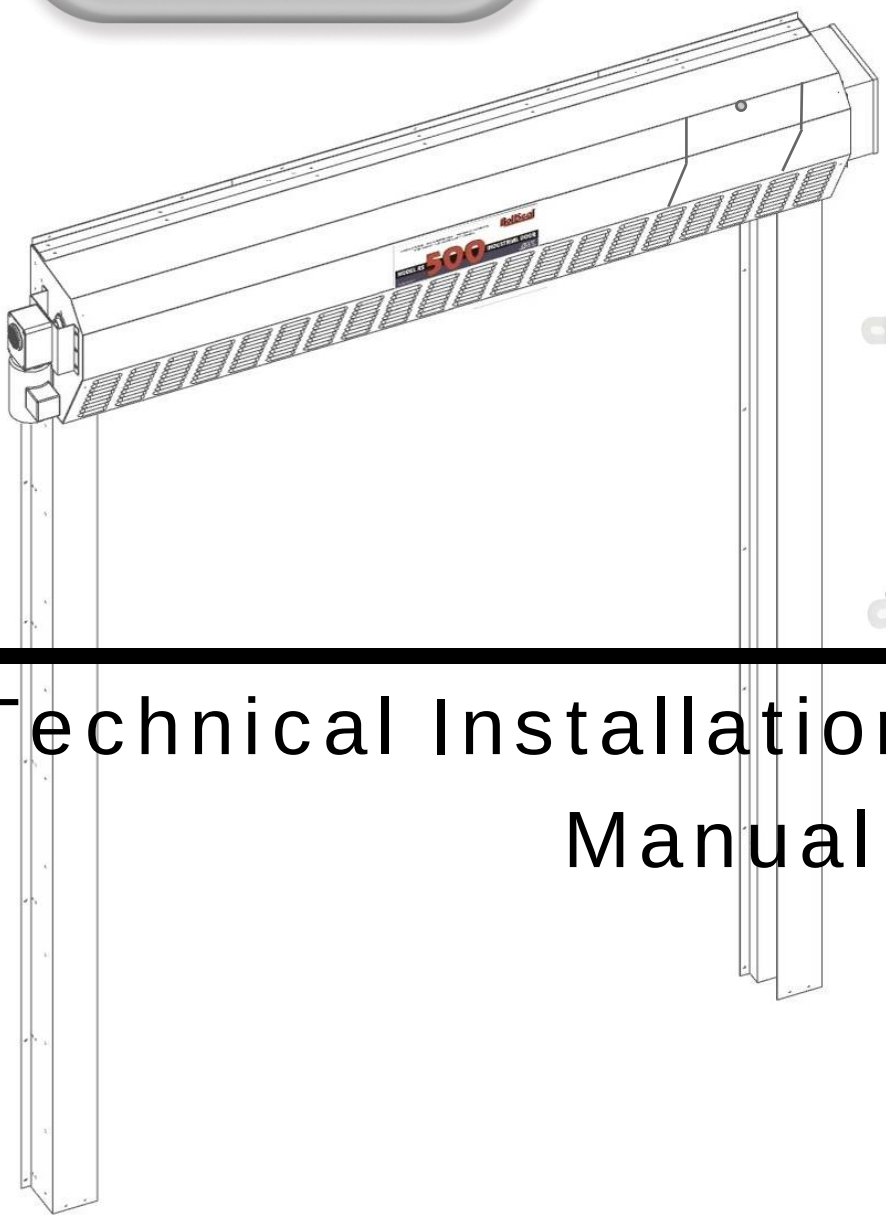


Technical Installation and Service Manual

RollSeal
1733 County Road 68
Bremen, Alabama 35033

1. Ratings and Specifications

- Motor Rating……..240 VAC, Three Phase, 1/4 hp
- Door approved by the NSF (National Sanitation Foundation)
- Motor must be connected through controller. See SC-325 Manual (4801-5156).

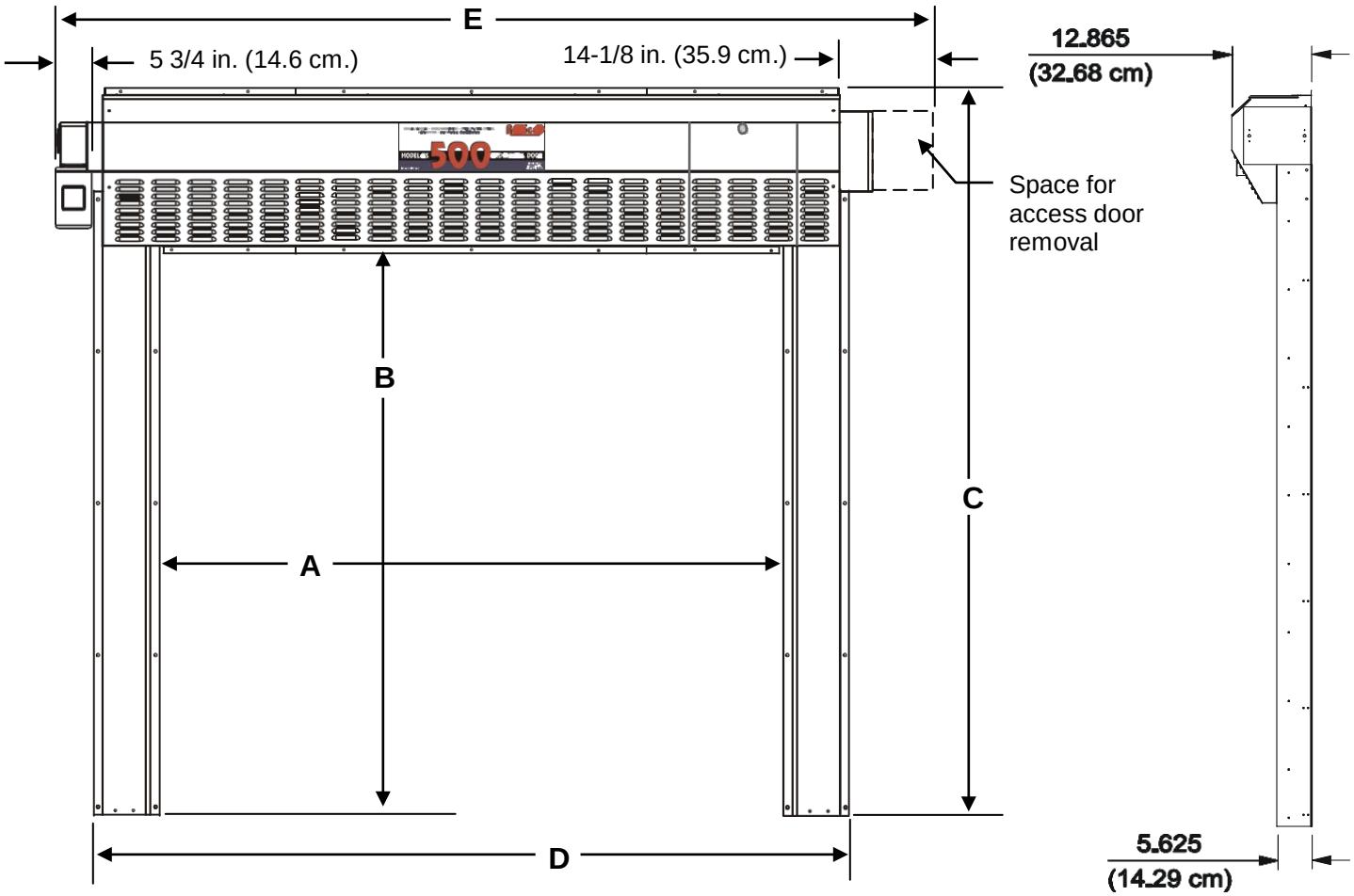


***TABLE 1 RS 500 Door Standard Dimensions*:**

WIDTH Related Dimensions

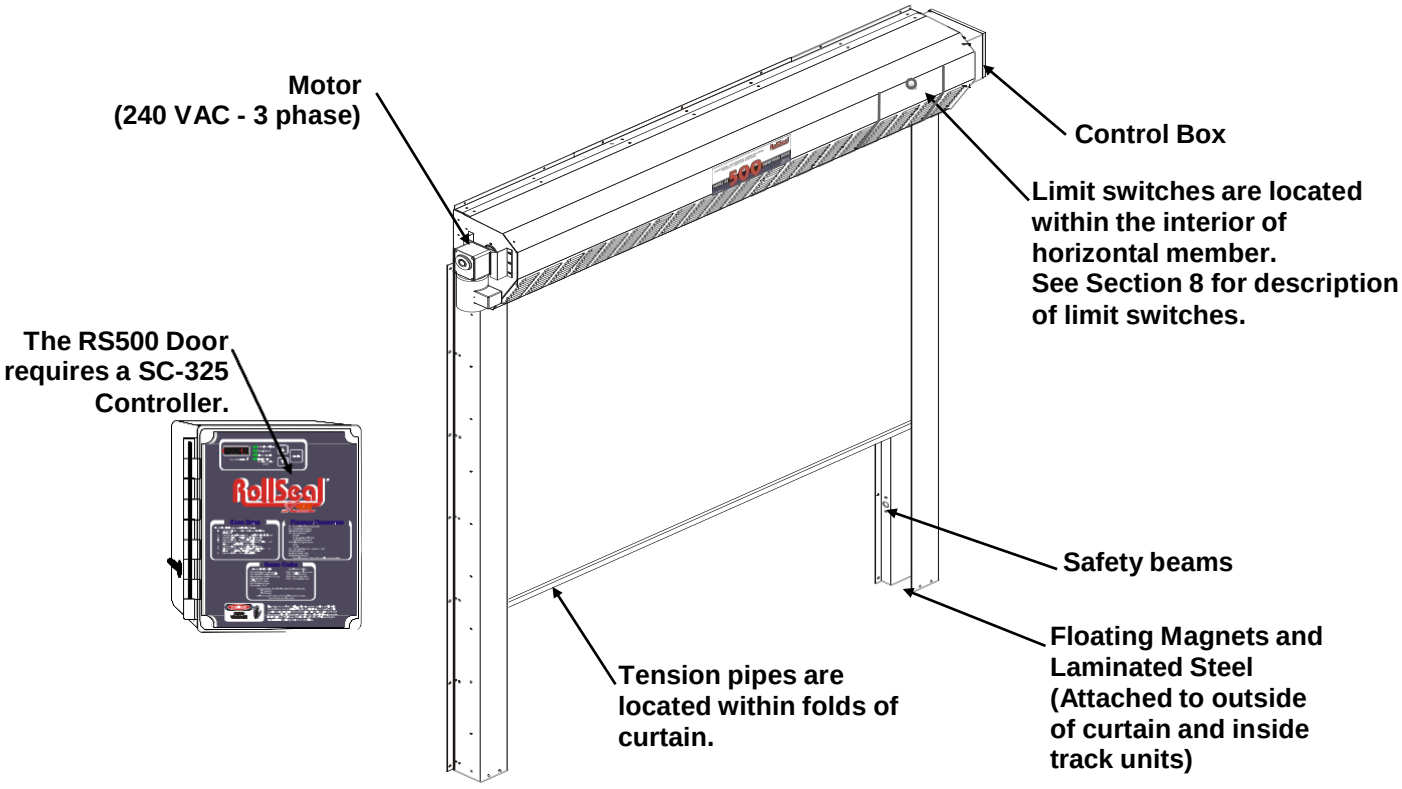
RS500 Door Width	A			D			E		
	Ft.	In.	cm	Ft.	In.	cm	Ft.	In.	cm
4'(W)	4	0	122	5	4-13/32	164	6	8-15/16	206
5'(W)	5	0	153	6	4-13/32	194	7	8-15/16	236
6'(W)	6	0	183	7	4-13/32	225	8	8-15/16	267
6'6"(W)	6	6	198	7	10-13/23	240	9	2-15/16	282
7'(W)	7	0	214	8	4-13/32	255	9	8-15/16	297
8'(W)	8	0	244	9	4-13/32	286	10	8-15/16	328
10'(W)	10	0	305	11	4-13/32	347	12	8-15/16	388
11'(W)	11	0	335	12	4-13/32	377	13	8-15/16	419
12'(W)	12	0	366	13	4-13/32	408	14	8-15/16	449

HEIGHT Related Dimensions

RS500 Door Height	B			C		
	Ft.	In.	cm	Ft.	In.	cm
7'(H)	7	0	214	8	8-11/16	266
7'6"(H)	7	6	229	9	2-11/16	281
8'(H)	8	0	244	9	8-11/16	296
9'(H)	9	0	275	10	8-11/16	327
10'(H)	10	0	305	11	8-11/16	357
11'(H)	11	0	335	12	8-11/16	387
12'(H)	12	0	366	13	8-11/16	418

2. Physical Description/Drawing

Installation of a RollSeal RS-500 Automatic Door involves, at a minimum, connecting to the Smart Controller (SC)-325 that connects to the AC power, the door motor, the Up/Down button, and the safety beam. Other accessories can be added such as a remote IR sensor, a remote radio link, and door movement indicators such as lights and bells.



3. Use of Equipment

The RollSeal RS-500-Door is an automatic motorized curtain enclosure for a doorway.

4. Installation

4.1 Tools Required

3/8 in. (10 mm) Power screwdriver (portable) 3/16 in. (5 mm) Drill bit and power drill 3/8 x 1 in. Bolts and nuts (supplied)	Socket Hammer Tape measure Carpenter's level
NOTE: Other Tools May Be Required According To Installation.	

4.2 Overview

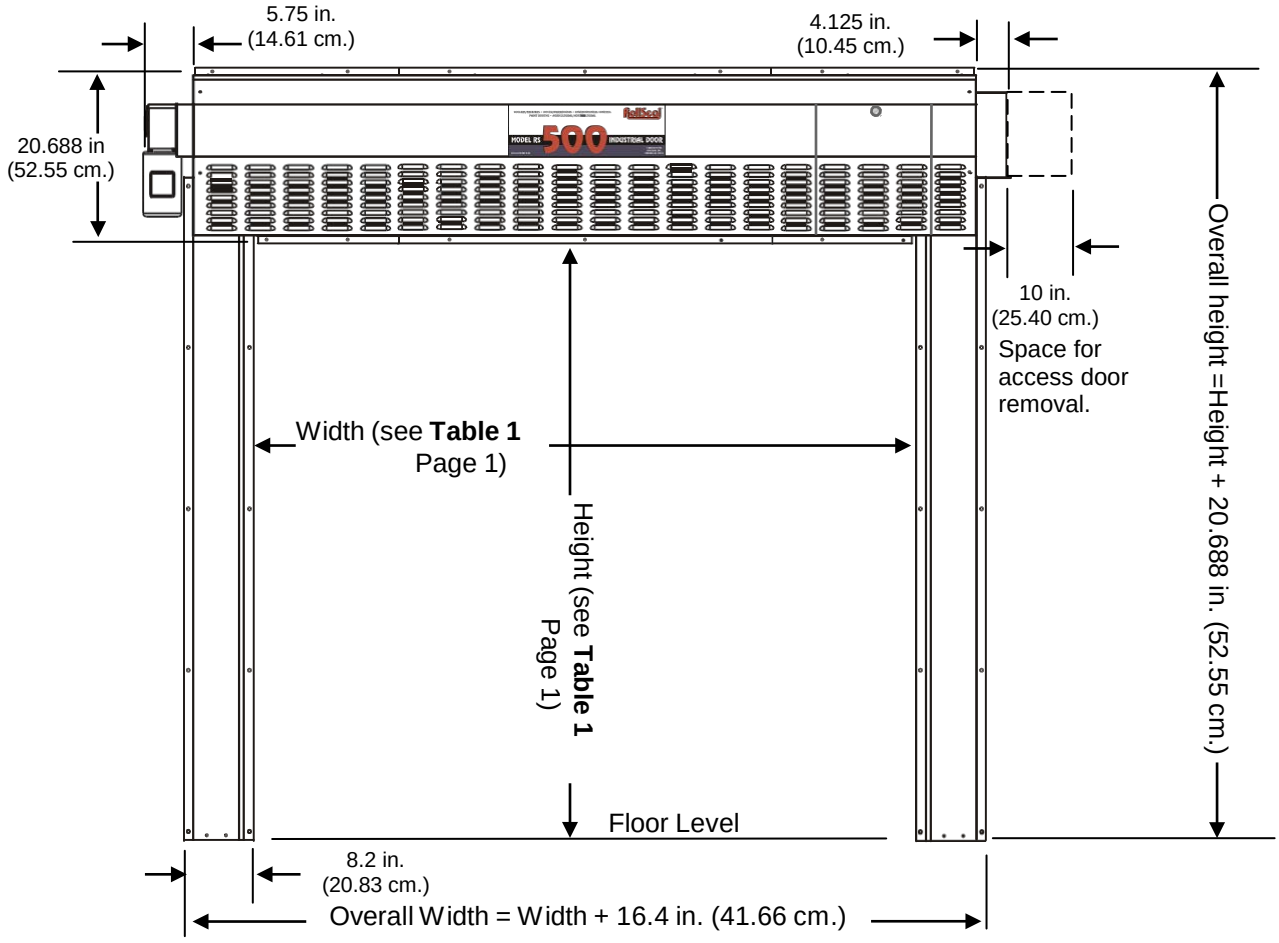
The RS-500-door is shipped with pre-assembled vertical members (left track and right track), and a pre-assembled horizontal member (head unit). Identify components by the Parts/Assemblies section in back of this manual. When components are received, check for damaged or loose or missing parts. If there are damaged or missing parts contact your RollSeal distributor immediately. Please read and understand all instructions in this manual before beginning installation.

4.3 Adjusting the Clear Opening

Locate your particular system in **Table 1**, page 1. Read the value of height and width of the clear opening for the door size that you are installing. This gives the required dimensions of the clear opening. If necessary, adjust the dimensions of the mounting posts or framing members to the height and width of your RS-500 door system as shown in **Diagram 1**. Refer to **Section 4.4 (page 4, Diagram 2)** for details of attaching door to framing members. Framing material must provide suitable support for attachment of screws.

Make sure that mounting posts or framing members are positioned so that the screw holes of the outer flanges of the vertical members will align with the mounting posts or framing members (**Section 6.4, page 8, Diagram 2**). Make sure that there is room for the motor and control box without encountering any obstructions.

Diagram 1
Front View (Curtain Side)

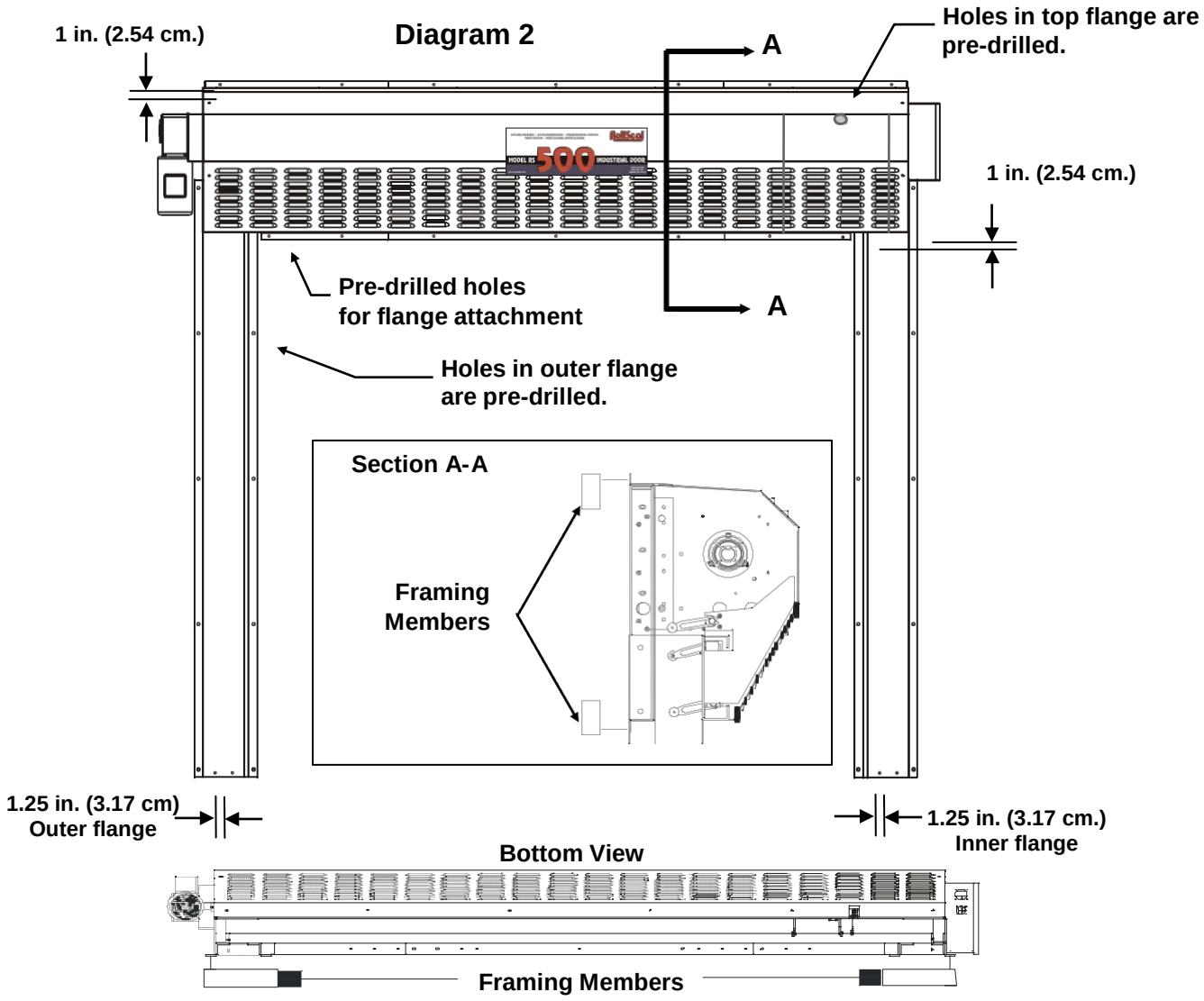


NOTE: Allow 1' (30.4 cm) minimum, preferably 18" (45.7 cm) clearance above the Head Unit for future panel maintenance or replacement.

4.4 Attachment Points of Door

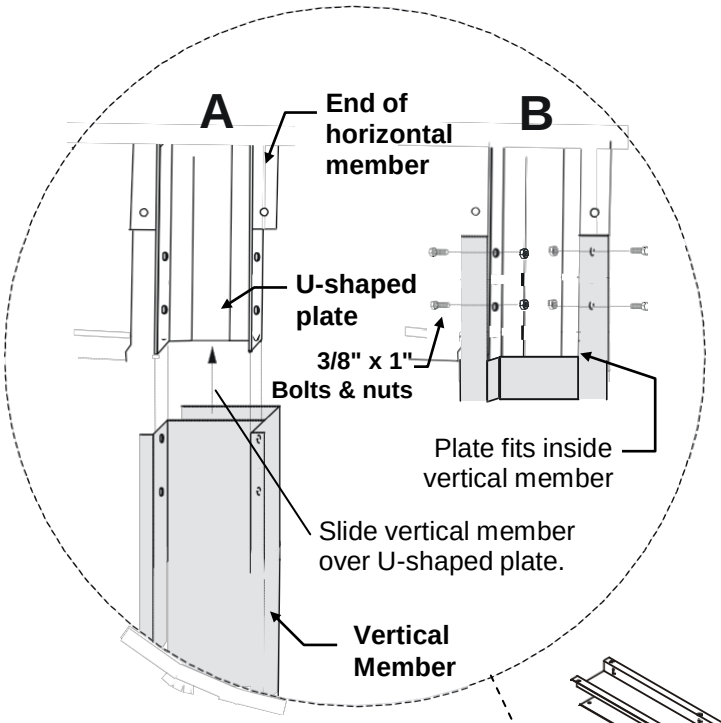
When sizing the clear opening for attachment of the door, pay close attention to the following guidelines. Door flanges have pre-drilled holes that serve as mounting points of door. Flange widths are shown in **Diagram 2**.

1. Make sure that door assembly is plumb & square.
2. The top unit has a top flange and a bottom flange. Make sure these flanges overlap framing.
3. The vertical members have inner flanges and outer flanges. The outer flanges have pre-drilled holes that serve as attachment points. Make sure the outer flanges overlap framing.
4. When door is raised in front of clear opening (**Section 4.7, page 6**), Diagram flanges must be flush against framing for attachment of screws.



4.5 Assembly of Parts

Arrange the horizontal member, left vertical member (left track), and right vertical member (right track) on the floor in front of the clear opening as shown in **Diagram 3**. The curtain side of the horizontal member and each vertical member faces down.



On each end of the horizontal member is a U-shaped plate that fits inside each vertical member. The U-shaped plate has four bolt holes, two on the inside and two on the outside flanges that match bolt holes in the vertical member. See diagram at left.

1. Align the vertical member with the U-shaped metal plate at end of horizontal member.
2. Slide the vertical member onto the outside of the U-shaped metal plate of the horizontal member as shown in A.
3. Insert bolts through bolt holes as shown in B. Install nuts. Tighten bolts & nuts securely.

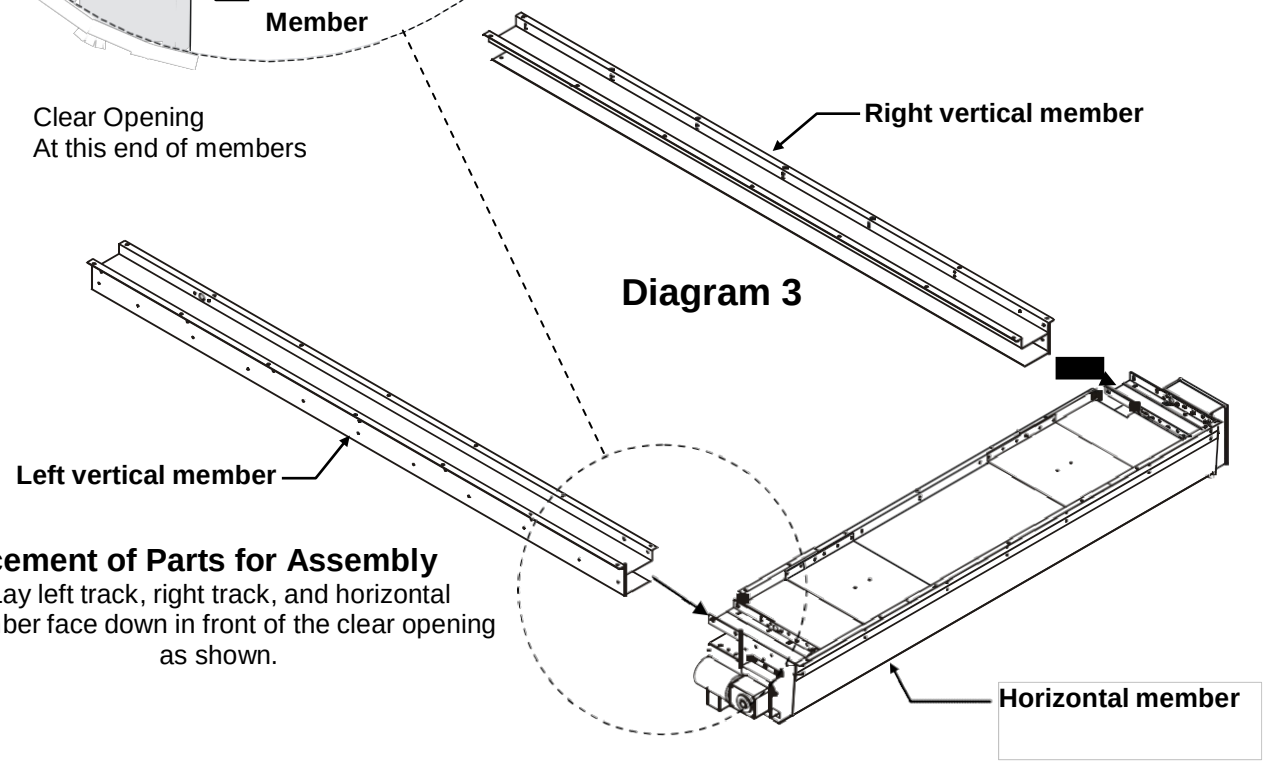


Diagram 3

Placement of Parts for Assembly

Lay left track, right track, and horizontal member face down in front of the clear opening as shown.

4.6 *Infrared Sensor Connectors*

Located at the bottom of each vertical member is an infrared detector. The detector on each vertical member operates as a safety device if the infrared beam is interrupted. Door can be set to stop if beams are broken while closing or to stop and reverse to the full open position. Refer to the RollSeal SC-325 Controller Manual for more information.

1. Locate female connector on vertical member. This connector is attached to the infrared detector.
2. Locate male connector on horizontal member. Unroll cable until connectors meet.
3. Plug connectors together. Make sure connectors interlock.
4. Repeat for both infrared detectors.
5. Cable ties and adhesive mounts are supplied to secure wire to the inside of tracks.

NOTE: For each vertical member, unroll respective sensor cable attached to horizontal member until cable reaches the connector attached to the vertical member. Plug connectors together. Some slack must be left at photo eyes for replacement purposes.

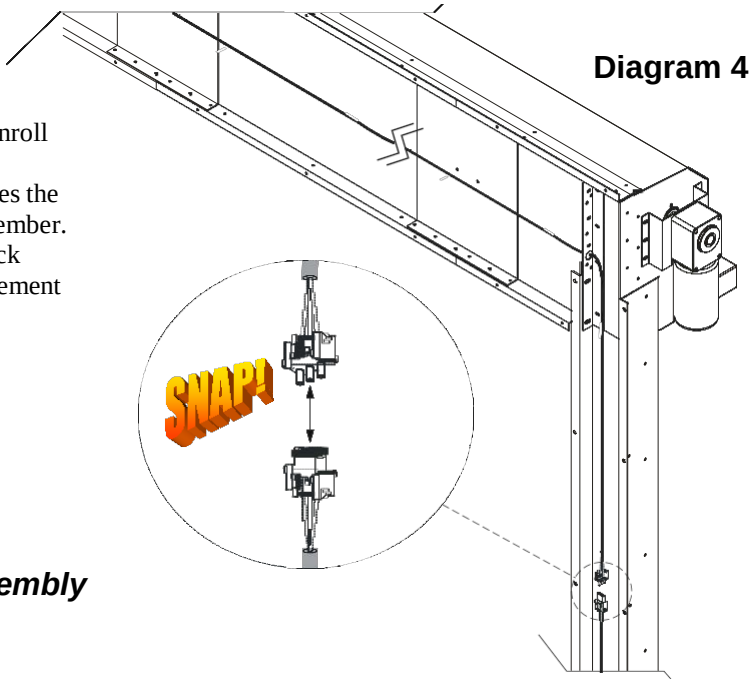


Diagram 4

4.7 *Fastening Door Assembly to Clear Opening*

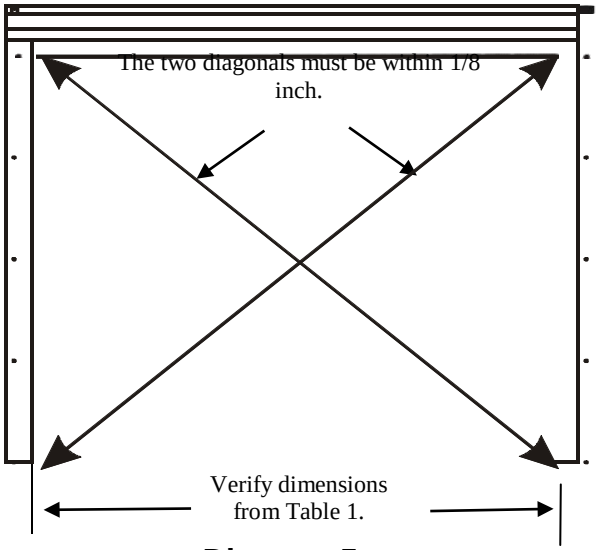


Diagram 5

1. Use a tape measure and make sure that the overall height and overall width of the clear opening meet the requirements: Overall Height = Height + 20.688 in. (52.55 cm), Overall Width = Width + 16.4 in. (41.66 cm). Reference **Table 1** and **Diagram 1**.

2. Make sure that door assembly is plumb & square. See Diagram 5.

3. Center door assembly on clear opening. Align the bottom of each vertical member with the respective framing board or posts of the clear opening. NOTE: The vertical members should be aligned so that their outer flanges will exactly overlap with the framing boards or posts when the door assembly is raised into position.

4. Assemble workers and equipment into position on each side of the door assembly. IMPORTANT: SLOWLY LIFT TOP OF DOOR ASSEMBLY TO RAISE THE DOOR. See Diagram 6.

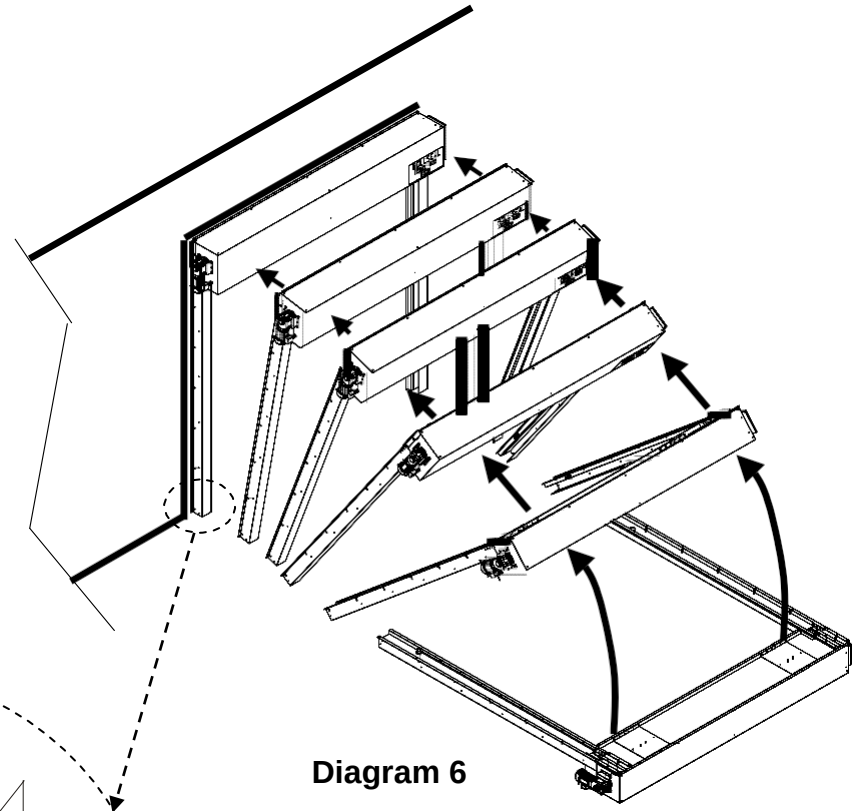


Diagram 6

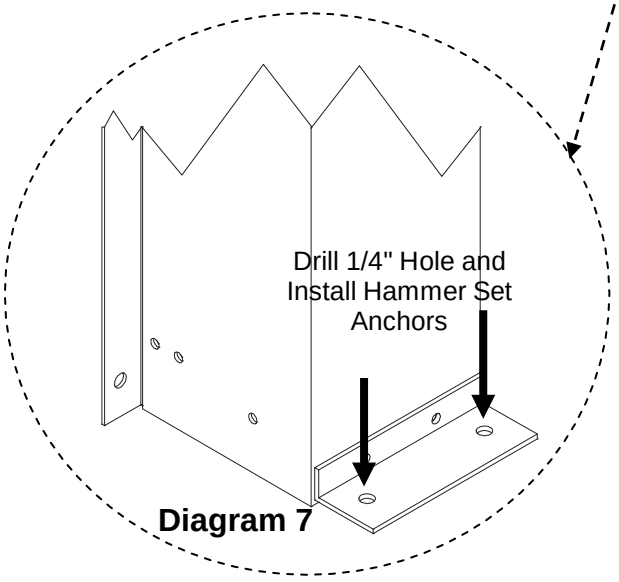
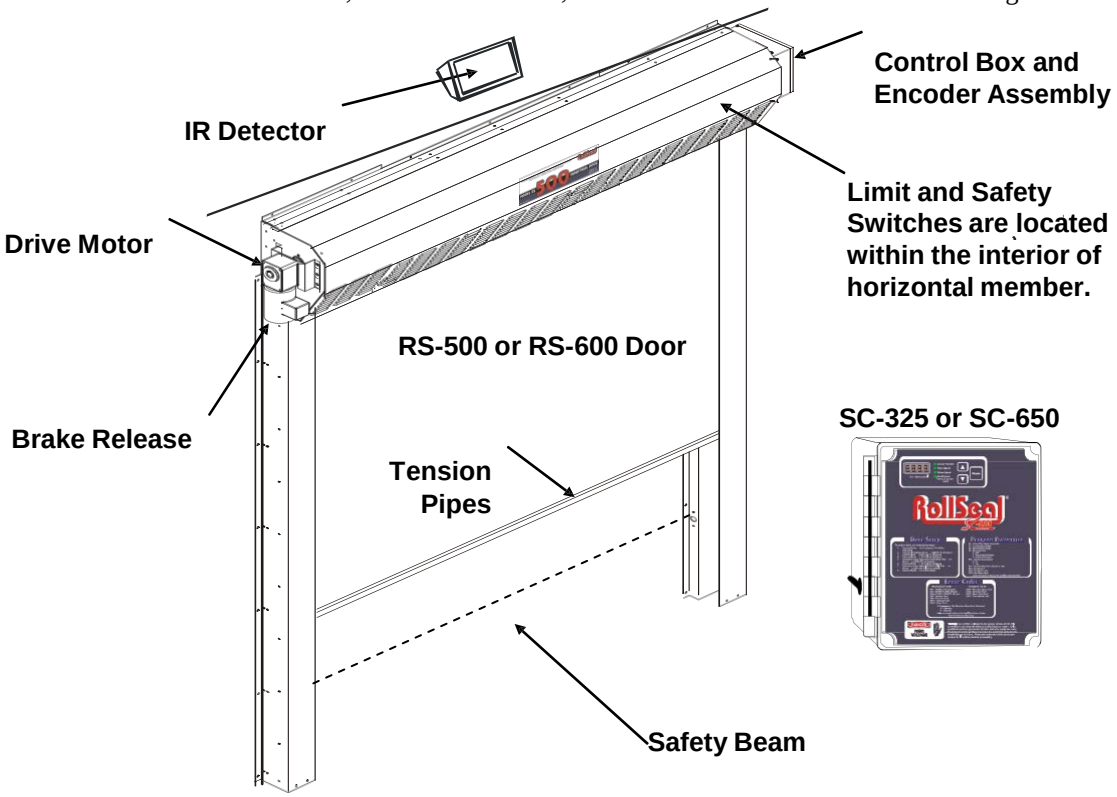


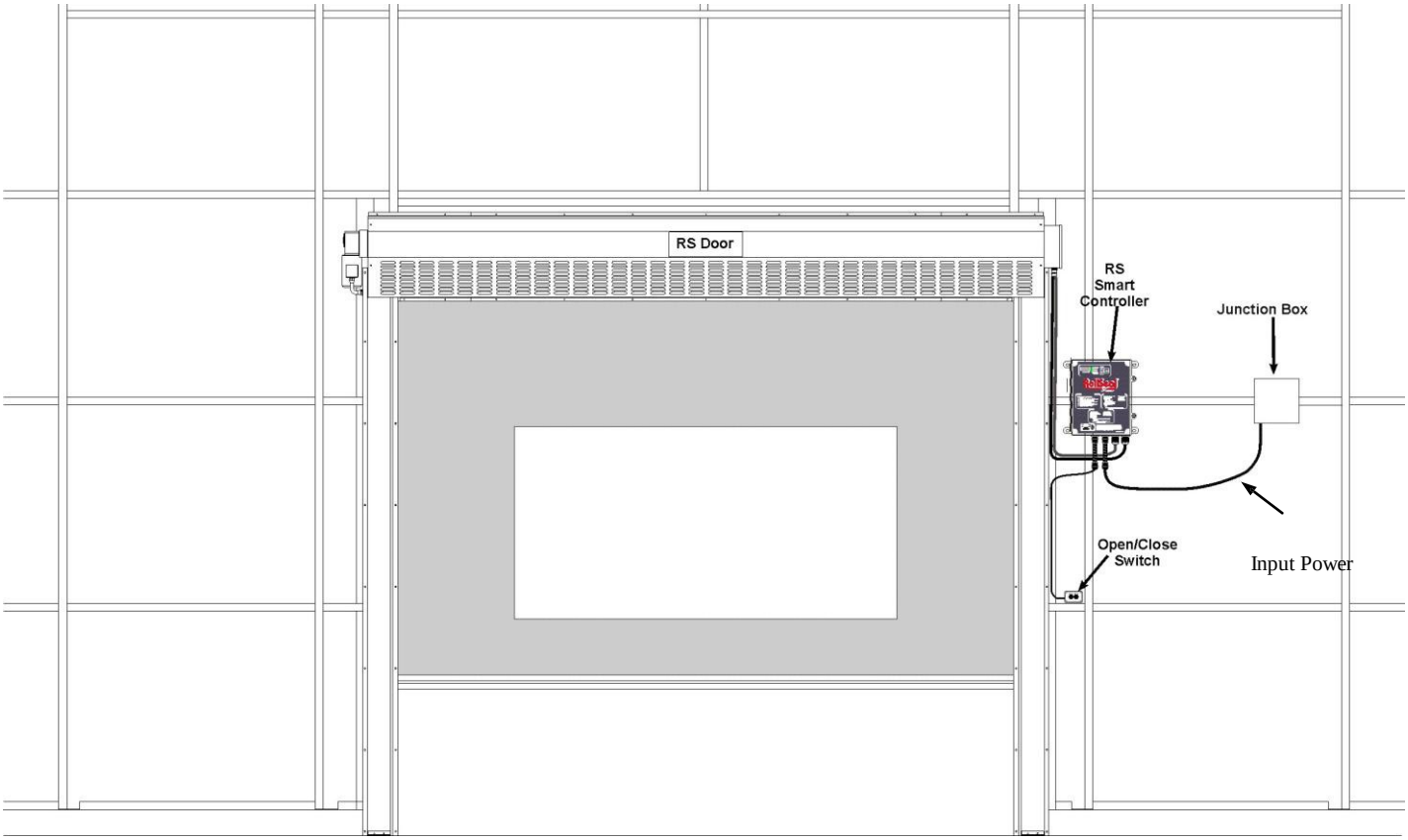
Diagram 7

5. Lean door assembly upright against clear opening.
6. Carefully press flanges of the door assembly flush against faces of framing boards or posts.
7. Fasten Tek screws (in steel) or lag screws (in wood) through the flanges on sides of door assembly. Securely tighten all screws.
8. On the lower and upper flanges of the horizontal member there are attachment points for fastening screws. Fasten Tek screws (in steel) or lag screws (in wood) through the holes. This secures the top of the door to the clear opening.
9. Locate the two floor mounting holes at the bottom of the left & right tracks. See Diagram 7.
10. Drill a 1/4" hole and install Hammer Set Anchors (1002-6030) in both right and left tracks. See Diagram 7.
11. This completes fastening of the door assembly to the clear opening.
12. Refer to controller section for the next steps.

5. Typical Smart Controller Installation

A typical installation of the Smart Controllers involve, at a minimum, connections to AC Power, the door motor, the Up/Down button, and the Safety Beam. Other accessories can be added such as a remote IR sensor, a remote radio link, and door movement indicators such as lights and bells.





6 Controller Installation and Setup

6.1 Tools Required

Small screwdriver Standard Screwdriver Wire strippers

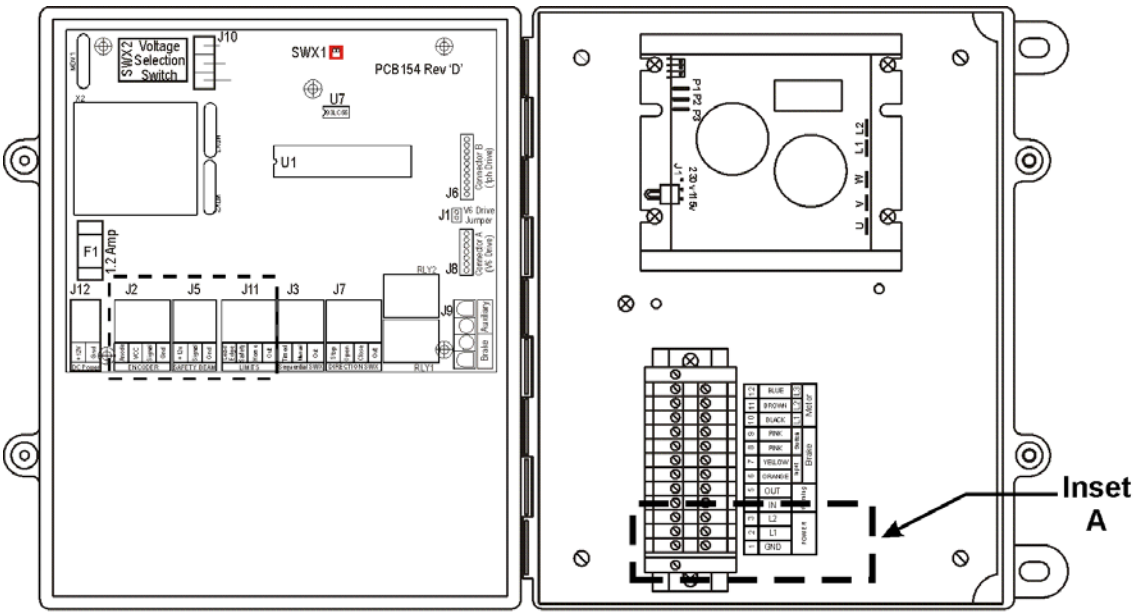
6.2 Installation Instructions

1. Unpack system, and check that all components are present.
   - 1 RollSeal Smart Controller
   - 1 Installation Kit
   - 1 Manual
2. Hang the controller with four screws at the desired location.
3. Make sure all power supplies are disconnected before breaking any wires, or reaching into the controller enclosure.
4. Determine the required Powering Voltage whether 115 VAC or 230 VAC.
5. If the desired power supply voltage is different from the factory preset/prewired voltage, the appropriate version Brake Rectifer must be ordered separately, field-installed on the RS Door, and the SC controller switch & jumper settings changed accordingly. The SC-325 controllers are factory preset to 115 VAC and the RS-500 doors factory prewired to require a 115 VAC power supply. The SC-650 controllers are factory preset to 230 VAC and the RS-600 doors factory prewired to require a 230 VAC power supply. The SC-325/SC-650 controllers and RS-500/600 doors can be field upgraded to accommodate either 115 VAC or 230 VAC power supply. Refer to **Section 12.5** for the SC controller power wiring, switch setting, and jumper setting and **Section 12.6** for the Motor Brake Rectifier part numbers and wiring information.

⚠WARNING!	⚠ WARNING!
Only a qualified electrician should install and/or service this equipment. Failure to observe precautions could result in equipment damage, severe bodily injury, or loss of life.	Dangerous High Voltages! Allow Approximately 5 Minutes For The Controller To Power-Down Before Changing Switch Settings, Jumper Placement, Or Wiring.

6. Connect power.
7. Connect AC/DC harness hook up. See diagram 8 on page 16
8. Turn the controller on.
9. Set the Open and Closed Speed and Limits, the Acceleration and Deceleration Ranges, Close Time Delay and Switch positions as discussed in **Section 5** of this manual.
10. Refer to door setup guide for next step. (see page 13)

7. Connecting Power to the SC-325 Controller

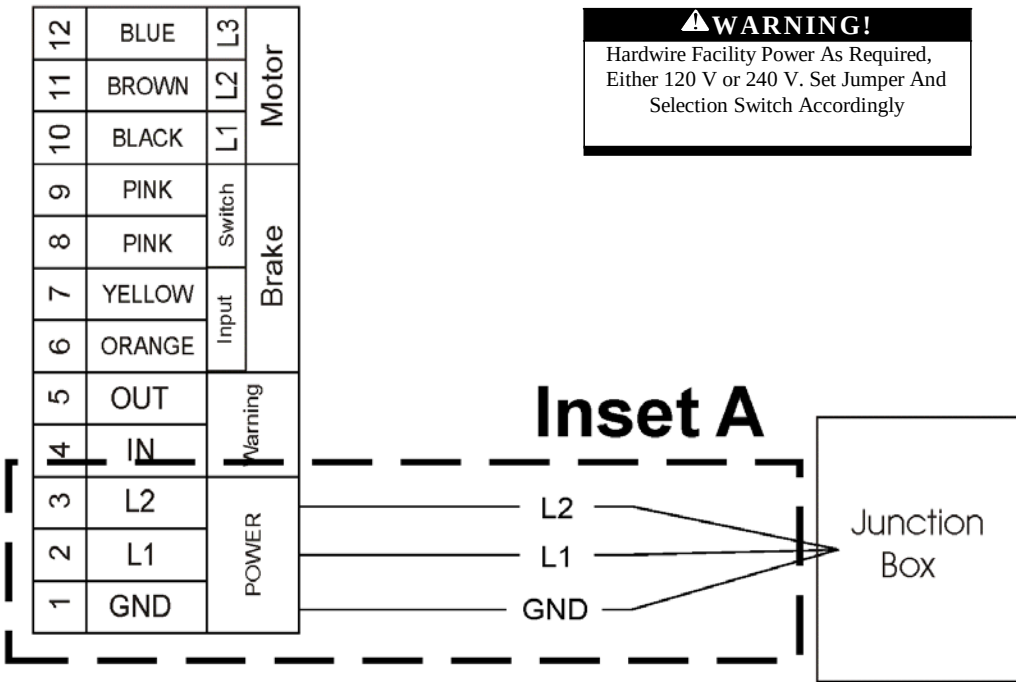


⚠WARNING!

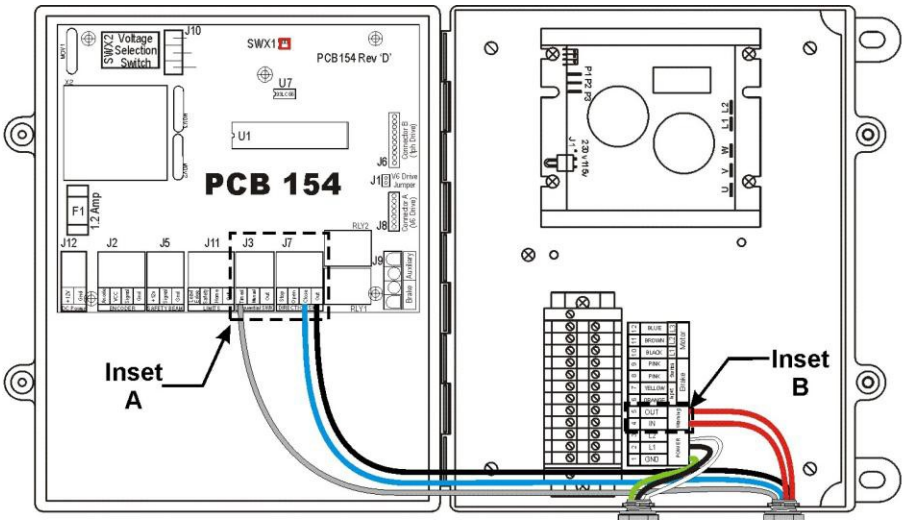
Ensure the Drive AC Selection Jumper and PCB 154 AC Selection Switch Are Set Accordingly BEFORE Power Is Applied To The Controller

⚠WARNING!

Hardwire Facility Power As Required, Either 120 V or 240 V. Set Jumper And Selection Switch Accordingly



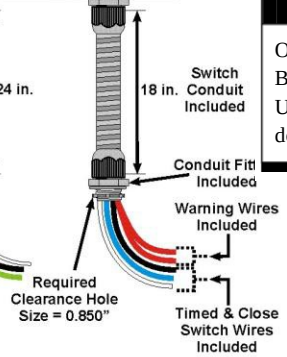
7.1 Connecting Switches to the SC-325 Wiring Option "-W01" Controller PN 6607-8057 and 6607-8058

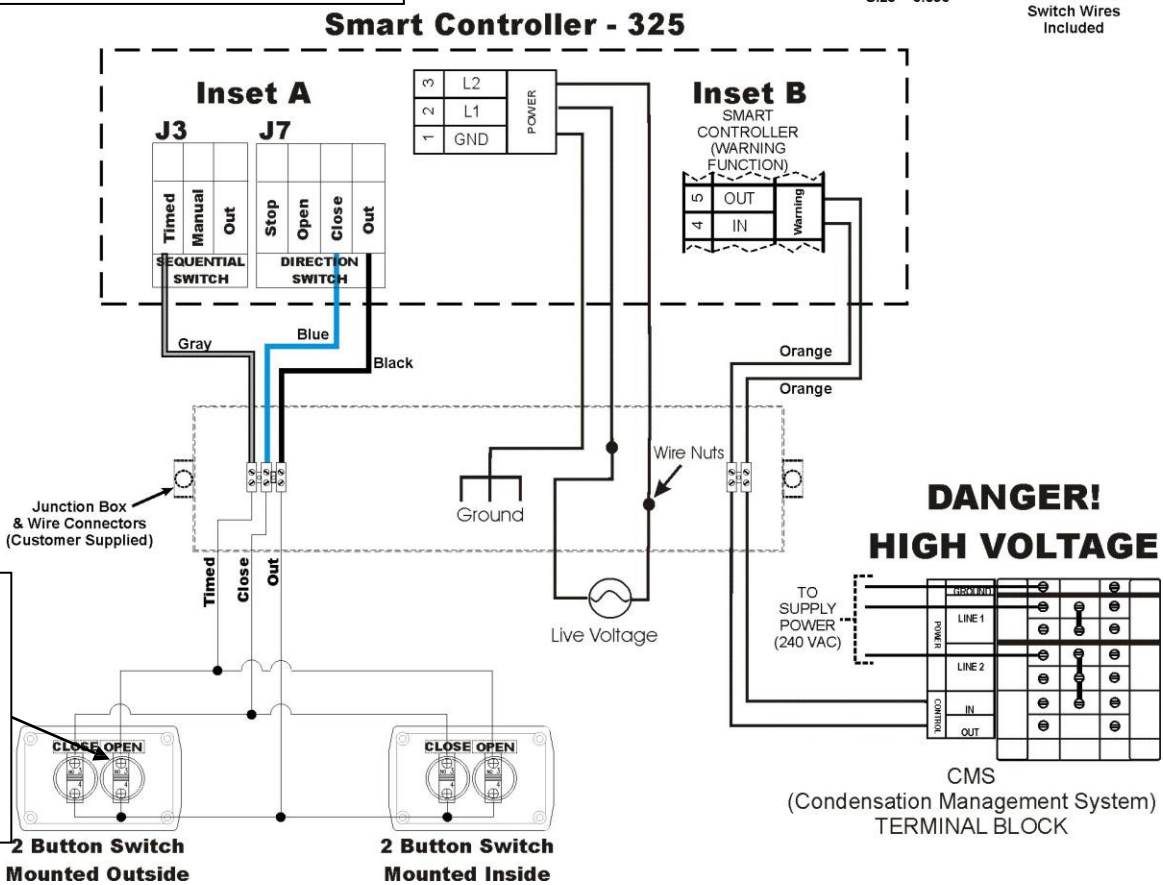


Note

All conduit and/or air spaces where wire is routed must be airtight. Use sealant if necessary

Orange Wires Must Be Capped Off If Not Used With A Freezer door





Note

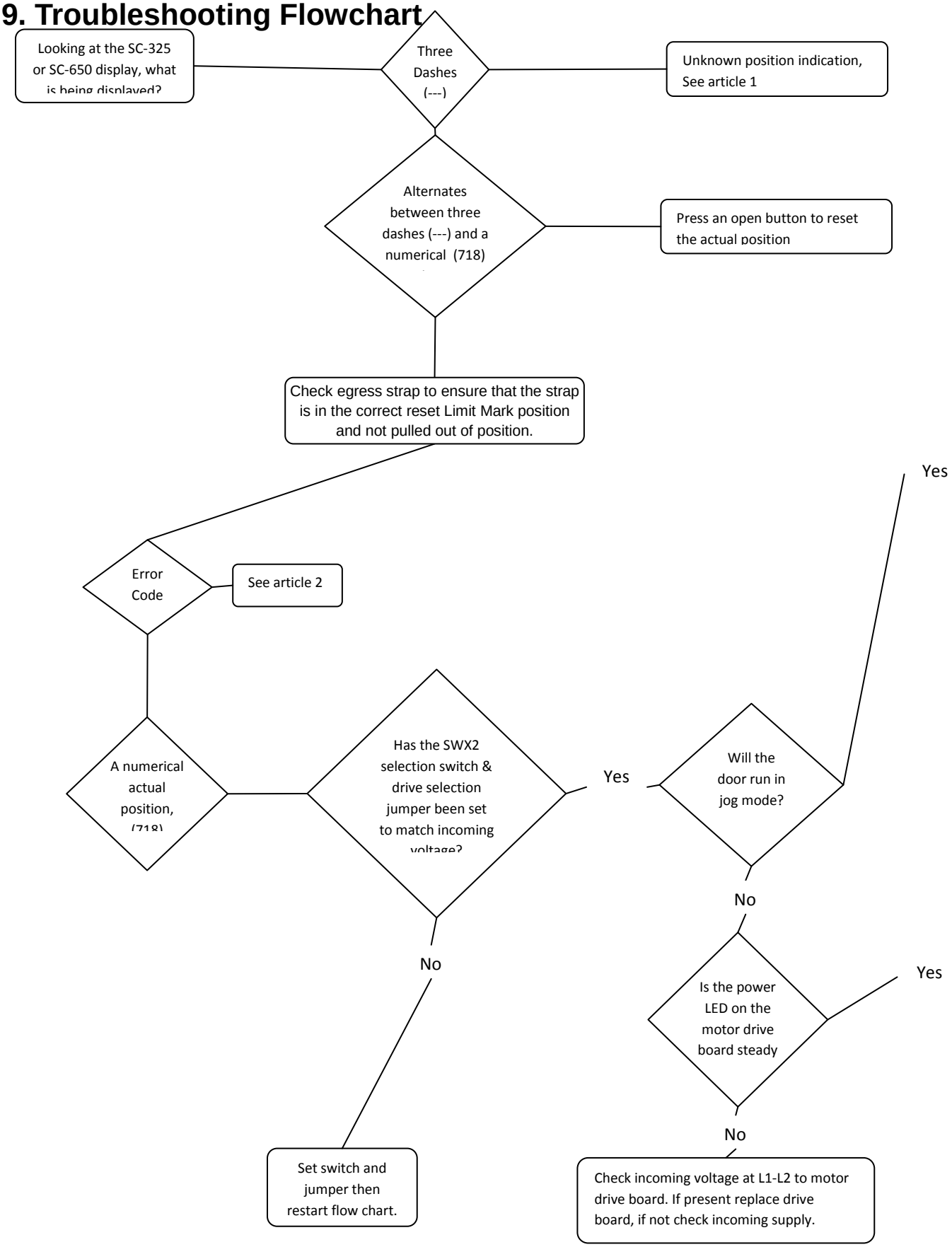
Recommend Using 18 Gauge For Switch Wiring

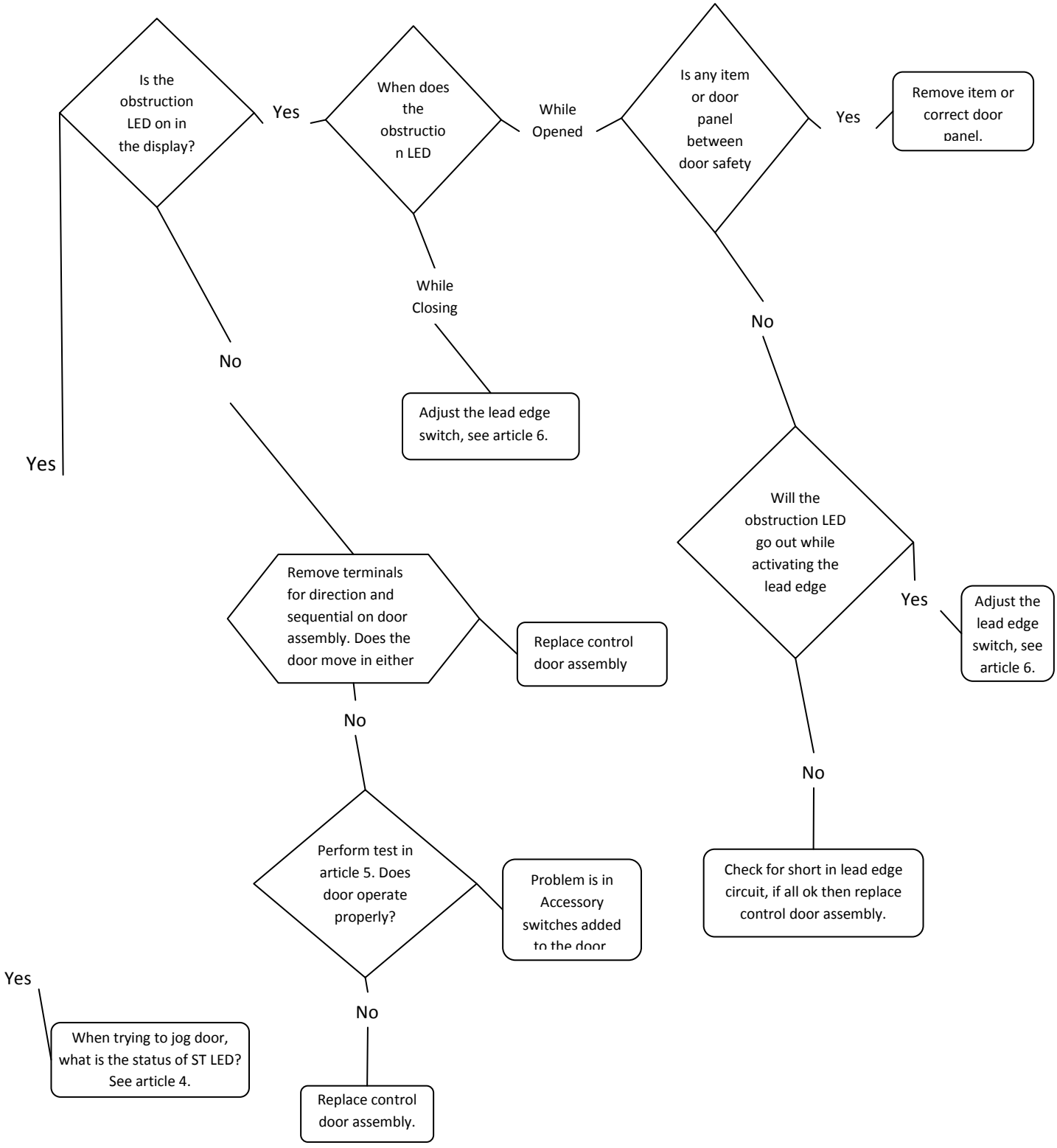
8. Door Setup Guide

Note: DO NOT USE JOG Mode to do these tests

1. Press and hold the ‘MODE’ Button until P1 is shown in the display. Set P1 to 45 seconds for the ‘Time Out’ function.
2. Press the ‘MODE’ button 1 time to P2. Set P2 to 20
3. Press the ‘MODE’ button 1 time to P3. Set P3 to 80
4. Press the ‘MODE’ button 1 time to P4. Set P4 to 3 (Note: This must be 3 for freezer CMS Box to heat and blow air.
5. Press the ‘MODE’ button 1 time to P5. Set P5 to 25
6. Press the ‘MODE’ button 1 time to P6. Set P6 to 5
7. Press the ‘MODE’ button 1 time to P7. Set P7 to 25
8. Slowly press the ‘MODE’ button skipping P10, P11, and P12 until you see PS1 in the display. It will indicate ‘no’ on the screen. Hit the up arrow on the controller to change ‘no’ to ‘yes.’ This is where you will begin to set the upper and lower limits of the door panel (fabric). Hit the ‘MODE’ button again and the panel will move towards the HOME switch and then back down towards the current setting of the OPEN limit. Use the up and down arrows to set the upper limit between 20-24 in the display. Then press the ‘MODE’ button again and the panel will move downwards toward the current CLOSE limit. Use the up and down arrows to achieve the proper lower limit and ensure that the panel is resting firmly against the floor to create a good seal (especially important for Freezer doors). If the door closes to the floor on the first attempt, press the up arrow to bring the panel slightly off the floor and then press the down arrow to achieve this seal. This will prevent slack in the panel which could result in the panel auto reversing when it hits the floor. The number displayed will then become your lower limit.
9. Press the ‘MODE’ button one last time to exit programming mode. Your lower limit that was just set will remain in the display and you will have the green LED on the controller lit up beside ‘ACTUAL POSITION.’

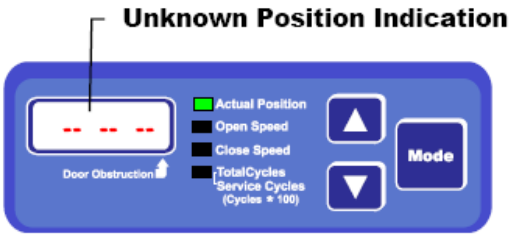
9. Troubleshooting Flowchart




Is the obstruction LED on in the display?
Yes
When does the obstructio n LED
While Opened
Is any item or door panel between door safety
Yes
Remove item or correct door panel.
While Closing
Adjust the lead edge switch, see article 6.
No
Yes
No
Will the obstruction LED go out while activating the lead edge
Yes
Adjust the lead edge switch, see article 6.
Remove terminals for direction and sequential on door assembly. Does the door move in either
Replace control door assembly
No
No
Check for short in lead edge circuit, if all ok then replace control door assembly.
Perform test in article 5. Does door operate properly?
Problem is in Accessory switches added to the door
Yes
No
When trying to jog door, what is the status of ST LED? See article 4.
Replace control door assembly.

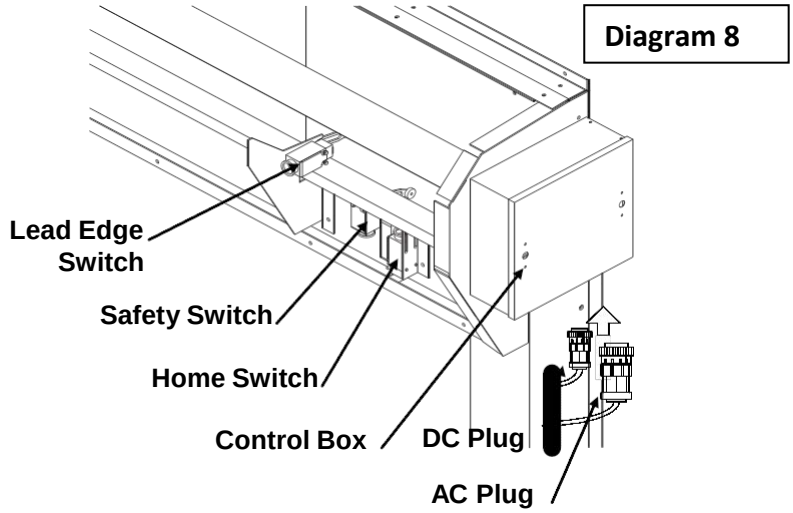
10. Unknown Position Indication

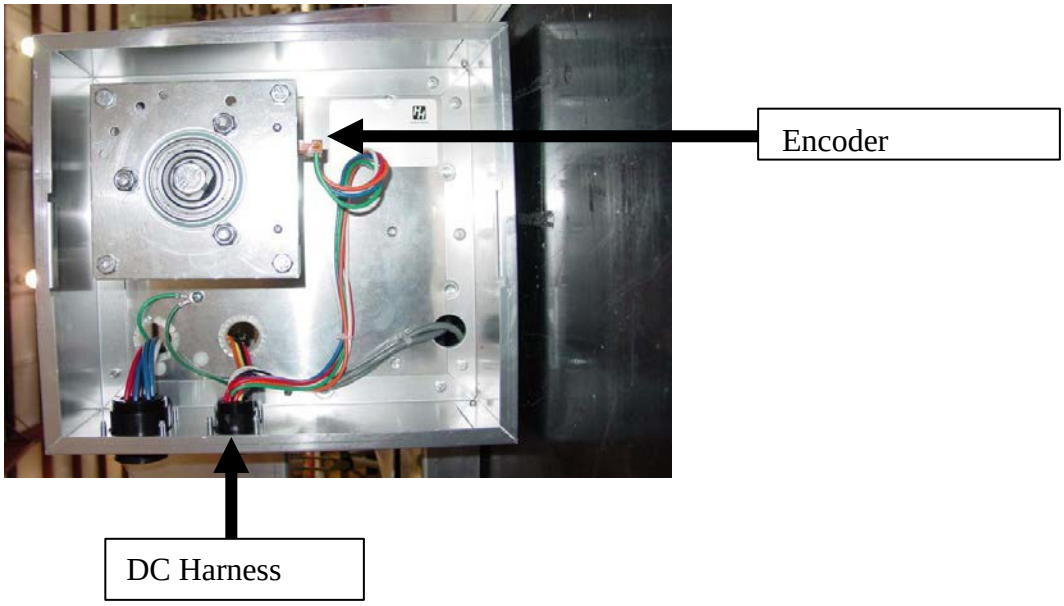
There are occasions when the controller may not know the exact position of the door, for example, when returning from the Jog Mode. In these cases the Display Indicator will display a series of three bars as shown at the right. This is known as the **Unknown Position Indication**.



When the door is actuated, the door will proceed to the full open position, however the speed of the door will be reduced. When the door has returned from the home switch position to the open limit position, the display will show the actual position of the door. This indicates that the door has reset its position and is ready for normal operation.

If something in the door encoders fails the control will not be able to recognize the position of the door. This problem can also arise from a loose or bad connection in the DC harness. Check to make sure the harness is connected properly and that there aren't any loose wires in the connections of the encoders.





11. Error Codes

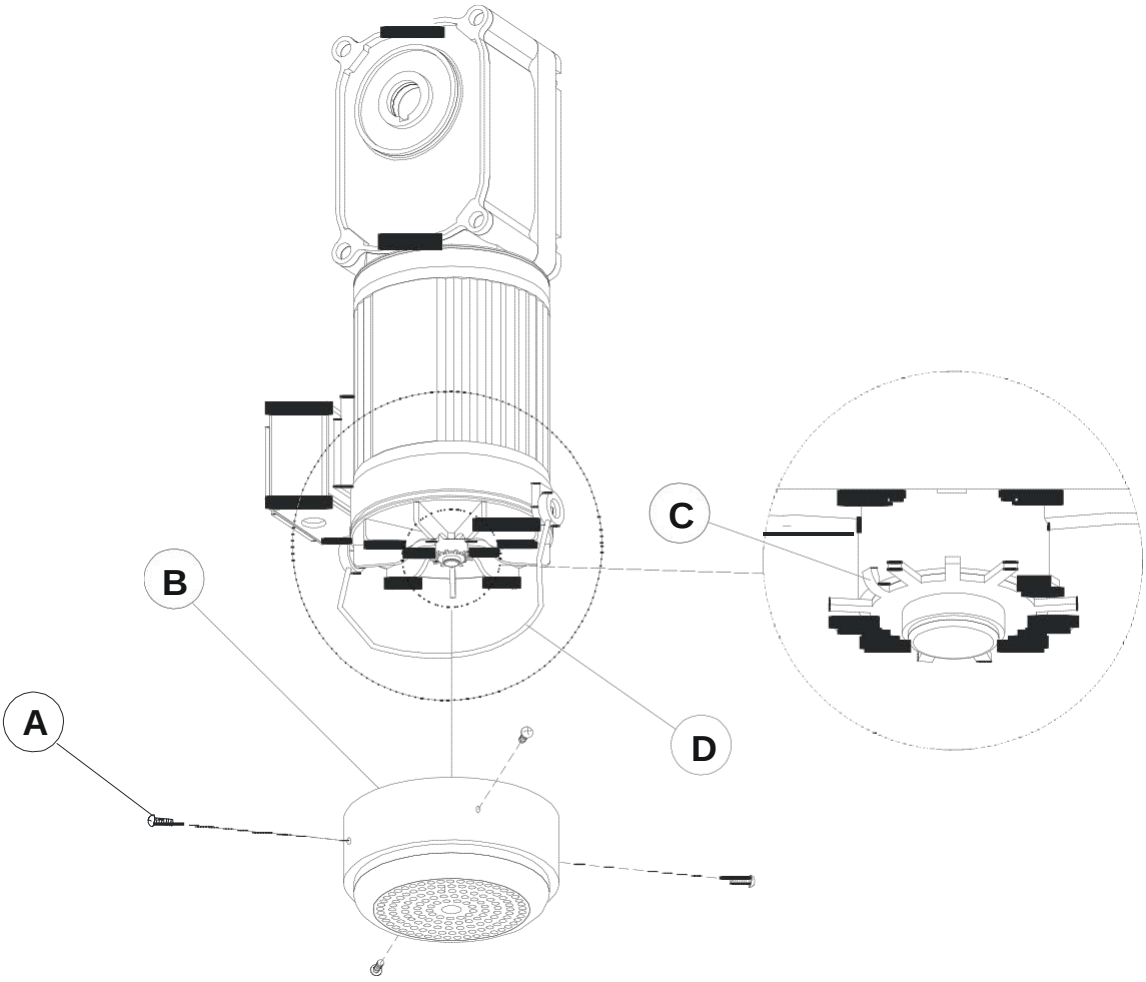
Mechanical Errors				
Code	**Condition**	**Panel Movement**	**Problem Area**	**Possible Solutions**
EO1	Opening, Home Switch		Home Switch	Try to activate door normally (open), should fix itself
				Use JOG mode to lower door panel below Home switch, **See Article 3**
				Manually release brake and pull panel below Home switch, **See figure 1**
				Home Switch Arm may be loose. Retighten, **See Article 6**
EC1	Closing, Home Switch		Home Switch	Lower limit is not set correctly, Reset door limits PS 1
				Home Switch Arm may be loose. Retighten, **See Article 6**
				Faulty connections, check DC harness (Grey Cable) at the door and the DC connections on the PCB154 **See figure 2 & 3**
EO2	Opening, Safety Switch		Safety Switch	Safety Switch Arm may be loose.Retighten, **See Article 6**
				Faulty connections, check DC harness (Grey Cable) at the door and the DC connections on the PCB154 **See figure 2 & 3**
EC2	Closing, Safety Switch		Safety Switch	Safety Switch Arm may be loose.Retighten, **See Article 6**
				Faulty connections, check DC harness (Grey Cable) at the door and the DC connections on the PCB154 **See figure 2 & 3**
EO3	Opening, Safety Switch		Home & Safety	Manually release brake and pull panel below Home switch, **See figure 1**
				Check DC harness connection, especially if "Door Obstruction" LED is on. **See figure 2.**
EC3	Closing, Safety Switch		Home & Safety	Manually release brake and pull panel below Home switch
				Check DC harness connection, especially if "Door Obstruction" LED is on. **See figure 2.**

Feedback Errors				
Code	**Condition**	**Panel Movement**	**Problem Area**	**Possible Solutions**
EOF1	Opening, Encoder Fault	Up or Down	Encoder	Check DC harness, make sure optics are clean, inspect encoder wire connections in door's J-box and on PCB154 board. **See figure 1 & 2**
		None	Brake	To prove the brake is not releasing automatically, disengage manual brake release (**See figure 1**) and attempt to operate door. If it operates, one or more of the following is the problem.
			Brake Relay	Check brake relay on PCB154 control board. **See Article 7**
			Brake Rectifier	Check brake rectifier in motor. **See Article 7**
			Brake Assembly	Make sure brake is not adjusted too tight or that the brake assembly is defective, **See figure 4**
			Egress Strap Tension pipe pockets Drive Board	Check egress strap to ensure that the strap is in the correct reset Limit Mark position and not pulled out of position. Ensure correct pipe location in panel pockets. Inspect pipes for bends. Ensure both PWR and ST LEDs are “ON” steady **See Article 4**.
ECF1	Closing, Encoder Fault	Up or Down	Encoder	Check DC harness, make sure optics are clean, inspect encoder wire connections in door's junction box and on PCB154 control board. **See figure 2 & 3**
ECF1		None	Brake	To prove the brake is not releasing automatically, disengage manual brake release (**See figure 1**) and attempt to operate door. If it operates, one or more of the following is the problem.
			Brake Relay	Check brake relay on PCB154 control board. **See Article 7**
			Brake Rectifier	Check brake rectifier in motor. **See Article 7**
ECF1			Brake Assembly	Make sure brake is not adjusted too tight or that the brake assembly is defective, **See figure 4**
EOF2	Opening, Direction Fault	Up then panel stops and rolls down a few inches	Drive Overload Trip	If a drive overload occurs due to over-current, over-voltage, or temperature levels out of range, the drive may trip while the door is opening.
		Up	Encoder	Signal Wires (A, B) reversed. **See figure 3**
			Drive	Reverse two phases to the motor
		Down	Drive	The drive or the gear motor may not be functioning.
			Drive	If the gear motor seems to be functioning, then two phases to the motor must be reversed.
			Egress Strap	Check egress strap to ensure that the strap is in the correct reset Limit Mark position and not pulled out of position.
ECF2	Closing, Direction Fault	Up	Drive	Reverse two phases to the motor
		Down	Encoder	Signal Wires (A, B) reversed. **See figure 3**

12. Adjustment of Brake

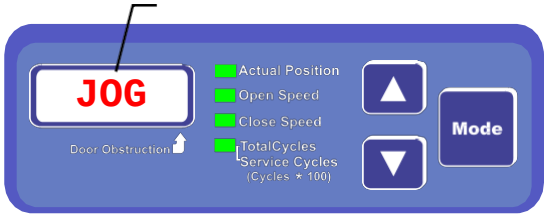
After extended operation of the brake lever, the brake may become worn. As the brake wears, some adjustment to the brake is required. Lettered diagrams below correspond to lettered instructions. Follow instructions to adjust brake:

1. Close door curtain to fully lowered position.
2. Engage Brake lever.
3. Disconnect electrical power to motor.
4. Remove four Phillips screws (**A**).
5. Remove cover (**B**).
6. Straighten the bent tab (**C**) of spider nut.
7. Tighten spider nut (**C**) snuggly against blower wheel. Make sure a tab of spider nut is aligned with a notch in the shaft
8. Bend tab (**C**) downward into notch of shaft.
9. Replace cover (**B**).
10. Replace four Phillips screws (**A**).
11. Disengage brake lever (**D**).
12. Adjustment complete.



13. *Jog Mode*

The Jog Mode will permit an operator to manually control the position of the door with the ***Up*** (△) and ***Down*** (▽) arrow buttons. To enter the Jog Mode, press both the ***Up*** (△) and ***Down*** (▽) arrows at the same time for at least 5 seconds. The controller will indicate the Jog Mode in the display as shown below.



In the Jog Mode the door can be opened and closed and is not affected by the Home limit switch or the Safety beam. Therefore, the operator must carefully watch the door movement when nearing the full open and full closed positions. To exit the Jog Mode, press and hold the ***Up*** (△) and ***Down*** (▽) arrow buttons for at least 5 seconds. The controller will return to the normal operating mode with the Actual Position shown in the display.

When returning to the normal operating mode, the controller will not know the exact position that the operator has left the door when exiting the Jog mode. Therefore, the controller will display a series of three horizontal bars. Upon the next command the door will slowly proceed to the full open position to reset its memory. The door will always follow this procedure after exiting the Jog Mode.

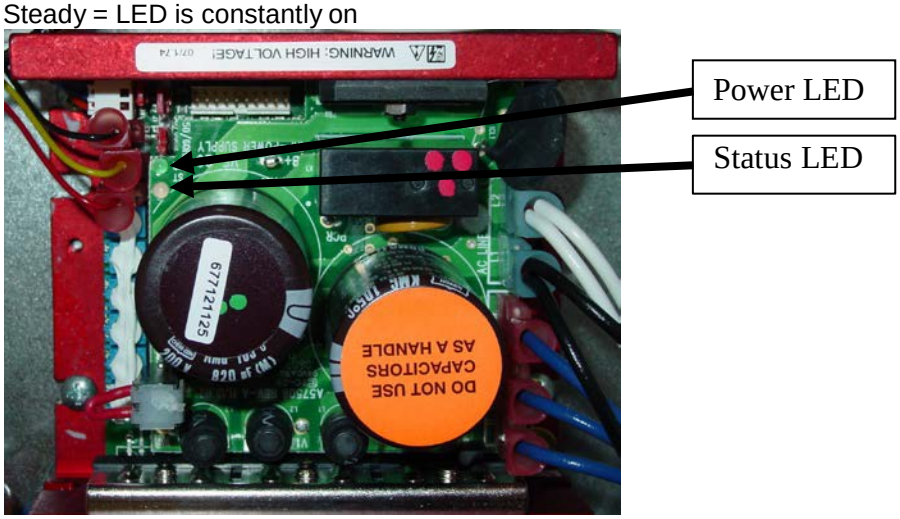
14. SC-325 & SC-650 Drive Diagnostic LEDs

KB Drive Diagnostic LEDs			
Door Idle			
PWR LED	**ST LED**	**Operating Condition**	**Possible Causes**
OFF	OFF	Drive is Off	No AC Power Applied
			Fuse Blown
			Defective Drive
Green	Steady Yellow	Normal Condition	
Green	Quick Flash Red/Yellow	AC Input Undervoltage	Input AC=115 Vac/Drive Jumper set on 230 Vac
Green	Slow Flash Red/Yellow	AC Input Overvoltage	Input AC=230 Vac/Drive Jumper set on 115 Vac
Green	Steady Red	Current Overload	Drive tripped due to current overload
Green	Red/Yellow/Green	Undervoltage or Overvoltage	Drive tripped due to out of range voltage condition
Door Moving			
PWR LED	**ST LED**	**Operating Condition**	**Possible Causes**
Green	Slow Flash Green	Normal Condition	
Green	Quick Flash Red	Overcurrent	Drive operating at 120%-200% of full rated load
Green	Slow Flash Red	Short Circuit	Two phases may be shorted
			Phase may be shorted to ground
			Gear motor may be defective

Slow Flash = LED flashes 1 second off, 1 second on

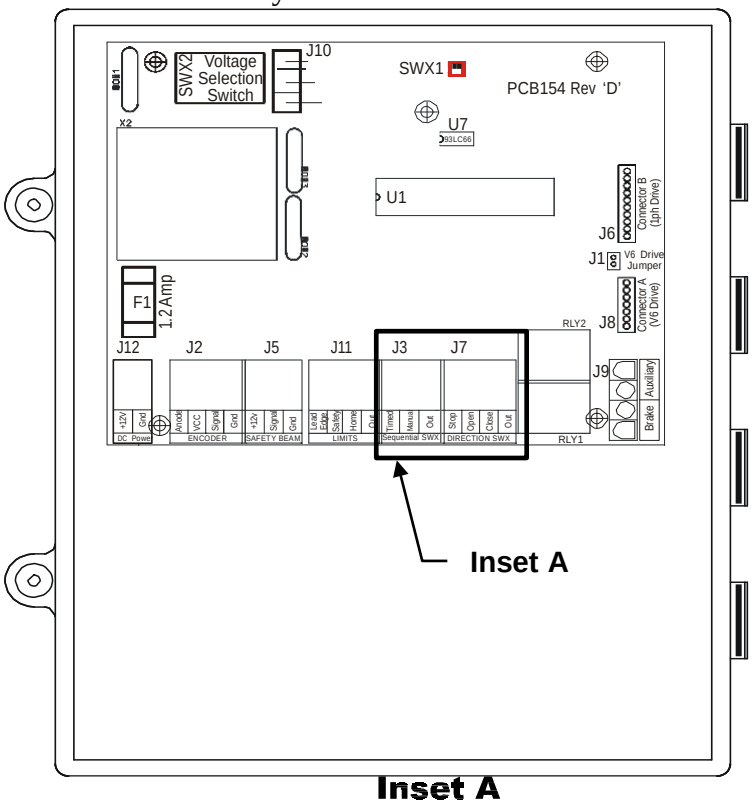
Quick Flash = LED flashes 0.25 second off, 0.25 second on

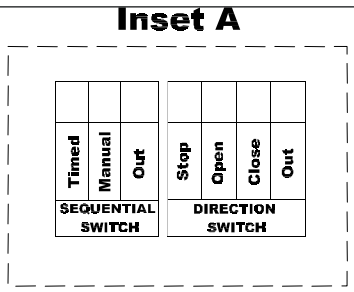
Steady = LED is constantly on



15. Test Direction SWX

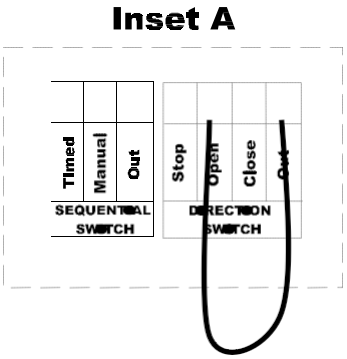
To perform all tests below you must have a short piece of wire. This wire could be 5 inches long and can be 16/18 gage in size. Each test performed will be located in the same area of the PCB 154 of the door assembly as below.





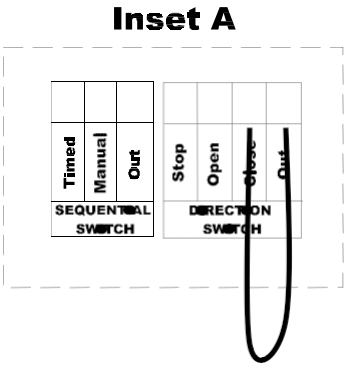
15.1. Test Open Direction

a. Place the jumper on the pins of **Out to Open** momentarily. Care should be taken that this wire only touches these two points. The door should open to its full open position.



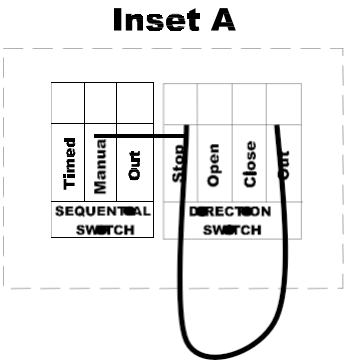
15.2 Test Close Direction

a. Place the jumper on the pins of **Out to Close** momentarily. Care should be taken that this wire only touches these two points. The door should close to its full close position.



15.3 Test Stop Position

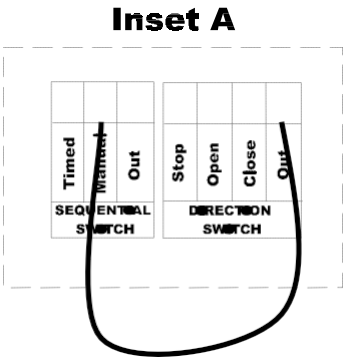
a. Place the jumper on the open or close direction momentarily, the door will start to move in that direction. Care should be taken that this wire only touches these two points. Before the door gets to its full limit place the jumper across the **Out to Stop** position momentarily. The door should stop at this point.



Test Sequential SWX

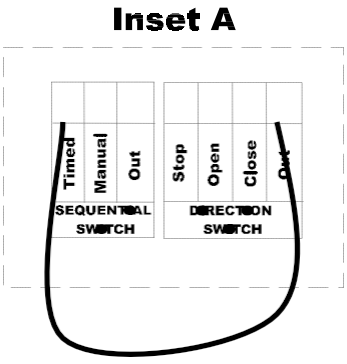
15.4 Test Manual Position

a. Place the jumper on the pins of **Out to Manual** momentarily. Care should be taken that this wire only touches these two points. The door should open or close to its full limit position. The direction will depend on the last time it received an input from this location. Each time you make contact on this point the door will move opposite of the previous move.



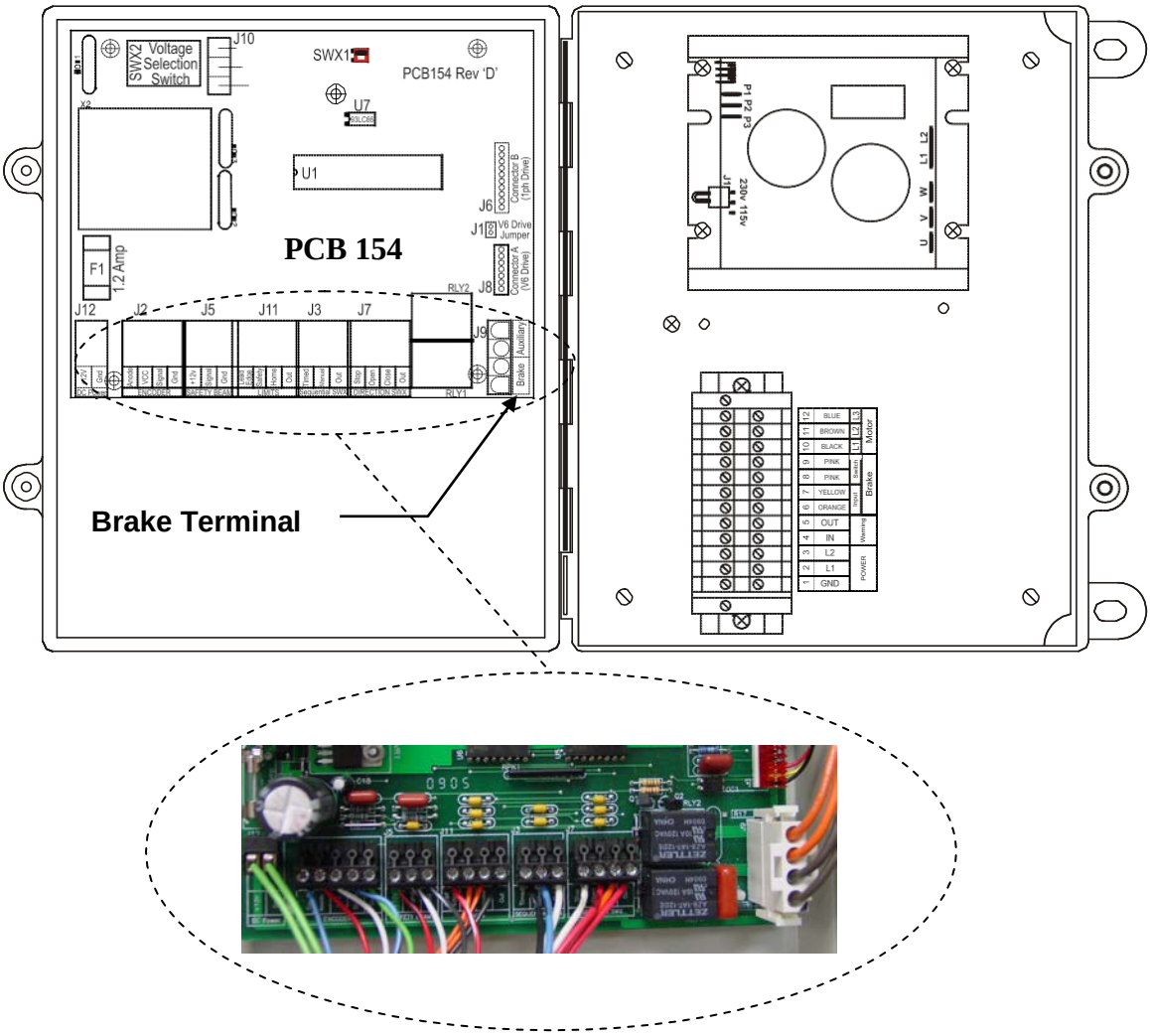
15.5 Test Timed Direction

a. The door must be closed before performing this test. Place the jumper on the pins of **Out to Timed** momentarily. Care should be taken that this wire only touches these two points. After the door is opened and all safety sensors are clear, a timer would count down and close the door automatically. In order for the timed feature to work, the door must have initially been in a closed or stopped position. If the door was already opened by an open test or some other means, the timer would not operate and the door would remain open.



16. Test Brake Relay

The gear motors on these RS 500/600 series door has a brake rectifier which will activate the brake in the gear motor to stop the unit when not in use. There is a relay (acting as a switch) on the PCB 154 board in the door assembly of the control that will turn this brake on and off. This test procedure will allow you to test the relay to see if it is failing or if the problem could be in the brake rectifier. First we need to test the brake relay on the PCB 154. The connections are found at the bottom right corner of the board.



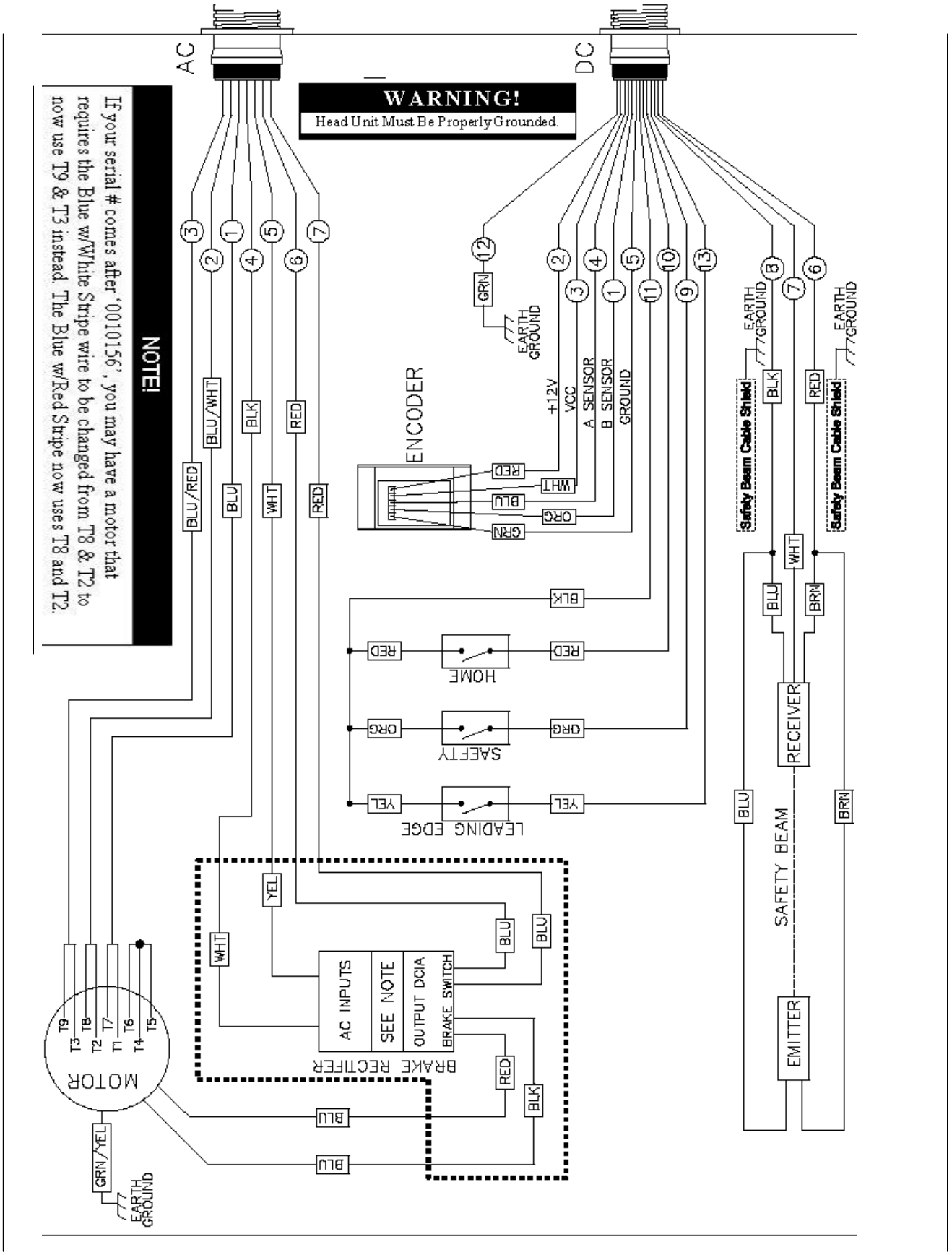
If the brake relay is at fault the door will struggle to operate or it could cause the drive board to trip and there would be an Error code of EOF1 or ECF1 in the display of the control.

To test the brake relay:

1. Remove quick connect connector from the PCB 154 board.
2. The door must be operated in one direction while in the jog mode. See Article 3.
3. While pressing the up or down arrow while in jog mode place a jumper across the connectors inside the quick connect which will act as a switch like the relay would normally do. See figure 1.

This should release the brake and allow the door to operate. If the door does operate after performing step three then replace the door assembly of the control.

17. RollSeal Automatic Door Wiring Diagram



18. RollSeal Smart Controller Wiring Diagram