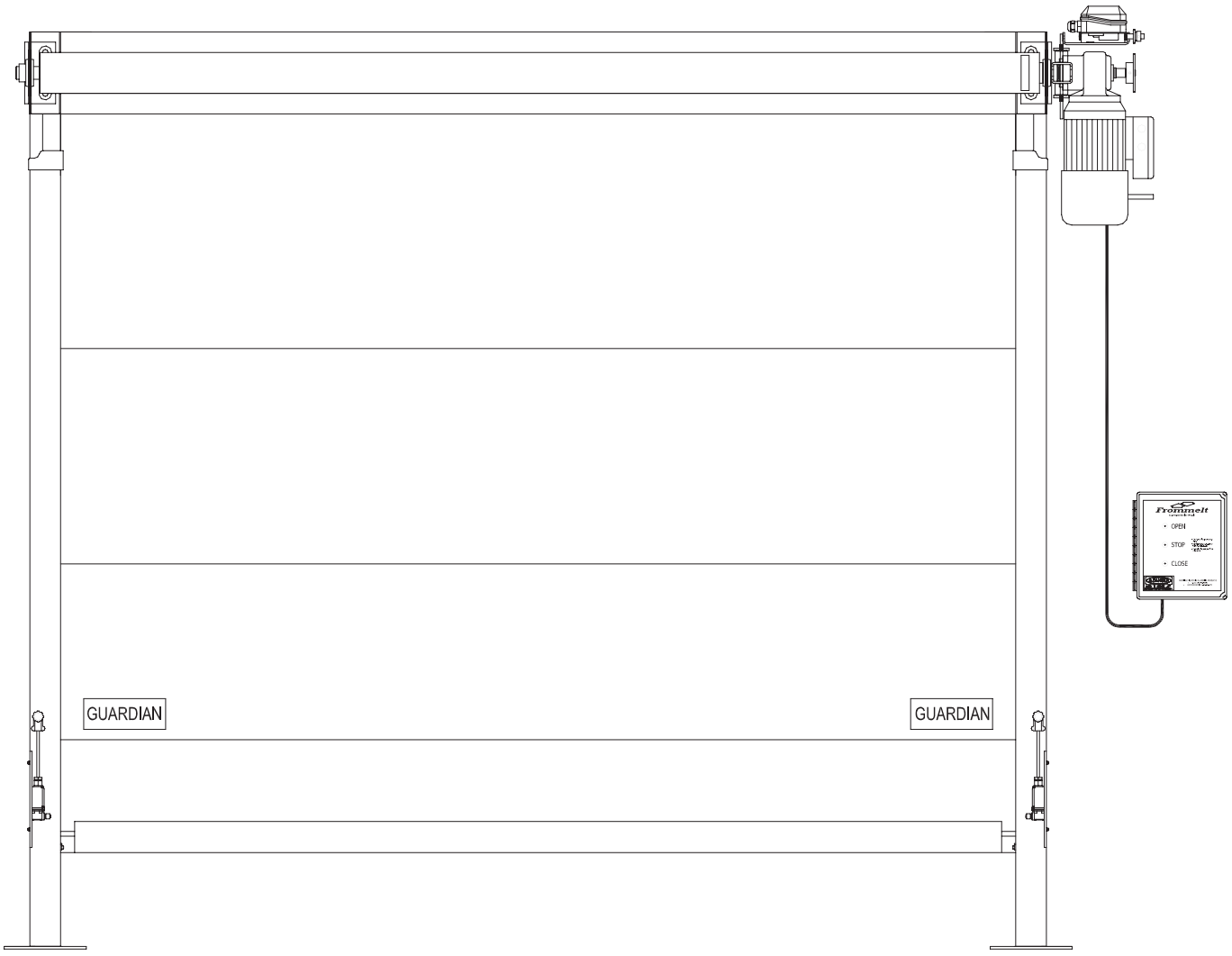
GUARDIAN™
POWR-SHIELD™
DUAL-GUARD™

AUTOMATED ROLL-UP CURTAIN

Models 1340/1350/1360



ISO 9001 CERTIFIED

Frommelt® SAFETY PRODUCTS

MADE IN THE U.S.A.

This Manual Covers Serial No. 42994 and Units Shipped to Date, Refer to 1340B for Units Prior to 3-10-2003 and 1340F for Units After 3-10-2003 thru 3-13-2008.

PRINTED IN U.S.A.
email: printshop@RITEHITE.com

Publication No. 1340G
MARCH 2008

PRODUCT INTRODUCTION

TABLE OF CONTENTS

NOTICE TO END USER

Our mission is to "Improve Industrial Safety, Security and Productivity Worldwide Through Quality and Innovation."

Thank you for purchasing the GUARDIAN/POWR-SHIELD™ barrier curtain by FROMMELT® SAFETY PRODUCTS. The GUARDIAN™/POWR-SHIELD™ automated roll-up curtain integrates fabrics with technology to provide an effective safety barrier against sparks, harmful light emissions and physical contact with the machine by the operator.

The GUARDIAN™/POWR-SHIELD, which is supplied with a motor assembly, curtain and curtain guides, offers optional vertical supports, an interlock switch and a control box. Model variations include heavy duty and dual curtain versions. The information contained in this manual will allow you to operate and maintain the door in a manner which will insure maximum life and trouble free operation.

When ordering parts through Aftermarket or Warranty department, always include your model serial or SO# to be sure that you receive the correct parts. The RHC and serial # for your product is located on a label on the side of the control box, ***Figure 16.*** The actual parts used on your door may be different than shown in this manual due to special engineering or product improvement.

Your local RITE-HITE DOORS, INC. Representative provides a Planned Maintenance Program (P.M.P.) which can be fitted to your specific operation. Call your local representative or RITE-HITE DOORS, INC. at 1-414-355-2600 or toll free at 1-800-456-0600. If any procedures for the installation, operation or maintenance of the GUARDIAN™/POWR-SHIELD have been left out of this manual or are not complete, contact RITE-HITE DOORS, INC. Technical Support at 1-563-589-2722.

RITE-HITE DOORS, INC. are covered by one or more of the following U.S. patents, including patents applied for, pending, or issued: 5,025,846, 5,143,137, 5,203,175, 5,329,781, 5,353,859, 5,392,836, 5,450,890, 5,542,463, 5,579,820, 5,601,134, 5,638,883, 5,655,591, 5,730,197, 5,743,317, 5,794,678, 5,887,385, 5,915,448, 5,944,086, 5,957,187, 6,042,158, 6,089,305, 6,098,695, 6,145,571, 6,148,897, 6,192,960, 6,321,822, 6,325,195, 6,330,763, 6,352,097, 6,360,487, 6,574,832, 6,598,648, 6,612,357, 6,615,898, 6,659,158

FEATURES

- Automatic, ergonomically correct door allows hands free operation.
- Heavy-Duty, U.V. protected curtain fabric protects operator from intense light and flying debris.
- Smooth, fast opening operation.

TOOLS AND MATERIALS REQUIRED

Tube of Anti-Seize or Grease Lubricant
Caulk Gun and Tubes
7/16", 1/2" & 9/16" Open End or Ratchet Wrench
7/16", 1/2" & 9/16" Socket
Phillips Screwdriver
Straight Screwdriver (small 1/8" blade)
Hammer
Hammer & Cordless Drill (3/8" or 1/2") w/Phillips Bit
Hole Saw
3/8" or 1/2" Masonry Bits
18" Long Drill Bits For Thru-Bolting
5/16" Driver Bit For Drill
Tape Measure 25' Minimum
Wire Strippers and Side Cutters
Retaining Ring Pliers
Set of Allen Wrenches (1/8", 5/32")
6' Carpenters Level, Water Level
Multi-Meter
Straps For Lifting Roller Tube and Header
Forklift
8' or 10'Step Ladder
Hardware for mounting the unit to the wall, shimming and anchoring to the floor are not provided.

WARRANTY

FROMMELT SAFETY PRODUCTS warrants that it's GUARDIAN/POWR-SHIELD Doors, including electrical components, will be free from defects in design, materials and workmanship for a period of one (1) year from the date of shipment. It does not cover damage incurred from abuse, misuse or impact. Belting, fuses, bulbs, and fogging or frosting of vision window, are not considered to be covered by warranty. All claims for breach of this warranty must be made within thirty (30) days after the defect is or can, with reasonable care, be discovered. To be entitled to the benefits of this warranty, the products must have been properly installed, maintained, operated within their rated capacities, and not otherwise abused. Periodic lubrication and adjustment is the sole responsibility of the owner. This is FROMMELT SAFETY PRODUCTS exclusive warranty. FROMMELT SAFETY PRODUCTS expressly disclaims all implied warranties including the implied warranties of merchantability and fitness. Non-standard FROMMELT SAFETY PRODUCTS warranties, if any, must be specified by FROMMELT SAFETY PRODUCTS in writing.

In the event of any defects covered by this warranty, FROMMELT SAFETY PRODUCTS will remedy such defects by repairing or replacing any defective equipment or parts. This shall be the exclusive remedy for all claims whether based on contract negligence or strict liability. Neither FROMMELT SAFETY PRODUCTS any other manufacturer whose products are the subject of this transaction, nor any FROMMELT SAFETY PRODUCTS representative, shall in any event be liable for any loss or use of any equipment or incidental or consequential damages of any kind whether for breach of warranty, negligence, or strict liability. The application of a manufacturer's specifications to a particular job is the responsibility of the purchaser.

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INSTALLATION INSTRUCTIONS

⚠ WARNING!!!

Make sure that the assembly is securely attached to the forklift to avoid injury due to equipment slipping or falling. Make sure that work area is barricaded to prevent the potential of unauthorized personnel entering the area and becoming injured. Make sure that no one is standing under the assembly while it is being lifted. Ensure that all workers are wearing head, eye and foot protection.

NOTE: The GUARDIAN/POWR-SHIELD can be installed either as a free standing unit or mounted to a machine structure.

1. Which workstation and which side of the workstation is the unit to be located?
2. If vertical support posts are not being used, how will the header assembly be mounted to the workstation?
3. Is anything buried in the floor where the anchors go.
4. Does the installation allow for clearance for robotic, machining, welding or other types of operation?
5. Does the installation meet all applicable robotic, machining, welding or other workstation safety requirements such as is contained in the following:
   a. OSHA Instruction CPL 2-1.24 (Mechanical Power Presses)
   b. UL Standard for Safety UL 325 (Door, Gate, Louver and Window Operators Systems)
   c. ANSI RIA R 15.06-1999 (Industrial Robots and Robot Systems Safety Requirements)
6. Are any special work permits required?
7. Can the lifting device, lift the assembly into position? Are there any overhead obstructions?
8. Is a qualified electrician ready to bring in the power and wire up the control box?
9. Can electrical power to the workstation be shut off without interfering with other plant operations?
10. Can material handling equipment (forklifts) be detoured during installation.
11. How will the work area be barricaded?
12. Does the customer wish to be present to observe?
13. Check that floor is level, and in sound condition and does not have cracks or other flaws so that the C-channel will be level and the vertical support posts will be plumb.
14. Plan the installation so that it will not interfere with the machining, welding or other work processes of the workstation.
15. Remove parts from containers and check that all are present using the packing list and the parts list section.

⚠ CAUTION !!!

A floor that is not sound and level may cause personal injury and/or equipment damage due to failure or collapse of the GUARDIAN/POWR-SHIELD.

UNIT WITH SUPPORTS

NOTE: This method is for assembling the door on the floor before lifting.

1. Lay the C-channel, roller tube, and vertical support in front of the unit, ***Figure 1.***

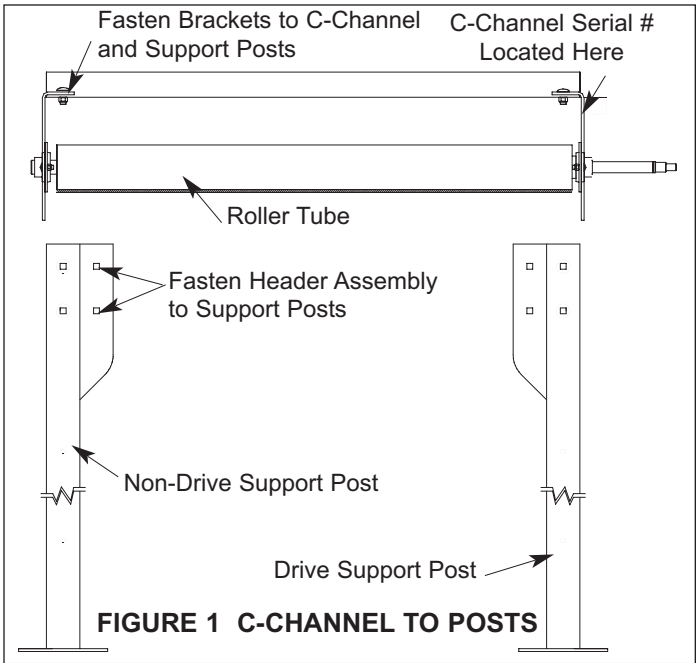


FIGURE 1 C-CHANNEL TO POSTS

2. Unbolt bearing plates from the C-channel.
3. Attach drive and non-drive vertical supports to C-channel using (2) 1/2-13 x 1 1/4” carriage bolts on inner holes only.
4. Install bearing plates and roller tube onto C-channel, using (2) 1/2-13 x 1 1/2” bolts. Torque to 230 in-lbs.
5. Confirm vertical supports and bearing plates are square to the C-channel.
6. Tighten channel bolts and torque to 80 ft/lbs.

NOTE: The bearing plate fasteners are shipped loose so the bearing can be self aligned during installation.

7. Verify drive shaft spacer is in contact with the bearing.
8. Locate lock collars and install on the shafts by turning clockwise until snug, ***Figure 6.***

NOTE:

It may be necessary to hold the roller tube from turning during next step.

VERTICAL SUPPORTS AND HEADER INSTALL

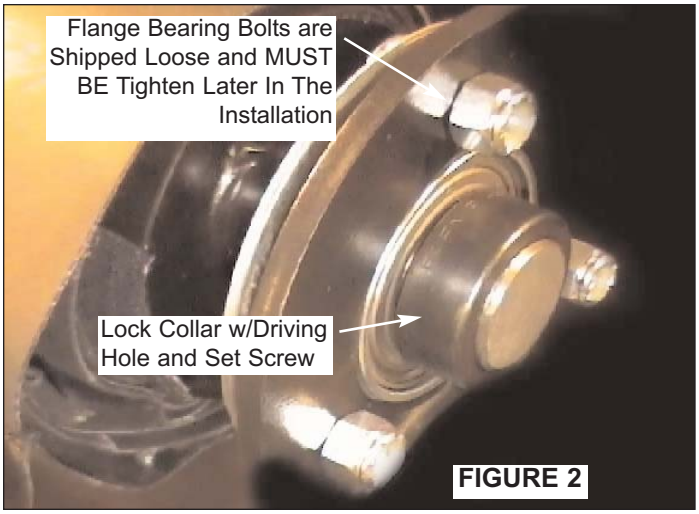


FIGURE 2

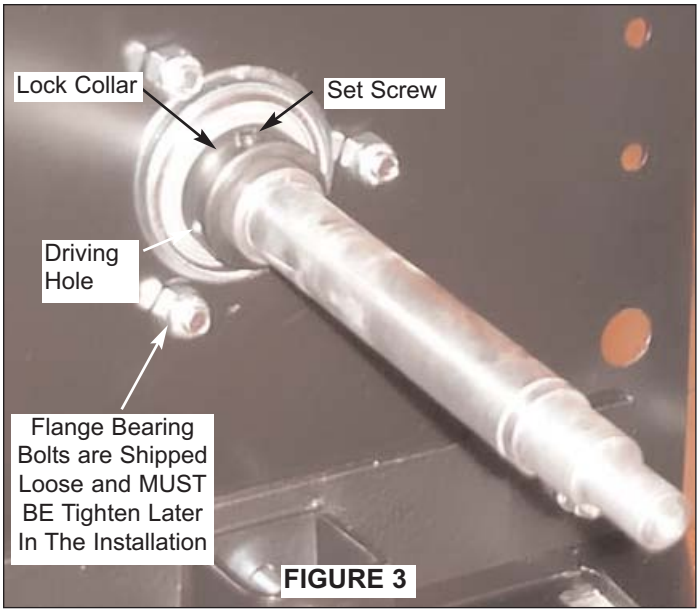


FIGURE 3

9. Using a hammer and punch, drive the collar clockwise using the driving hole next to the set screw until it is snug. Tighten the 5/16-18 set screw with a 5/32" allen wrench to lock in place, ***Figure 3.***

NOTE: Motor can be installed at this time or after the unit is installed upright. Proceed to MOTOR installation on Page 5 if chosen to do so now.

IMPORTANT!!!

The bearing plate fasteners must be tightened now.

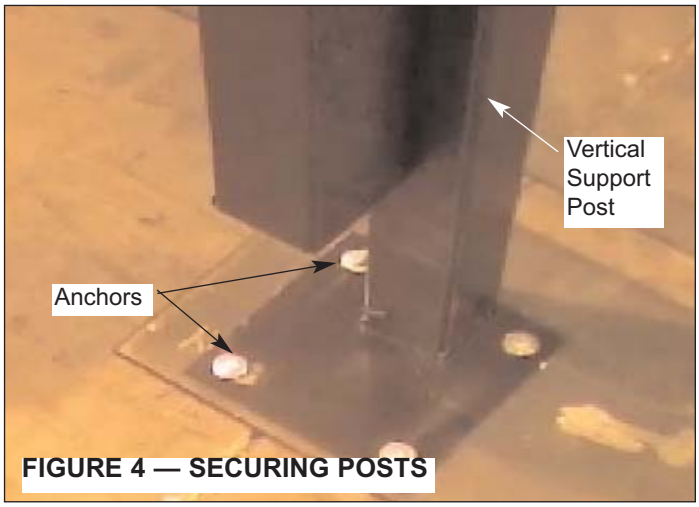


FIGURE 4 — SECURING POSTS

10. Raise the unit, make sure unit is balanced and stable.

NOTE:

Shim as necessary, using solid plastic or metal to fully support vertical posts. Drill through shims to allow for proper installation of anchor bolts.

11. Supporting unit with forklift, secure vertical posts using 1/2" bolts if mounting to machine base or 3/8" concrete anchors if securing to floor, snug only. Check that header is level and vertical posts are plumb, tighten anchors securely, ***Figure 4.***

12. Units may require additional support to eliminate horizontal motion and header channel oscillation during operation.

UNIT WITHOUT SUPPORTS

NOTE: This method comes with C- Channel and roller tube assembled.

1. Pre-drill header assembly as necessary so that the unit will bolt securely to the machine structure, ***Figure 5.***

NOTE:

Use special care to insure that the attachment bolts do not contact the curtain during operation.

2. While supporting unit with forklift, secure unit loosely to machine structure, using a minimum of (4) 1/2" grade 8 bolts.

3. Check that the C-channel is level and tighten bolts.

4. Align curtain guides with pre-drilled holes in C-channel and loosely secure with (4) 5/16" x 1" bolts.

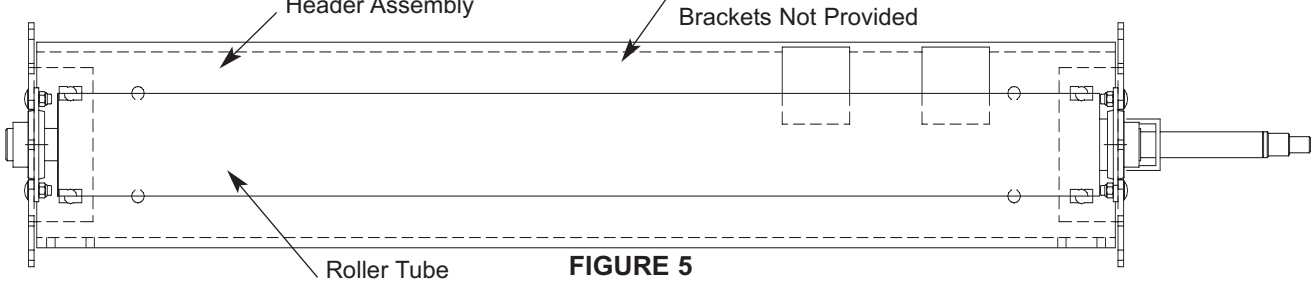


FIGURE 5

CURTAIN INSTALLATION

5. Shim and/or block out as necessary to make sure curtain guides are square and plumb.
6. Fasten guides securely to the unit or floor.

CURTAIN INSTALLATION

NOTE: The inside" of the curtain faces the workstation. The curtain will roll off the back side of the tube.

1. Optional thermoshield is sewn onto the curtain and will be on the inside. The GUARDIAN/POWR-SHIELD label should be sewn to the "outside" of the curtain and the retention bar pockets will be to the inside.
2. Curtain will fall between the roller tube and C-channel support and is positioned inside curtain guides. Center curtain on the roller tube by adjusting the hook and loop fastener as necessary to insure alignment.
3. Curtain should be centered between the guides without interference.
4. Curtain guides will be pre-assembled onto vertical support tubes if the option is chosen.
5. On units with single CAT4 interlock, make sure switch is installed on motor side trolley sleeve.

MOTOR INSTALLATION

1. Apply a grease lubricant or anti-seize (not supplied) to the drive shaft, bumpers and bumper block to ease installation and maintenance of gearbox.
2. Turn roller tube to align the shaft and gear keyway.
3. Install gearbox onto the shaft, some force may be required to slide the bumpers over the block, ***Figure 6.***
4. Route limit switch cable away from moving parts.
5. Install 1/4" x 3/16" x 4 1/2" key into the keyway. **The key should slide freely, forcing the key may cause distortion.** Tap key into keyway slot until it is past the retaining ring slot.
6. Gearbox case should be flush with the end of the retaining ring groove, ***Figure 7.***
7. Install retaining ring into shaft groove, ***Figure 7.***
8. Install 30 tooth sprocket onto the drive shaft until it hits the shoulder. Sprocket needs to line up with the 10 tooth sprocket on the limit switch shaft, if not loosen and move the 10 tooth sprocket, using a short straight edge to align. When aligned, tighten the 1/4" set screws onto the flat spot of the shaft with an 1/8" allen wrench to 75 in/lbs and lock-tight.
9. Install #35 chain onto sprockets, by lining up the chain so the connector falls onto the large sprocket, ***Figure 7.***
10. Place connector link onto chain and lock in place, ***Figure 7.*** To adjust the chain, loosen up the limit switch mounting bracket bolts and adjust so the chain deflects approximately 1/4" (retightened to 66 in/lbs). More than 1/4" may cause wear on the limit switch shaft bearing assembly. Make sure chain is tight enough so it does not slip over the teeth.

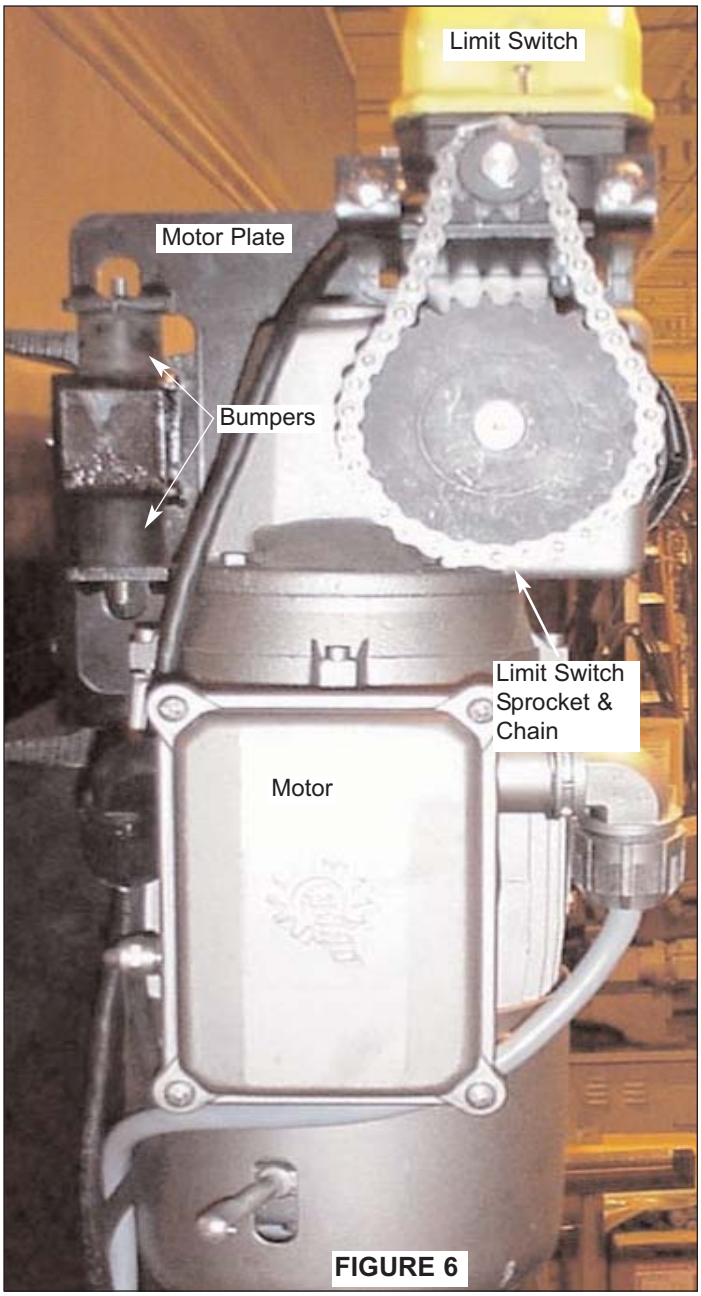


FIGURE 6

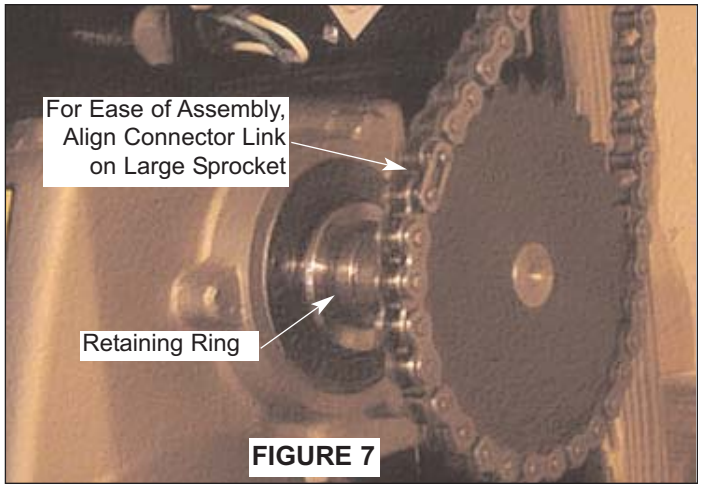


FIGURE 7

MOTOR INSTALLATION

IMPORTANT!!!

If the snap ring will not fit into the groove, make sure the lock collar does not overhang the step in the shaft. Be sure to lubricate shaft and bumper and that there is no interference between the gearbox and the frame.

WARNING!!!

Do not force the unit on by hitting with a hammer. Unit will fit onto shaft. Check for hardware obstructions. Make sure lock collar is installed properly. Anti-rotation plate bumpers are fully slid onto the bumper block, lubricate more if necessary.

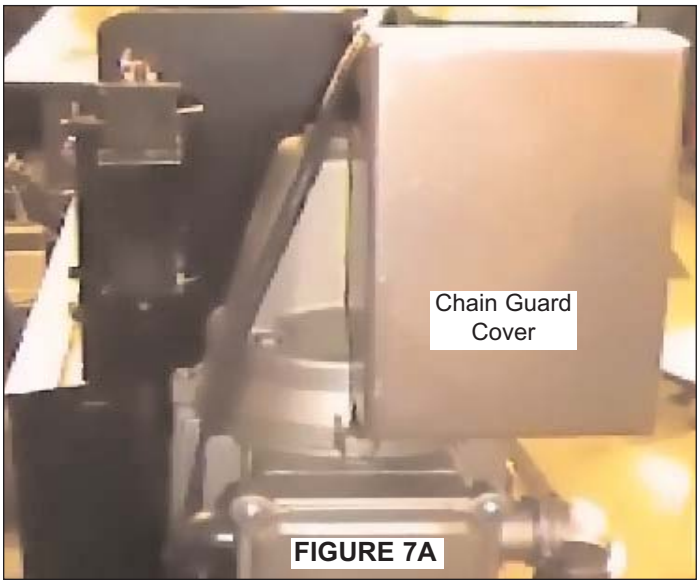


FIGURE 7A

NOTE:

The motor and brake cable is pre-wired into the motor junction box, but needs to be terminated into the control box later in the installation process. Electrical drawings are located in the control or parts box and on Pages 11 - 13.

CHAIN GUARD INSTALL

1. After unit is functional, use 1/4” bolts to fasten limit switch chain guard, ***Figure 7A.***
2. Make sure guard does not interfere with chain rotation.
3. Remove the curtain strap from the curtain.

DUAL GUARD INSTALL

Figure 8 is for installation of the Dual Guardian roller tube, header assembly.

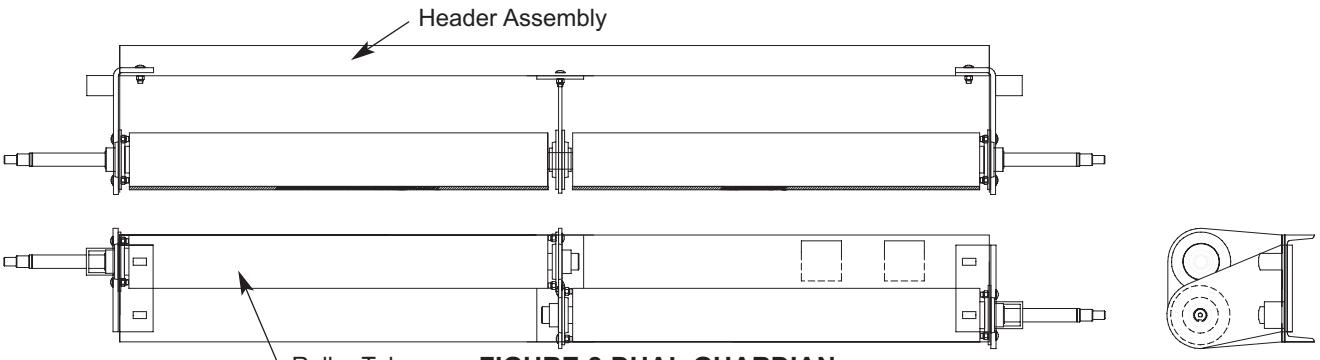


FIGURE 8 DUAL GUARDIAN

ELECTRICAL INSTALLATION

⚠ WARNING!!!

When working with electrical or electronic controls, make sure that the power source has been locked out and tagged according to OSHA regulations and approved local electrical codes.

IMPORTANT!!!

The control box and all wiring should be installed by a qualified electrician in accordance with all national and local electrical codes. If the rigid conduit is installed, bonding must be maintained between conduit and ground connections by using ground bushings and a jumper wire. Solid 3/4" conduit is recommended.

IMPORTANT!!!

Do not connect or install any activation device until power up/start up process is completed.

NOTE:

The Guardian/Powr-Shield may be wired directly into the workstation control system.

Do not connect the conduit to the fitting on the control box until correct conduit and wire length is achieved. Flexible non-metallic conduit must be securely fastened at least every 3' to meet National Electrical Code requirements (N.E.C. 351-27).

1. The following is the responsibility of the installing electrician.
   a. All local, state, and national electrical codes are met.
   b. Electrical service up to the control box with proper branch service protection and an approved means of disconnect.
2. All holes and conduit run into the control box must be through the bottom, ***Figure 9.***

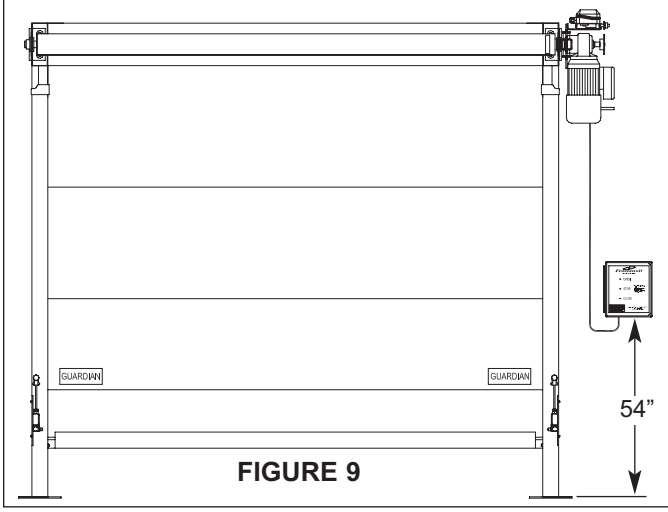


FIGURE 9

3. All necessary wiring diagrams are on ***Pages 11 - 13.***
4. The control box is provided with class CC protective fusing for the incoming power.
5. The incoming power terminals in the control box will not accommodate wires larger than 10AWG.

CONTROL BOX INSTALL

1. Install control box and remote disconnect (supplied by others), approximately 54" above floor level, ***Figure 9.***
2. Install electrical conduit between motor junction box, control box and remote disconnect. **All connections to control box must be through the bottom.**
3. Pull control cable through conduit between motor junction box and control box.
4. Run control cable from limit switch assembly through the conduit to the control box. Make sure cable does not interfere with installation of limit switch cover.
5. Strip and trim wires to proper length and connect to terminal strip as shown on ***Pages 11 - 13.***

NO CONTROL BOX INSTALL

1. Assemble components necessary to control 3 phase power at either 208, 230, 400, 460 or 575 volts.
2. Follow wiring diagram on ***Pages 11 - 14.*** to connect motor and control wiring.
3. Terminals 3 & 4 on the Bridge Rectifier (Located in the motor junction box) should be switched with auxiliary N.O. dry contacts on motor contactors to release the brake when motor is running. The contacts should close when the motor is running to release the brake. Wires 4 & 5 in the supplied motor harness are wired into terminals 3 & 4 on the Bridge Rectifier. See Motor / Brake Electrical Schematic on ***Page 14*** for wiring.

IMPORTANT!!!

In the next step be prepared to press the stop button, in case the motor winding is phased incorrectly and causes the roller to turn the wrong way.

POWER UP/START UP

1. Turn on power to the control box.
2. Position the barrier curtain in the center of its travel.
3. Press the OPEN button, the roller should turn so that if the curtain was hung between the roller and C-channel it would be raised. If roller turns the wrong way, immediately stop the door.
4. To reverse the phase, disconnect power, lock and tag out. Reverse leads T1 and T2 in the control box. Reconnect power and check operation.
5. Press the CLOSE button, the roller should turn so that if the curtain was hung between the roller and the C-channel it would be lowered. If roller turns the wrong way, immediately stop the door.

LIMIT SWITCH ADJUSTMENTS

LIMIT SWITCH ADJUSTMENT

1. Manually release brake and raise or lower the curtain to the proper full open position.
2. Loosen the two phillips screws and remove cover.
3. The limit switches are normally closed and will open when the limit cam lobe is tripped or activated.
4. Loosen the center locking screw and turn the open limit switch cam locking screw labeled #2 until you hear the contact click, ***Figure 10.*** Pay attention to rotation of the cam so when limit is adjusted, it will be on the proper side of the large cam.
   a. For a Right Hand Drive door, the roller tube and limit shaft turn clockwise to lower and counter-clockwise to raise the door. Turn the #2 open limit switch screw counter-clockwise to lower the door and clockwise to raise the door.
   b. For a Left Hand Drive door, the roller tube and limit shaft turn counter-clockwise to lower and clockwise to raise the door. Turn the #2 open limit switch screw clockwise to lower the door and counter-clockwise to raise the door.
5. To adjust the closed limit switch, manually lower the door to the full closed position using the brake release handle. Turn the cam locking screw labeled #1 until you hear the contact click, ***Figure 10.***
   a. For a Right Hand Drive door, turn the #1 close limit switch screw clockwise to lower the door and counter-clockwise to raise the door.
   b. For a Left Hand Drive door, turn the #1 close limit switch screw counter-clockwise to lower the door and clockwise to raise the door.
6. Fine tuning of the limits may be necessary. This will be determined by running the door up and down.
7. For any reason if the limit switch plate adjustment bolts need to be loosened or replaced, they should be Grade 8 bolts and torqued to 19ft/lbs.
8. DO NOT raise unit too high or damage to the top guide cap could occur.

REVERSING PHOTOEYE

1. Locate the photoeye components (receiver, reflector, and mounting brackets).
2. Attach the photoeye brackets at approximately torso height of the operator, ***Figure 12.***
3. Secure the cable to the control box.
4. Connect the wires to the terminal strip. Refer to External Field Wiring Diagram, ***Pages 11 - 13.***
5. Locate the Light/Dark Operate Switch on the back end of the receiver unit. Make sure that the switch is set to the Light Operate position.

ADJUSTMENT

A photoeye sensor device is a beam of infrared light "emitted" (sent) across the curtain opening to the reflector or receiver photoeye unit. The beam is reflected back by the reflector to the "receiver" portion of the photoeye assembly. If the light beam is "blocked" the photoeye contact is actuated sending an open command until blocked. On the GUARDIAN/POWR-SHIELD, the action is to prevent the curtain from being lowered on someone.

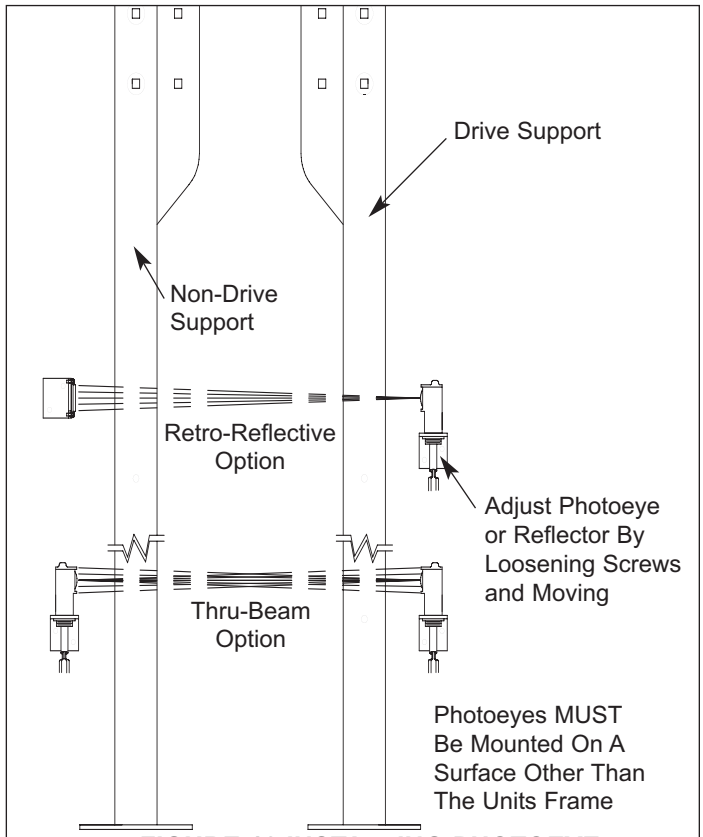


FIGURE 12 INSTALLING PHOTOEYE

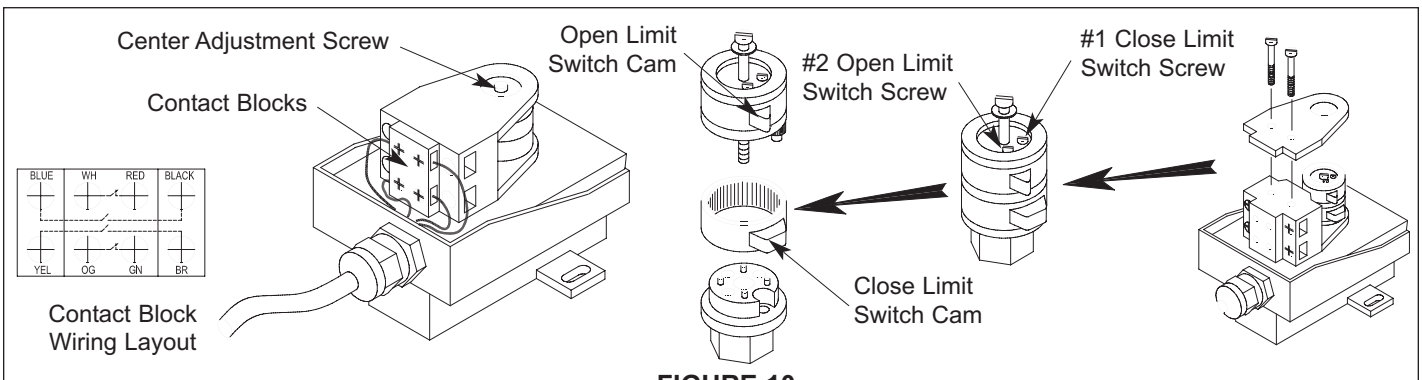


FIGURE 10

PHOTOEYE/INTERLOCK INSTALL (OPTIONAL)

ALIGNMENT

1. To set the vertical alignment loosen the mounting bracket attachment bolts slightly and rotate the mounting bracket until the red and GREEN LEDs turn on, ***Figure 12.*** Continue to rotate the bracket until the LEDs turn off. Rotate the bracket back half the distance and tighten the mounting bolts.
2. To set the horizontal alignment loosen the lock ring slightly and sweep the photoeye assembly left or right until the red and GREEN LEDs turn on. Continue to rotate the photoeye assembly until the LEDs turn off. Rotate the photoeye back half the distance and tighten the lock ring.

MISC: A view of the curtain guides, ***Figure 13.***

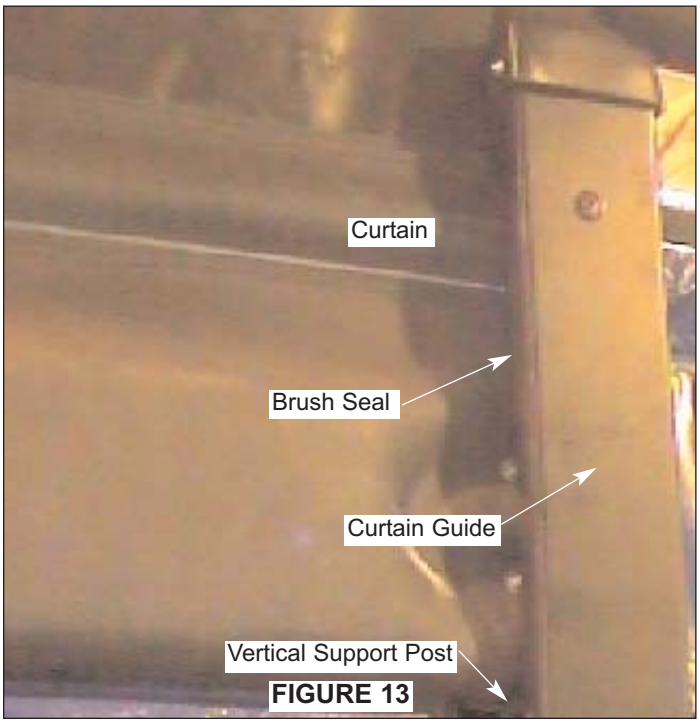


FIGURE 13

WARNING!!!

Make sure switch is wired directly into the safety control circuit, so that the machine will shut down if the switch is defective or the curtain is not down.

LEVER ARM INTERLOCK

NOTE: The lever arm interlock is factory installed at the bottom of the curtain guide but may be positioned higher by drilling holes and remounting the plate onto curtain guide, Figure 14.

NON-CONTACT INTERLOCK

NOTE: The Non-Contact interlock transmits a coded signal from the Vital 1 controller through the Adam switch. The Eva actuator modifies the received signal and resends it to the Vital 1 controller via the Adam switch. The Adam switch is factory installed on an adjustable bracket in the bottom of the curtain guide. The Eva actuator is factory installed on a sliding trolley inside the curtain guide.

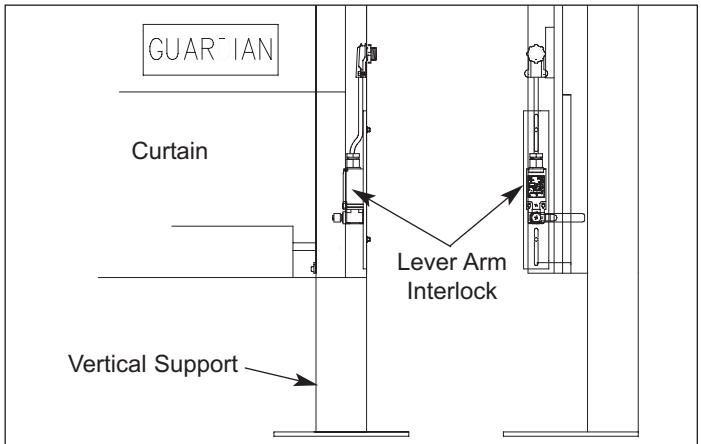


FIGURE 14 INTERLOCK SWITCH

1. Operate curtain to the closed position, ***Figure 15 & 15A.***
2. Lift right side of curtain to install bottom barrier bar in left trolley sleeve. Reinstall upper barrier bars in guide as required.
3. Lift left side of curtain to install bottom barrier bar in right trolley sleeve. Reinstall upper barrier bars in guide as required.

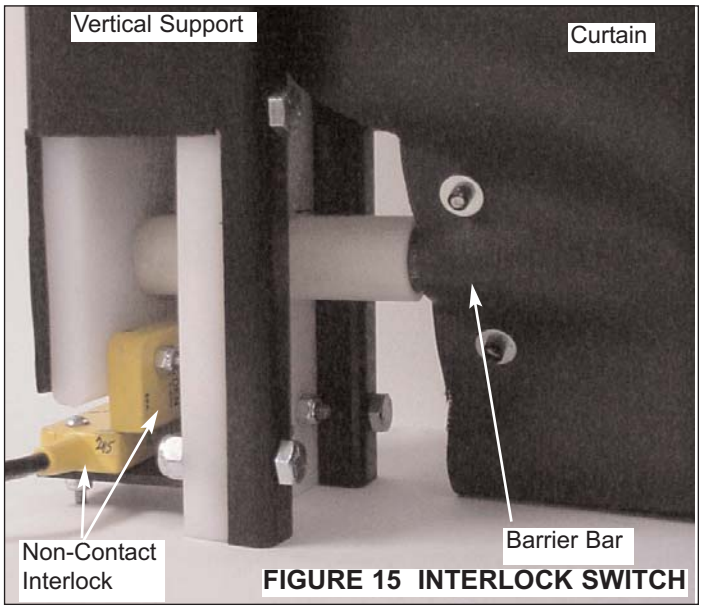


FIGURE 15 INTERLOCK SWITCH

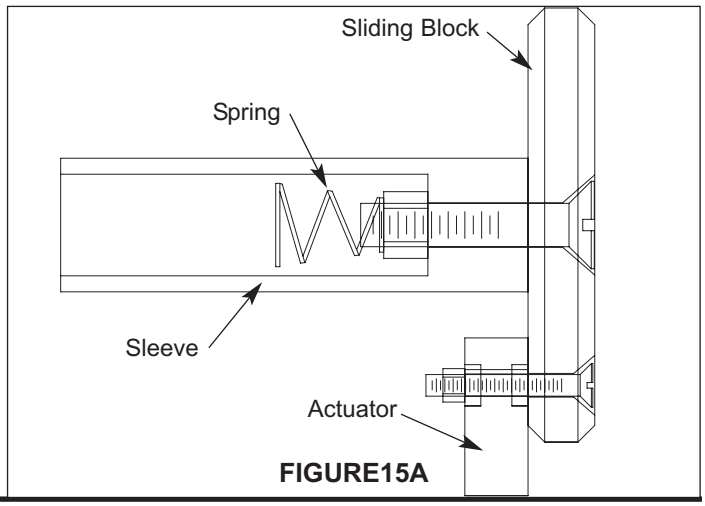


FIGURE15A

OPTIONAL INTERLOCKS

4. Adjust open limit switch so sliding trolley block stops just below guide cap.
5. Adjust closed limit so sliding trolley sleeve rests on vee-guide.
6. Secure Vital 1 controller on din rail inside enclosure.
7. Wire Adam switch and Vital 1 controller as shown on ***Page 13.*** Secure switch wiring as required.
8. Adjust the Adam switch height to minimize the distance to the Eva actuator when the curtain is in the closed position.
9. The LED indicator on the Adam switch is green when Eva actuator is within range. A green LED indicates the safety circuit is closed and the Guardian is closed. A red LED indicates the Eva actuator is out of range, the safety circuit is open, and the Guardian is open. A flashing green/red LED indicates the Eva actuator is in range and Guardian closed, but the safety circuit is open.

IMPORTANT!!!

Opening curtain too far may cause damage to guide caps or sliding trolley assembly.

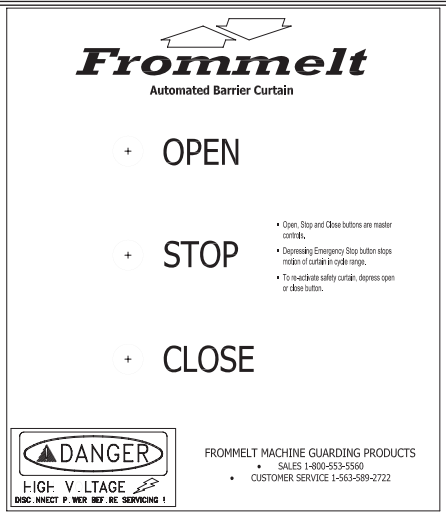


FIGURE 16

OPERATING CONDITIONS

Operate the curtain under normal conditions. Observe the curtain opening to make sure that it opens fully and does not open so far that it comes out of the curtain guides. Observe the closing action to make sure that the curtain operates smoothly, and fully closes without excessive curtain ripple near the bottom.

STOP BUTTON

The STOP button stops the barrier curtain operation at any time during its travel, ***Figure 16.***

OPEN BUTTON

The OPEN button opens the curtain and resets the curtain after a fault condition. To open, press the button, you do not have to press and hold the button. When you take your finger off the button, the button springs back to its normal position.

CLOSE BUTTON

The CLOSE button closes the barrier curtain. To close, press the button, you do not have to press and hold the button. When you take your finger off the button, the button springs back to its normal position, ***Figure 16.***

CURTAIN OPERATION

It is recommended that the operation of all controls on the GUARDIAN/POWR-SHIELD be verified monthly.

ACTIVATION DEVICES

Operate the system with any remote activation devices that are in use. Make sure that the curtain fully opens and then closes after given the command to close.

REVERSING FEATURES

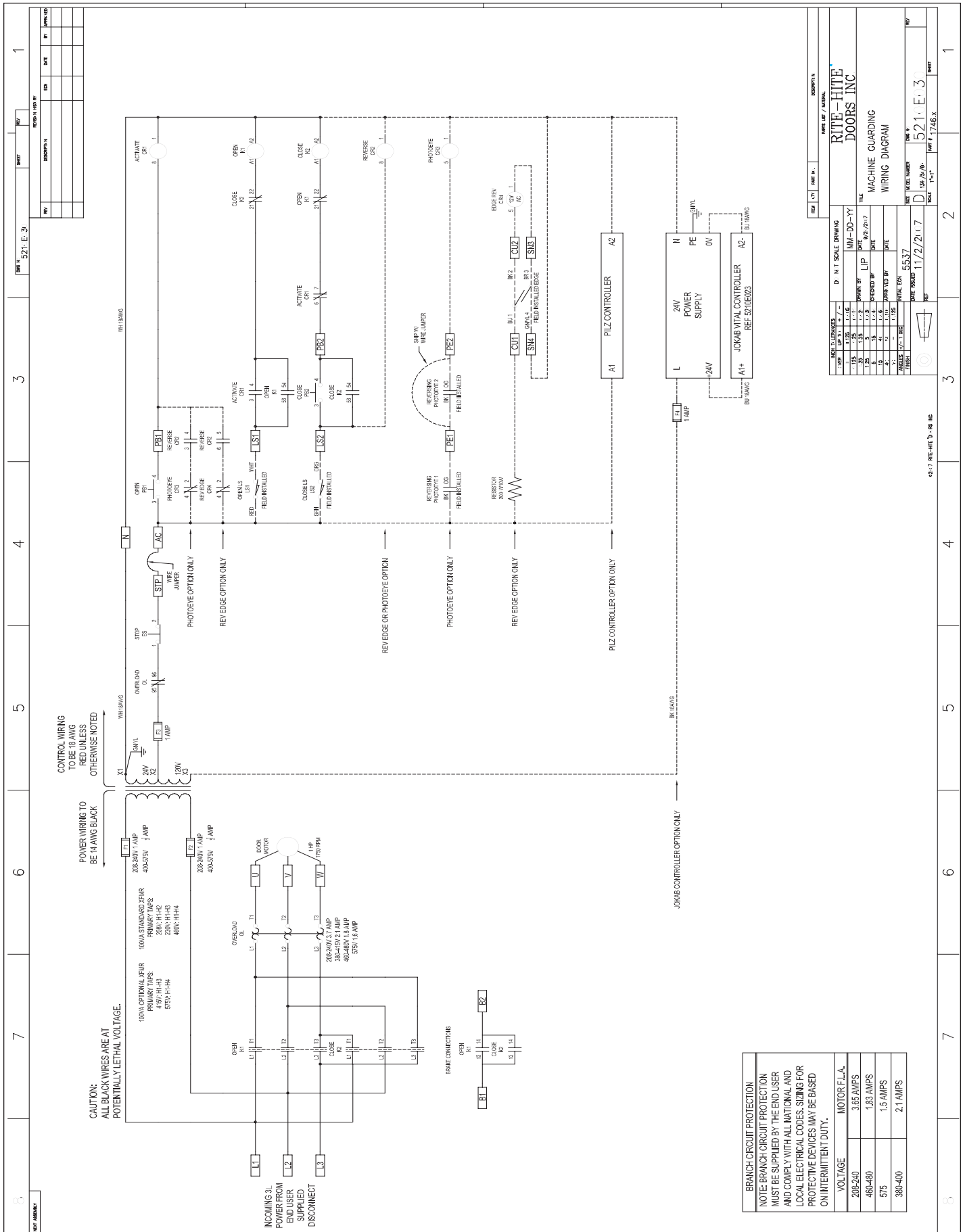
1. While the curtain is closing, block the reversing photoeye. The curtain should open immediately.
2. Make sure interlock switch in curtain guide is aligned with the curtain so that the interlocked machine or equipment will not operate unless curtain is closed.

FROMMELT® SAFETY PRODUCTS PLANNED MAINTENANCE
Model 1340 GUARDIAN™/1350 POWR-SHIELD™/1360 DUAL GUARDIAN™

CUSTOMER:

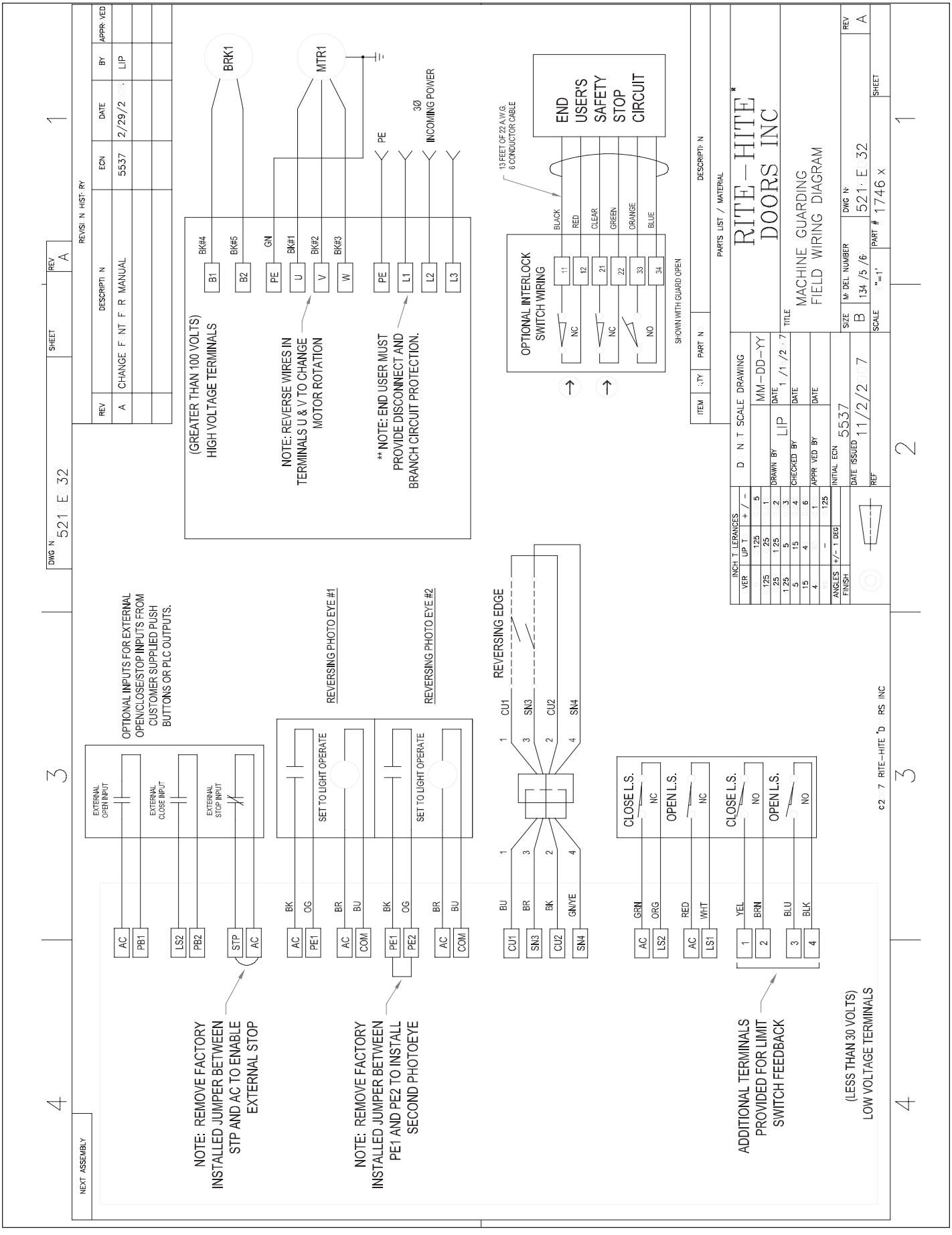
SO#	SERIAL#							DATE:
Periodic Cycle Check: Planned Maintenance	Recommended P.M. Intervals (Time Shown In Months)							Inspect and Perform the Following (See Manual)
	1	4	8	12	18	24	30	36	
Activation Devices		•		•		•		•	Check for proper operation.
Curtain		•		•		•		•	Operate to verify proper operation. Clean with warm non abrasive soapy water. Check for damage or wear and repair any tears.
Electrical Connections		•		•		•		•	Perform visual inspection and tighten.
Frame and Hardware		•		•				•	Perform visual inspection and tighten. Blow dust and dirt from the frame assembly.
Interlocks (optional)		•		•		•		•	Verify switch shuts off the proper machine components when activated.
Labels and Instructions				•				•	Replace if missing.
Limit Switch		•	•	•		•		•	Make sure barrier curtain stops at the proper open and closed positions. Inspect chain and sprockets for wear, and lubricate.
Photoeyes and Reflectors		•		•		•		•	Clean and check for proper operation. Barrier curtain must reverse when the beam is blocked.

CONTROL BOX WIRING DIAGRAM

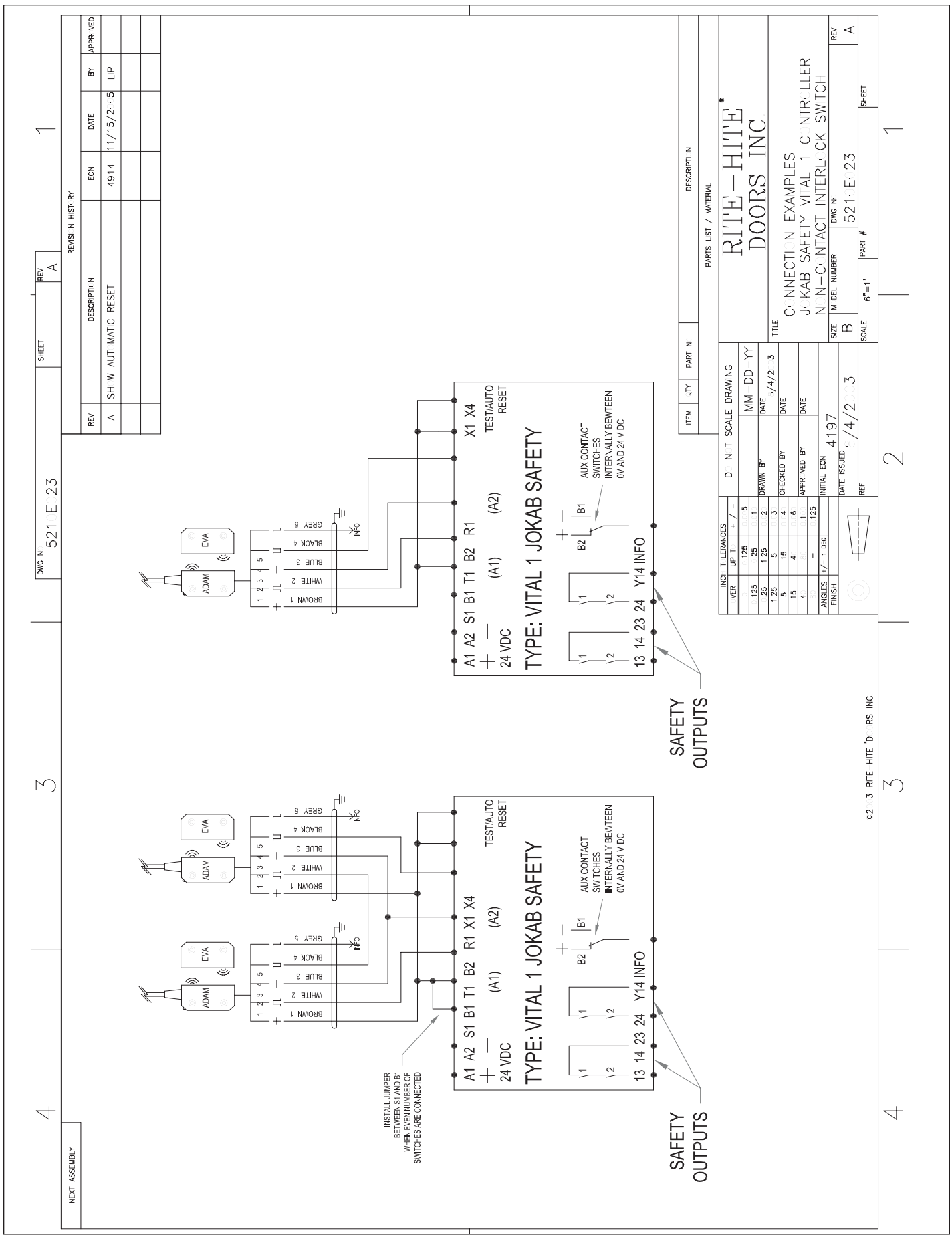


BRANCH CIRCUIT PROTECTION	
NOTE: BRANCH CIRCUIT PROTECTION MUST BE SUPPLIED BY THE END USER AND COMPLY WITH ALL NATIONAL AND LOCAL ELECTRICAL CODES. SIZING FOR PROTECTIVE DEVICES MAY BE BASED ON INTERMITTENT DUTY.	
VOLTAGE	MOTOR F.L.A.
208-240	3.65 AMPS
460-480	1.83 AMPS
575	1.5 AMPS
380-400	2.1 AMPS

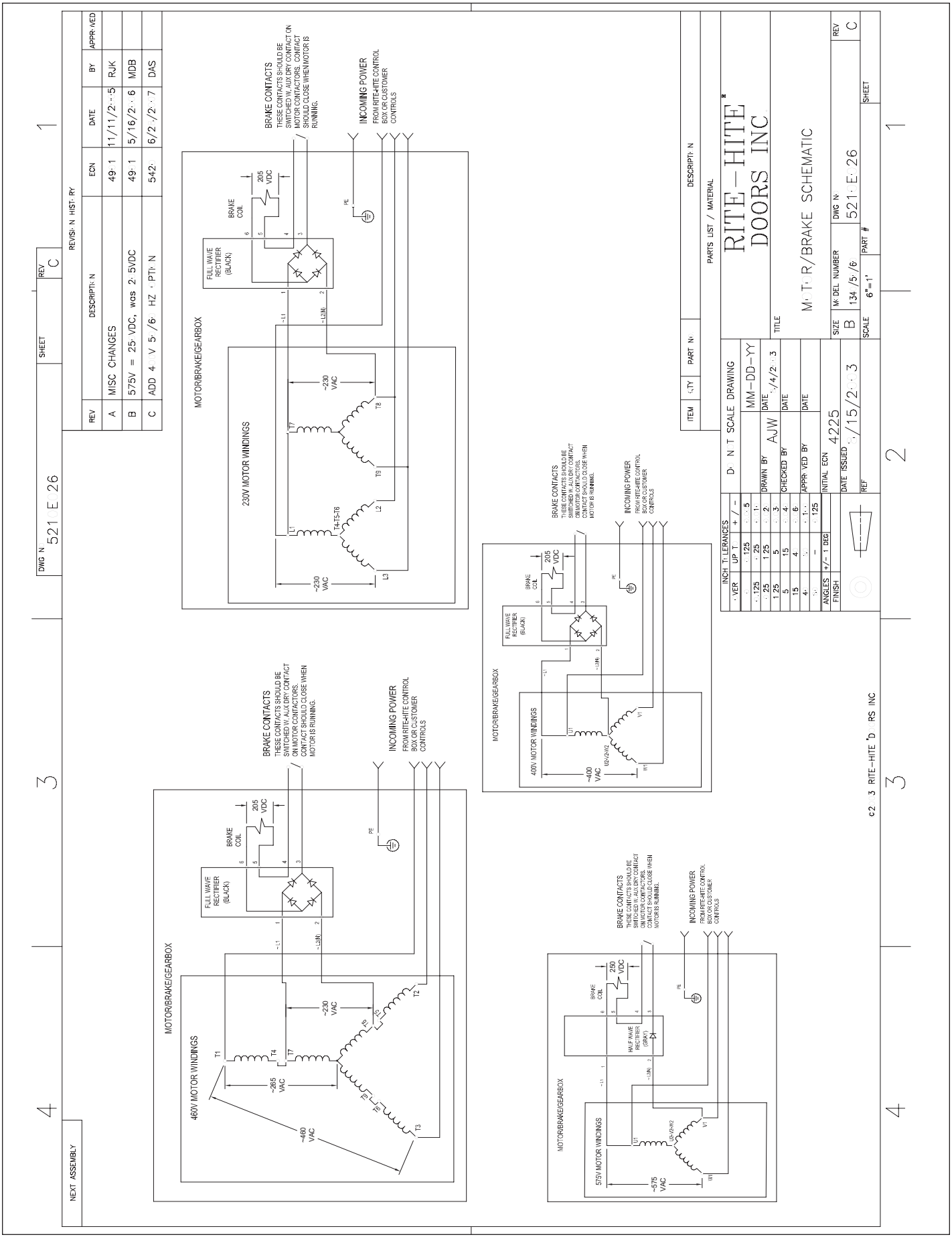
FIELD WIRING DIAGRAM



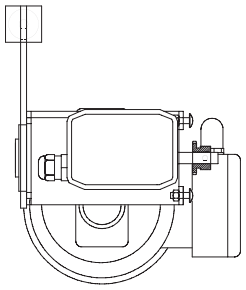
NON-CONTACT INTERLOCK

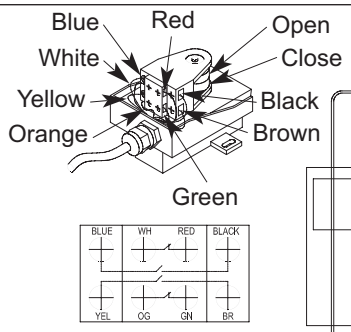


MOTOR/BRAKE WIRING

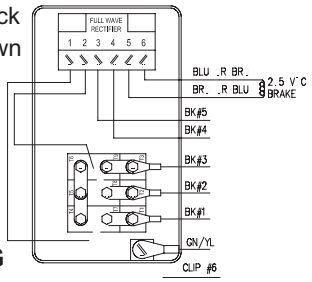


MOTOR & LIMIT SWITCH ASSEMBLY / MAINTENANCE

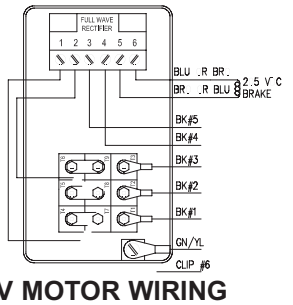




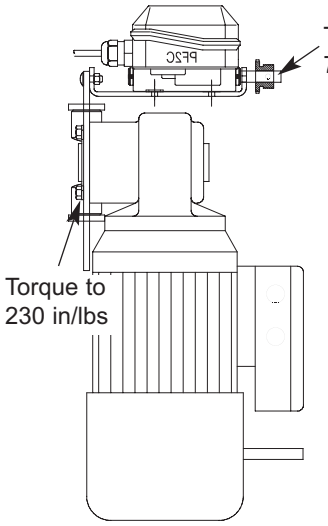
LIMIT SWITCH WIRING

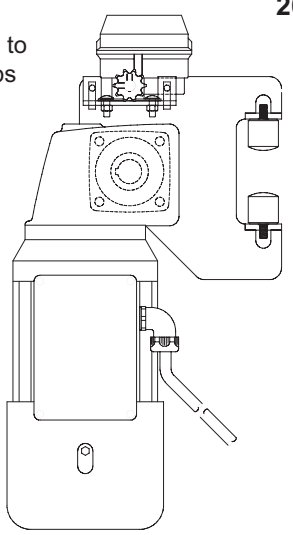


208/230V MOTOR WIRING

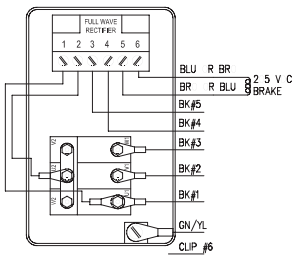


460V MOTOR WIRING

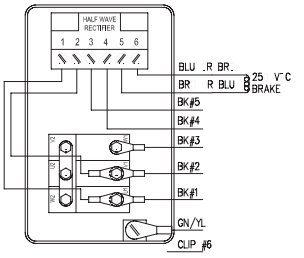




RIGHT HAND ASSEMBLY SHOWN



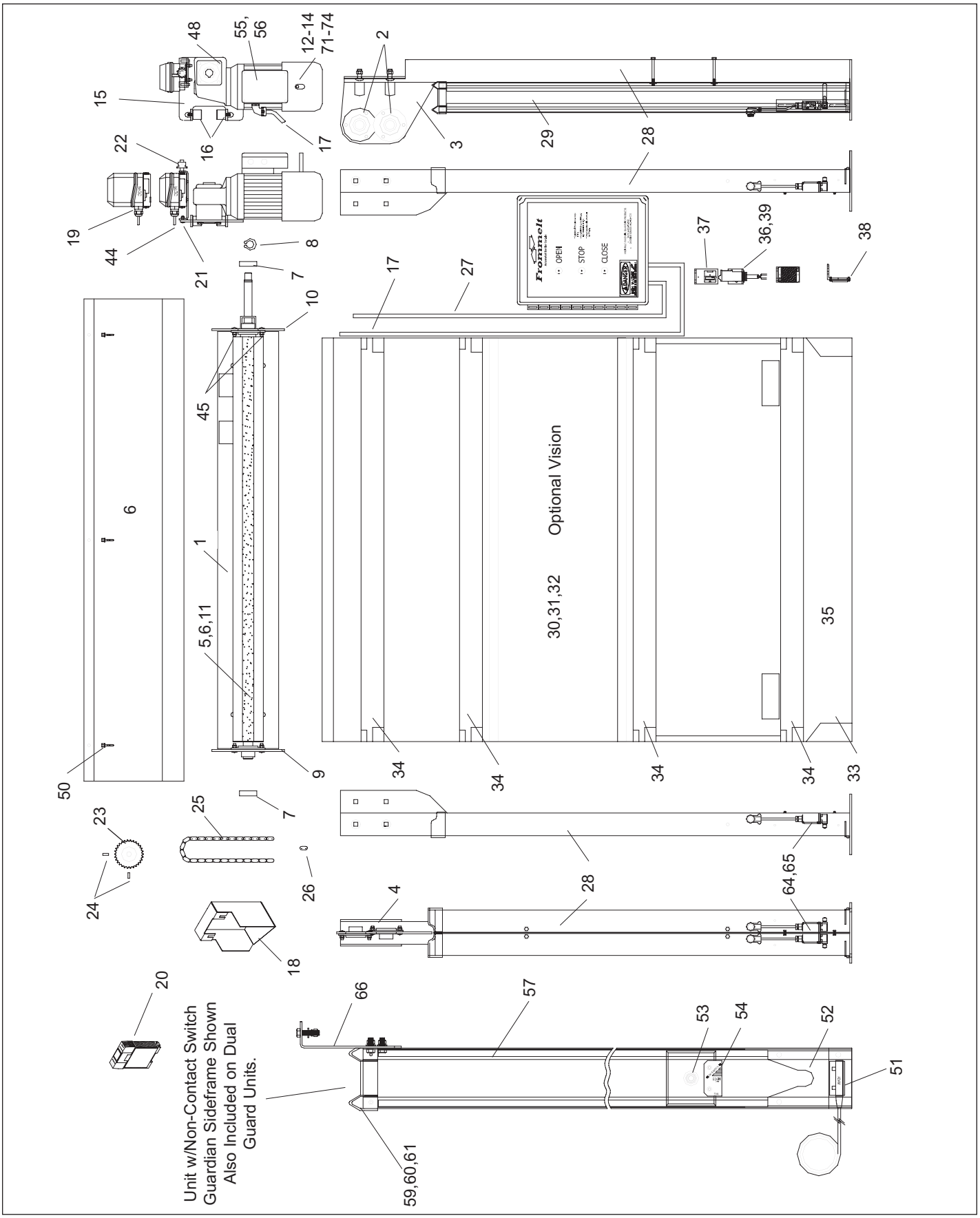
400V MOTOR WIRING



575V MOTOR WIRING

PROBLEM	REMEDY
Control Box (Optional)	The control box contains the necessary motor starters, relays, transformers, etc. to safely control 3 phase power, open, close and stop push buttons. If control box does not power up, check fuses and replace as needed.
Curtain	The curtain provides a safety barrier against sparks, harmful light emissions and physical contact with the machine by the operator. The curtain is manufactured of nylon reinforced material. Barrier bars are sewn in to add rigidity. Vision windows are available as an option.
Curtain remains open,	Reversing photoeye alignment incorrect. (Red LED on photoeye off.) does not close. Realign photoeye. Photoeye not set to “Light Operate.” Open reversing photoeye cover to check switch position. Fuse blown, Replace fuse after checking for shorts. Check all connectors for proper connection. Stop button pushed when door was in open position. Press close button.
Curtain Guides	The guides control the position of the curtain.
Curtain does not stop at limits.	Limit switch positioning incorrect. Ensure that the limit switches are properly positioned. Failed limit switch, check for continuity, replace if necessary.
Curtain travel reversed.	Motor phases reversed. Remove power, reverse wires in terminals T1 & T2.
Curtain will not go up or down.	Loss of power. Verify that electrical power is getting to the control box. Bad fuse, check fuses. Make sure nothing is blocking the path of any photoeye light beam.
Curtain tracks off to one side.	Curtain misaligned. Curtain may need to be adjusted on the hook and loop fastener. Anchors may be loose. Both vertical support columns must be plumb and level. When a forklift bumps into columns or curtain guides it could cause damage or misalignment. Repair as required. The distance between columns must be the same when measured at the top and bottom. Shim or remount as required.
Interlock Devices (Optional)	The interlock keeps the machine from functioning unless the curtain is in position. The interlock mounts in the bottom of the curtain guide and is activated by the curtain when it comes into the closed position.
Limit Assembly	If limits come out of adjustment, make sure the center locking screw is tightened down. For rewiring of the motor, ***Page 15.***
Motor Assembly	The motor assembly includes the motor, gearbox, brake and limit switch. The motor assembly unrolls and lowers the curtain before the machine cycle begins and rolls the curtain back up when the machine cycle is complete. For rewiring of the motor, ***Page 15.*** If motor doesn’t run, look for loose connections, check all connections in terminals T1, T2, T3, and the connectors. Brake not releasing. Check brake connections.
Vertical Supports (Optional)	The vertical supports, made of 3" x 3" tubular steel, are bolted to the C-channel to help support the weight of the GUARDIAN. When vertical supports are ordered, the curtain guides are pre-mounted to the supports.

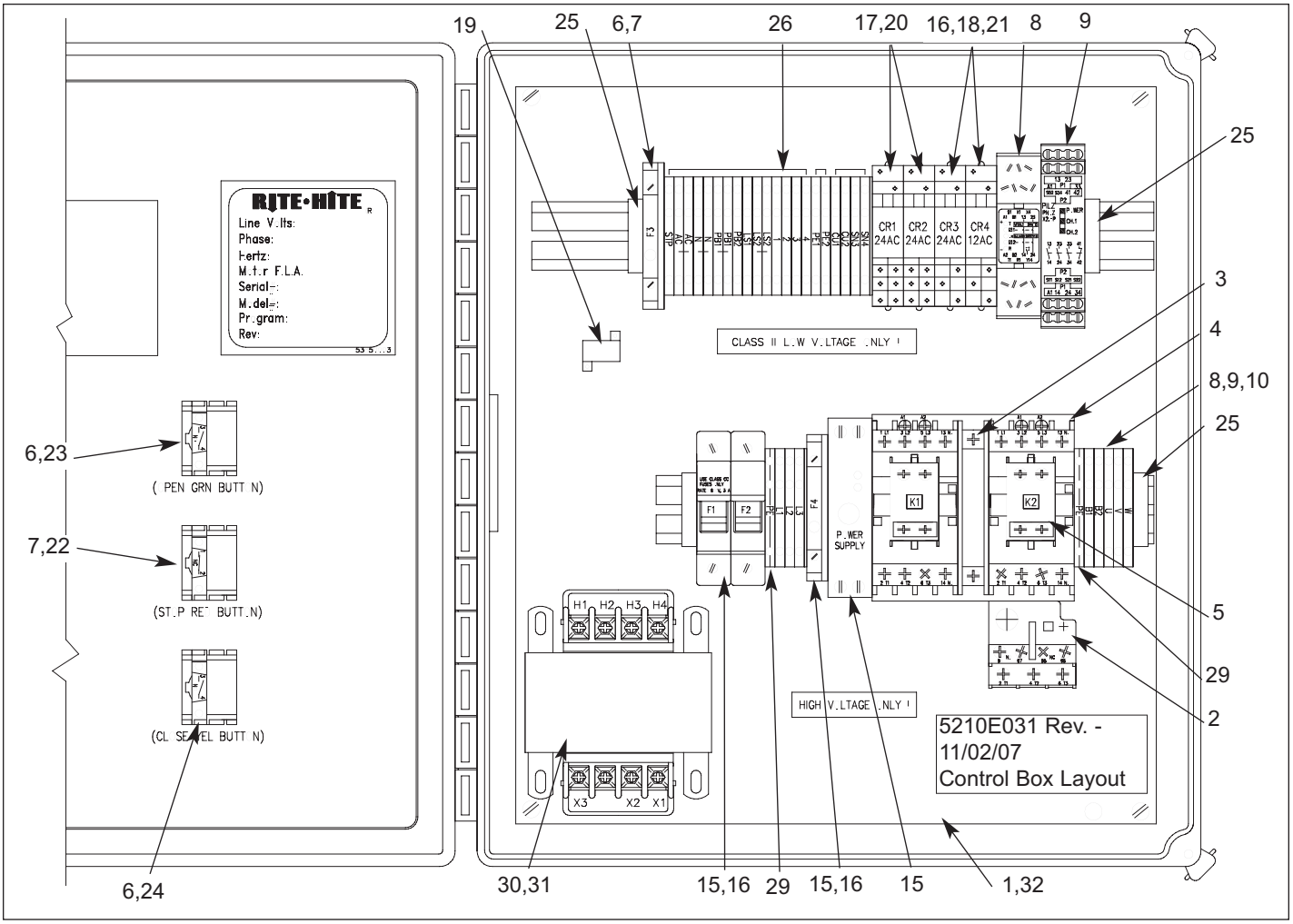
GUARDIAN/POWR-SHIELD SERVICE PARTS



GUARDIAN/DUAL/POWR-SHIELD SERVICE PARTS

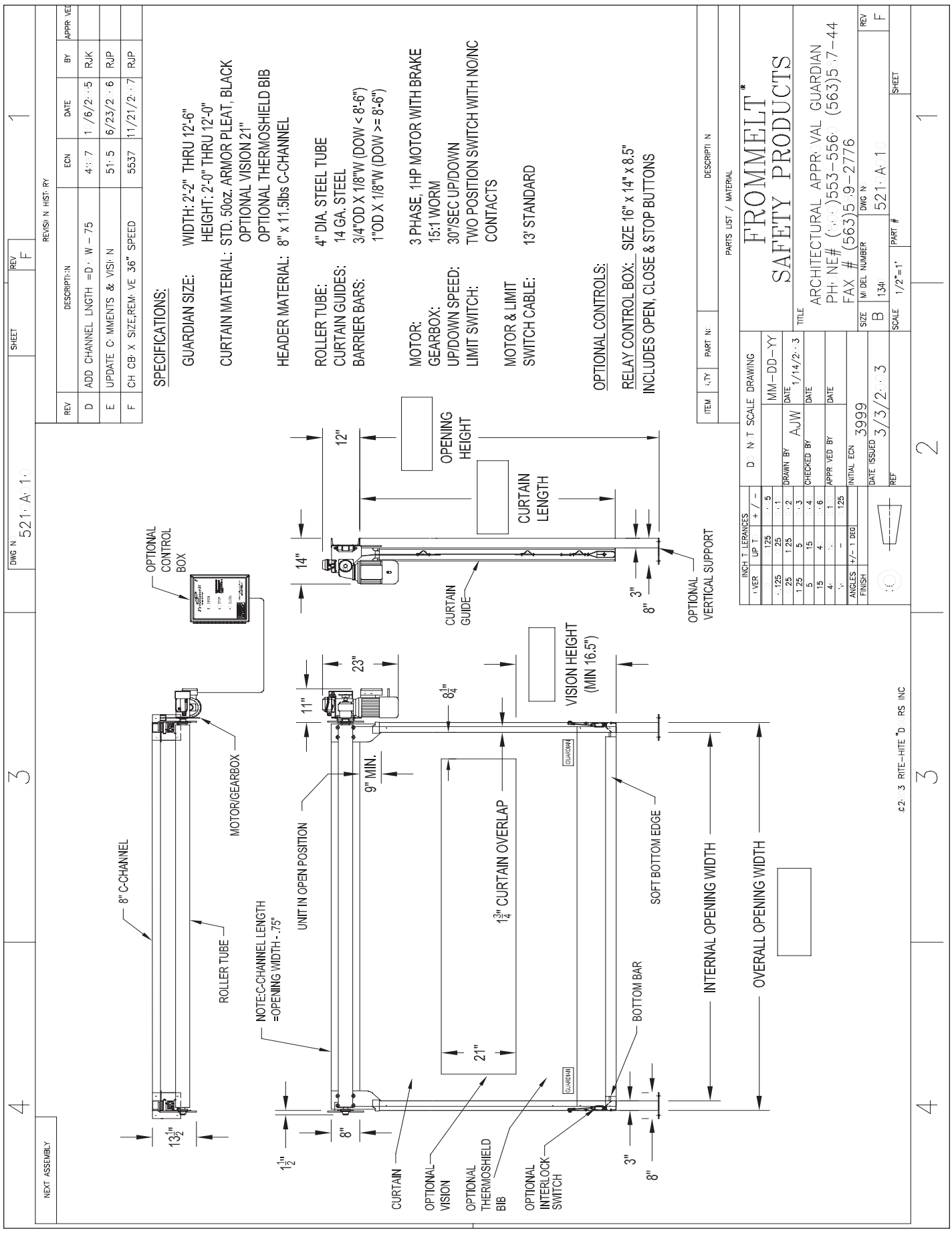
ITEM	QTY	DUAL	DESCRIPTION	PART NUMBER
1	1	2	Header Assembly	1666.....
2	4	8	Header Flange Bearing Mount	45750001
3	0	1	Header, Bracket Bearing Mount (Dual only)	14500790
4	0	1	Header, Bracket Bearing Mount Center (Dual only)	14500794
5	1	2	Roller Tube Weldment	6728....
6	1	1	Shroud, Center w/End Cap	6936....
7	2	4	Roller Tube Bearing (Lock Collar)	12500023
8	1	2	Roller Tube Retaining Ring	67020016
9	1	2	Roller Tube Bearing Mount Non-Drive	14500788
10	1	2	Roller Tube Bearing Mount Drive	14500791
11	a/r	a/r	Roller Tube, Hook Fastener, PSA, 2”	74000020
12	1	2	Motor/Brake/Gearbox Assembly (includes limit switch, plate)	5524....
13	1	2	Motor/Brake/Gearbox, 208-230/460V, 15:1 (30 in/sec)	55250083
14	1	2	Motor/Brake/Gearbox, 575V, 15:1 (30 in/sec)	55250085
15	1	2	Motor/Brake/Gearbox Anti-Rotation Plate	65000392
16	2	2	Motor/Brake/Gearbox Rubber Bumpers	15250057
17	1(13’)	2(13’)	Motor/Brake/Gearbox Cable	15650154
18	1	2	Limit Switch Drive Shroud	69200099
19	1	2	Limit Switch Assembly, 2P (standard)	72700186
20	1	1	Controller, Vital 1	17500011
21	1	2	Limit Switch Bracket	14500787
22	1	2	Limit Switch Sprocket Driven	70800012
23	1	2	Limit Switch Sprocket Drive	70800013
24	4	8	Limit Switch Sprocket Set Screw	67860038
25	1(16”)	2(16”)	Limit Switch Chain #35 (36 pitches)	16600019
26	1	2	Limit Switch Connector Link #35	54400008
27	1(13’)	2(13’)	Limit Switch Cable	15650224
28	2	4	Vertical Support Assembly (Specify RH or LH & interlock option)	7248....
29	2	4	Curtain Guides (w/o Non-Contact op)	5137....
30	1	2	Curtain Assembly (Guardian w/bars, specify interlock type)	2844....
31	1	2	Curtain Fabricated (Guardian w/o bars)	2819....
32	1	2	Curtain Fabricated (Power-Shield)	2833....
33	1	2	Curtain Bar, Bottom (specify interlock type)	6448....
34	2/3/4	4/6/8	Curtain Bar	6447....
35	a/r	a/r	Curtain Foam, Edge	45800010
36	1	2	Photoeye, Kit	53700122
37	1	2	Photoeye Bracket	14500024
38	1	2	Photoeye Reflector	66400001
39	1	2	Photoeye Retroreflective Receiver	63900002
40	4	8	Nut, Hex, Nylon, Lock 1/4-20, znc	55610001
41	6	12	Nut, Hex, Nylon, Lock 3/8-16, znc	55630005
42	4	8	Nut, Hex, Nylon, Lock Jam 1/2-13, znc	55650002
43	4	8	Nut, Torx, 5/16-18 x 1/2”, znc	55620006
44	4	8	Bolt, Carriage, 1/4-20 x 3/4”, GR5, znc	67860023
45	6	12	Bolt, Carriage, 3/8-16 x 1”, GR5, znc	67880092
46	4	8	Bolt, Carriage, 1/2-13 x 1 1/2”, GR5, znc	67900005
47	4	8	Bolt, HHMS, 5/16-18 x 3 1/2”, GR5, znc	67870015
48	4	8	Bolt, HHMS, M8-1.25x25mm, GR8	67930005
49	a/r	a/r	Washer, Lock, Split, 5/16, znc	74120002
50	3	-	Screw, Self Drill/Tap 1/4-14 x 1 1/4”	67860001
51	1/2	-	Non-Contact Interlock Switch	72700155
52	2	-	V-Guide	51350066
53	2	-	Trolley Assembly	73850114
54	1/2	-	Non-Contact Interlock Switch, Actuator	10200004
55	1	2	Rectifier,Bridge, 575V, 1/2 Wave	66270012
56	1	2	Rectifier,Bridge, 2A, 110-230V, Full Wave (208/230/400/460V doors)	66270009
57	2	4	Curtain Guides (non-contact option)	5138....
58	4	4	Bolt, Carriage, 1/2-13 x 1 1/4”, GR5, znc (vertical support)	67900035
59	2	4	Cap, Non-Support, RH Side	16200036
60	2	4	Cap, Non-Support, LH Side	16200037
61	2	4	Cap, Support	51350036
62	a/r	a/r	Seal, Brush, Track (not shown)	73450061
63	a/r	a/r	Seal, Brush (not shown)	15000005
64	1	2	Kit, Switch Ass’y, Interlock, 2NC, 1NO, Right	53700443
65	1	2	Kit, Switch Ass’y, Interlock, 2NC, 1NO, Left	53700442
66	1	2	Bracket, Sideframe Mount	14500802
67	1	2	Bracket, Weldment, Curtain Guide (only when curtain < O.H. & no int sw)	14500235
68	3	6	Nut, Hex, 5/16-81, znc	55620001
69	3	6	Screw, HHMS, 5/16-18 x 1”, gr5, znc	67870065
70	3	6	Washer, Flat, 5/16, znc	74120003
71	1	2	Motor/Brake/Gearbox, 400V, 15:1 (30 in/sec) (Units < 7/18/07 only)	55250084
72	1	2	Motor/Brake/Gearbox, 208-230/460V, 12.5:1 (36 in/sec) (Units < 7/18/07 only)	55250076
73	1	2	Motor/Brake/Gearbox, 400V, 12.5:1 (36 in/sec) (Units < 7/18/07 only)	55250077
74	1	2	Motor/Brake/Gearbox, 575V, 12.5:1 (36 in/sec) (Units < 7/18/07 only)	55250078

CONTACTOR CONTROL BOX

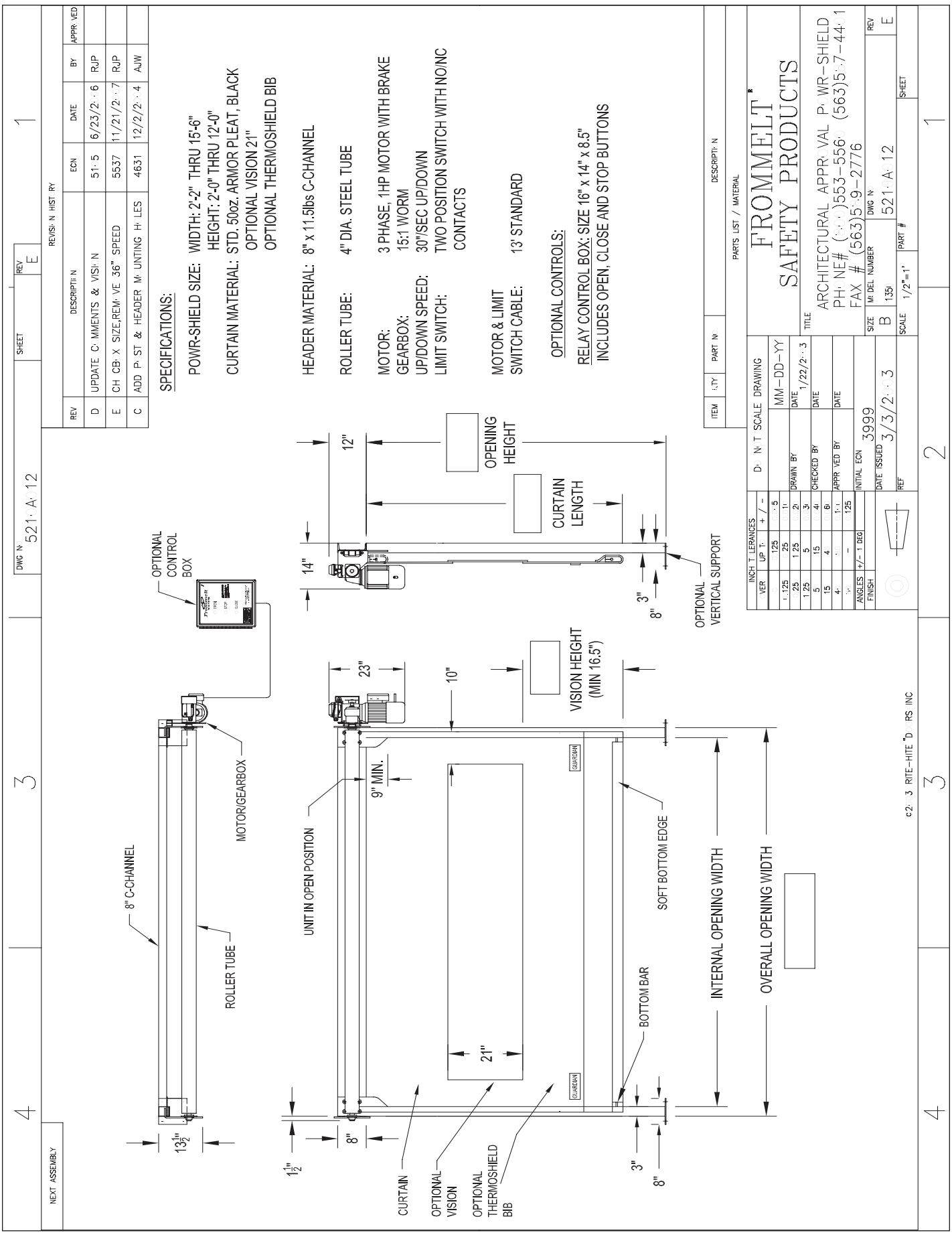


ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Control Box Assembly (Guardian or Dual Guardian)	.1746....
2	1	Circuit Breaker, Overload, 1.6-5A	.16660008
3	1	Contactor, Interlock, MCS	.17000010
4	2	Contactor 24VAC, 16amp, 50/60Hz, 1NO	.17000020
5	2	Contactor Auxiliary, 2NO	.17000021
6	2	Contact, 3 Across N.O.	.17200012
7	1	Contact, 3 Across N.C.	.17200013
8	1	Controller, Vital 1, Jokab (Model 1340, 1345 & 1360 only)	.17500011
9	1	Controller, Pnoz, Pilz (Model 1325 & 1345 only)	.17500012
10	2	Fuse, .5AMP, 60)V, Time Delay(>= 380V)	.51000001
11	1/2	Fuse 1AMP, 250V, Time Delay (Standard & Model 1340, 1345 & 1360 Jokab option)	.51000002
12	1	Fuse Holder, 2 Pole, 600V, 30A	.51000003
13	1/2	Fuse Holder, 1 Pole,300V,12A (Standard & Model 1340, 1345 & 1360 Jokab option)	.51000004
14	2	Fuse, 1AMP, 600V, CC, Time Delay (< =240V)	.51000023
15	1	Power Supply, Din, 24VDC,18W (Model 1340, 1345 & 1360 only Jokab Option)	.65700006
16	1	Relay SPDT 12VAC 10A (Model 1390 Rev Edge only)	.66450002
17	1/2	Relay DPDT 24VAC 5A (Stand, Rev Edge or Photoeye option)	.66450003
18	1	Relay SPDT 24VAC 10A (photoeye option)	.66450004
19	1	Resistor, 200 Ohm, 10 Watt (Model 1390 Rev Edge only)	.66550017
20	2/3	Relay Socket 2 Pole (Standard, Rev Edge or Photoeye option)	.70350001
21	1	Relay Socket 1 Pole (Photoeye option or Model 1390 Rev Edge option)	.70350002
22	1	Switch, Push button, Red 22.5MM	.72700006
23	1	Switch, Push button, Green 22.5MM	.72700085
24	1	Switch, Push button, Yellow 22.5MM	.72700086
25	4	Terminal, End, Stop, Screwless	.73100024
26	23/25/29	Terminal, PH, Cage, 20A, 3 Hole (2-Photoeye option or 4-Model 1390 Rev Edge)	.73100072
27	3	Terminal, PH, Cage, 20A, 3 Hole, Bar	.73100073
28	4	Terminal, PH, Cage, 20A, Jump, 2P	.73100074
29	2	Terminal, PH, Cage, 20A, 3 Hole, Gnd	.73100076
30	1	Transformer 100VA 208/230/460V 24/115V	.73550029
31	1	Transformer 100VA 380/415/575V 24/115V	.73550030
32	1	Control Box Assembly (Power-Shield)	.1736....

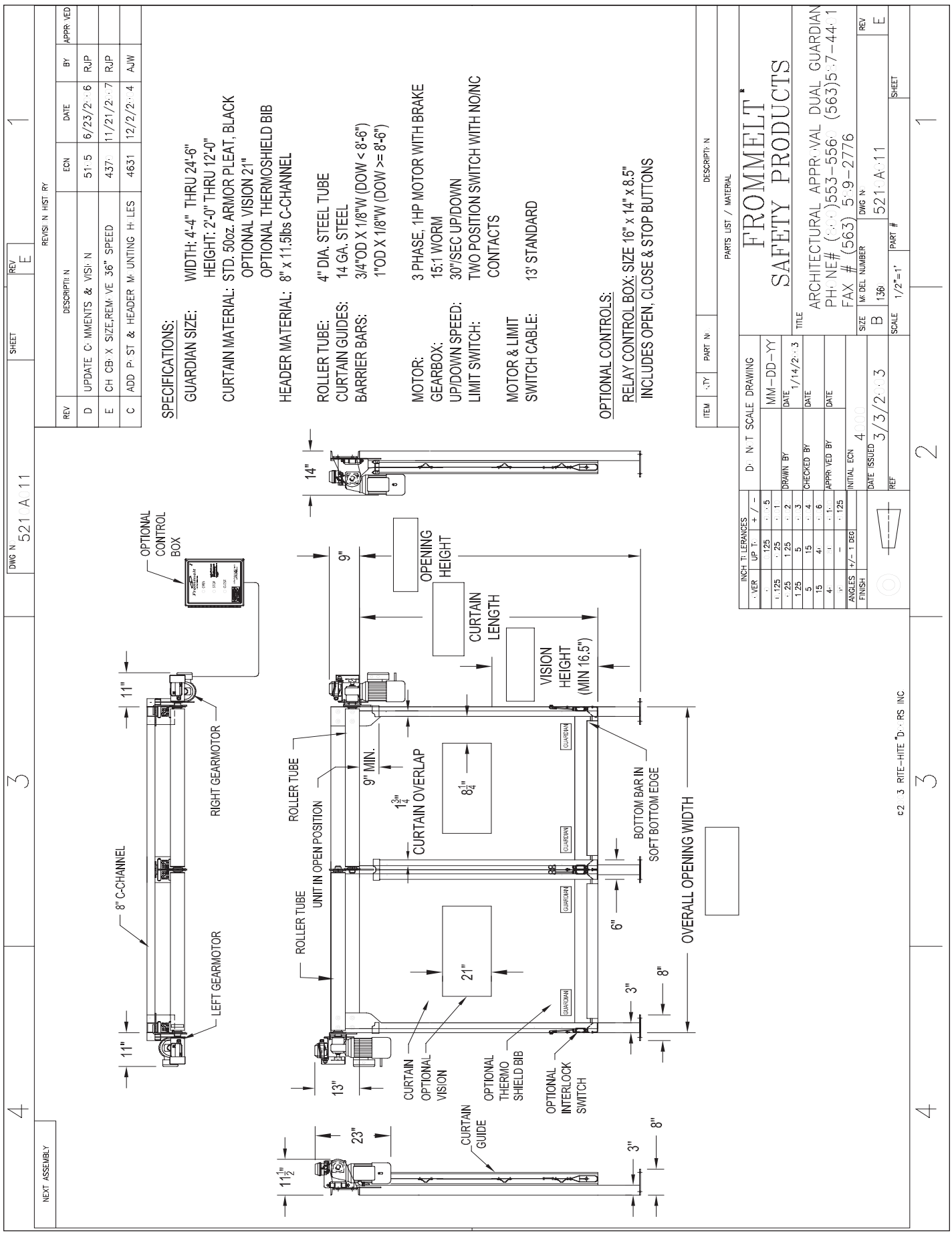
ARCHITECTURAL DRAWING GUARDIAN



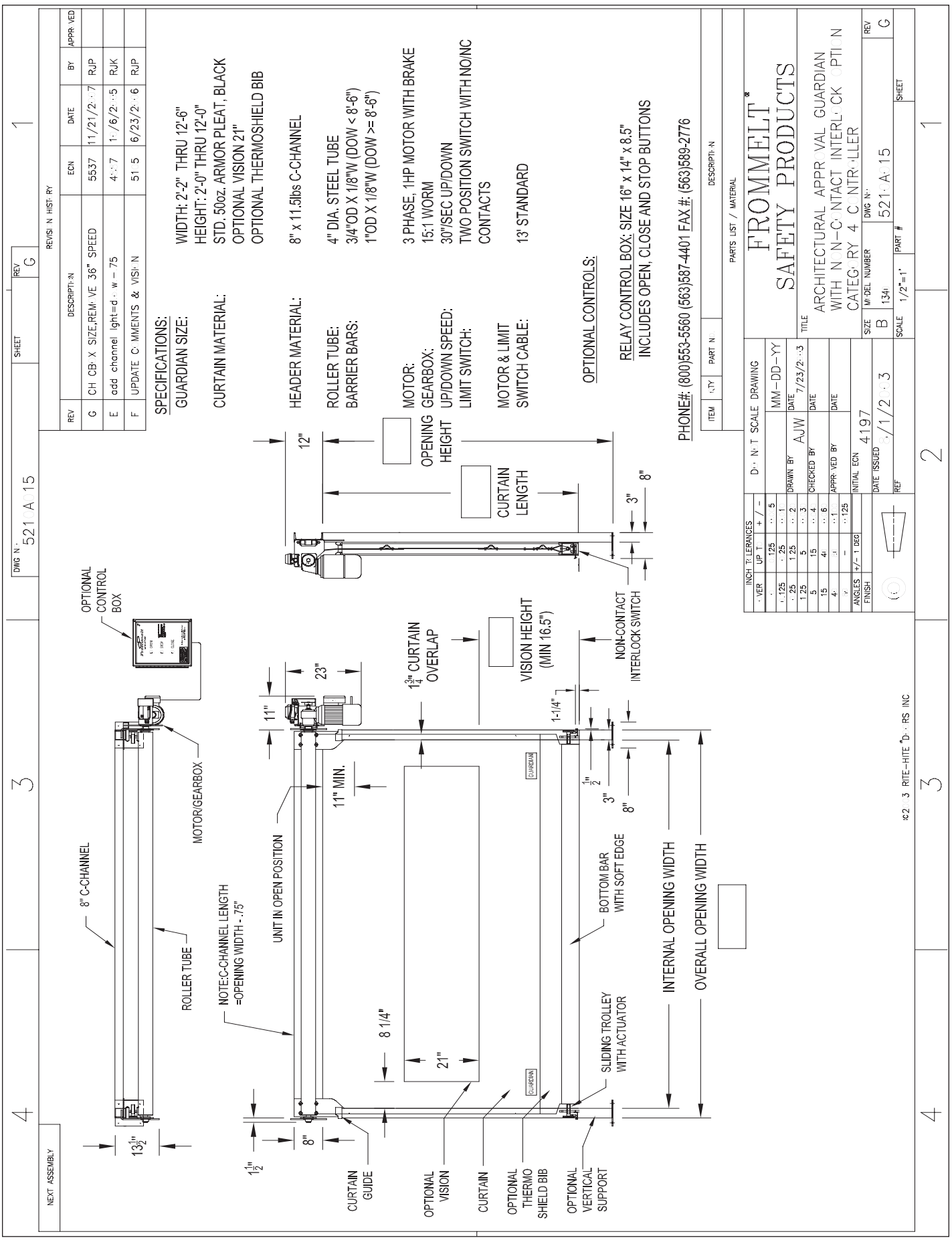
ARCHITECTURAL POWR-SHIELD



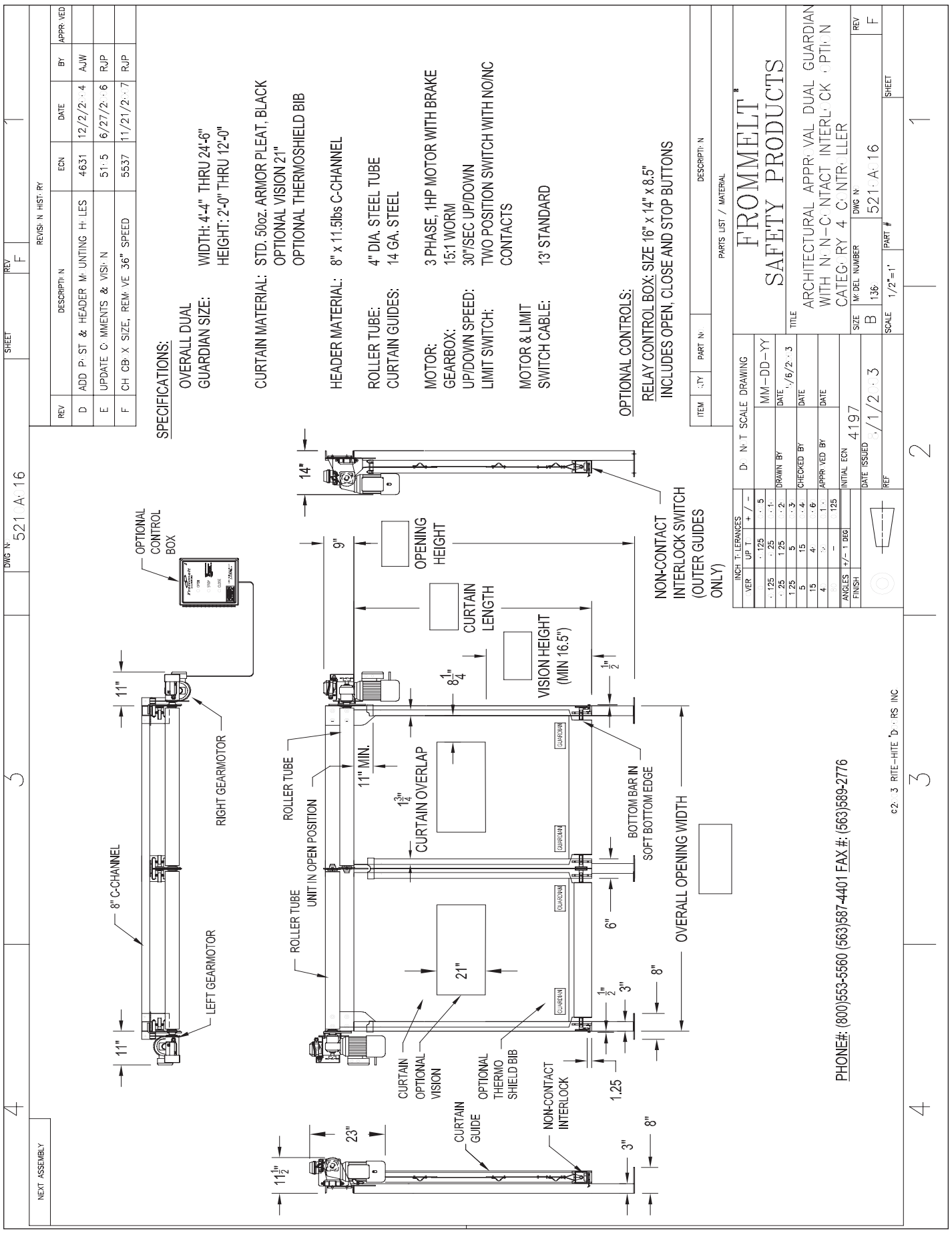
ARCHITECTURAL DUAL GUARDIAN



ARCHITECTURAL GUARDIAN W/NON CONTACT INTERLOCK



ARCHITECTURAL DUAL GUARDIAN W/NON CONTACT INTERLOCK



REV	DESCRIPTION	ECN	DATE	BY	APPROVED
D	ADD POST & HEADER MOUNTING HOLES	4631	12/2/2004	AJW	
E	UPDATE COMMENTS & VISION	5155	6/27/2006	RJP	
F	CHECK BOX SIZE, REMOVE 36" SPEED	5537	11/21/2007	RJP	

FROMMELT SAFETY PRODUCTS - NOTES PAGE