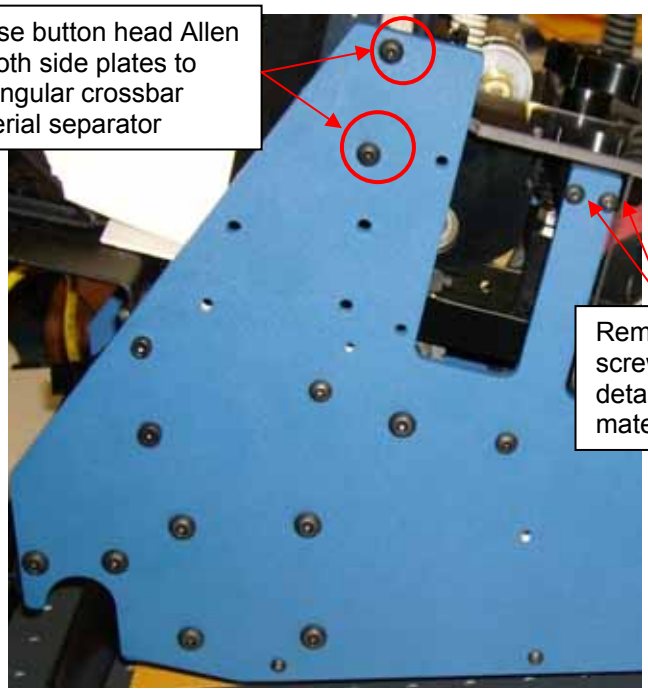


Figure IV-19

7. Detach material wedge platform from side plates by removing Allen socket head screws from each end. See figure IV-20.

8. Detach round cross bars from one (1) side plate (as shown) by removing button head Allen screws from one (1) end. See figure IV-20.

9. Detach height adjusting crossbar from side plates by removing button head Allen screws from each end. See figure IV-20.

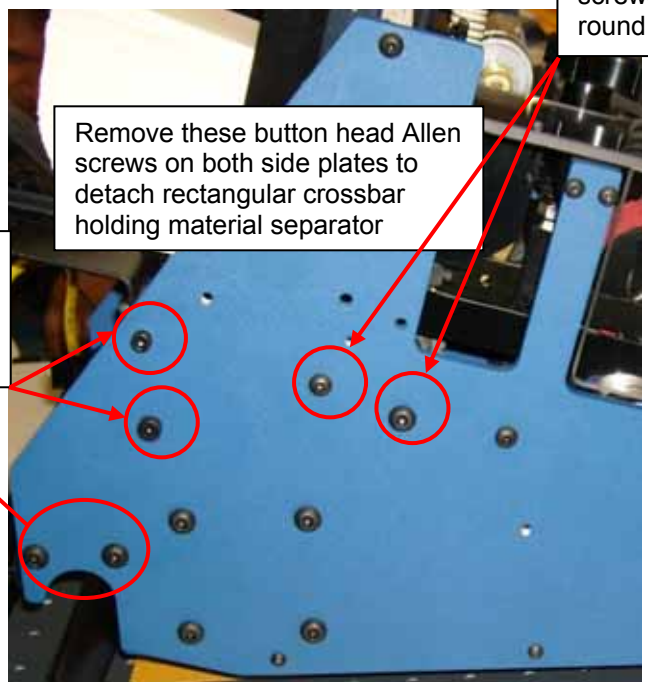


Figure IV-20

10. Remove side plate from bottom pan of feeder by the following:

    a. Remove small button head Allen screws (6) located along low edge of side plate. See figure IV-21.

    b. Pull side plate away from feeder (side plate is retained to a cross-conveyor mounting bracket). (Caution: Some of the sealed bearings may stick to the shaft).

Figure IV-21

.

11. Remove the timing belt from the drive pulley on the rear feeder belt shaft and jack shaft –bearings in side plate may need to be carefully pried from plate (timing belt pulleys are welded onto the shafts. See figure IV-22.

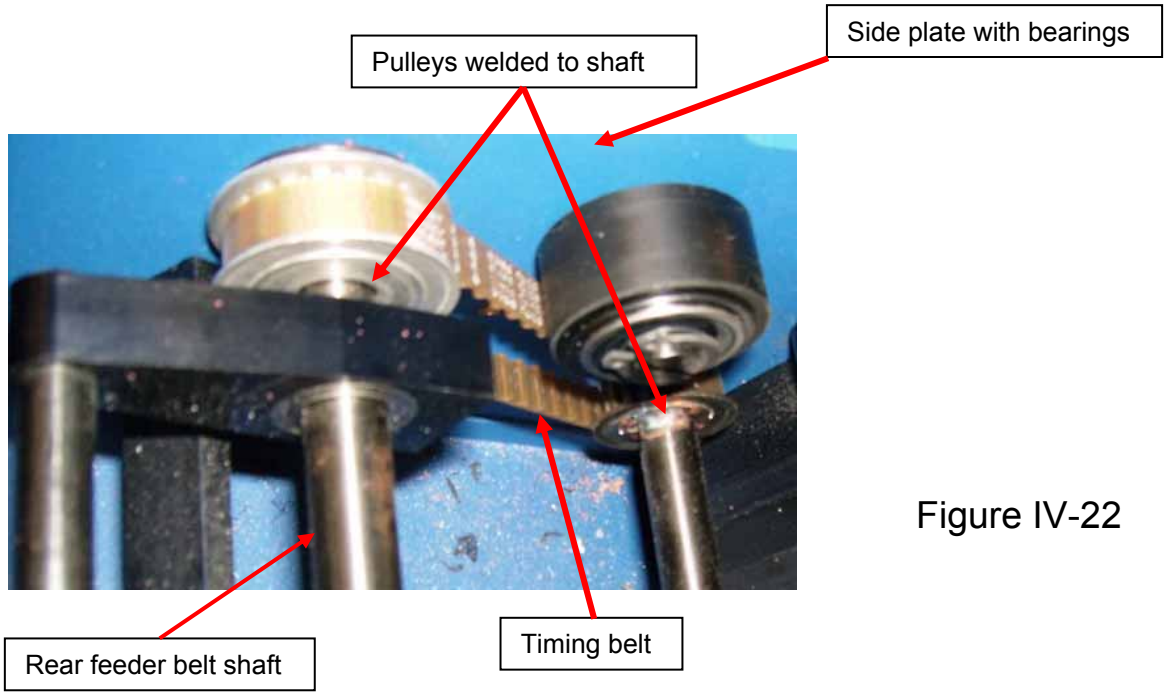


Figure IV-22

12. Remove the timing belt from the drive pulley on the front feeder belt shaft-bearings in side plate may need to be carefully pried from plate. See figure IV-23.

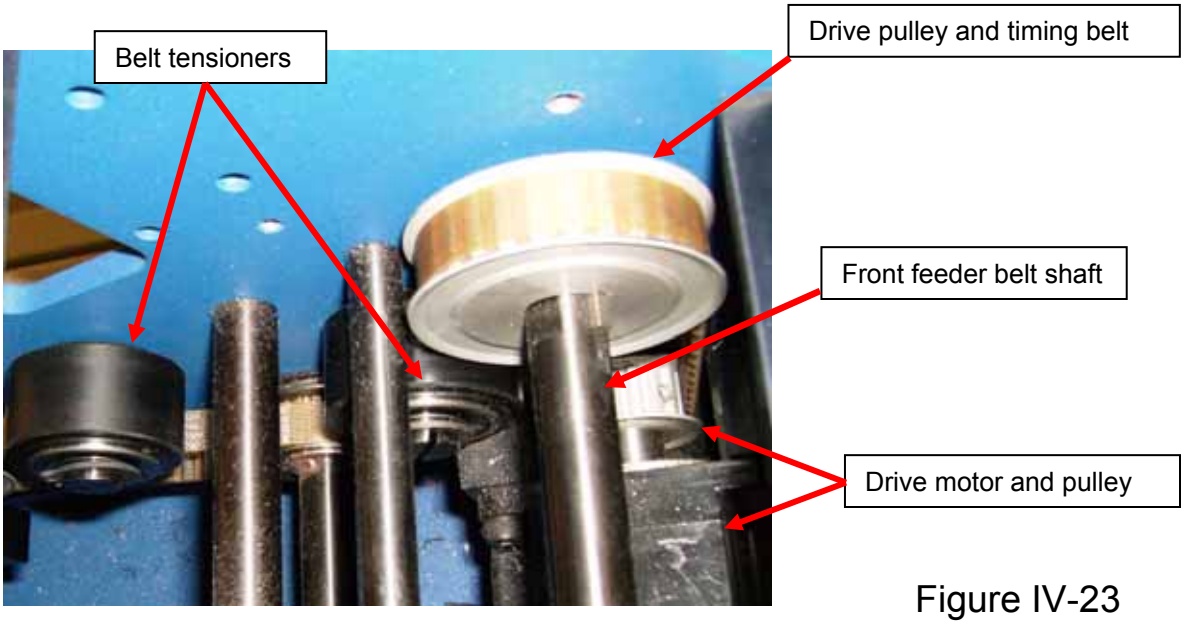


Figure IV-23

13. Remove the red friction belt by doing the following:

    a. Remove both button socket head screws from each end of the idler roller shaft.

    b. Pull idler roller shaft free from vacuum nip blocks.

    c. Slide red friction belt off both timing pulleys toward open side of card feeder, over blue nip roller and vacuum nip block.

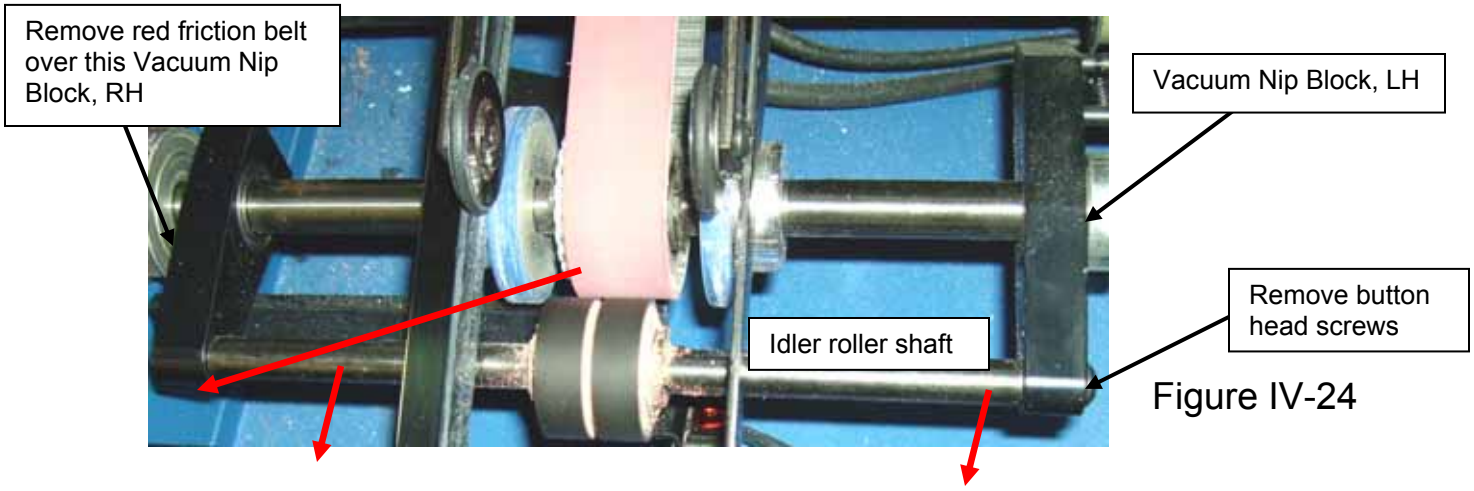


Figure IV-24

14. Clean and check all components for damage and/or wear. Replace as needed and then install a new red friction belt.

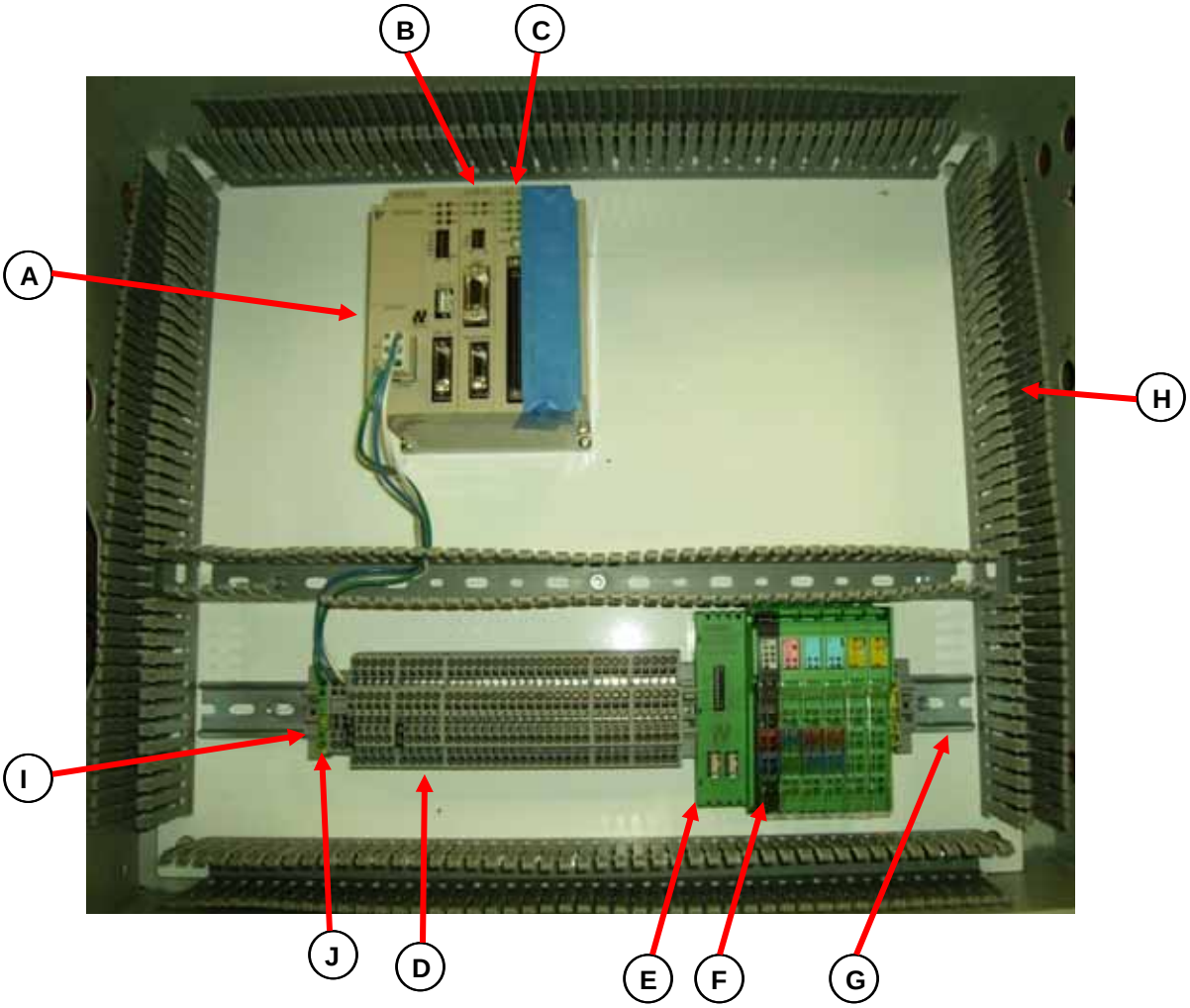
15. Reassemble components in reverse order.

Section V

Electrical Components

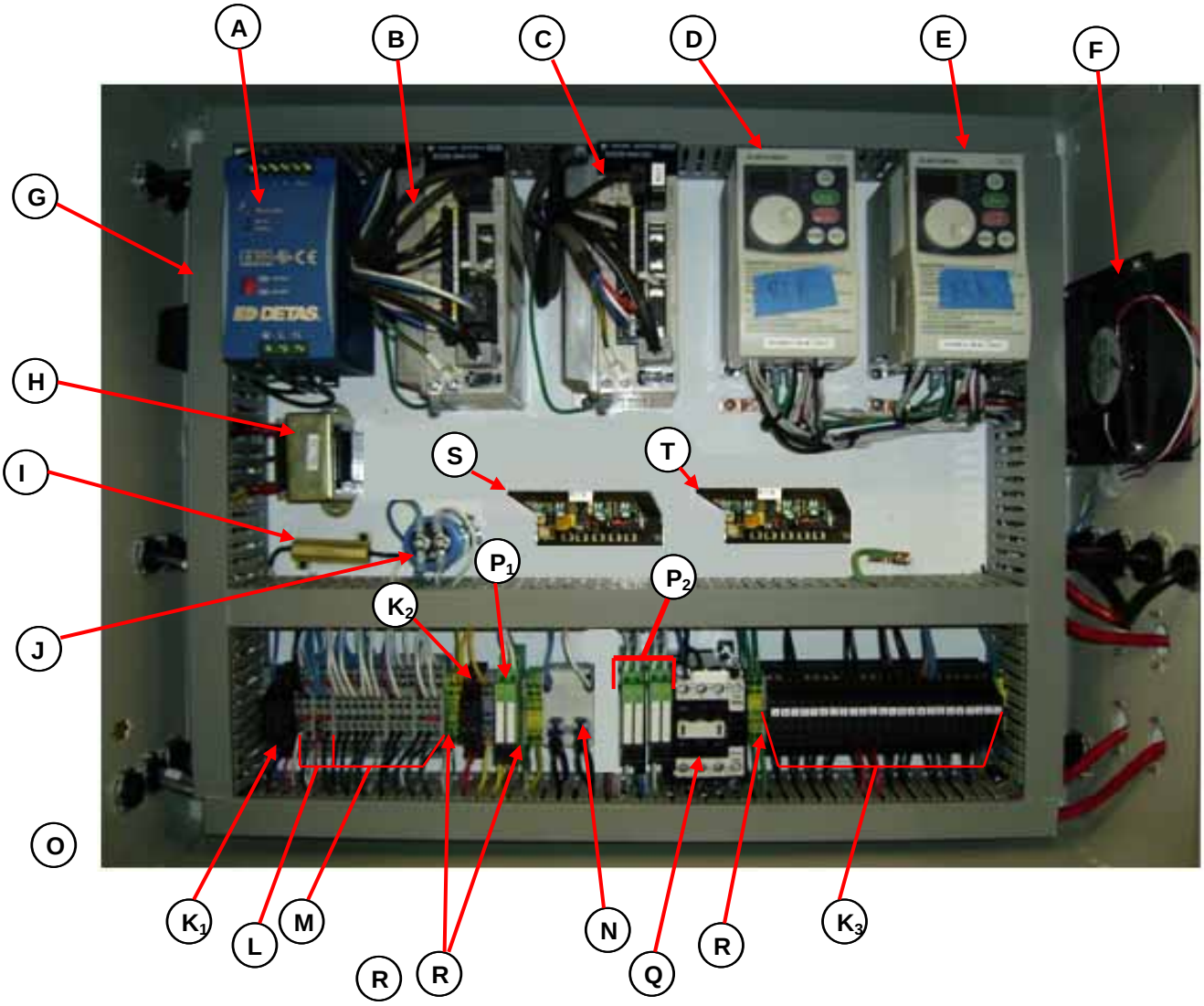
ATTACHER
Model AT 2

Pitney Bowes
SURE-FEED ENGINEERING
12050 49th STREET NORTH - CLEARWATER, FL. 33762-4301
PHONE: 727.571.3330 - FAX: 727.571.3443 - TOLL FREE: 1.800.INSERTER
web: sure-feed.com



PLC Electrical Box Identification Table

Item	Component	Function
A	MP-2300 PLC	Programmable Logic Control, runs machine programs
B	217F-01 PLC MODULE	RS 422/485
C	LIO-01 PLC MODULE	INPUTS AND OUTPUTS
D	Double Layer Terminal Block	Provides circuit terminations
E	REMOTE IO MODULE	INPUTS/OUTPUTS
F	REMOTE ANALOG MODULE	INPUTS/OUTPUTS
G	Din Rail	Provides component mounting
H	Wire Chase	
I	TERMINAL END STOP	
J	Ground Terminal	Provides earth ground



Servo Drive Electrical Box Identification Table

Item	Component	Function
A	24 VDC POWER SUPPLY	PROVIDES 24 VDC
B	SERVO CONTROL-1	CARD FEEDER Friction feed belt motor
C	SERVO CONTROL-2	CARD FEEDER vacuum belt motor
D	VFD-1	ATTACHER Main Belt Conveyor motor
E	VFD-2	FEEDMAX Feeder motor
F	FAN	Enclosure cooling
G	WIRE CHASE	
H	Low Voltage Transformer	Provides 24 VAC for separator motor(s)
I	Resistor, 50 wt, 15Ω	Control delay circuit
J	Capacitor, 2200 µF	Control delay circuit

Item	Component	Function
K_1	F- 13: 4AMP Fuse	Power Supply-24VDC output
	F-14,15: 2AMP FUSE	PLC & HMI-24VDC input
K_2	F-16, 17: 1AMP FUSE	Transformer-24VAC secondary(separator motors)
K_3	F-1-6,9: 6AMP FUSE	SVDR1,2;VFD1,2;DCDRV1,2;PS-220VAC input
	F-5, 6: 10AMP FUSE	Vacuum motors
	F-7, 8: 3AMP FUSE	SVDR1 & 2-output
	F10: 2AMP FUSE	Transformer-220VAC primary
L	Double Layer Term'l,shorted	Provides contact point
M	Double Layer Terminal	Provides contact point
N	K3 DPDT Relay	K3-vacuum motors
O	Terminal Cover, Double	Provides isolation barrier
P_1	K1, K2 Relay	CARD FEEDER separator motors
P_2	K4 Relay	End conveyor
	K5 Relay	K5-FEEDMAX conveyor
	K6 Relay	K6-FEEDMAX feeder start
	K7 Relay	E-STOP Interlock
Q	MCR1	Main Safety
R	Ground Terminal	
S	DCDRV1	End conveyor motor
T	DCDRV2	FEEDMAX conveyor motor

Section VI

Wiring Diagrams for

ATTACHER Model AT 2

Pitney Bowes
SURE-FEED ENGINEERING
12050 49th STREET NORTH - CLEARWATER, FL. 33762-4301
PHONE: 727.571.3330 - FAX: 727.571.3443 - TOLL FREE: 1.800.INSERTER
web: sure-feed.com

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Pitney Bowes
SURE-FEED ENGINEERING
12050 49th STREET NORTH - CLEARWATER, FL. 33762-4301
PHONE: 727.571.3330 - FAX: 727.571.3443 - TOLL FREE: 1.800.INSERTER
web: sure-feed.com
AT2 Product
Attaching System
Electrical Diagrams
DATE 1/22/2007
CHECKED 12/28/2007
DRAWN BY DCARACCIOLO
APR BY
DATE
SURE-FEED ENGINEERING
TITLE
AT2 Electrical Diagrams
AT2 Diagrams
Drawing Number
97009-011
REV -
SCALE 1:1
AT2 Electrical diagram_111907.vsd
PAGE 1 OF 41
97009-011 1 OF 41
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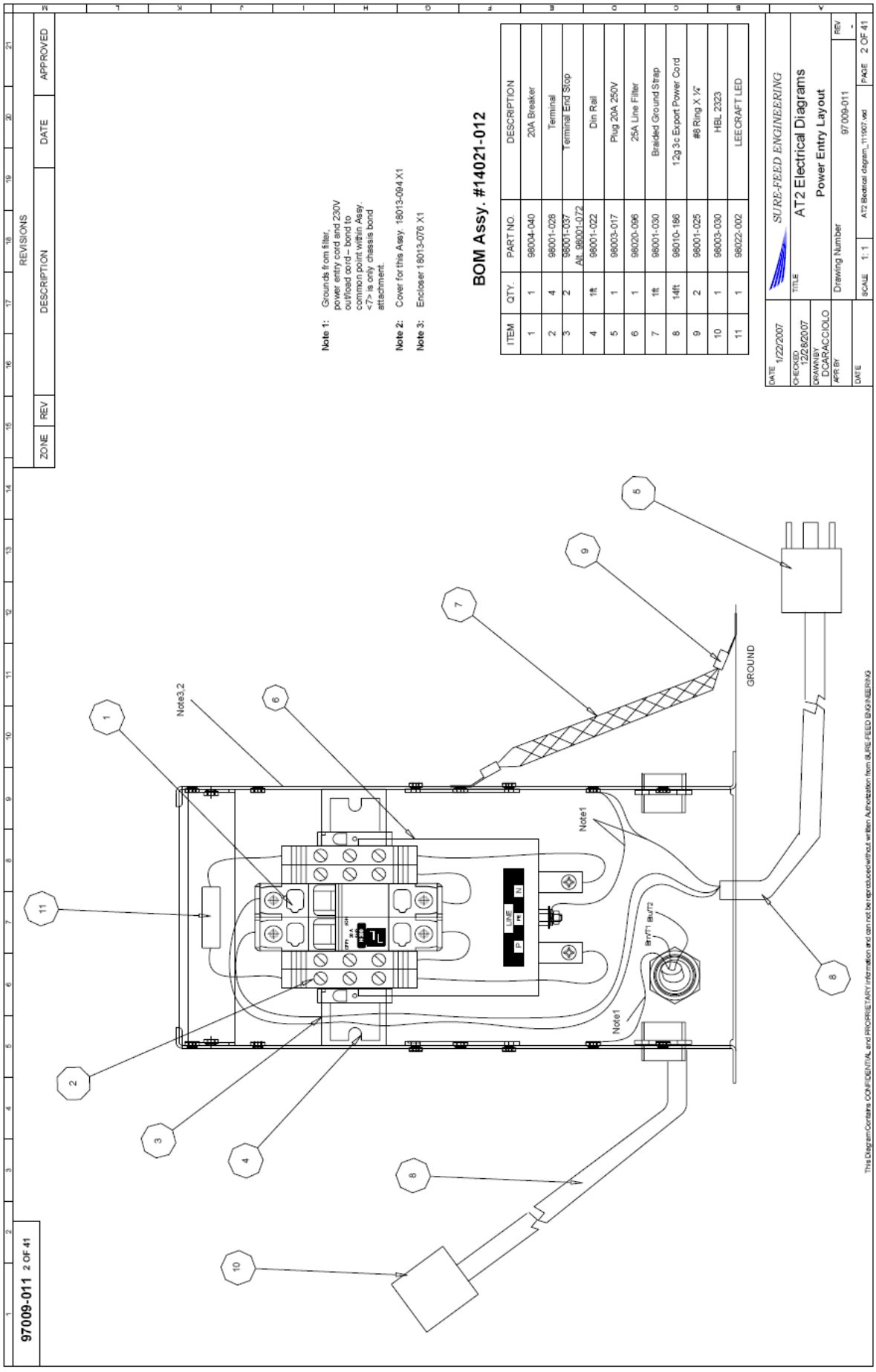
FULL FILENAME
S:\PUBLIC FOLDER\ENGINEERING\ELECTRONIC ENG_SOFTWARE_DRAWINGS_DOC\ATTACHER\TUV_AT2_AT3\ELECTRICAL DRAWINGS\AT2 ELECTRICAL DIAGRAM_111907.VSD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DATE
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Note 1: Grounds from filter, power entry cord and 230V outload cord – bond to common point within Assy. <7> is only chassis bond attachment.
Note 2: Cover for this Assy. 18013-094 X1
Note 3: Enclosur 18013-076 X1
BOM Assy. #14021-012
ITEM | QTY. | PART NO. | DESCRIPTION
1 | 1 | 98004-040 | 20A Breaker
2 | 4 | 98001-028 | Terminal
3 | 2 | 98001-037 Alt. 98001-072 | Terminal End Stop
4 | 1ft | 98001-022 | Din Rail
5 | 1 | 98003-017 | Plug 20A 250V
6 | 1 | 98020-096 | 25A Line Filter
7 | 1ft | 98001-030 | Braided Ground Strap
8 | 14ft | 98010-186 | 12g 3c Export Power Cord
9 | 2 | 98001-025 | #8 Ring X ¼"
10 | 1 | 98003-030 | HBL 2323
11 | 1 | 98022-002 | LEECRAFT LED
SURE-FEED ENGINEERING
TITLE
AT2 Electrical Diagrams
Power Entry Layout
Drawing Number
97009-011
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DATE
97009-011 2 OF 41
Note3.2
Note1
Note1
GROUND
LINE
N
P
Brn/T1
Blu/T2
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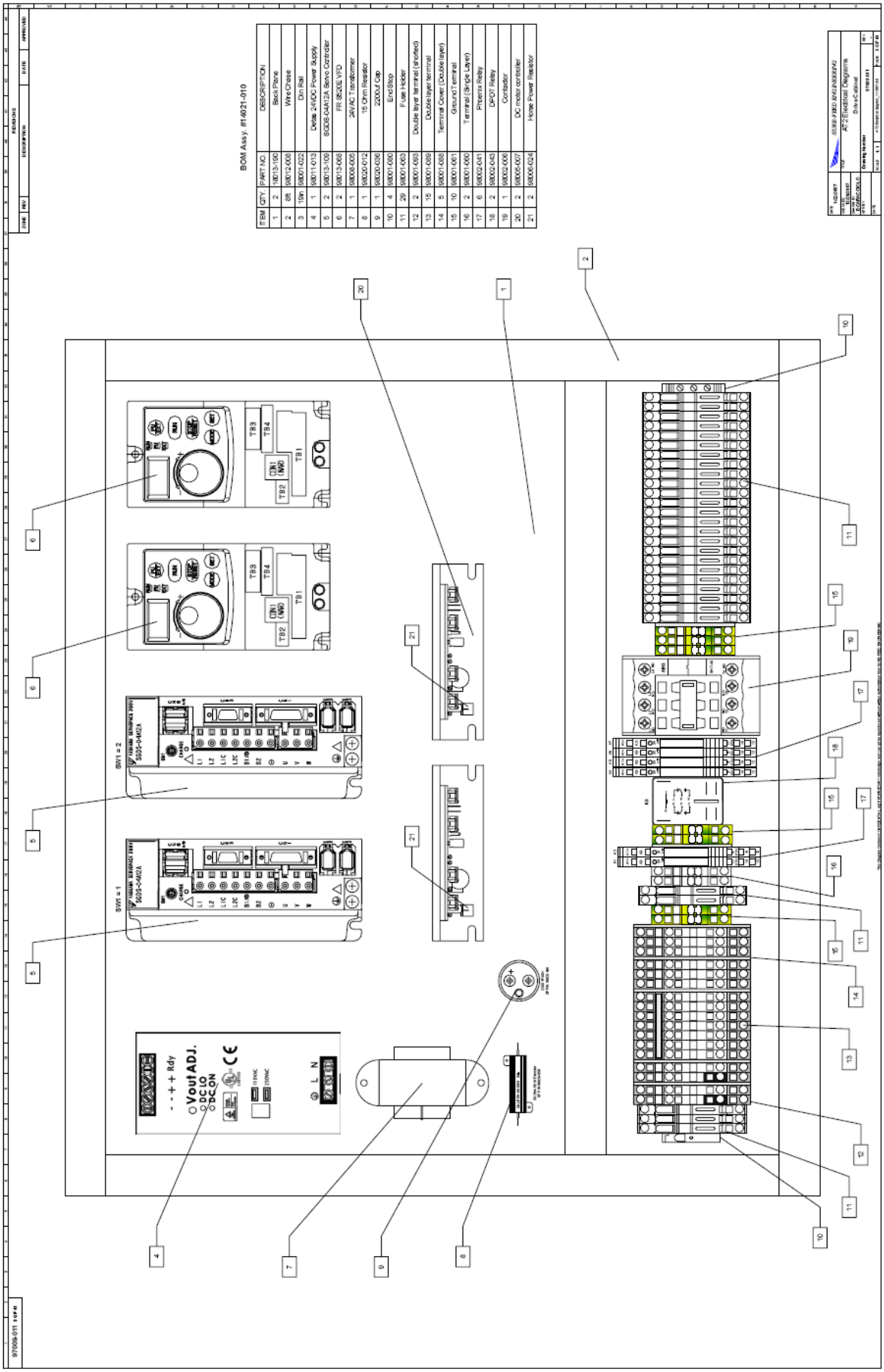
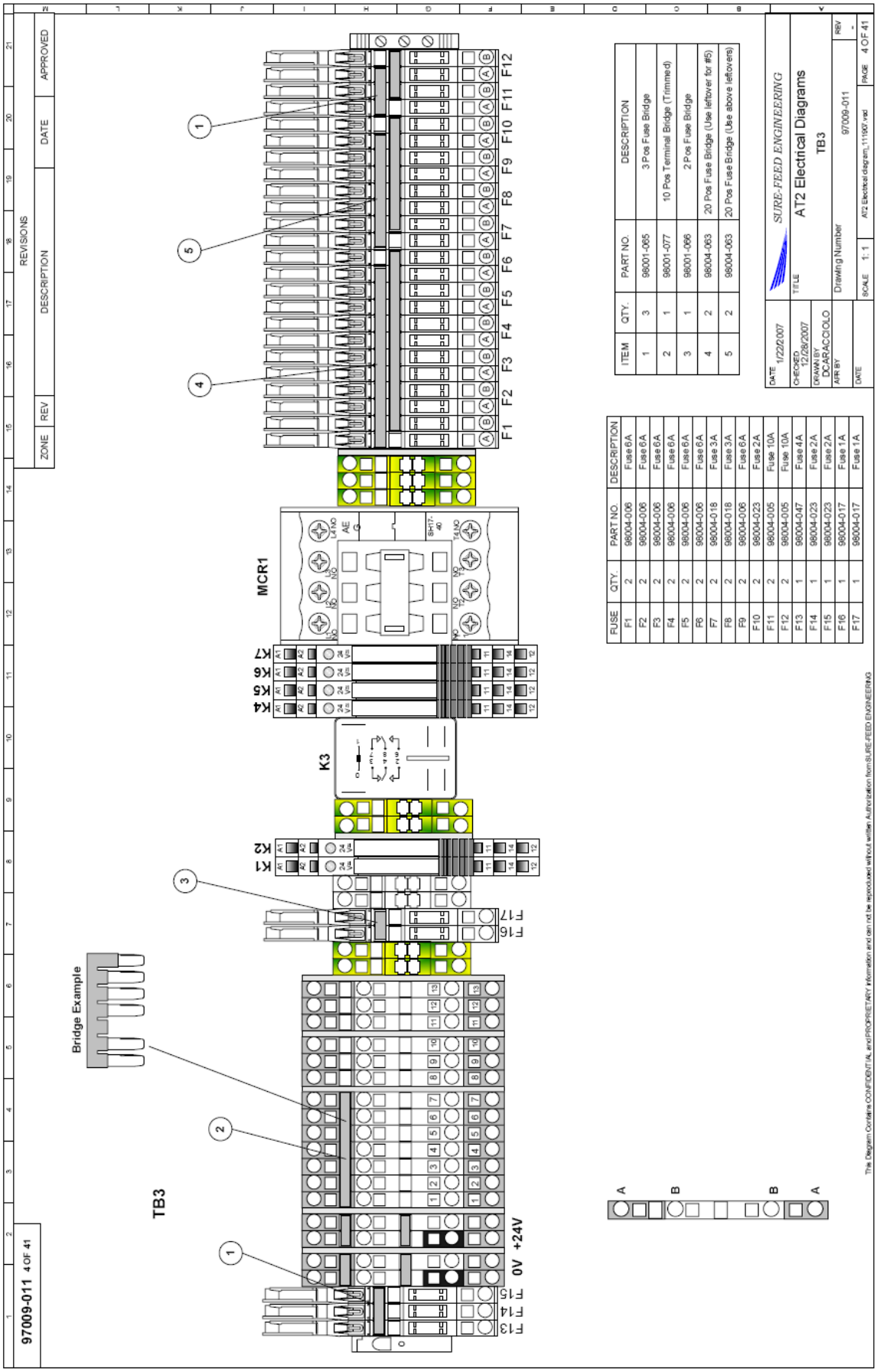


BOM Assy. #14021-010

ITEM	QTY	PART NO.	DESCRIPTION
1	2	16013-1160	Back Plane
2	6ft	93012-0008	Wire Chase
3	19in	93001-0022	Din Rail
4	1	93011-0013	Delta 24VDC Power Supply
5	2	93013-1091	SGDB-04A12A Servo Controller
6	2	93013-0068	FR 3540S VFD
7	1	93008-0005	24V AC Transformer
8	1	93020-0012	15 Ohm Resistor
9	1	93020-0036	2200uf Cap
10	4	93001-0060	End Stop
11	29	93001-0063	Fuse Holder
12	2	93001-0093	Double layer terminal (grafted)
13	15	93001-0089	Double layer terminal
14	5	93001-0088	Terminal Cover (Double layer)
15	10	93001-0061	Ground Terminal
16	2	93001-0060	Terminal (Single Layer)
17	6	93002-0041	Phoenix Relay
18	2	93002-0043	DPDT Relay
19	1	93002-0006	Contactor
20	2	93005-0007	DC motor controller
21	2	93006-0024	Horse Power Resistor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DESCRIPTION
DATE
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TB3
Bridge Example
0V
+24V
MCR1
K3
K1
K2
K4
K5
K6
K7
F1 F2 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12
F13 F14 F15 F16 F17
1
2
3
4
5
A
B
B
A
ITEM QTY. PART NO. DESCRIPTION
1 3 98001-065 3 Pos Fuse Bridge
2 1 98001-077 10 Pos Terminal Bridge (Trimmed)
3 1 98001-066 2 Pos Fuse Bridge
4 2 98004-063 20 Pos Fuse Bridge (Use leftover for #5)
5 2 98004-063 20 Pos Fuse Bridge (Use above leftovers)
FUSE QTY. PART NO. DESCRIPTION
F1 2 98004-006 Fuse 6A
F2 2 98004-006 Fuse 6A
F3 2 98004-006 Fuse 6A
F4 2 98004-006 Fuse 6A
F5 2 98004-006 Fuse 6A
F6 2 98004-006 Fuse 6A
F7 2 98004-018 Fuse 3A
F8 2 98004-018 Fuse 3A
F9 2 98004-006 Fuse 6A
F10 2 98004-023 Fuse 2A
F11 2 98004-005 Fuse 10A
F12 2 98004-005 Fuse 10A
F13 1 98004-047 Fuse 4A
F14 1 98004-023 Fuse 2A
F15 1 98004-023 Fuse 2A
F16 1 98004-017 Fuse 1A
F17 1 98004-017 Fuse 1A
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TB3
Drawing Number 97009-011
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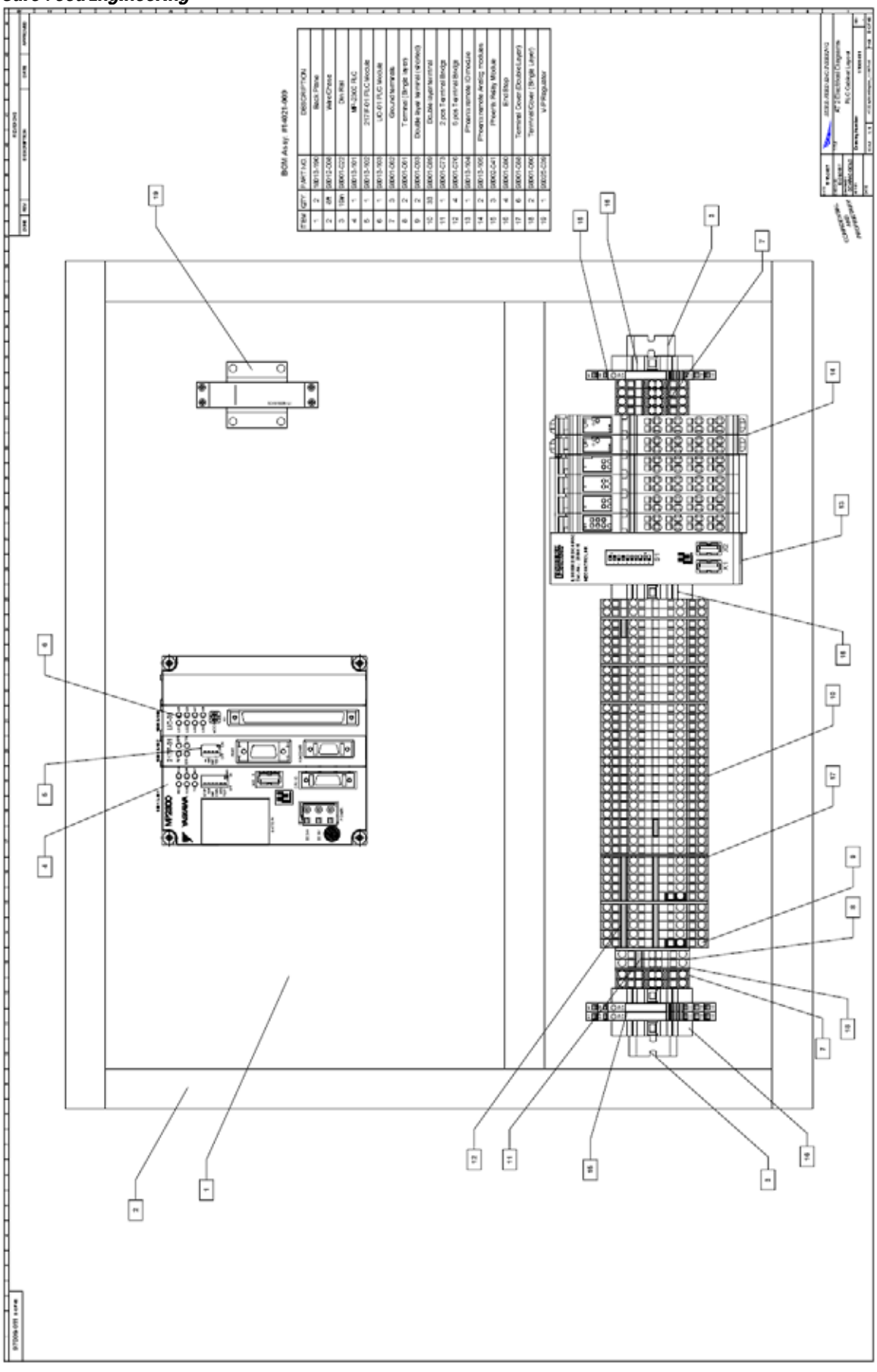

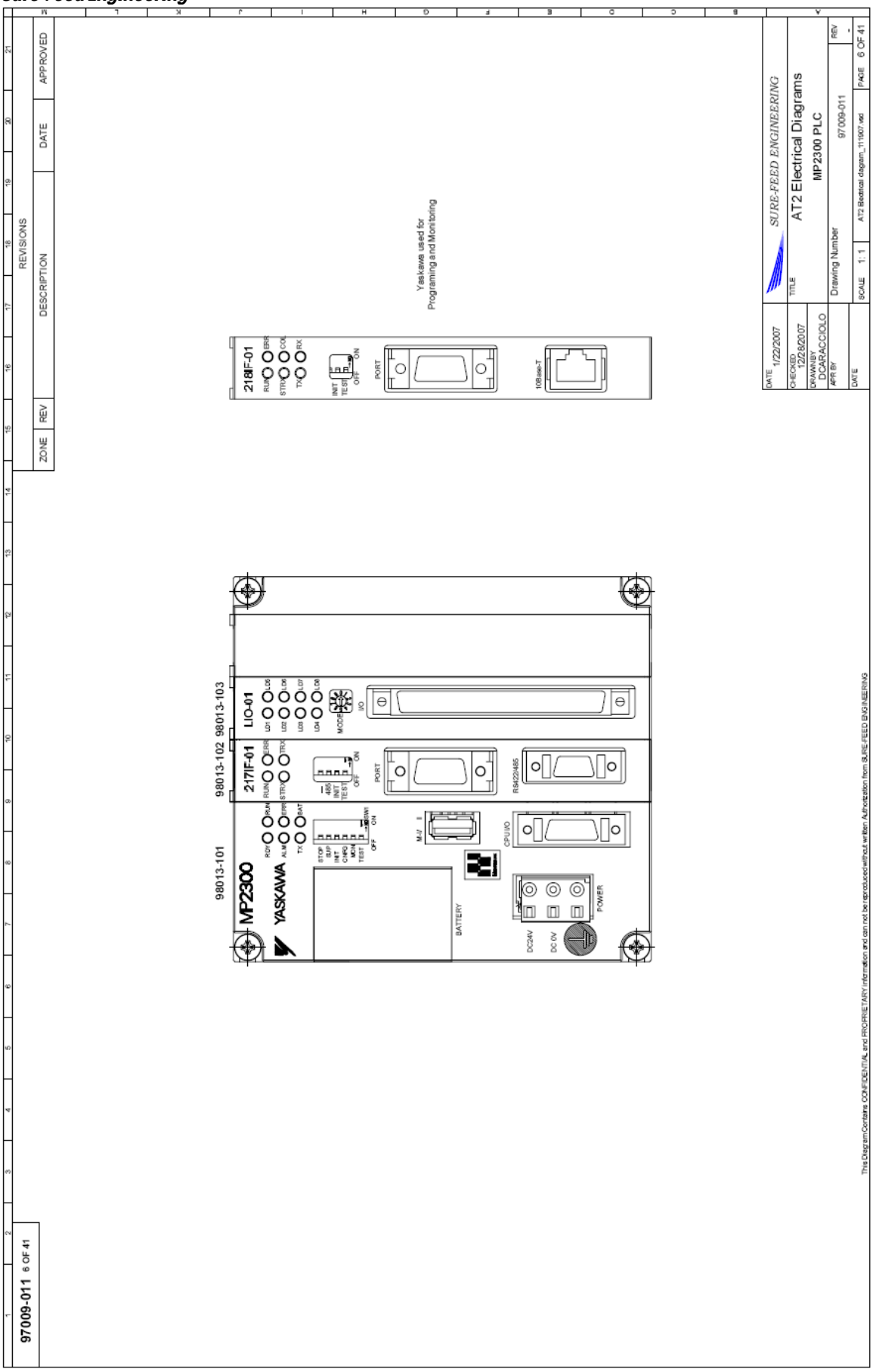
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REV
DESCRIPTION
DATE
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Yaskawa used for
Programming and Monitoring
217IF-01
LIO-01
MP2300
YASKAWA
98013-101
98013-102
98013-103
SURE-FEED ENGINEERING
AT2 Electrical Diagrams
MP2300 PLC
Drawing Number
97009-011
SCALE 1:1
AT2 Electrical diagram_111907.vsd
PAGE 6 OF 41
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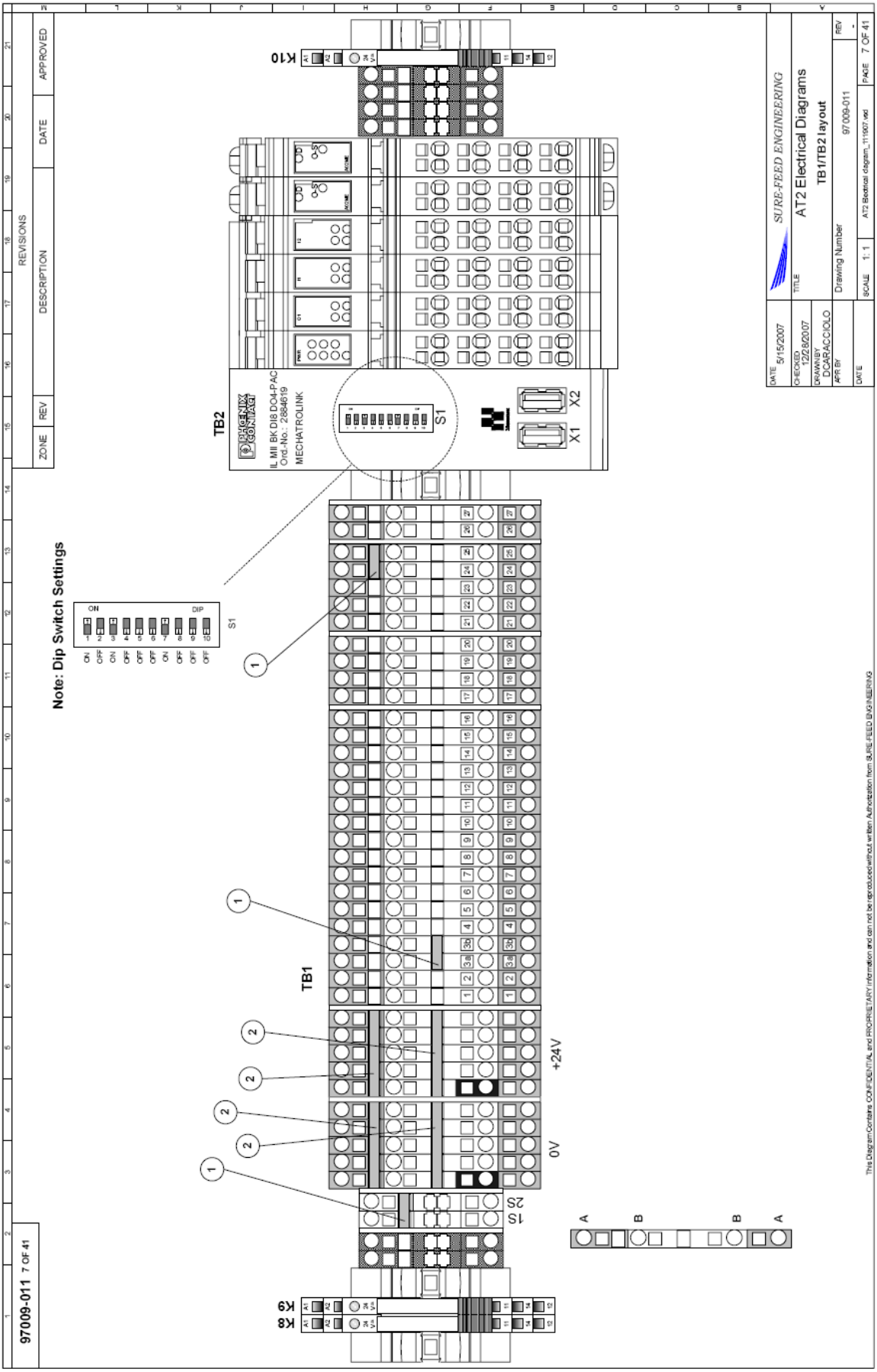
K10
TB2
IL MII BK DI8 DO4-PAC
Ord.-No.: 2864619
MECHATROLINK
S1
X2
X1
Note: Dip Switch Settings
ON
DIP
TB1
+24V
0V
2S
1S
K9
K8
SURE-FEED ENGINEERING
AT2 Electrical Diagrams
TB1/TB2 layout
Drawing Number
97009-011
SCALE 1: 1
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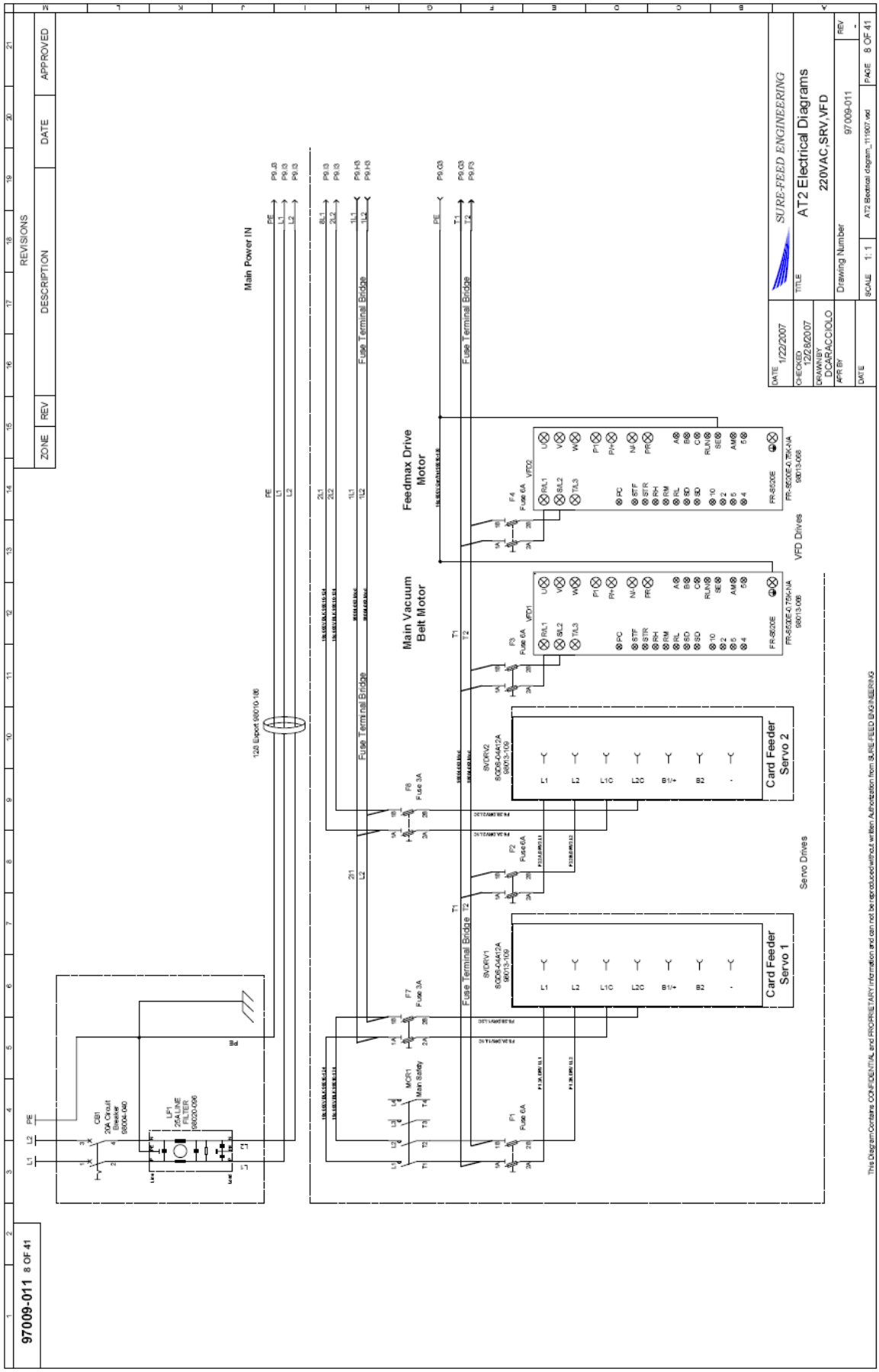
REVISIONS
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DESCRIPTION
DATE
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Main Power IN
Feedmax Drive Motor
Main Vacuum Belt Motor
Fuse Terminal Bridge
Card Feeder Servo 2
Card Feeder Servo 1
Servo Drives
VFD Drives
CB1 20A Circuit Breaker 98004-040
LF1 25A LINE FILTER 98020-006
MCR1 Main Safety
F1 Fuse 6A
F2 Fuse 6A
F3 Fuse 6A
F4 Fuse 6A
F7 Fuse 3A
F8 Fuse 3A
SVDRV1 SGDS-04A12A 98013-109
SVDRV2 SGDS-04A12A 98013-109
FR-S520E
FR-S520E-0.75K-NA 98013-008
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AT2 Electrical Diagrams
220VAC,SRV,VFD
Drawing Number
97009-011
SCALE 1:1
AT2 Electrical diagram_111907.vsd
PAGE 8 OF 41
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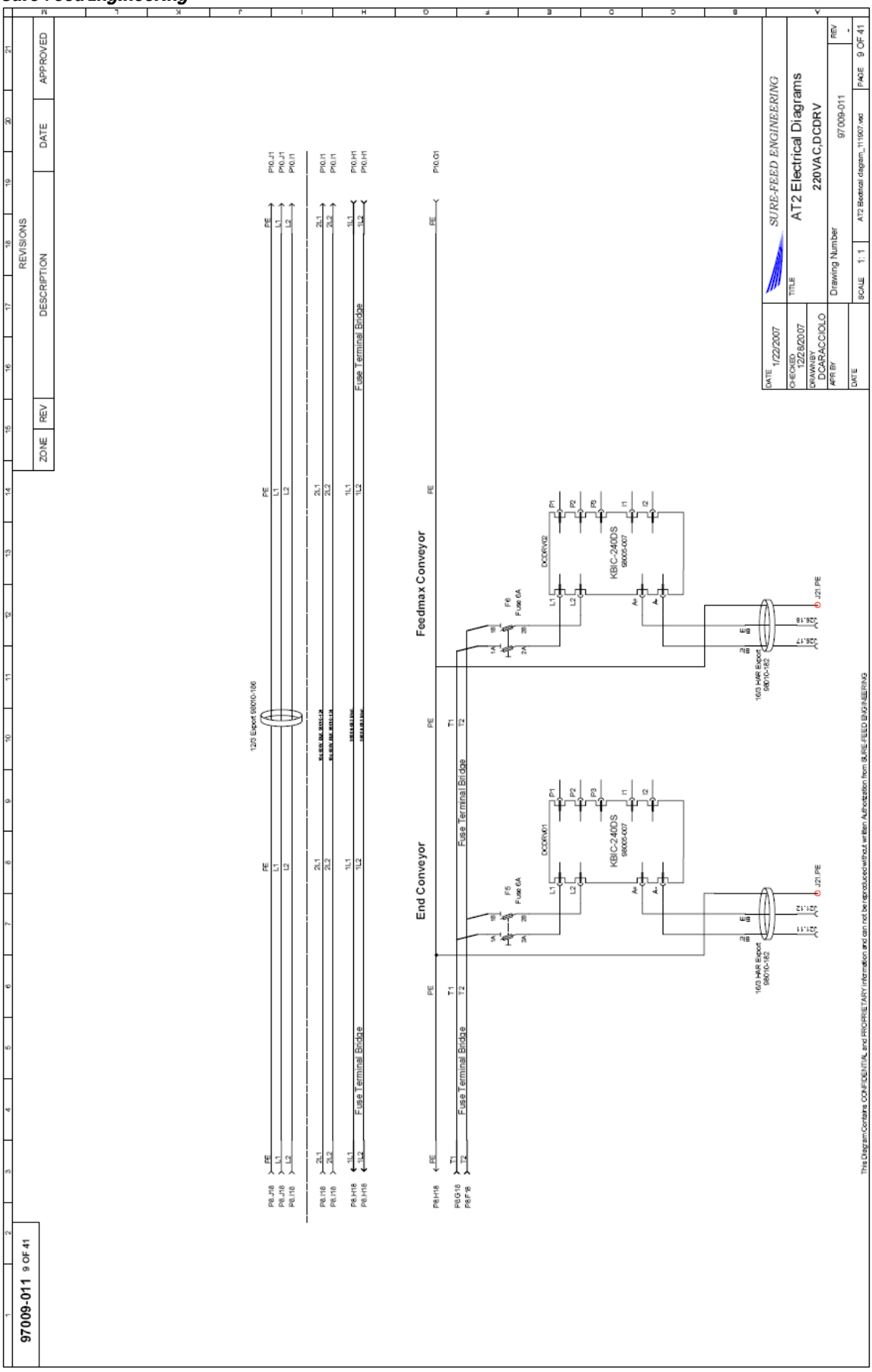
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REV
DESCRIPTION
DATE
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97009-011 9 OF 41
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AT2 Electrical Diagrams
220VAC,DCDRV
Drawing Number
97009-011
SCALE 1:1
AT2 Electrical diagram_111907.vsd
PAGE 9 OF 41
DATE 1/22/2007
CHECKED 12/28/2007
DRAWN BY DCARACCIOLO
APR BY
DATE
120 Export 98010-186
Feedmax Conveyor
End Conveyor
Fuse Terminal Bridge
KBIC-2400S
98005-007
DCDRV01
DCDRV02
F5 Fuse 6A
F6 Fuse 6A
160 HAR Export 98010-182
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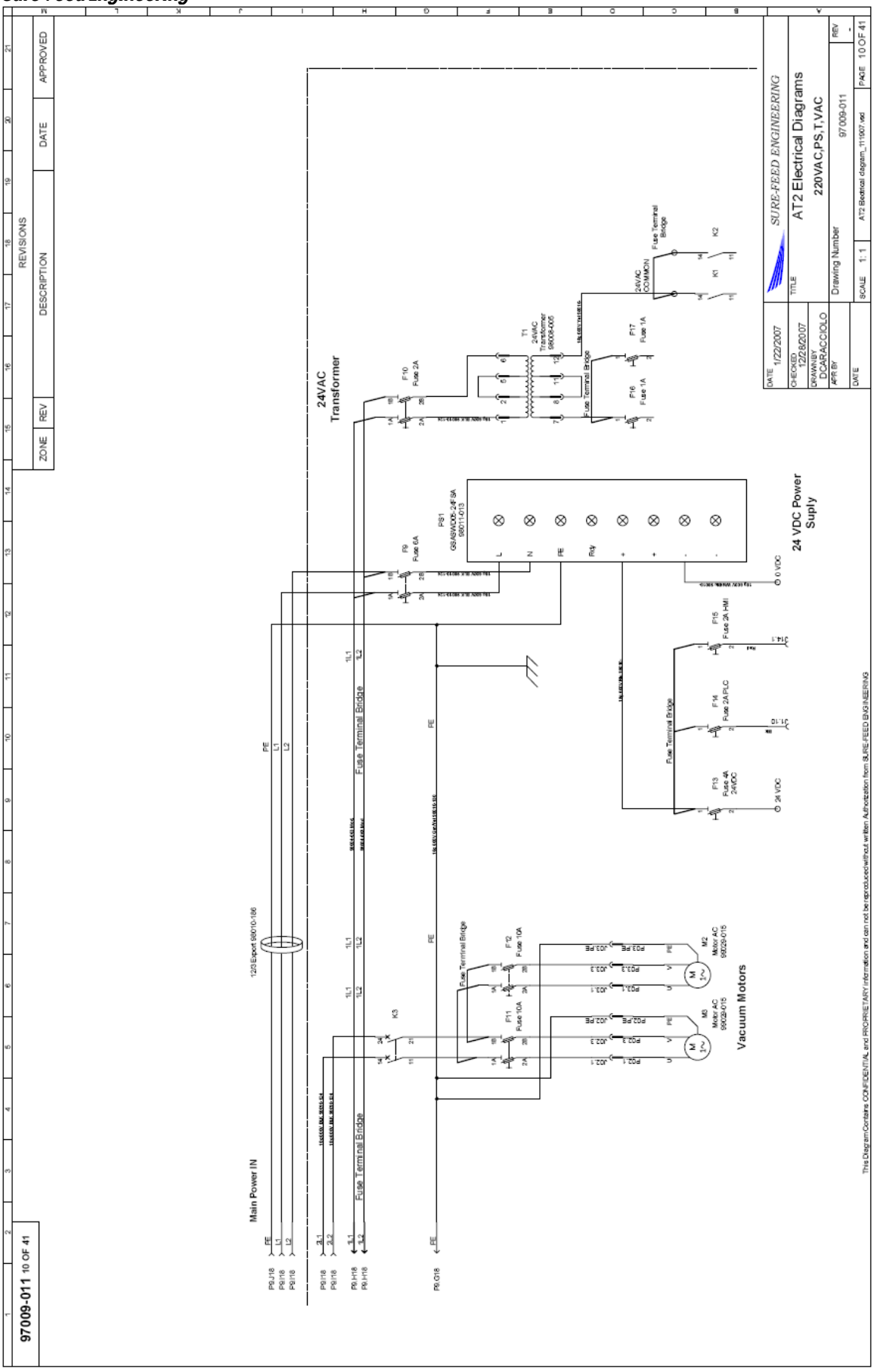
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AT2 Electrical Diagrams
220VAC,PS,T,VAC
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24VAC Transformer
24 VDC Power Suply
Vacuum Motors
Main Power IN
Fuse Terminal Bridge
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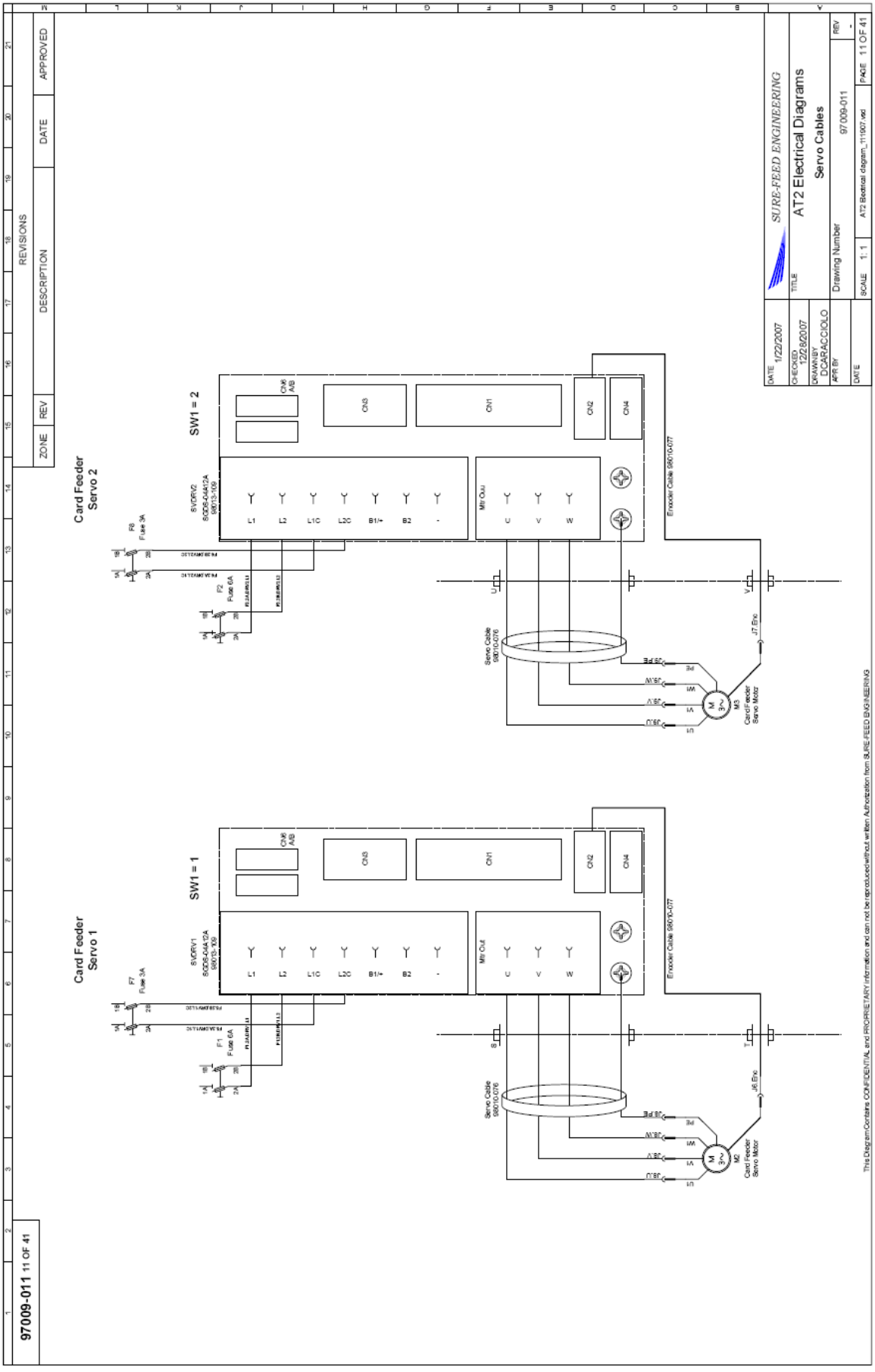
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AT2 Electrical Diagrams
Servo Cables
97009-011
Card Feeder Servo 2
SW1 = 2
Card Feeder Servo 1
SW1 = 1
Encoder Cable 98010-077
Servo Cable 98010-076
Card Feeder Servo Motor
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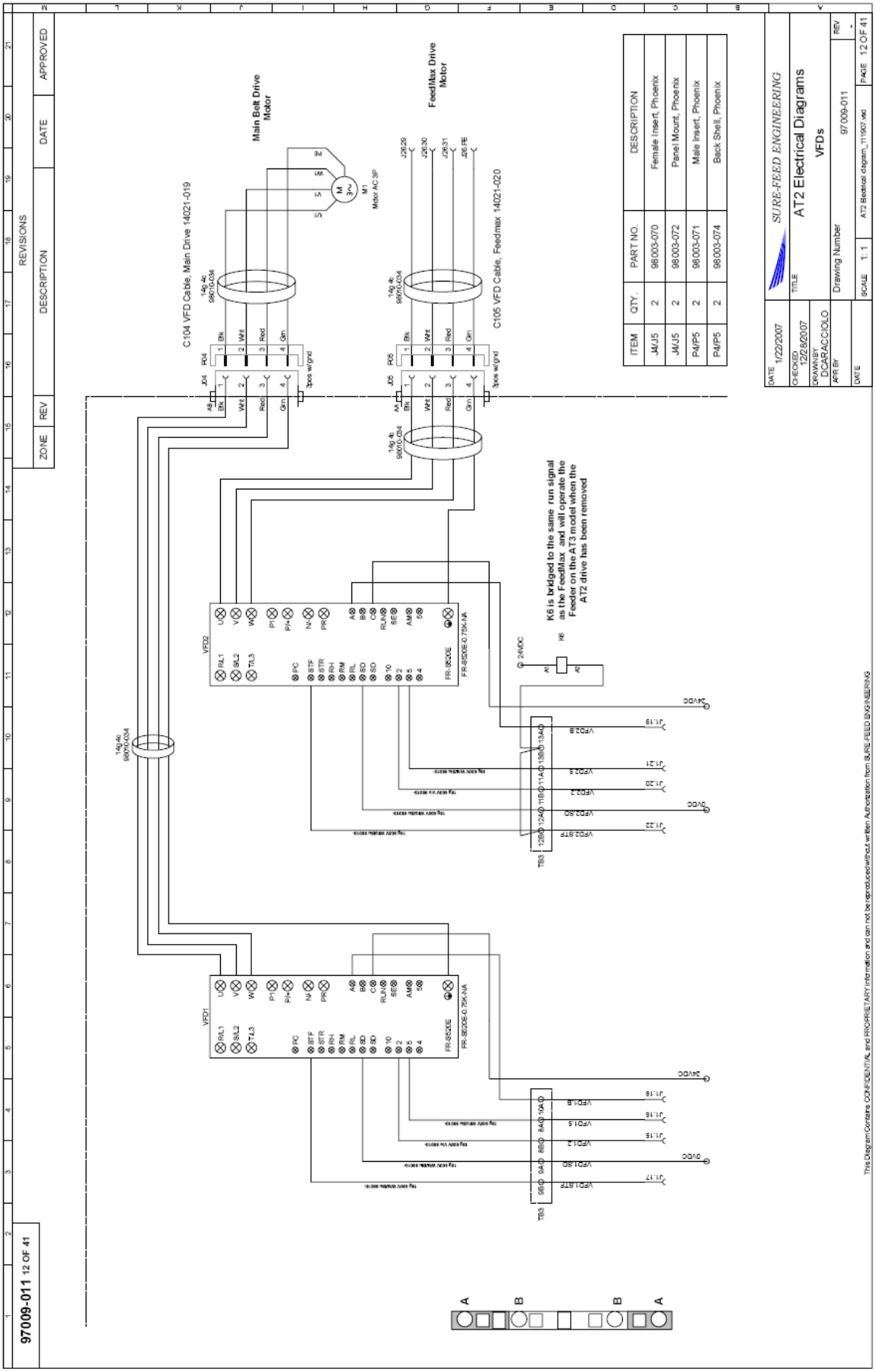
97009-011 11 OF 41


Main Belt Drive Motor
FeedMax Drive Motor
C104 VFD Cable, Main Drive 14021-019
C105 VFD Cable, Feedmax 14021-020
K6 is bridged to the same run signal as the FeedMax and will operate the Feeder on the AT3 model when the AT2 drive has been removed
VFD2
VFD1
FR-S520E-0.75K-NA
REVISIONS
ZONE
REV
DESCRIPTION
DATE
APPROVED
ITEM
QTY.
PART NO.
DESCRIPTION
J4/J5
2
98003-070
Female Insert, Phoenix
J4/J5
2
98003-072
Panel Mount, Phoenix
P4/P5
2
98003-071
Male Insert, Phoenix
P4/P5
2
98003-074
Back Shell, Phoenix
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VFDs
Drawing Number
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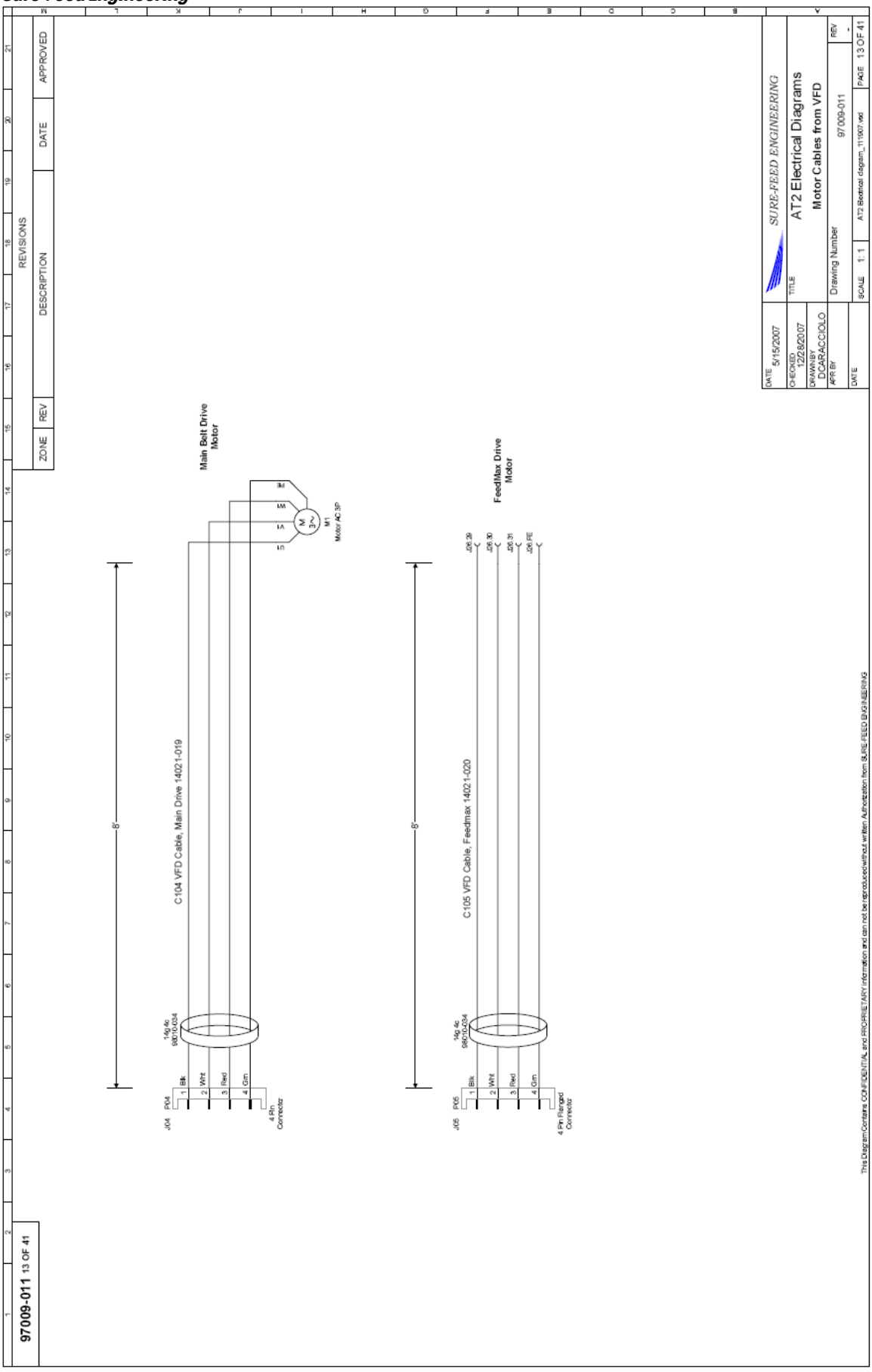
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REV
DESCRIPTION
DATE
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AT2 Electrical Diagrams
Motor Cables from VFD
Drawing Number
97009-011
REV
-
SCALE 1:1
AT2 Electrical diagram_111907.vsd
PAGE 13 OF 41
DATE 5/15/2007
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APP'R BY
DATE
97009-011 13 OF 41
Main Belt Drive Motor
M1 Motor AC 3P
C104 VFD Cable, Main Drive 14021-019
8'
16g 4c 9870104
P04
J04
1 Blk
2 Wht
3 Red
4 Grn
4 Pin Connector
FeedMax Drive Motor
C105 VFD Cable, Feedmax 14021-020
8'
16g 4c 9870104
P05
J05
J06.29
J06.30
J06.31
J06.PE
4 Pin Flanged Connector
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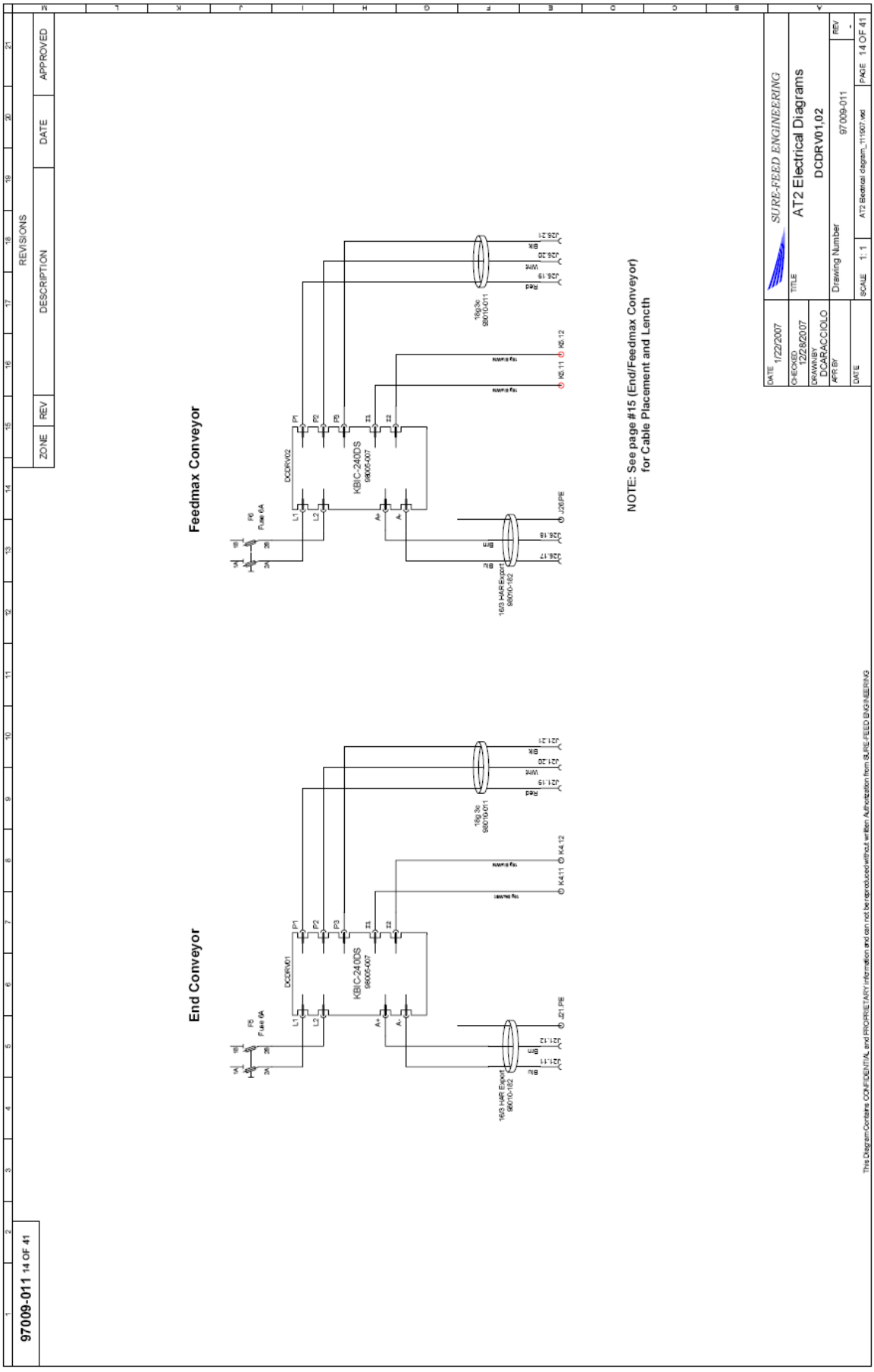
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DESCRIPTION
DATE
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97009-011 14 OF 41
Feedmax Conveyor
End Conveyor
NOTE: See page #15 (End/Feedmax Conveyor) for Cable Placement and Lencth
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AT2 Electrical Diagrams
DCDRV01,02
97009-011
AT2 Electrical diagram_111907.vsd
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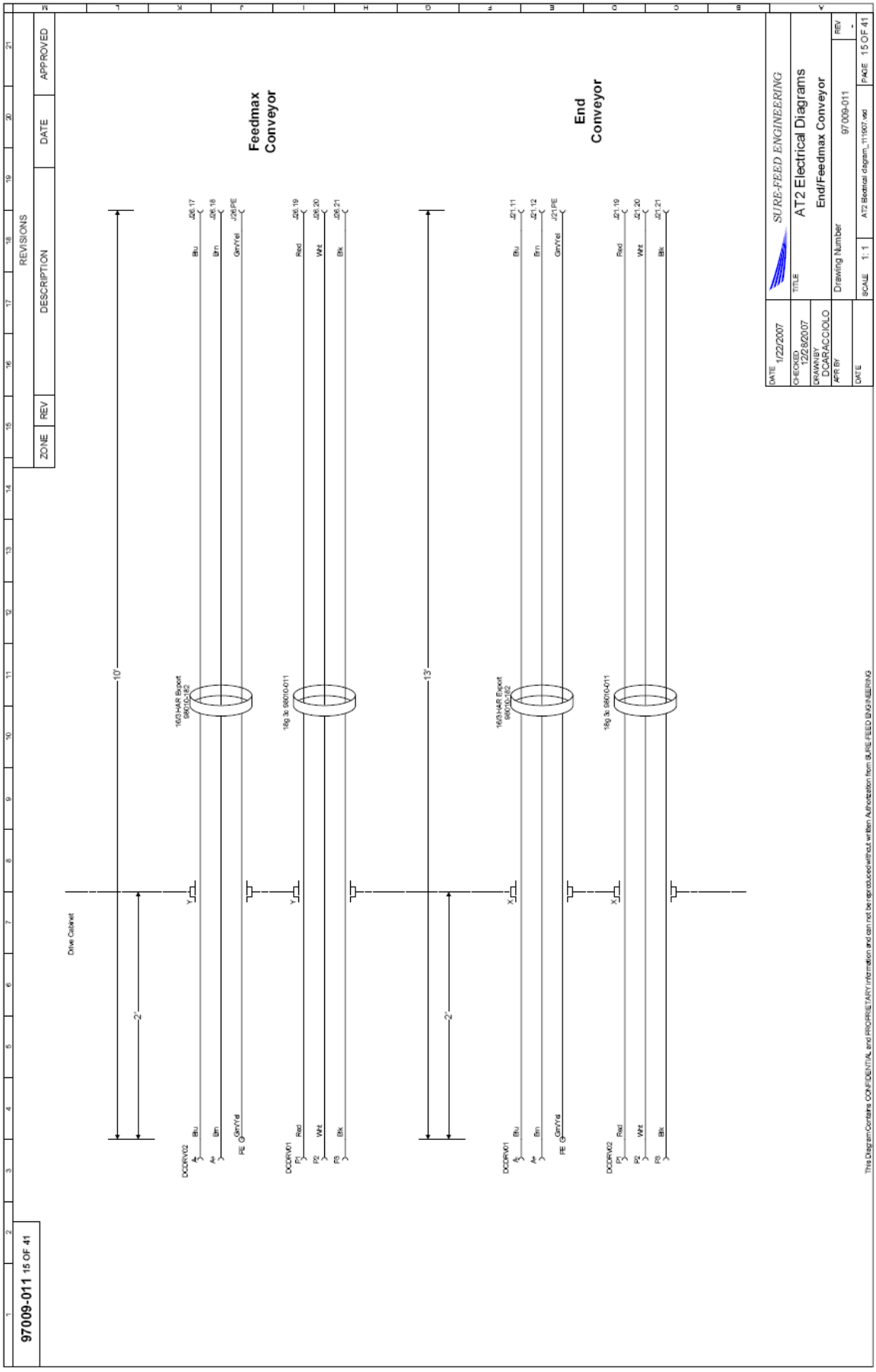
Feedmax Conveyor
End Conveyor
Drive Cabinet
10'
2'
13'
2'
16D-HAR Bayonet 98010-182
16g 3c 98010-011
DCDRIVE2
DCDRIVE1
Blu
Brn
Grn/Yel
Red
Wht
Blk
J26-17
J26-18
J26-PE
J26-19
J26-20
J26-21
J21-11
J21-12
J21-PE
J21-19
J21-20
J21-21
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DESCRIPTION
DATE
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AT2 Electrical Diagrams
End/Feedmax Conveyor
97009-011
1/22/2007
12/8/2007
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1:1
AT2 Electrical diagram_111907.vsd
15 OF 41
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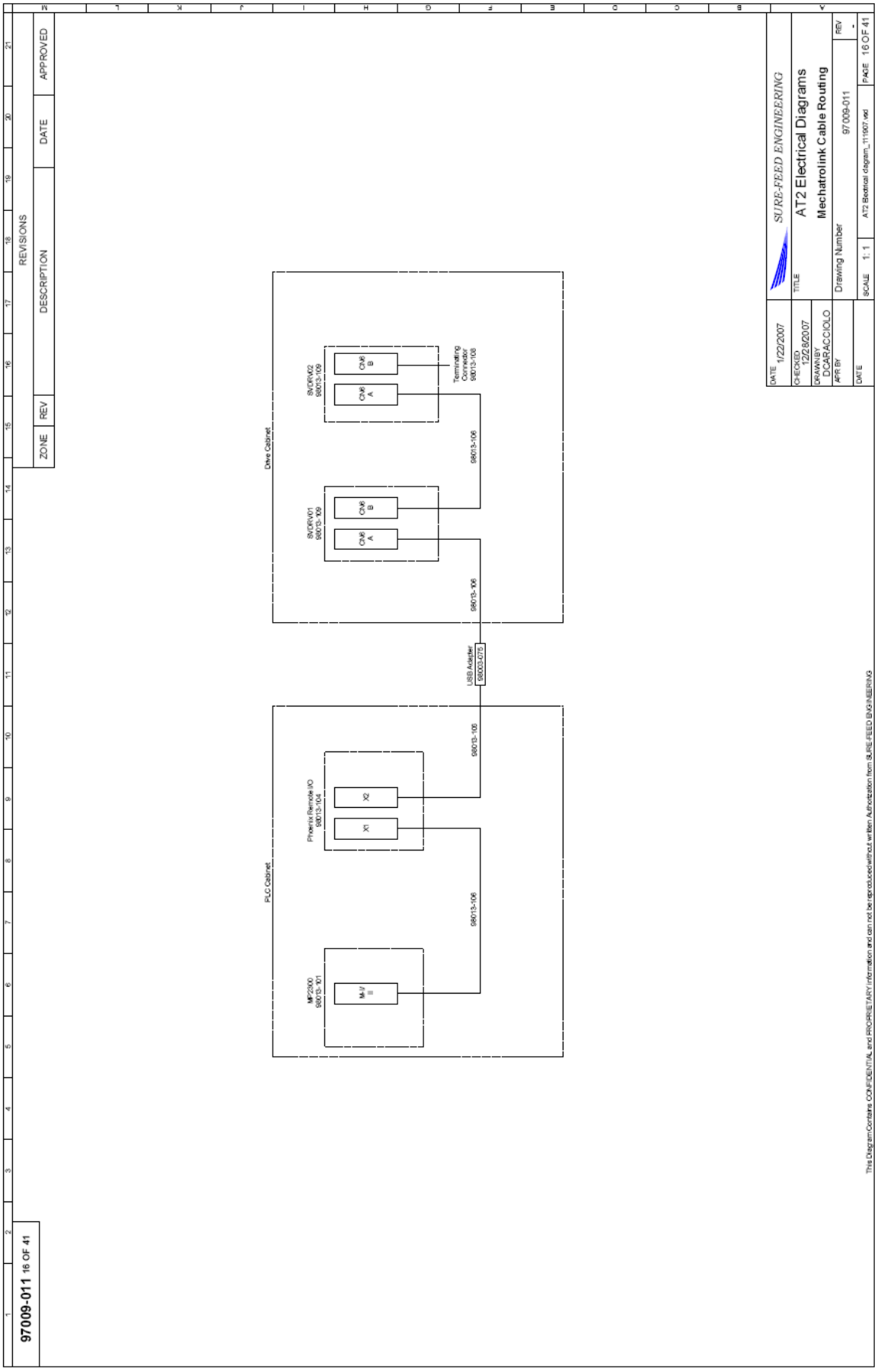
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DATE
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AT2 Electrical Diagrams
Mechatrolink Cable Routing
Drawing Number
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REV
-
SCALE 1: 1
AT2 Electrical diagram_111907.vsd
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DATE 1/22/2007
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Drive Cabinet
PLC Cabinet
SVDRVX2 98015-108
SVDRVX1 98015-108
CN6 A
CN6 B
Terminating Connector 98013-106
98013-106
98015-106
USB Adapter 98003-075
MP2300 98015-101
Phoenix Remote I/O 98015-104
X1
X2
98013-106
98013-106
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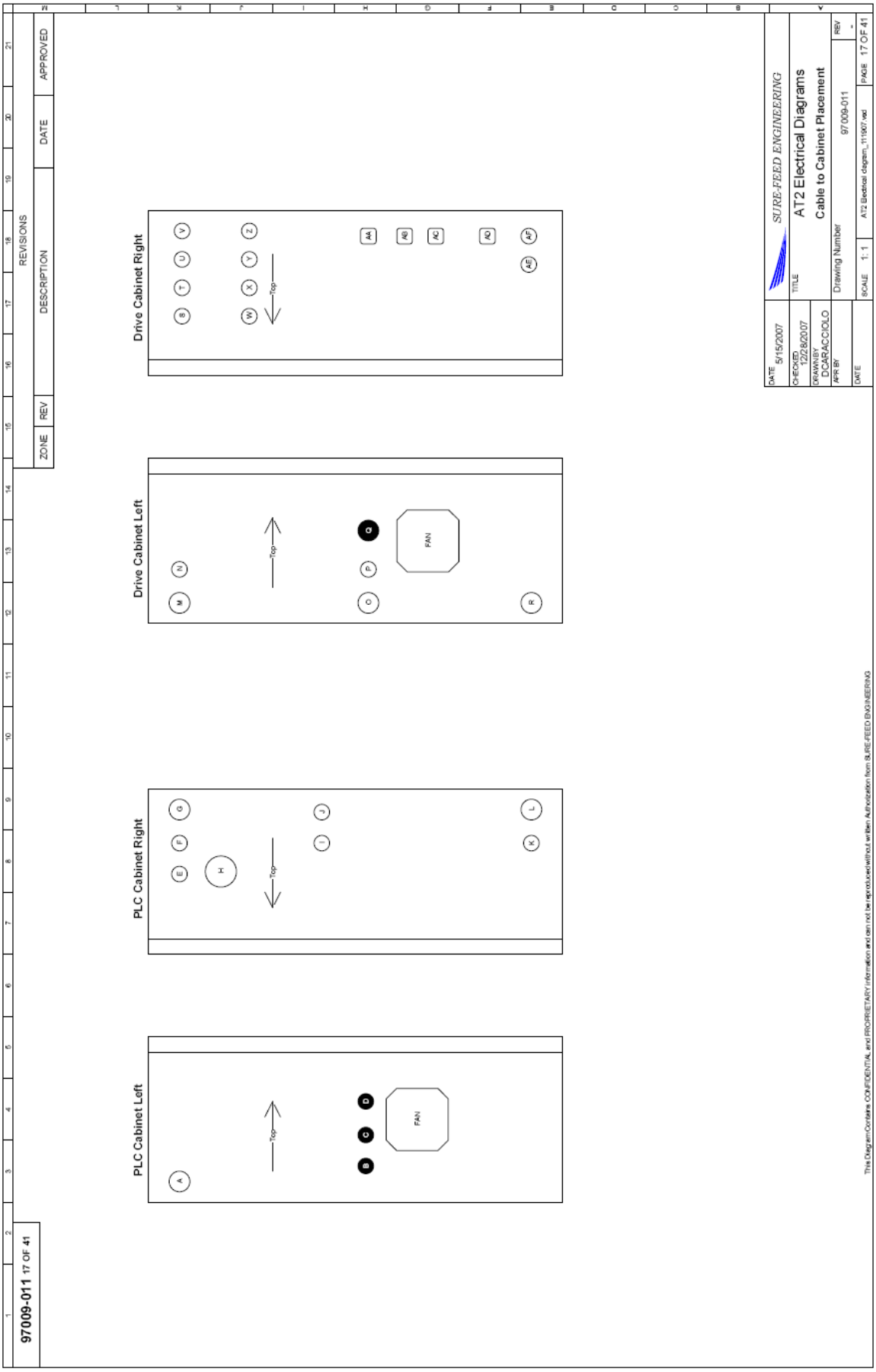
97009-011 16 OF 41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DESCRIPTION
DATE
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Drive Cabinet Right
Drive Cabinet Left
PLC Cabinet Right
PLC Cabinet Left
FAN
Top
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AT2 Electrical Diagrams
Cable to Cabinet Placement
Drawing Number
97009-011
SCALE 1:1
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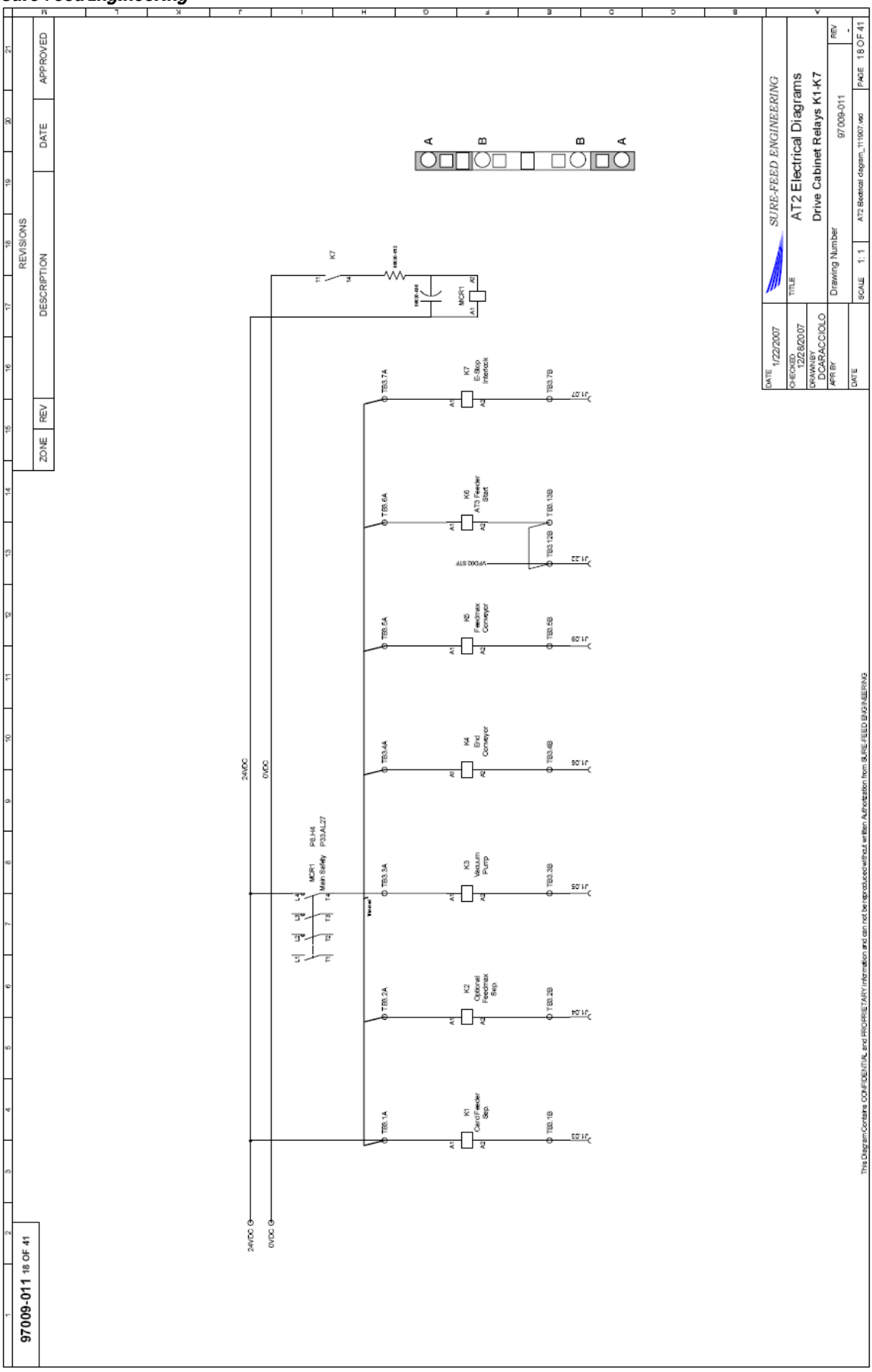
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DESCRIPTION
DATE
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SURE-FEED ENGINEERING
AT2 Electrical Diagrams
Drive Cabinet Relays K1-K7
97009-011
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24VDC
0VDC
K1 Carr/Feeder Sep.
K2 Optional Feed/Deck Sep.
K3 Vacuum Pump
K4 Exit Conveyor
K5 Feed/Inlet Conveyor
K6 AT3 Feeder Start
K7 E-Stop Interlock
MCR1 Main Safety
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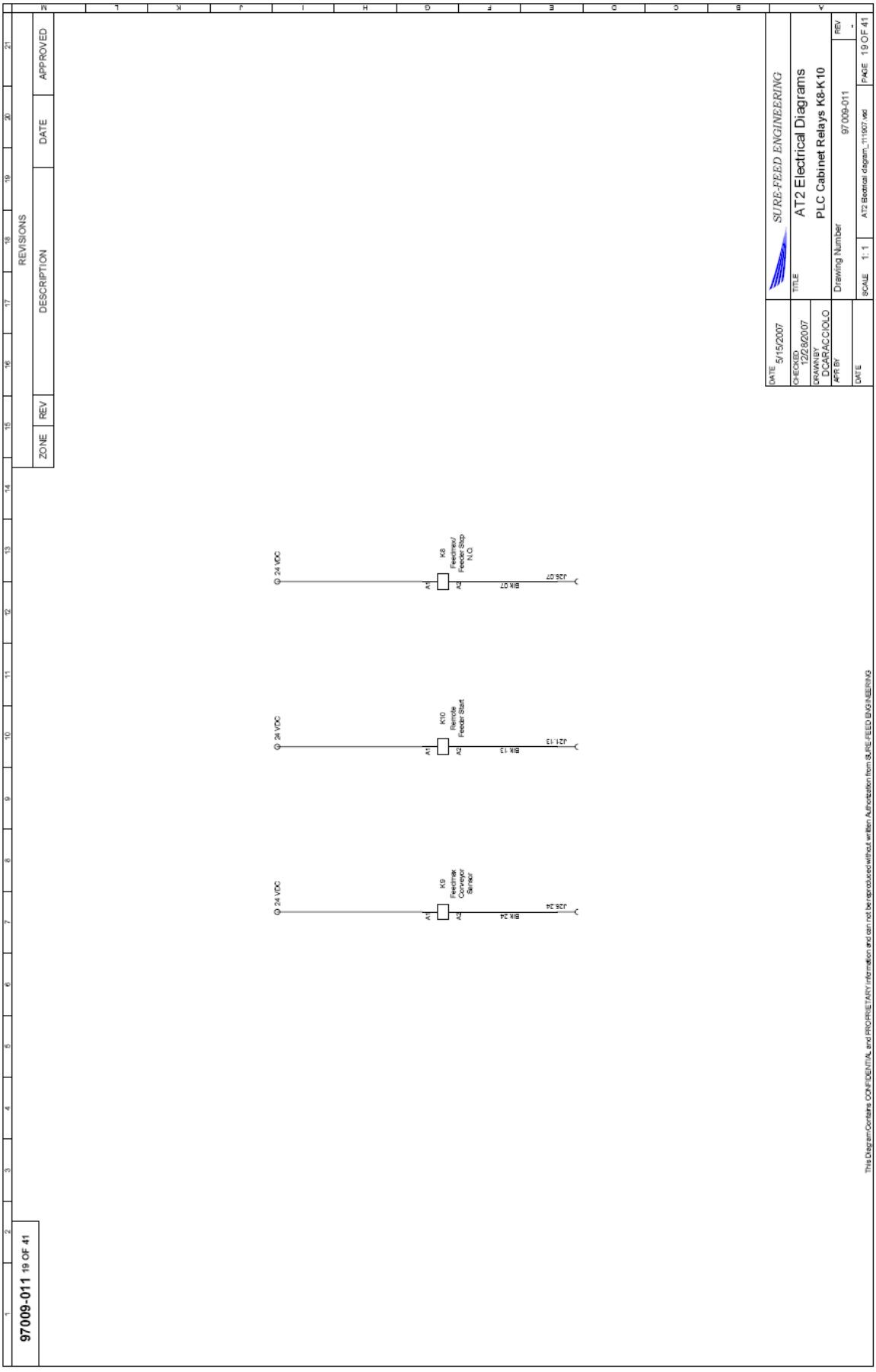
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DATE
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SURE-FEED ENGINEERING
TITLE
AT2 Electrical Diagrams
PLC Cabinet Relays K8-K10
Drawing Number
97009-011
REV
-
SCALE 1:1
AT2 Electrical diagram_111907.vsd
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DATE 5/15/2007
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+ 24 VDC
K8
Feedmax/
Feeder Stop
N.O.
A1
A2
BK 07
J26.07
+ 24 VDC
K10
Remote
Feeder Start
A1
A2
BK 13
J21.13
+ 24 VDC
K9
Feedmax
Conveyor
Sensor
A1
A2
BK 24
J26.24
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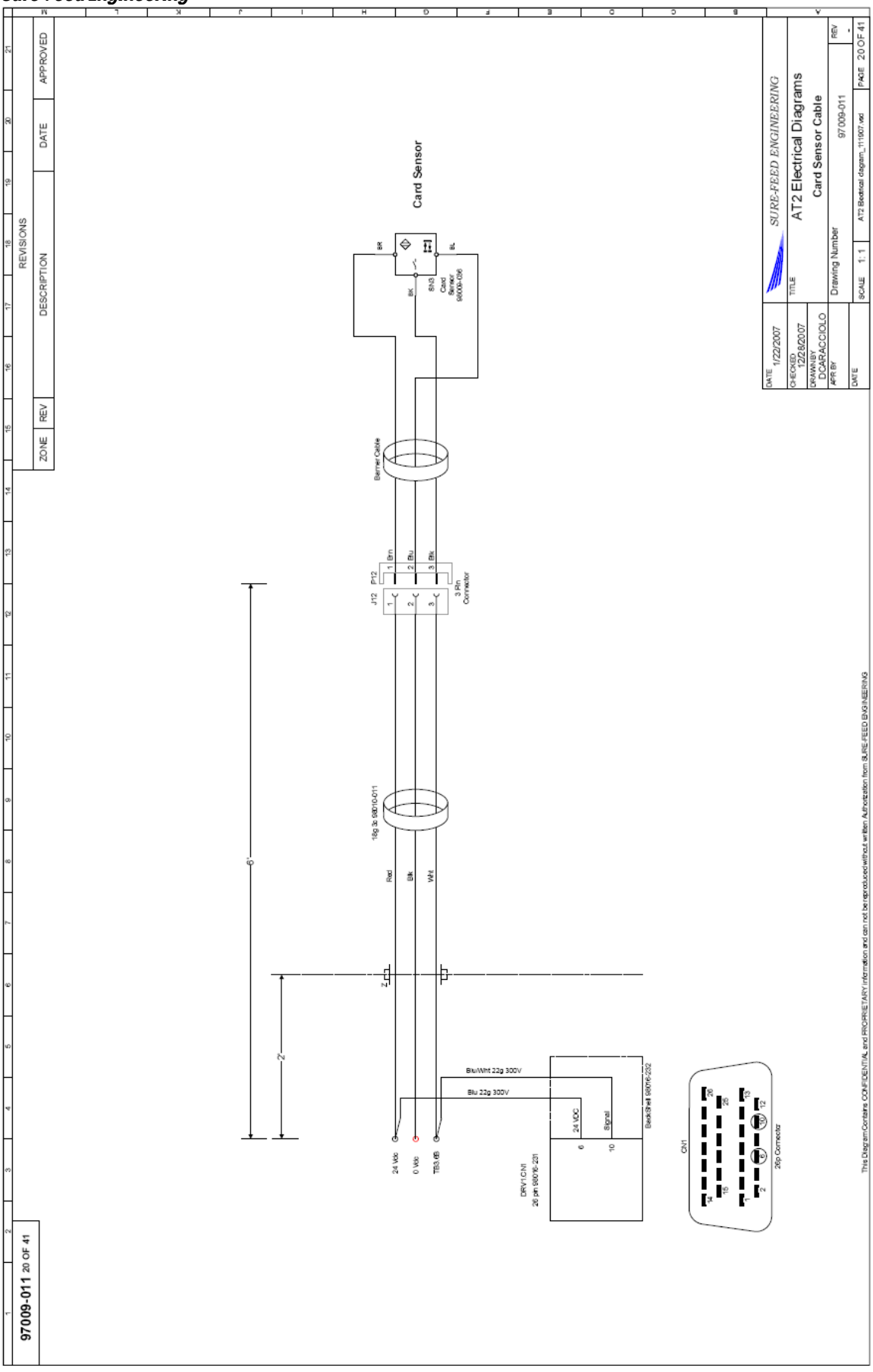
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DESCRIPTION
DATE
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AT2 Electrical Diagrams
Card Sensor Cable
Drawing Number
97009-011
SCALE 1:1
AT2 Electrical diagram_111907.vsd
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DATE
Card Sensor
SNS Card Sensor 98006-036
Blk
Brn
Blu
Barrier Cable
P12
J12
3 Pin Connector
18g 3c 98010-011
Red
Blk
Wht
6'
2'
Blu/Wht 22g 300V
Blu 22g 300V
24 Vdc
0 Vdc
TB3.6B
DRV1.CN1
26 pin 98016-231
24 VDC
Signal
6
10
Black Shell 98016-232
CN1
26p Connector
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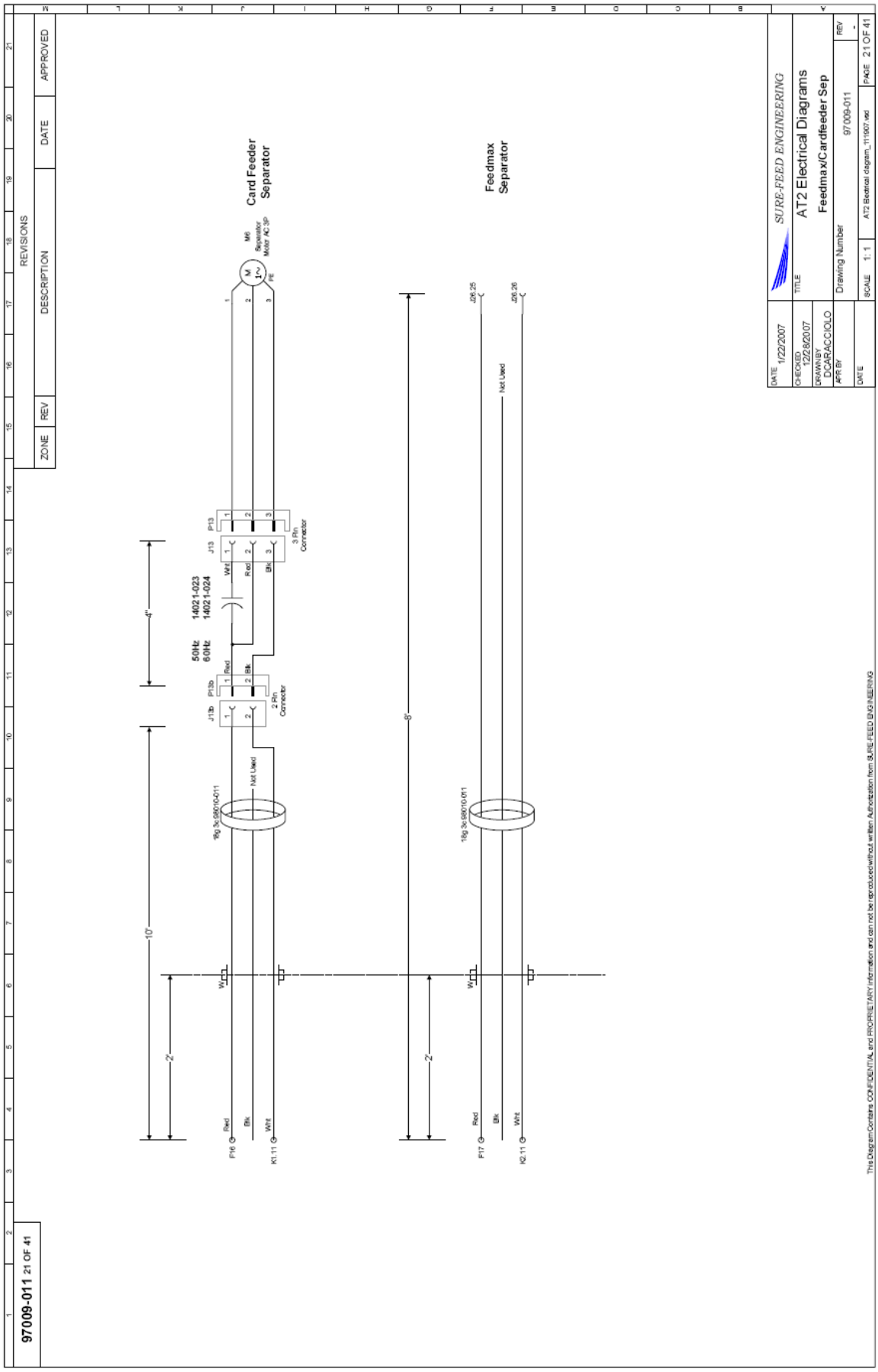
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ZONE
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DESCRIPTION
DATE
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Card Feeder Separator
Feedmax Separator
M6 Separator Motor AC SP
50Hz 14021-023
60Hz 14021-024
3 Pin Connector
2 Pin Connector
Not Used
Red
Blk
Wht
10"
4"
2"
8"
SURE-FEED ENGINEERING
AT2 Electrical Diagrams
Feedmax/Cardfeeder Sep
97009-011
AT2 Electrical diagram_111907.vsd
21 OF 41
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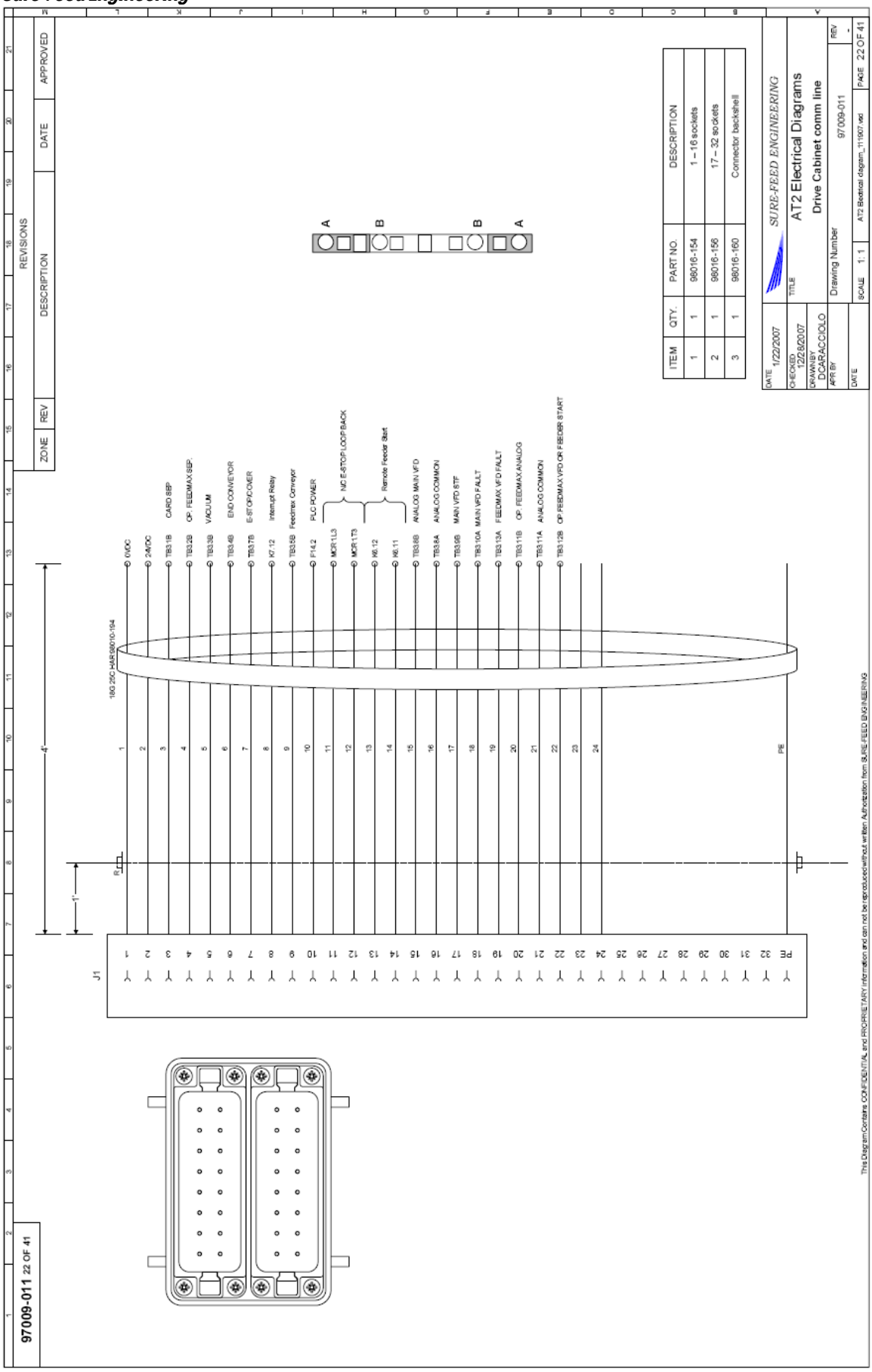
REVISIONS
ZONE
REV
DESCRIPTION
DATE
APPROVED
ITEM
QTY.
PART NO.
DESCRIPTION
1
1
98016-154
1 – 16 sockets
2
1
98016-156
17 – 32 sockets
3
1
98016-160
Connector backshell
SURE-FEED ENGINEERING
AT2 Electrical Diagrams
Drive Cabinet comm line
Drawing Number
97009-011
SCALE 1: 1
AT2 Electrical diagram_111907.vsd
PAGE 22 OF 41
DRAWN BY DCARACCIOLO
CHECKED 12/28/2007
DATE 1/22/2007
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18G 25C HAR68010-194
0VDC
24VDC
TB31B
CARD SEP
TB32B
OP. FEEDMAX SEP.
TB33B
VACUUM
TB34B
END CONVEYOR
TB37B
E-STOP/COVER
K7.12
Interupt Relay
TB35B
Feedmax Conveyor
P14.2
PLC POWER
MCR1L3
MCR1T3
NC E-STOP LOOP BACK
K6.12
K6.11
Remote Feeder Start
TB36B
ANALOG MAIN VFD
TB38A
ANALOG COMMON
TB39B
MAIN VFD STF
TB310A
MAIN VFD FAULT
TB313A
FEEDMAX VFD FAULT
TB311B
OP. FEEDMAX ANALOG
TB311A
ANALOG COMMON
TB312B
OP. FEEDMAX VFD OR FEEDER START
PE
4"
1"
J1
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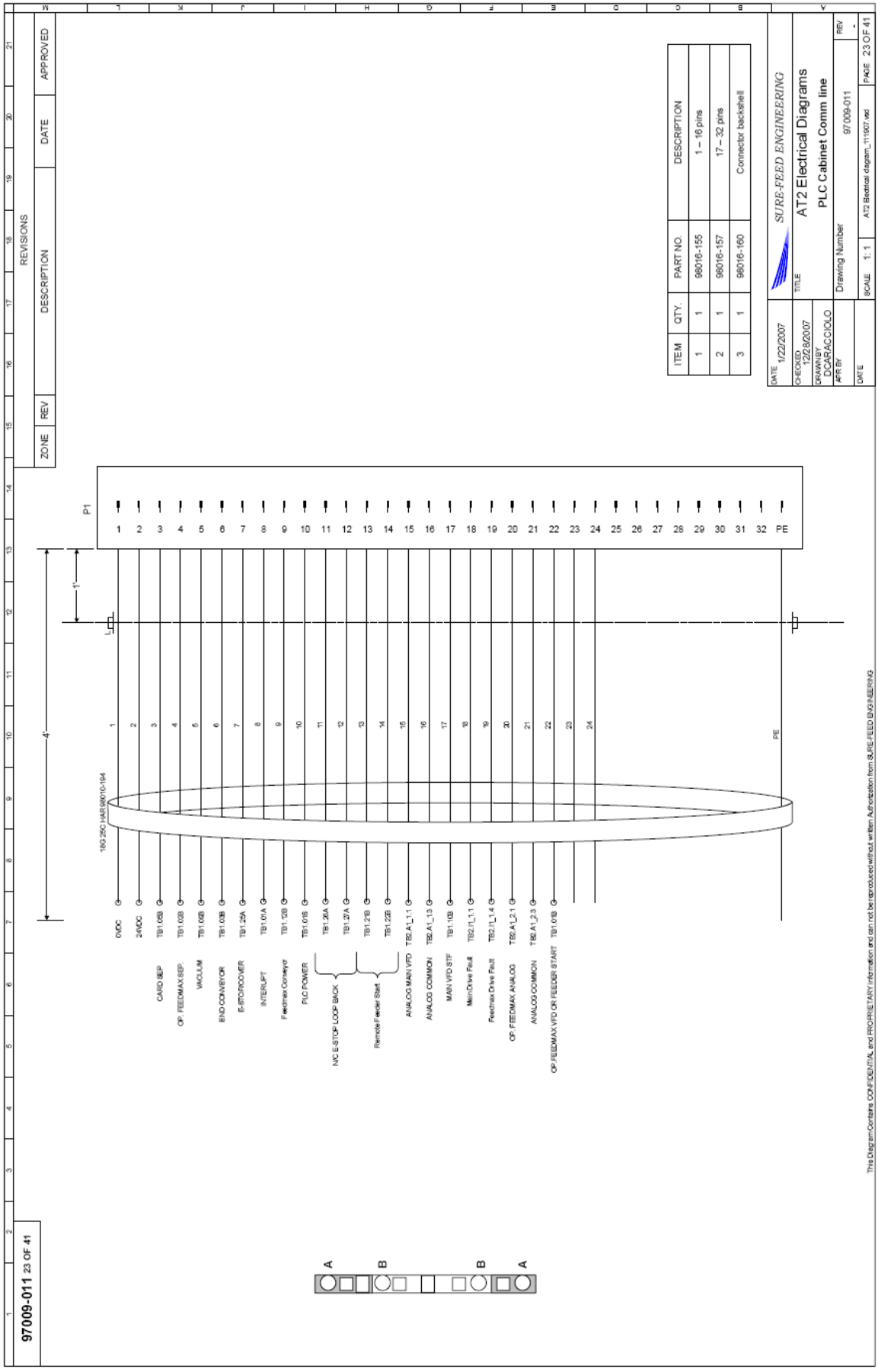
REVISIONS
ZONE
REV
DESCRIPTION
DATE
APPROVED
ITEM
QTY.
PART NO.
DESCRIPTION
1
1
98016-155
1 – 16 pins
2
1
98016-157
17 – 32 pins
3
1
98016-160
Connector backshell
SURE-FEED ENGINEERING
AT2 Electrical Diagrams
PLC Cabinet Comm line
97009-011
SCALE 1: 1
AT2 Electrical diagram_111907.vsd
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P1
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 PE
18G 25C HAR69010-164
0VDC
24VDC
CARD SEP
OP. FEEDMAX SEP.
VACUUM
END CONVEYOR
E-STOP/COVER
INTERLIFT
Feedmax Conveyor
PLC POWER
N/C E-STOP LOOP BACK
Remote Feeder Start
ANALOG MAIN VFD
ANALOG COMMON
MAIN VFD STF
Main Drive Fault
Feedmax Drive Fault
OP. FEEDMAX ANALOG
ANALOG COMMON
OP. FEEDMAX VFD OR FEEDER START
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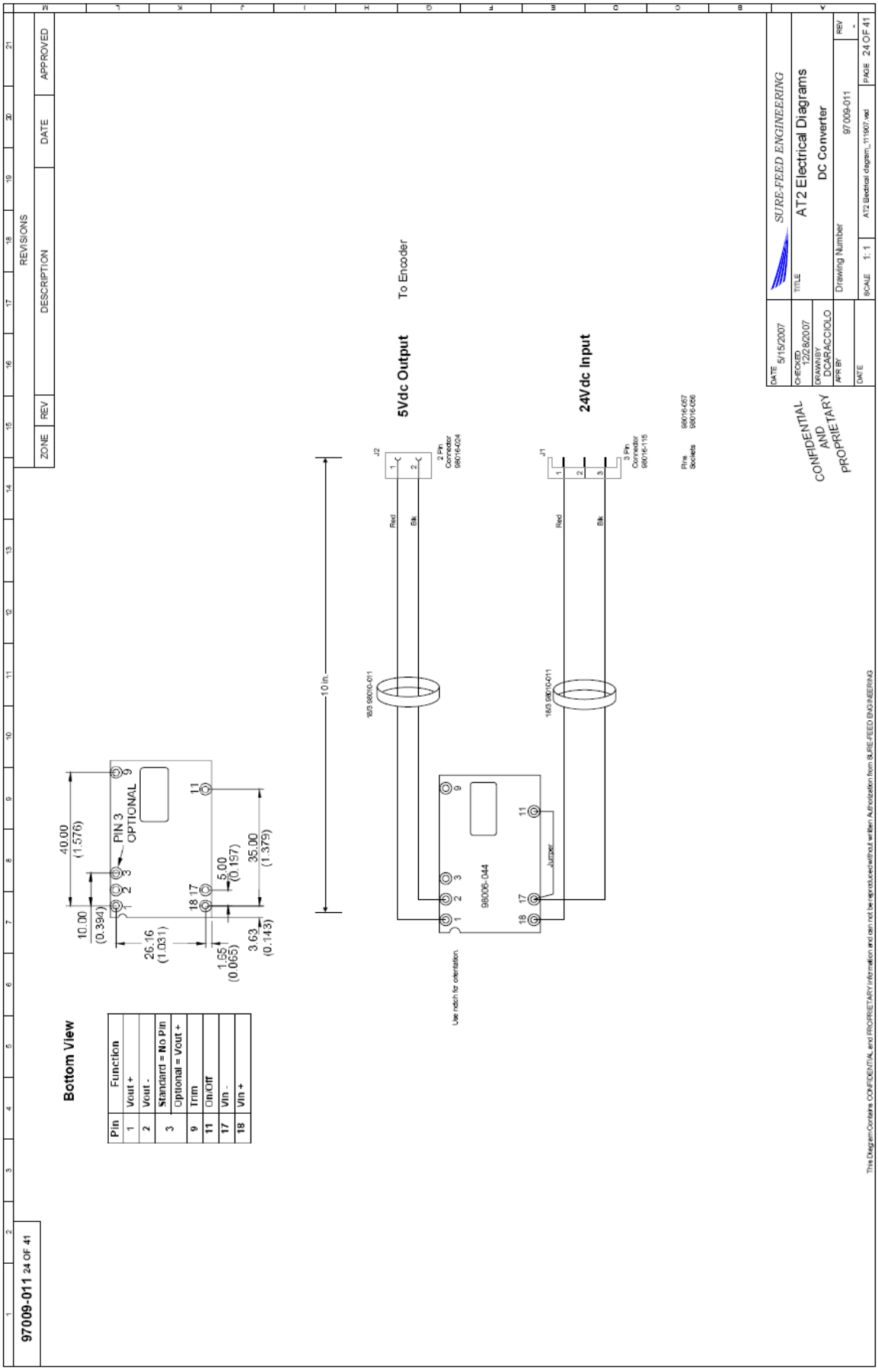
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REVISIONS
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REV
DESCRIPTION
DATE
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Bottom View
Pin
Function
1
Vout +
2
Vout -
3
Standard = No Pin
Optional = Vout +
9
Trim
11
On/Off
17
Vin -
18
Vin +
40.00 (1.576)
10.00 (0.394)
26.16 (1.031)
PIN 3 OPTIONAL
5.00 (0.197)
35.00 (1.379)
1.65 (0.065)
3.63 (0.143)
10 in
5Vdc Output
To Encoder
J2
2 Pin Connector 98010-024
Red
Blk
183 98010-011
98005-044
Use notch for orientation.
Jumper
24Vdc Input
J1
3 Pin Connector 98016-115
Red
Blk
183 98010-011
Pins 98016-057
Sockets 98016-056
CONFIDENTIAL AND PROPRIETARY
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TITLE
AT2 Electrical Diagrams
DC Converter
Drawing Number
97009-011
REV
-
SCALE 1: 1
AT2 Electrical diagram_111907.vsd
PAGE 24 OF 41
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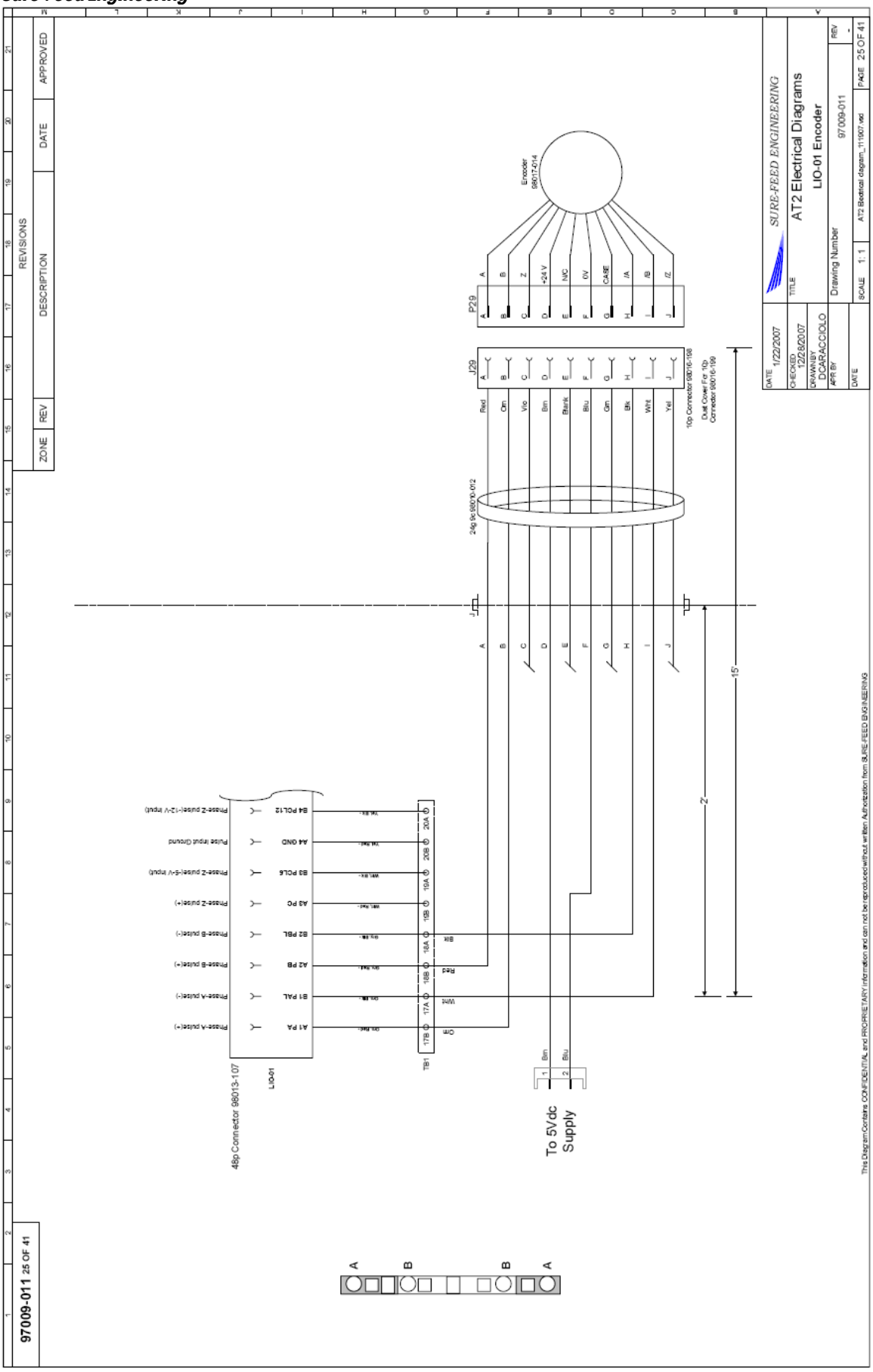
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DESCRIPTION
DATE
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AT2 Electrical Diagrams
LIO-01 Encoder
Drawing Number
97009-011
REV
-
SCALE 1:1
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DATE 1/22/2007
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Encoder 98017-014
P29
J29
24p Br 98010-012
10p Connector 98016-198
Dust Cover For 10p Connector 98016-199
48p Connector 98013-107
LIO-01
TB1
To 5Vdc Supply
Red
Wht
Org
Blk
Blu
Blm
Grn
Yel
Vio
Brn
Blank
Gry
15"
2"
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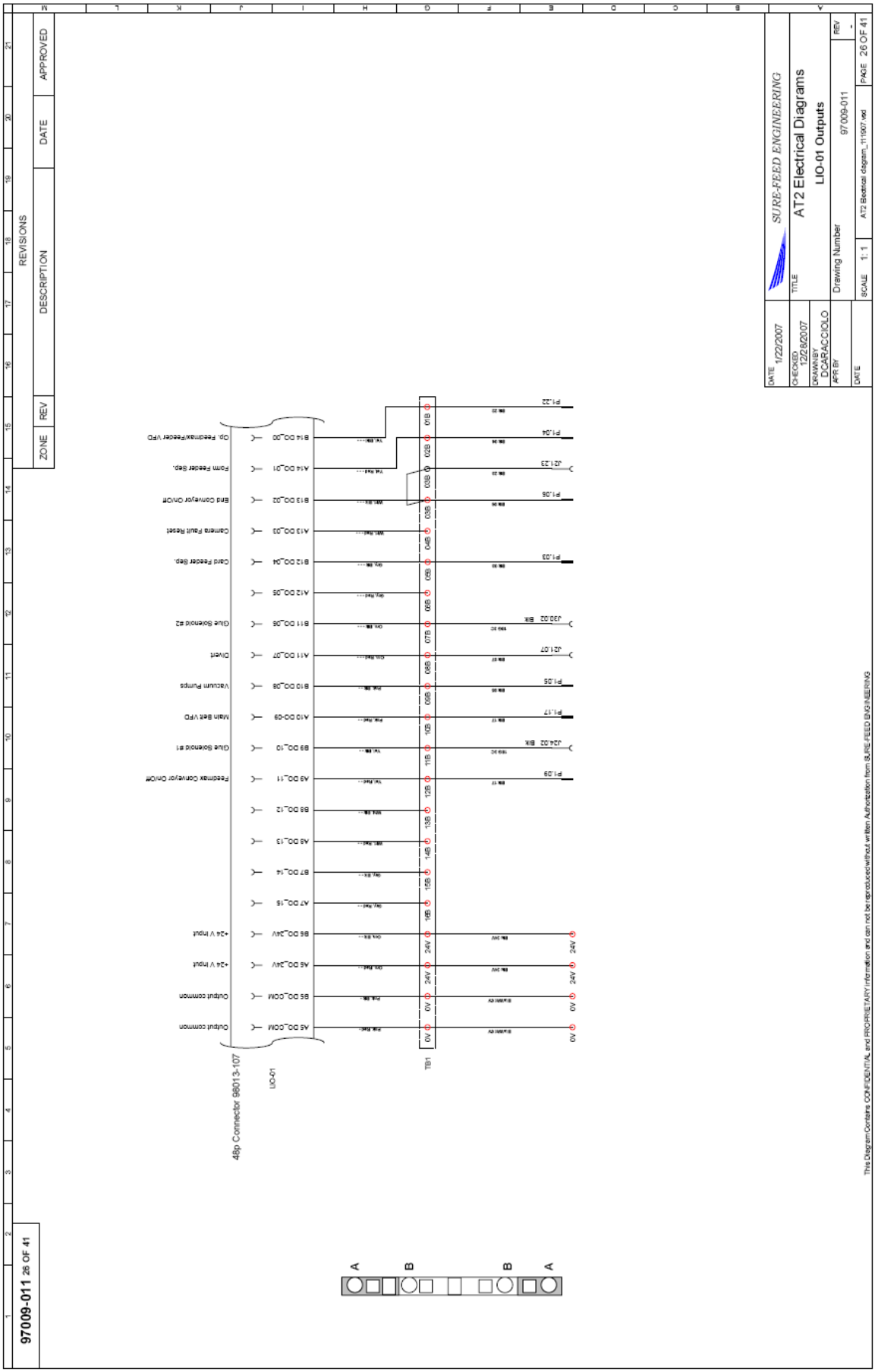
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REV
DESCRIPTION
DATE
APPROVED
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TITLE
AT2 Electrical Diagrams
LIO-01 Outputs
Drawing Number
97009-011
REV
-
SCALE 1: 1
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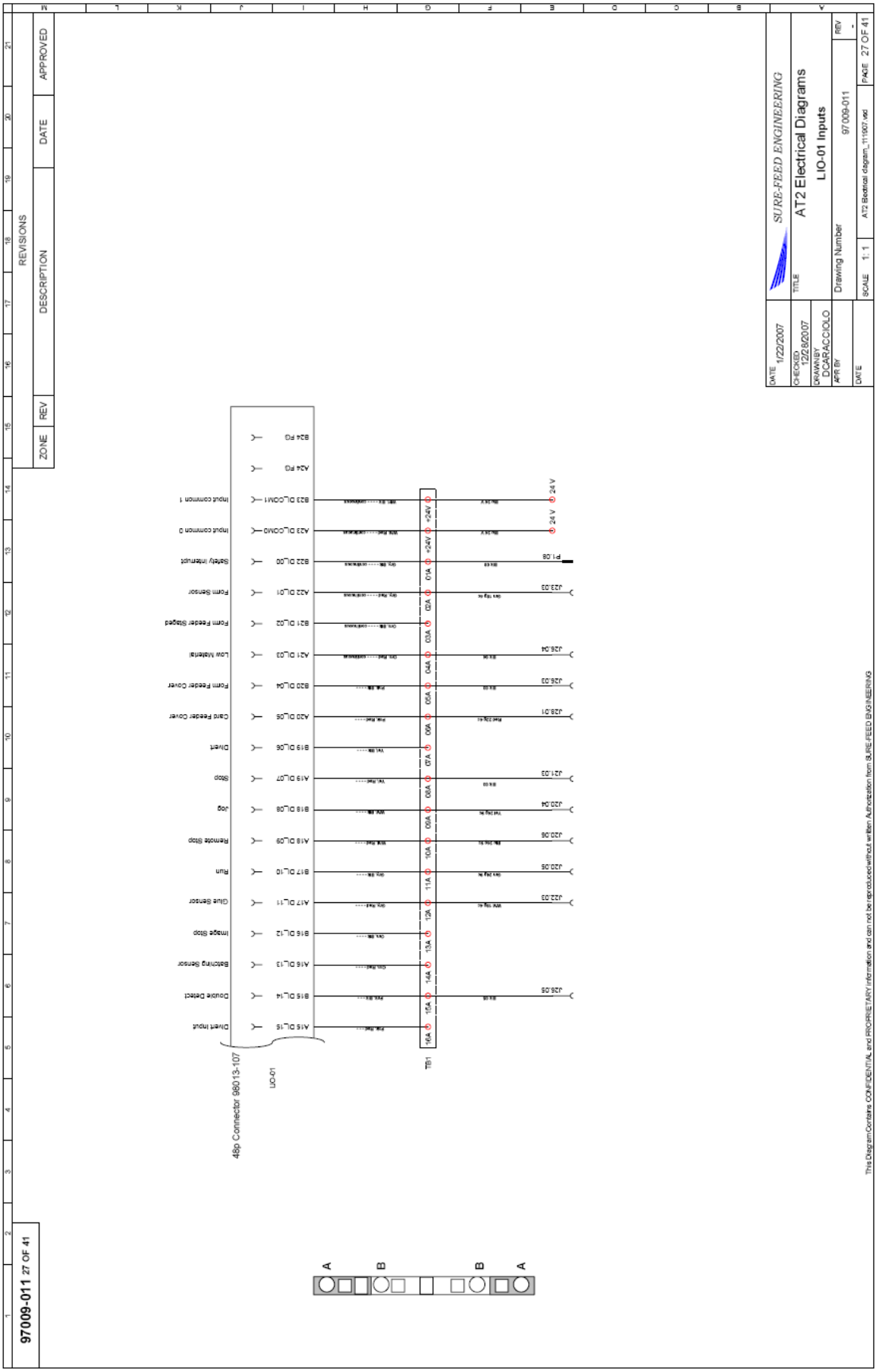
46p Connector 98013-107
LIO-01
TB1
Output common
Output common
+24 V Input
+24 V Input
+24 V Input
Vacuum Pump
Main Belt VFD
Divert
Blue Solenoid #2
Card Feeder Bkp.
Camera Fault Reset
End Conveyor ON/OFF
Form Feeder Bkp.
Op. Feedmax/Feeder VFD
Feedmax Conveyor ON/OFF
Blue Solenoid #1
24V
0V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DESCRIPTION
DATE
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AT2 Electrical Diagrams
LIO-01 Inputs
Drawing Number
97009-011
REV
-
SCALE 1:1
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AT2 Electrical diagram_111907.vsd
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48p Connector 98013-107
LIO-01
TB1
+24V
Input common 1
Input common 0
Safety Interrupt
Form Sensor
Form Feeder Staged
Low Material
Form Feeder Cover
Card Feeder Cover
Divert
Stop
Jog
Remote Stop
Run
Glue Sensor
Image Stop
Backing Sensor
Double Detect
Divert Input
24 V
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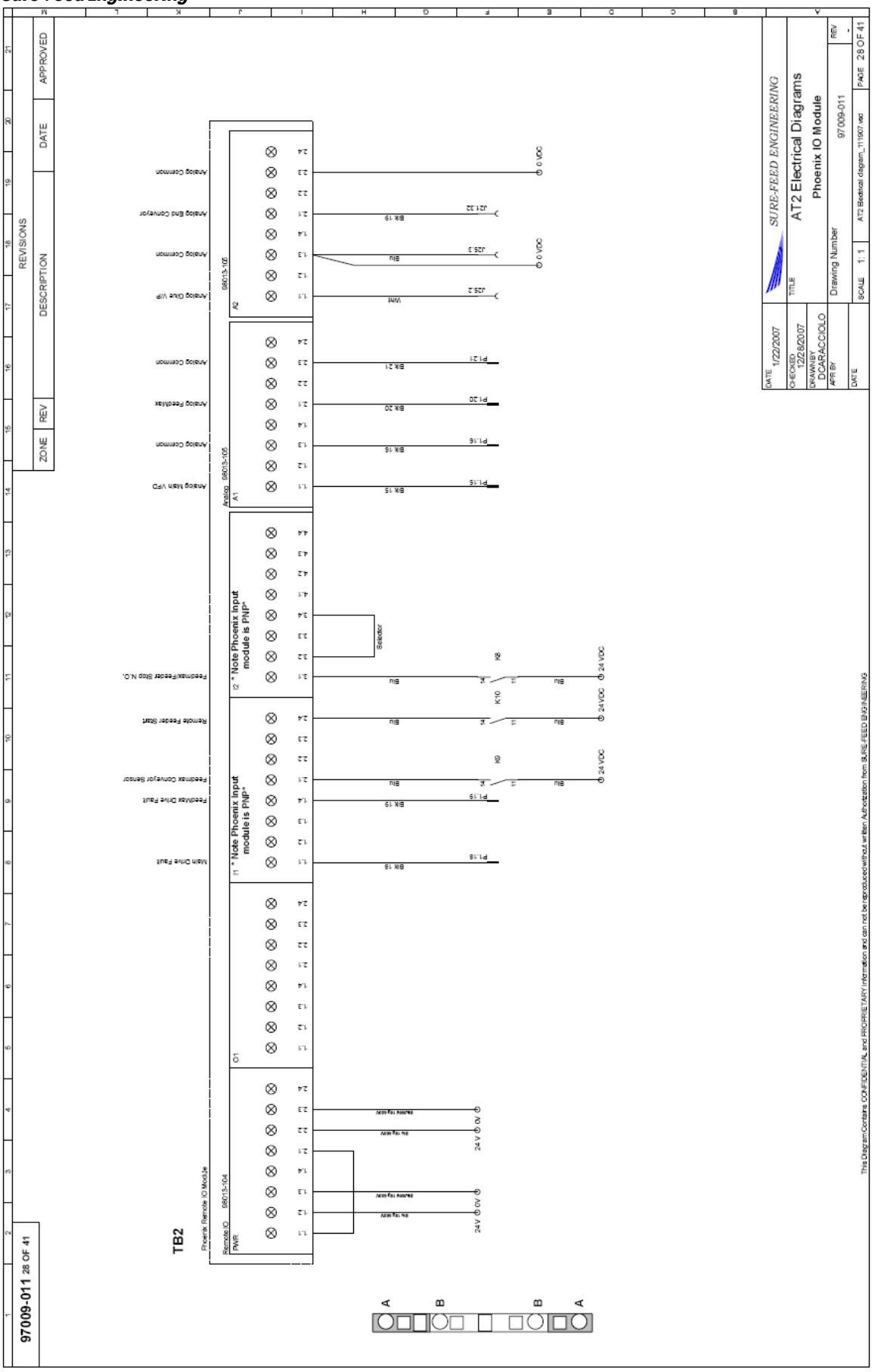
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AT2 Electrical Diagrams
Phoenix IO Module
Drawing Number
97009-011
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DWG
AT2 Electrical diagram_111907.vsd
TB2
Phoenix Remote IO Module
Remote IO 98013-104
PWR
IO1
I1 * Note Phoenix input module is PNP*
I2 * Note Phoenix input module is PNP*
Analog 98013-105
A1
A2
Main Drive Fault
Feedmax Drive Fault
Feedmax Conveyor Sensor
Remote Feeder Start
Feedmax/Feeder Stop N.O.
Analog Main VFD
Analog Common
Analog Feedback
Analog Common
Analog Common
Analog Drive VFD
Analog Common
Analog End Conveyor
Analog Common
Selector
K9
K10
K9
24 VDC
0 VDC
24 V
0 V
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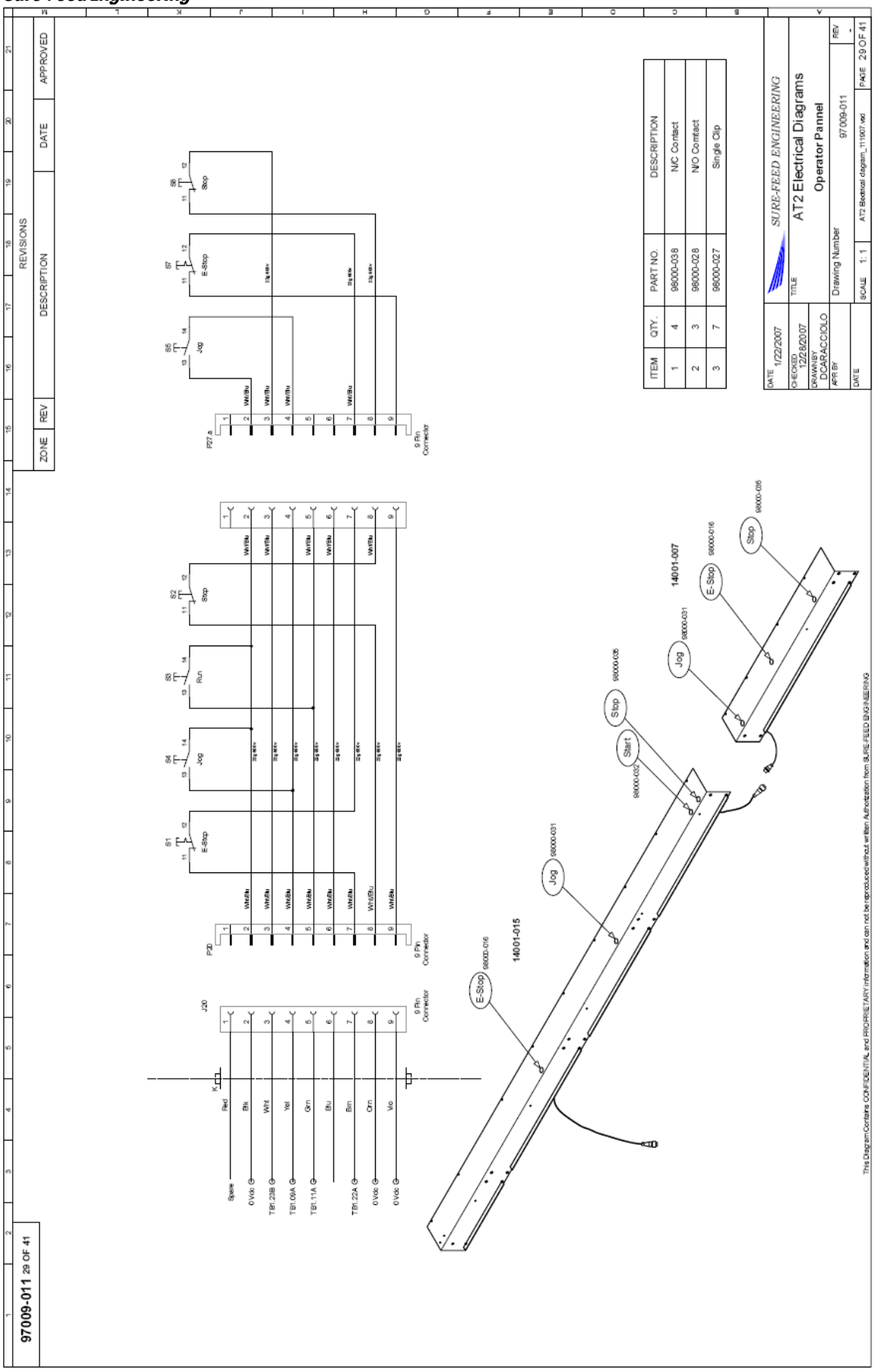
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DESCRIPTION
DATE
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97009-011 29 OF 41
ITEM
QTY.
PART NO.
DESCRIPTION
1
4
98000-038
NC Contact
2
3
98000-028
N/O Contact
3
7
98000-027
Single Clip
SURE-FEED ENGINEERING
AT2 Electrical Diagrams
Operator Pannel
Drawing Number
97009-011
SCALE 1:1
AT2 Electrical diagram_111907.vsd
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DATE 1/22/2007
APP BY
DATE
S1 E-Stop
S2 Stop
S3 Run
S4 Jog
S5 Jog
S7 E-Stop
S8 Stop
P20
P27 a
9 Pin Connector
J20
Red
Blk
Wht
Yel
Grn
Blu
Brn
Org
Vio
Spare
0 Vdc
TB1.23B
TB1.09A
TB1.11A
TB1.22A
14001-015
14001-007
E-Stop
Jog
Start
Stop
98000-016
98000-031
98000-002
98000-026
98000-035
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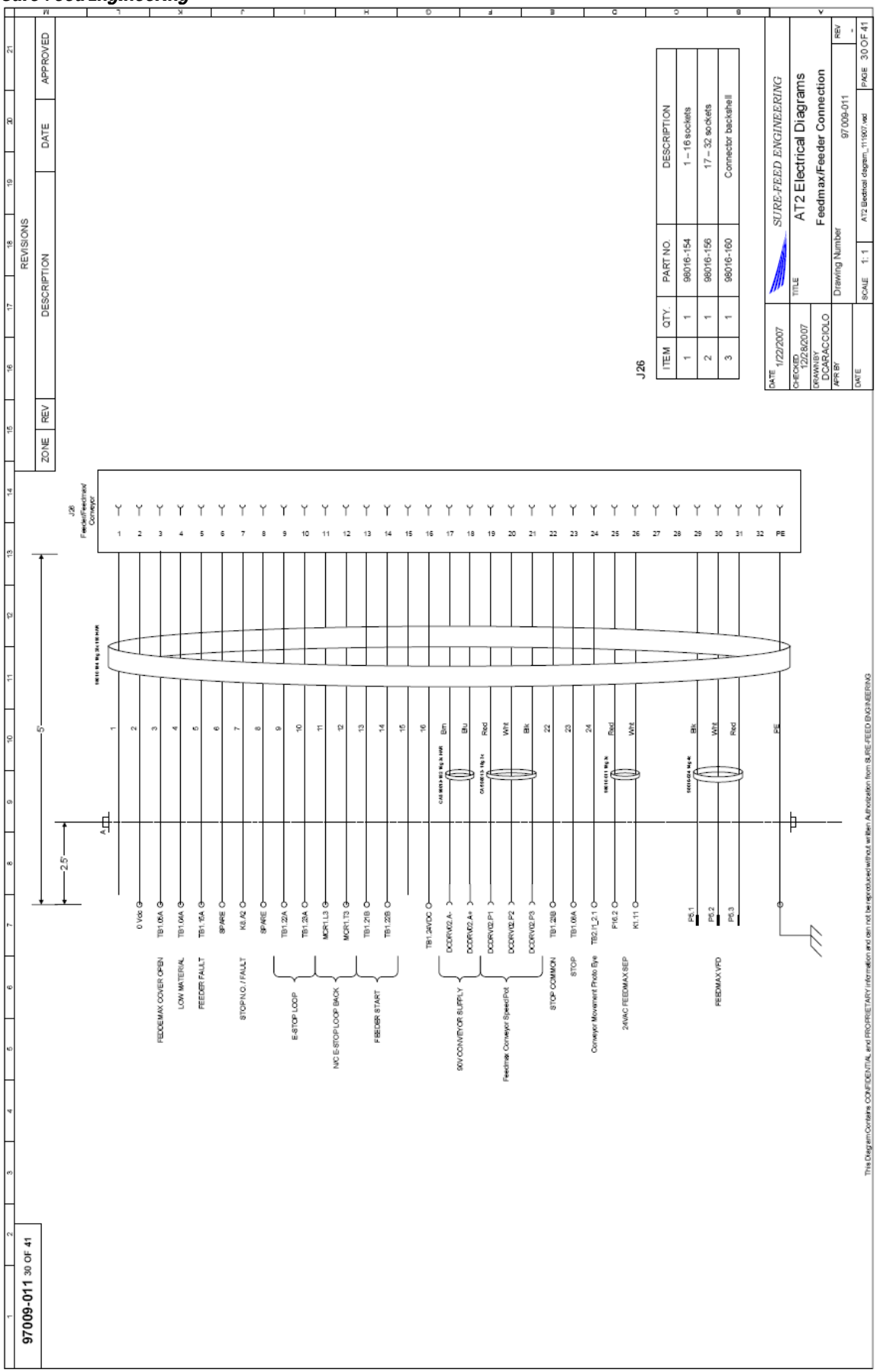
REVISIONS
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REV
DESCRIPTION
DATE
APPROVED
J26
ITEM
QTY.
PART NO.
DESCRIPTION
1
1
98016-154
1 – 16 sockets
2
1
98016-156
17 – 32 sockets
3
1
98016-160
Connector backshell
DATE 1/22/2007
CHECKED 12/28/2007
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TITLE
AT2 Electrical Diagrams
Feedmax/Feeder Connection
Drawing Number 97009-011
REV -
SCALE 1: 1
AT2 Electrical diagram_111907.vsd
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97009-011 30 OF 41
5'
2.5'
0 Vdc
TB1:0A
TB1:04A
TB1:15A
SPARE
K8:A2
SPARE
TB1:22A
TB1:23A
MCR1:L3
MCR1:T3
TB1:21B
TB1:22B
TB1:24VDC
DCDRIVE2:A-
DCDRIVE2:A+
DCDRIVE2:P1
DCDRIVE2:P2
DCDRIVE2:P3
TB1:22B
TB1:0A
TB2:1_2:1
F16:2
K1:11
PK:1
PK:2
PK:3
FEEDMAX COVER OPEN
LOW MATERIAL
FEEDER FAULT
STOP N.O. / FAULT
E-STOP LOOP
N/C E-STOP LOOP BACK
FEEDER START
90V CONVEYOR SUPPLY
Feedmax Conveyor Speed Pot
STOP COMMON
STOP
Conveyor Movement Photo Eye
24VAC FEEDMAX SEP
FEEDMAX VFD
Blm
Blu
Red
Wht
Blk
Red
Wht
Blk
Wht
Red
PE
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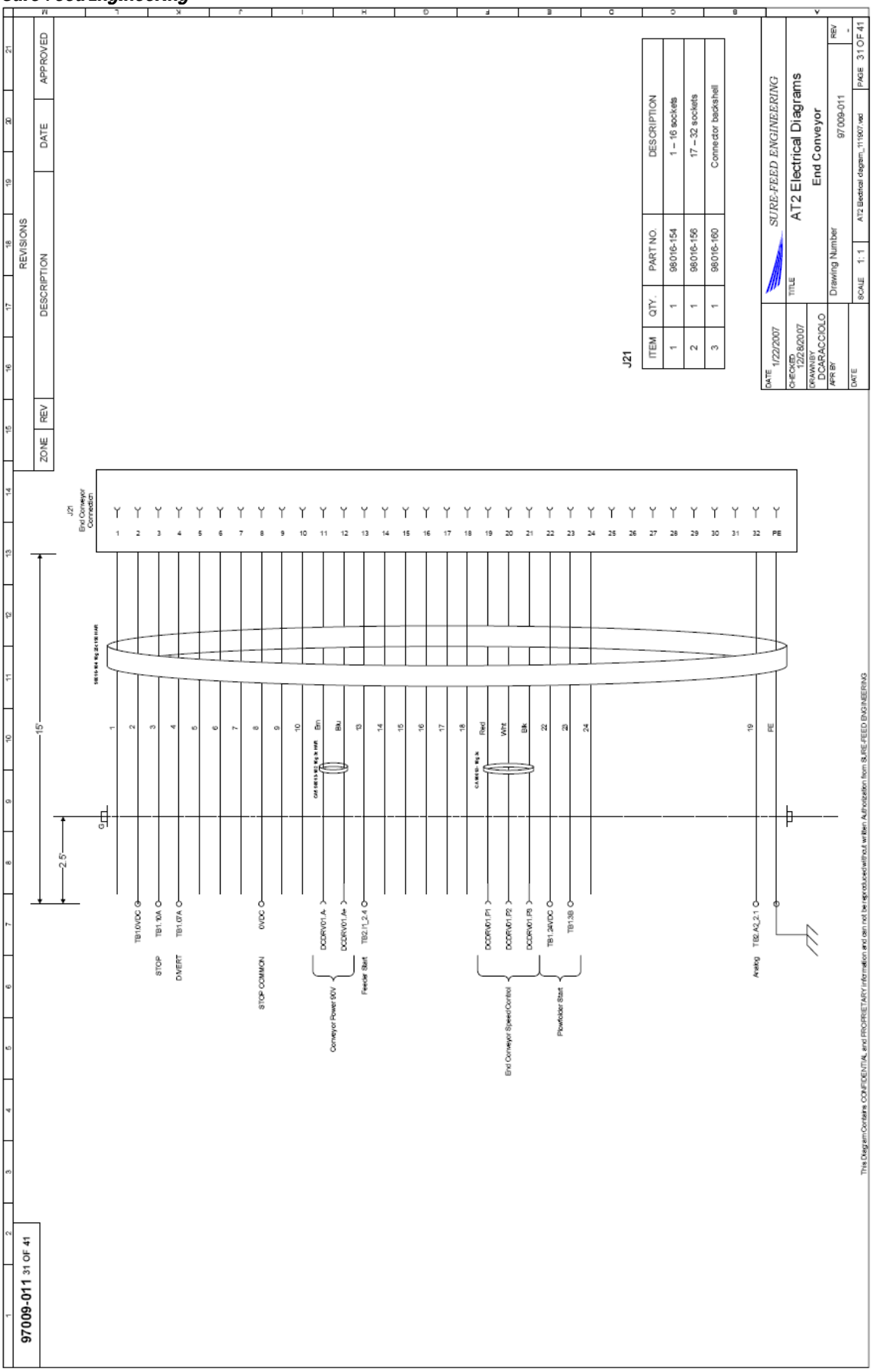
REVISIONS
ZONE
REV
DESCRIPTION
DATE
APPROVED
J21
ITEM
QTY.
PART NO.
DESCRIPTION
1
1
98016-154
1 – 16 sockets
2
1
98016-156
17 – 32 sockets
3
1
98016-160
Connector backshell
SURE-FEED ENGINEERING
AT2 Electrical Diagrams
End Conveyor
Drawing Number
97009-011
SCALE 1:1
AT2 Electrical diagram_111907.vsd
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DATE
J21
End Conveyor Connection
15'
2.5'
TB1 0VDC
TB1 10A
TB1 GFA
0VDC
DCDRV01 A-
DCDRV01 A+
TB2 I1_2 4
DCDRV01 P1
DCDRV01 P2
DCDRV01 P8
TB1 24VDC
TB1 3B
TB2 A2_2 1
STOP
DIVERT
STOP COMMON
Conveyor Power 90V
Feeder Start
End Conveyor Speed/Control
Flowfolder Start
Analog
Red
Wht
Blk
Blu
RE
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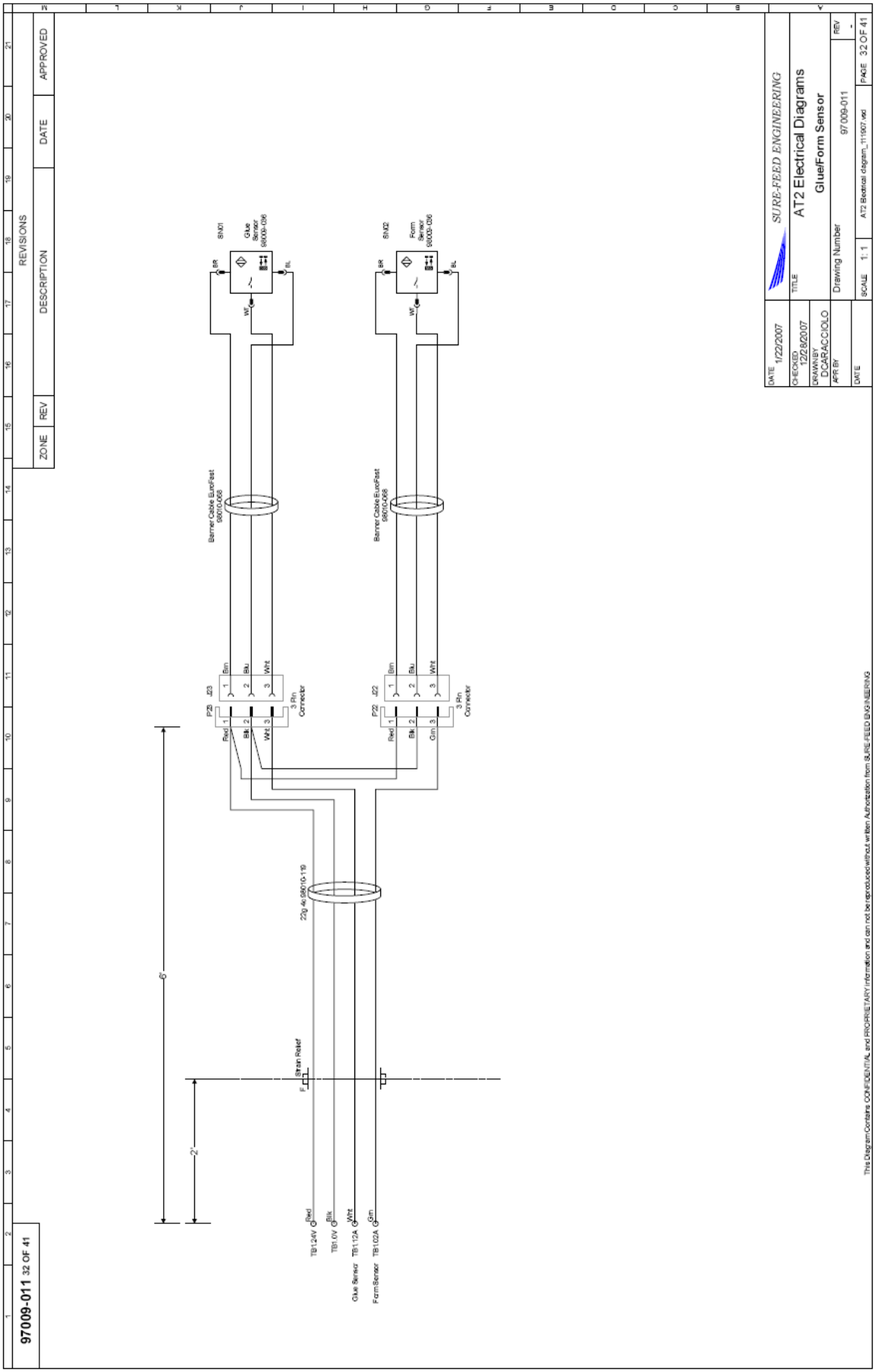
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REV
DESCRIPTION
DATE
APPROVED
SURE-FEED ENGINEERING
TITLE
AT2 Electrical Diagrams
Glue/Form Sensor
Drawing Number
97009-011
REV
-
SCALE 1: 1
AT2 Electrical diagram_111907.vsd
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SN01
Glue Sensor 98008-036
SN02
Form Sensor 98008-036
Banner Cable EuroFast 98010-066
Banner Cable EuroFast 98010-066
P23
J23
P22
J22
3 Pin Connector
3 Pin Connector
Red
Blk
Wht
Brn
Blu
Wht
Red
Blk
Grn
22g 4c 98010-19
Strain Relief
6'
2'
Red
Blk
Wht
Grn
TB1:24V
TB1:0V
TB1:12A
TB1:02A
Glue Sensor
Form Sensor
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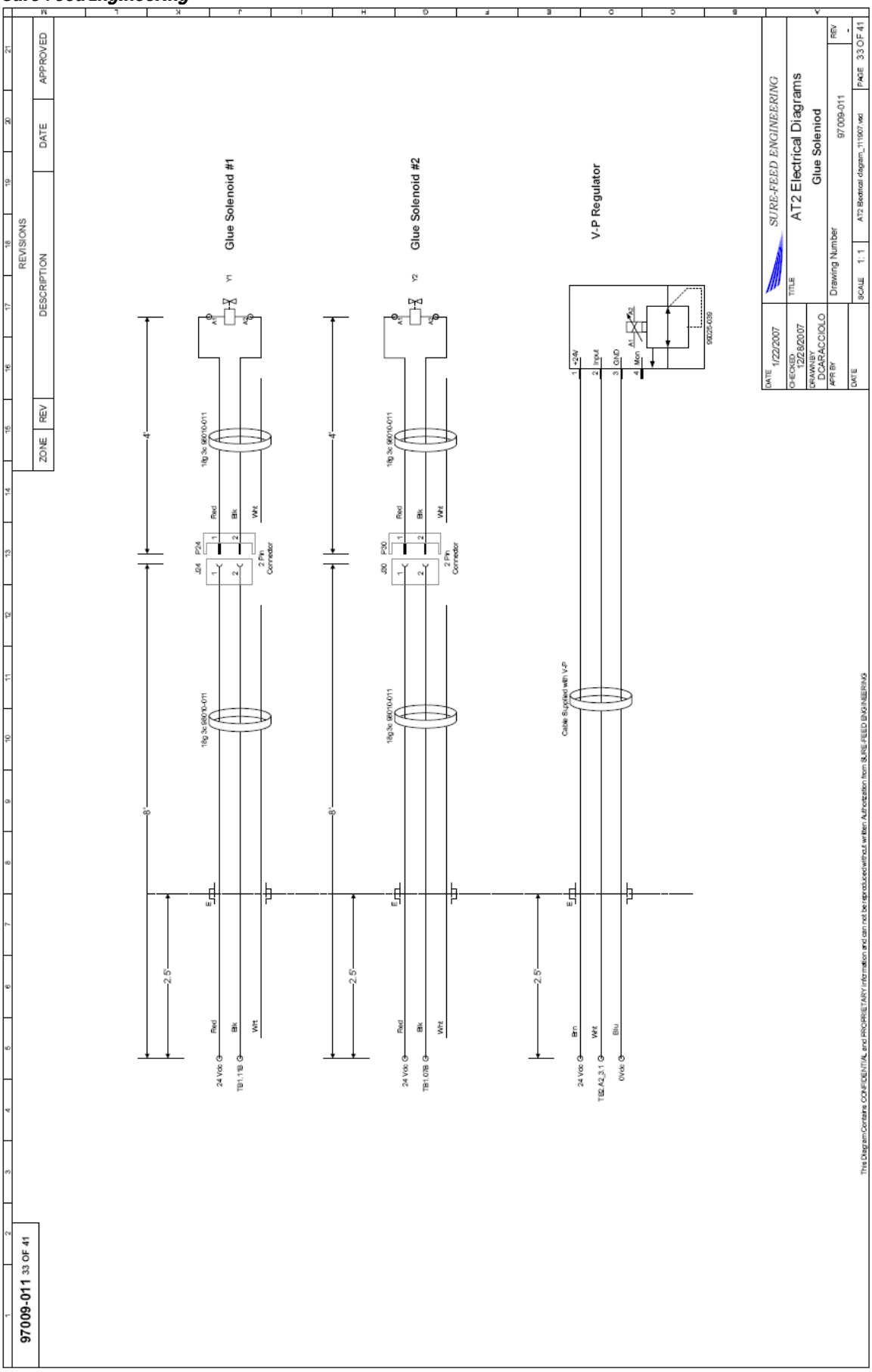
Glue Solenoid #1
Glue Solenoid #2
V-P Regulator
SURE-FEED ENGINEERING
AT2 Electrical Diagrams
Glue Soleniod
97009-011
AT2 Electrical diagram_111907.vsd
1/22/2007
12/8/2007
DCARACCIOLO
1:1
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REVISIONS
ZONE
REV
DESCRIPTION
DATE
APPROVED
97009-011 33 OF 41
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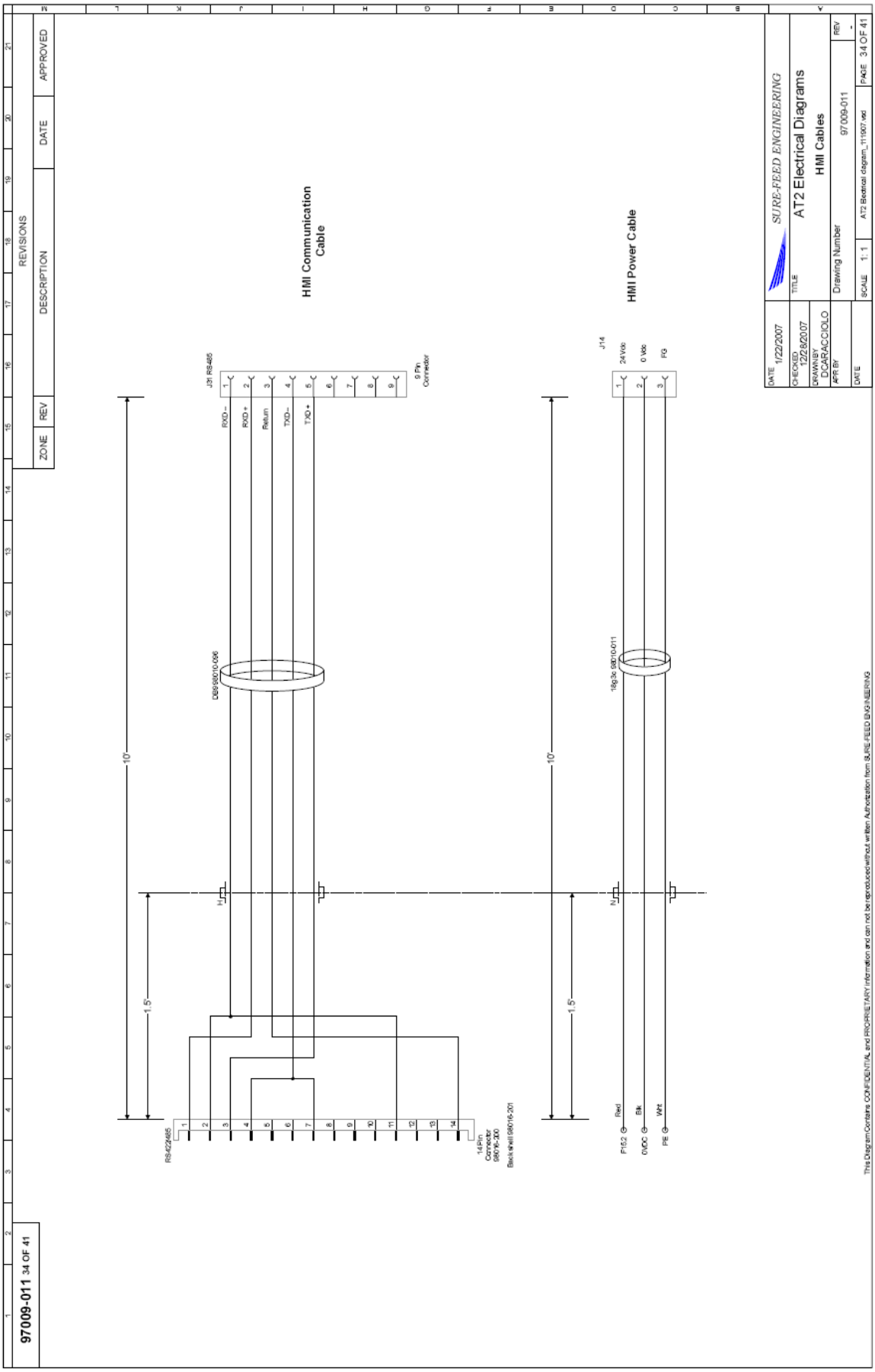
HMI Communication Cable
HMI Power Cable
J31 RS485
9 Pin Connector
RXD-
RXD+
Return
TXD-
TXD+
D89980010-096
J14
24Vdc
0 Vdc
FG
16g3c 68010-011
RS422/485
14Pin Connector 68016-200
Back shell 68016-201
F152
0VDC
FE
Red
Blk
Wht
10'
1.5'
REVISIONS
ZONE
REV
DESCRIPTION
DATE
APPROVED
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AT2 Electrical Diagrams
HMI Cables
Drawing Number
97009-011
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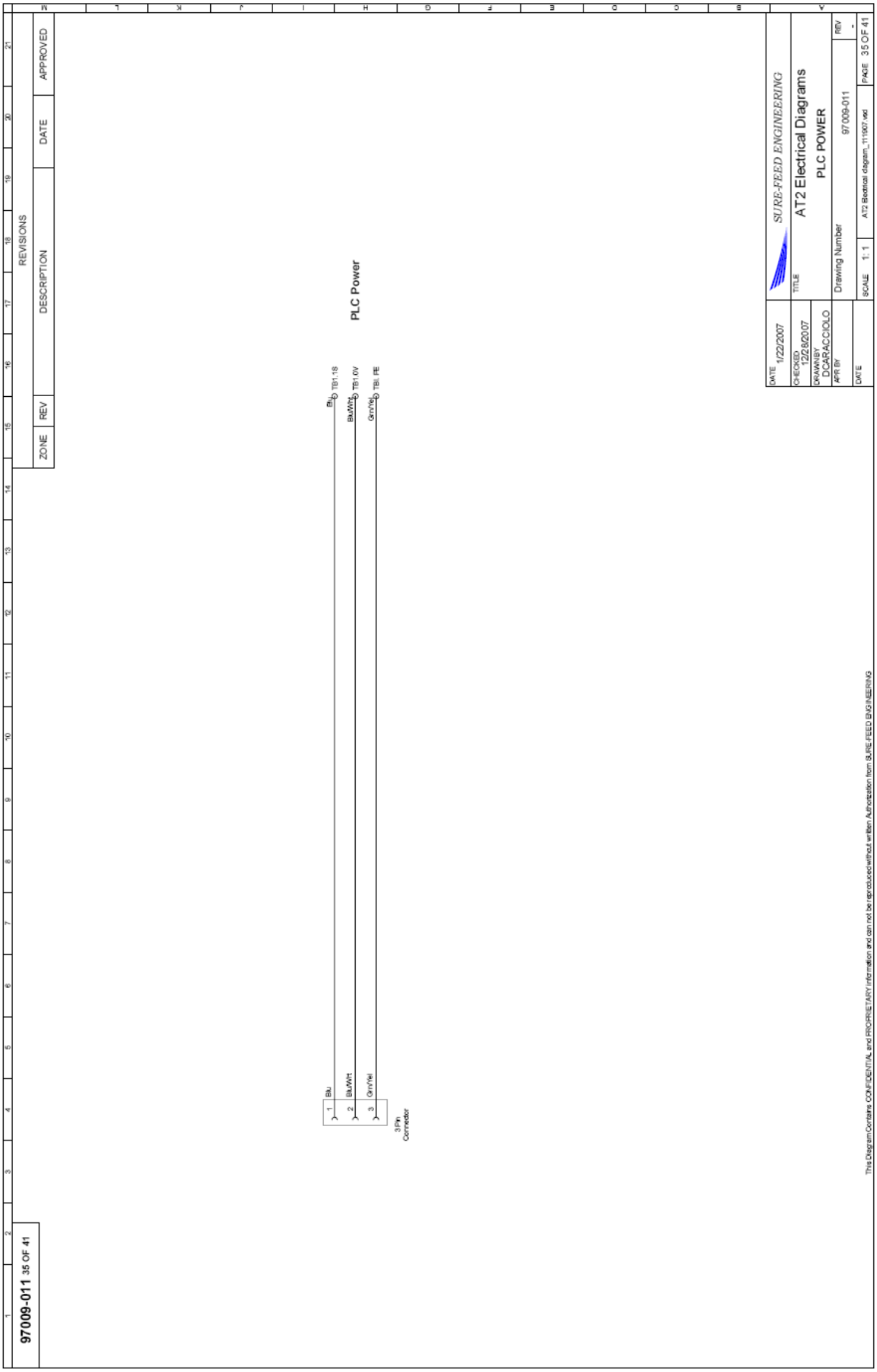
REVISIONS
ZONE
REV
DESCRIPTION
DATE
APPROVED
PLC Power
Blu
Blu/Wht
Grn/Yel
TB1 18
TB1 0V
TB1 PE
3 Pin Connector
SURE-FEED ENGINEERING
DATE 1/22/2007
CHECKED 1/22/2007
DRAWN BY DCARACCIOLO
APR BY
DATE
TITLE
AT2 Electrical Diagrams
PLC POWER
Drawing Number 97009-011
REV -
SCALE 1: 1
AT2 Electrical diagram_111907.vsd
PAGE 35 OF 41
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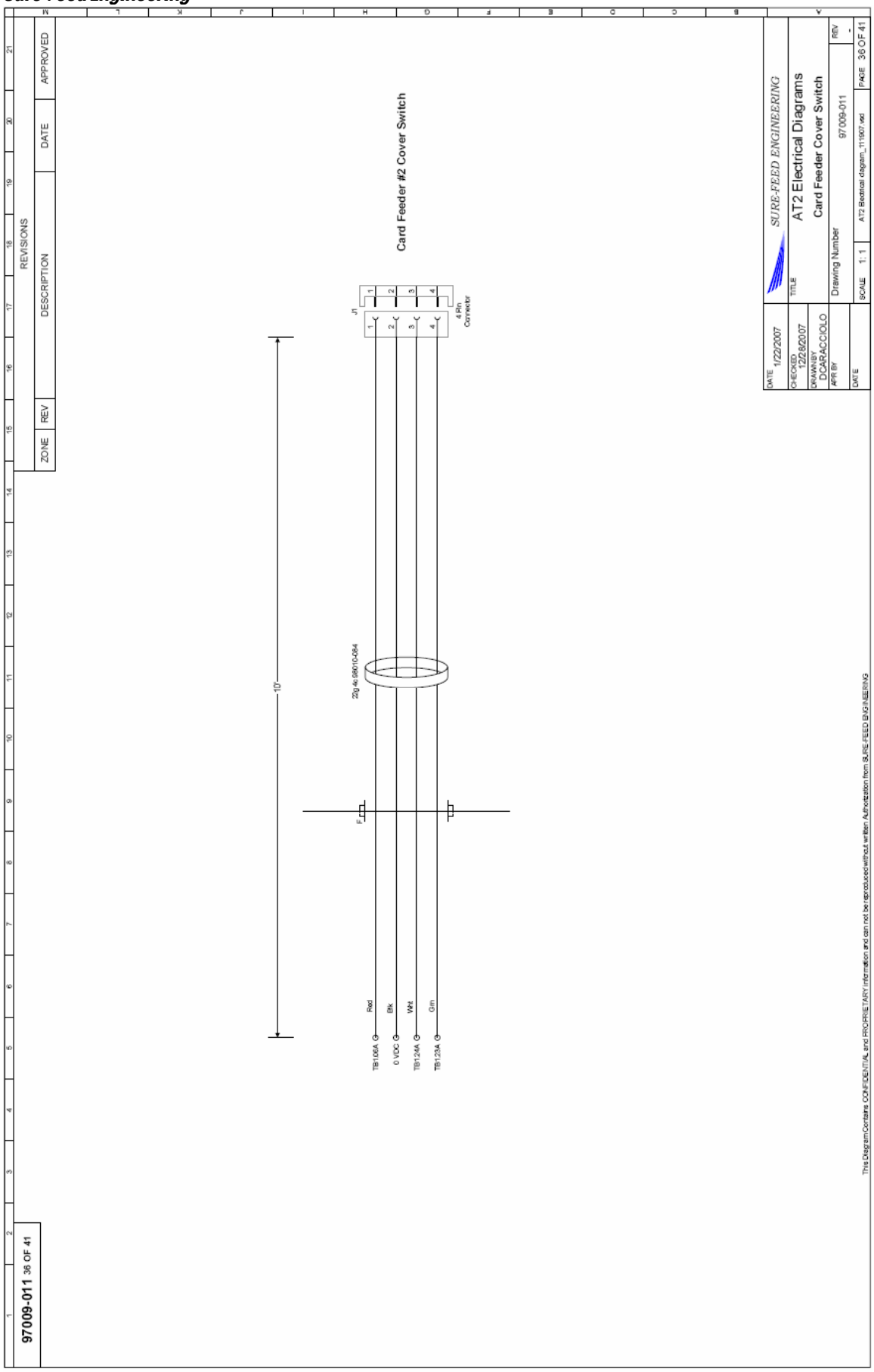
Card Feeder #2 Cover Switch
J1
4 Pin Connector
10"
22g 4c 98010-0084
TB1066A
Red
0 VDC
Blk
TB1244
Wht
TB1234
Grn
REVISIONS
ZONE
REV
DESCRIPTION
DATE
APPROVED
SURE-FEED ENGINEERING
DATE 1/22/2007
CHECKED 12/28/2007
DRAWN BY DCARACCIOLO
APR BY
DATE
TITLE
AT2 Electrical Diagrams
Card Feeder Cover Switch
Drawing Number 97009-011
REV -
SCALE 1:1
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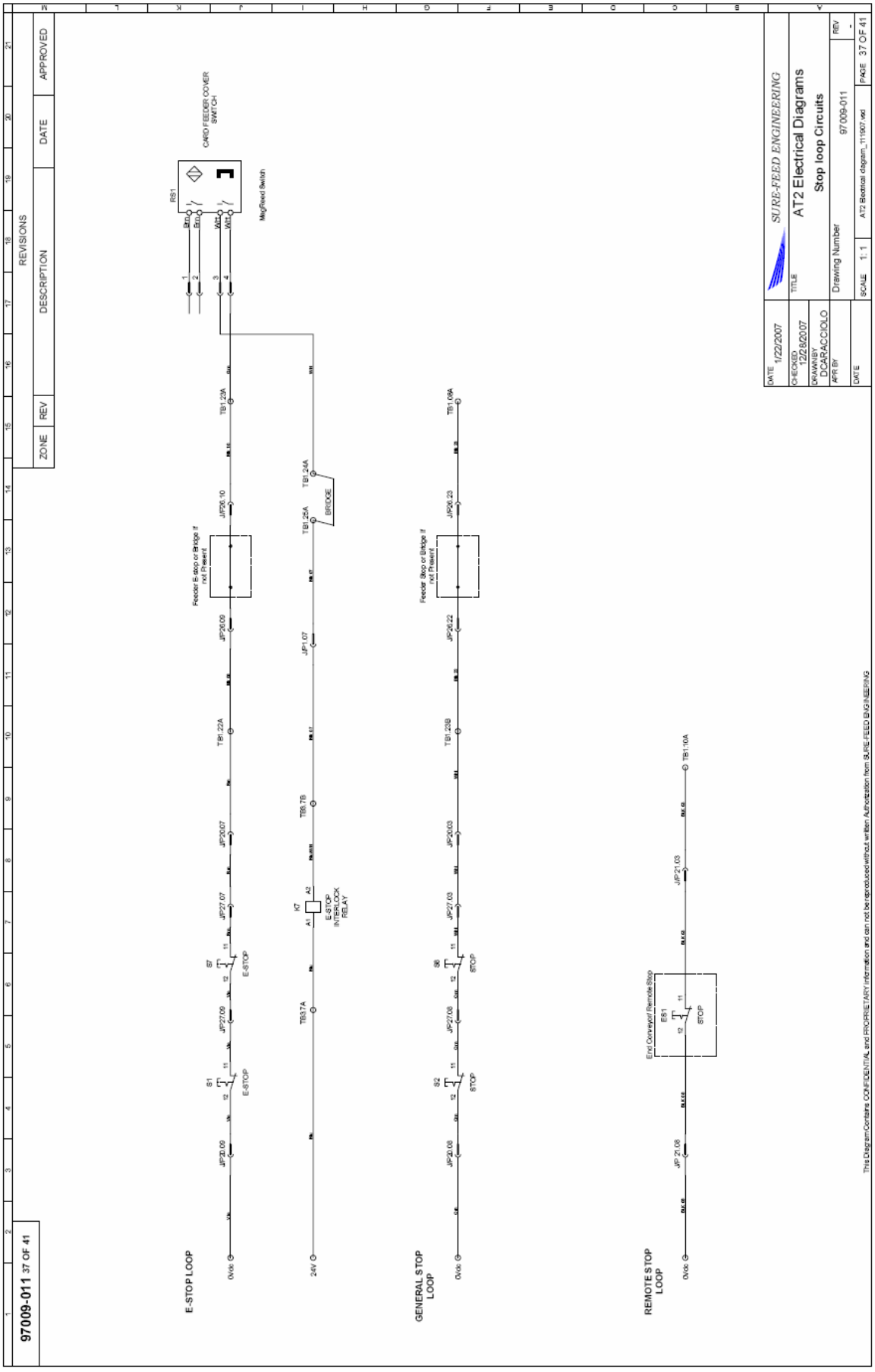
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REVISIONS
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DESCRIPTION
DATE
APPROVED
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AT2 Electrical Diagrams
Stop loop Circuits
Drawing Number
97009-011
REV
-
SCALE 1:1
AT2 Electrical diagram_111907.vsd
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DATE 1/22/2007
CHECKED 12/28/2007
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APP BY
DATE
CARD FEEDER COVER SWITCH
RS1
MagReed Switch
Feeder Stop or Bridge if not Present
BRIDGE
E-STOP
E-STOP INTERLOCK RELAY
STOP
End Conveyor Remote Stop
E-STOP LOOP
GENERAL STOP LOOP
REMOTE STOP LOOP
0Vdc
24V
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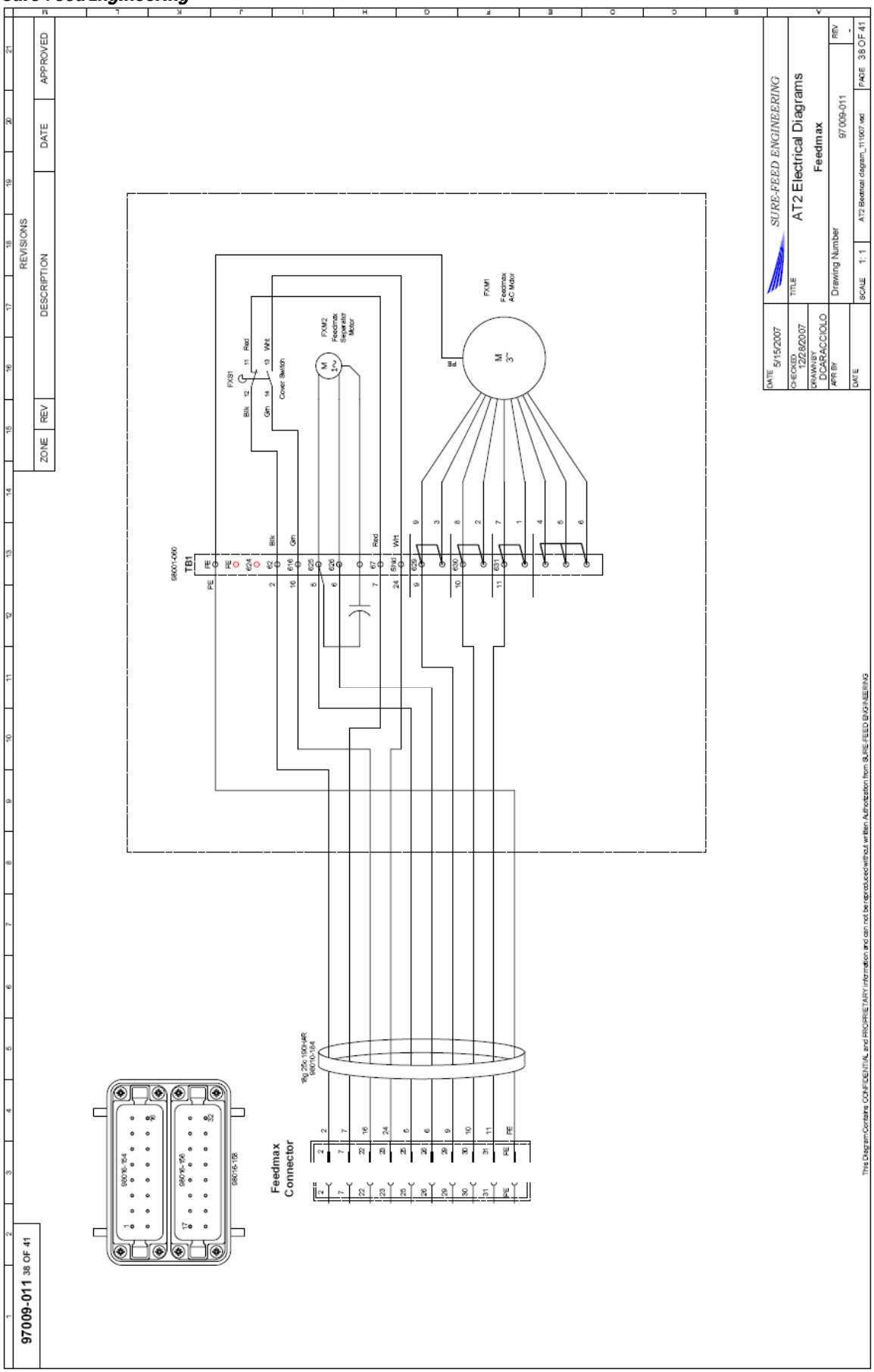
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DATE
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AT2 Electrical Diagrams
Feedmax
97009-011
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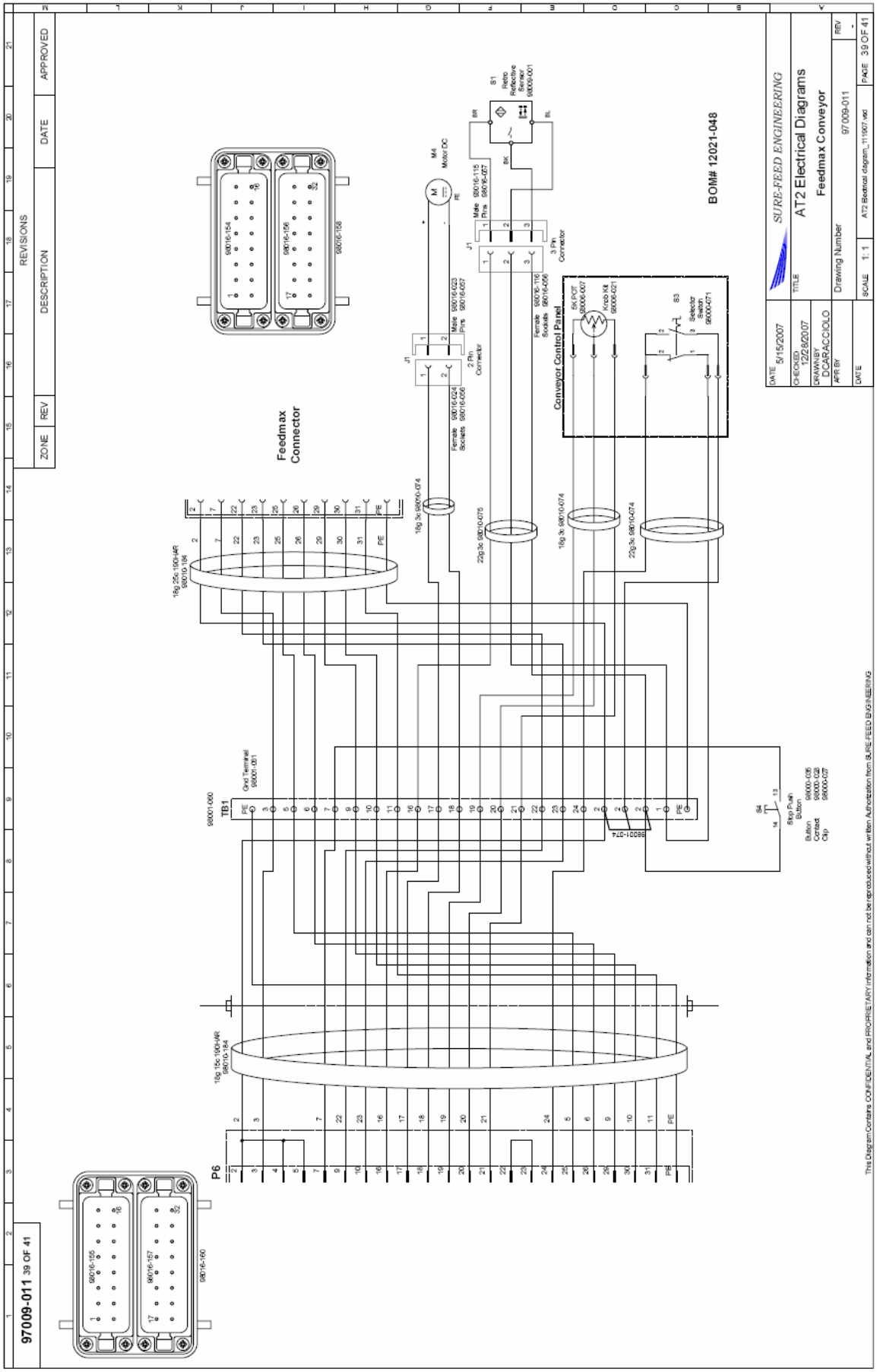
FXM1
Feedmax AC Motor
FXM2
Feedmax Separator Motor
FXS1
Cover Switch
TB1
Feedmax Connector
97009-011 38 OF 41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DATE
APPROVED
SURE-FEED ENGINEERING
TITLE
AT2 Electrical Diagrams
Feedmax Conveyor
Drawing Number
97009-011
REV
-
SCALE 1: 1
AT2 Electrical diagram_111907.vsd
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DATE 5/15/2007
CHECKED 12/28/2007
DRAWN BY DCARACCIOLO
APR BY
DATE
97009-011 39 OF 41
BOM# 12021-048
Feedmax Connector
Conveyor Control Panel
TB1
P6
S1 Retro Reflective Sensor 98000-001
M4 Motor DC
J1 2 Pin Connector
J1 3 Pin Connector
S4 Stop Push Button
S3 Selector Switch 98000-071
5K POT 98006-007
Knob Kit 98006-021
Grid Terminal 98001-051
98001-074
98001-000
98016-154
98016-156
98016-158
98016-155
98016-157
98016-160
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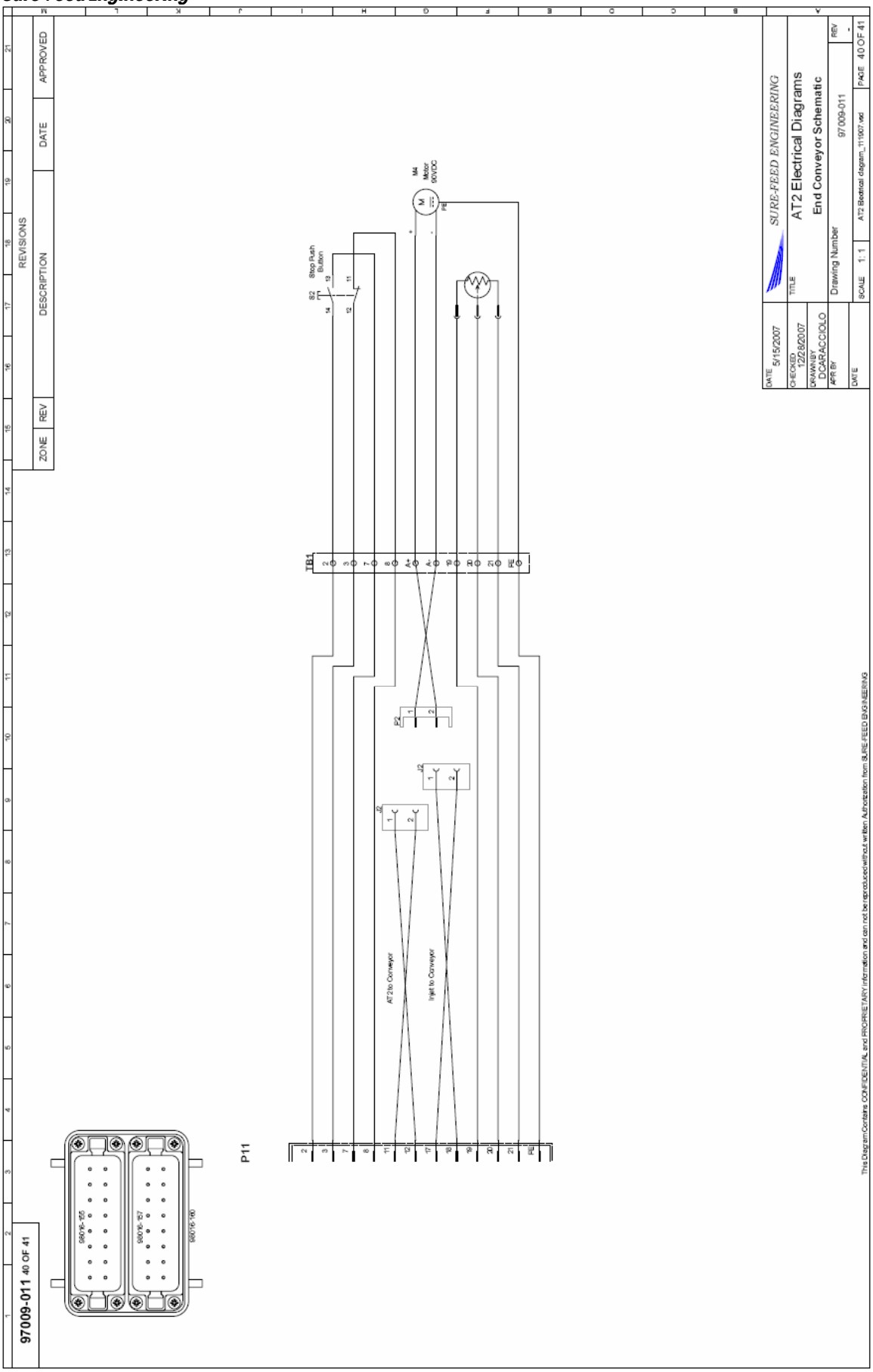
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DESCRIPTION
DATE
APPROVED
SURE-FEED ENGINEERING
AT2 Electrical Diagrams
End Conveyor Schematic
Drawing Number
97009-011
SCALE 1:1
AT2 Electrical diagram_111907.vsd
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P11
TB1
M4
Motor
90VDC
S2
Stop Push
Button
AT2to Conveyor
Inlet to Conveyor
98016-155
98016-157
98016-160
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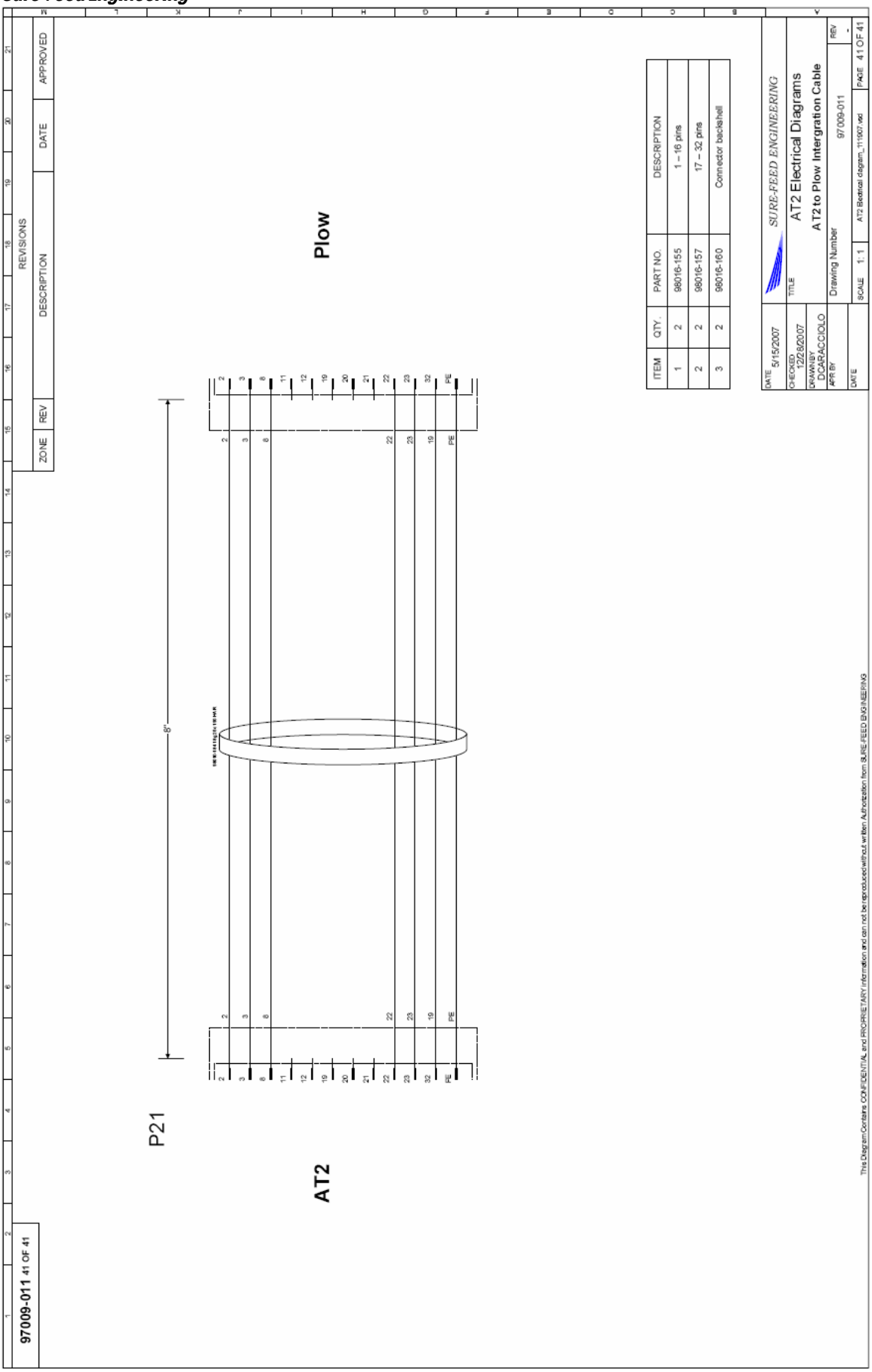
REVISIONS
ZONE
REV
DESCRIPTION
DATE
APPROVED
Plow
ITEM
QTY.
PART NO.
DESCRIPTION
1
2
98016-155
1 – 16 pins
2
2
98016-157
17 – 32 pins
3
2
98016-160
Connector backshell
SURE-FEED ENGINEERING
DATE 5/15/2007
CHECKED 12/28/2007
DRAWN BY DCARACCIOLO
APR BY
DATE
TITLE
AT2 Electrical Diagrams
AT2 to Plow Intergration Cable
Drawing Number
97009-011
REV
-
SCALE 1 : 1
AT2 Electrical diagram_111907.vsd
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P21
AT2
5"
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Section VII

Trouble Shooting

ATTACHER
Model AT 2

Pitney Bowes
SURE-FEED ENGINEERING
12050 49th STREET NORTH - CLEARWATER, FL. 33762-4301
PHONE: 727.571.3330 - FAX: 727.571.3443 - TOLL FREE: 1.800.INSERTER
web: sure-feed.com

Troubleshoot

Problem:	Things to Check:
No power to all components of the machine	Check Main Breaker Check power to the machine
No power to base control cabinet	Check 20 amp Breaker
No power to SERVO	Check FU1 fuses (SERVO 1) Check FU2fuses (SERVO 2)
No power to VFD	Check FU3 fuses (VFD 1) Check FU4 fuses (VFD 2)
No power to PLC	Check FU14 fuse
No power to HMI	Check FU15 fuse
ATTACHER Main Conveyor does not move	Check FU3 fuses Check Conveyor Plug Check CONVEYOR Potentiometer Check PLC in Run Mode Check Photocells
FEEDMAX Feeder is not feeding	Check Feeder On/Off Button (Lamp illuminated = On) Check Connection at Base Feeder needs to be full (Photocell Blocked) Check VFD 2 if off , refer to “No Power to VFD”
Base is not running	Check main disconnect is ON Check PLC switch to RUN – Lamp “RUN” is on. Check power to PLC, refer to “No Power PLC” Check Power to VFD1, refer to “No Power VFD” Check all E-stop buttons.
Vacuum Motor does not come on	Check FU5 and FU6 fuses Check K3 Relay, engages when the vacuum power is on.
	Check all stop buttons. Check connection to feeder, disconnect to troubleshoot. Check all STOP contact blocks for 0 Ohm. (Normally ∞.)

Troubleshooting Guide

Problem	Solution
CARD Feeder will not run.	**Check FU1 & FU2 fuses (Servo input)** **Check FU7 & FU8 fuses (Servo output)** **Check FU10 fuses (XFMR primary)** **Check outlet power source.** **Check power switch.**
Feeder runs but no material is being dispensed.	**Check FU16 & FU17 fuses (Separator motor input)** **Check material supply.** **Remove all material and follow setup procedure.** **Check rollers and belts for excessive wear or dirt.**
Feeder does not create a gap between pieces.	**Lower separator adjustment and observe. If a gap is not present after this adjustment, return separator to original position and move the back guide forward.** **Lower rear elevator belts slightly.**
Feeder does not detect material.	**Adjust position of the sensor.**
Thick material does not feed well.	**Decrease the height at the back of the material stack.** **Increase the opening at the separation device (the thicker the material the less critical the setting is).**
Thin material does not feed.	**Adjust separation device as described in section 2.** **Remove material and fan the stack allowing air to separate the pieces.** **Raise the rear of the material stack by moving the wedge forward.**