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# 65000-9XX Astro-Fold™

## Installation Instructions

### **DOR - O - MATIC®**

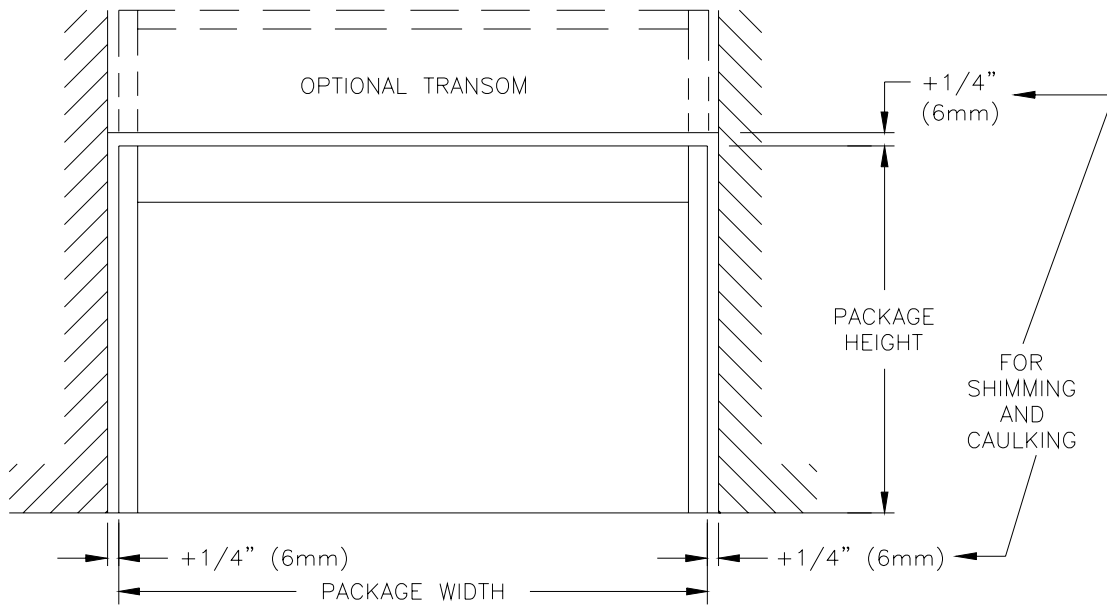
7350 W. Wilson Ave.  
Harwood Heights, IL 60706

Toll Free: 1-800-543-4635  
In Illinois: 708-867-7400  
Sales FAX: 708-867-0291  
Engineering FAX: 708-867-1177

**[www.dromatic.com](http://www.dromatic.com)**

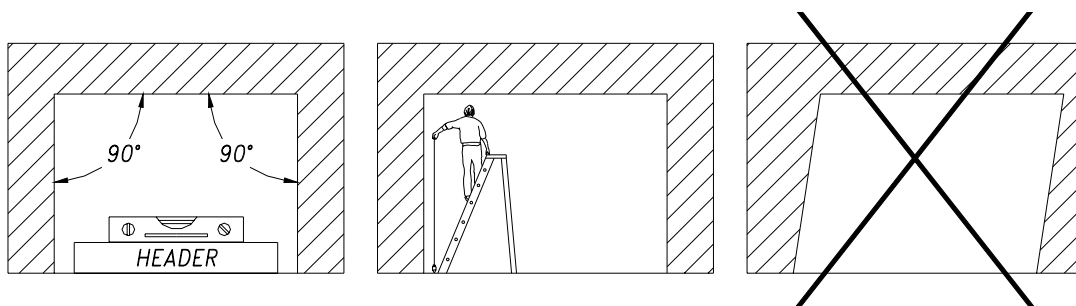
## INSPECTION

1. Verify that the order was shipped complete and correct, including model number, color, and package width and height.
2. Verify at the job site that all conditions are correct and in accordance with final approved shop drawings.
  - a) Check that the opening is the correct size. Correct size is package width plus  $\frac{1}{2}$ " and package height plus  $\frac{1}{4}$ ", for shimming and caulking (Figure 1).



**FIGURE 1:** Clearance Required at Rough Opening

- b) Check that the floor is level. Use a minimum 6'-0" level or use the actual aluminum header turned upside down to check the floor (Figure 2).
- c) Using a plumb bob, check that the rough opening where the jambs will be mounted is vertical (Figure 2).
- d) Check the diagonal measurements to insure that the opening is a true rectangle, not just a parallelogram (Figure 2).



**FIGURE 2:** Check Rough Opening

- e) Check that the electrical feed (120V, 15A single phase for North America; 220/240V, 5A single phase for Europe, Asia, etc.) is correctly located in accordance with final approved shop drawings and all conduits and electrical junction boxes for push plates or other activation devices (if required) are likewise correctly located.

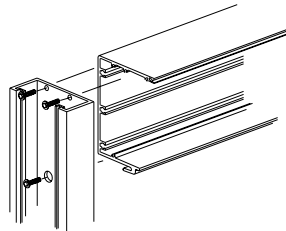
**NOTE:** If any of the above items are not correct, **do not attempt to install the Astro-Fold package!** Report any incorrect items to the general contractor **immediately**. Do not proceed until all conditions are correct.

## FRAME ASSEMBLY & INSTALLATION

1. Remove the two screws (three on some models) holding the cover in place. If the cover needs to be removed for any reason, you may wish to do it now. Refer to Cover Removal section for further details.
2. Prep the header for any motion detectors or safety sensors that are to be installed as a part of this job. **Be extremely careful not to damage any wires or other internal components when drilling these holes!**
3. Run a line down each jamb for future wire fishing.
4. If installing an **overhead-concealed package with no threshold**, cut off  $\frac{1}{2}$ " from the bottom of each jamb and  $\frac{1}{2}$ " from the top of each finger guard before proceeding with the installation. Do NOT do this if...
  - a) The package includes a threshold, or
  - b) The package is surface applied.
5. The header should have notches in the rear channels for inserting square nuts. If the header does not have these notches, insert the appropriate number of square nuts into the proper channels before attaching the jamb tubes.

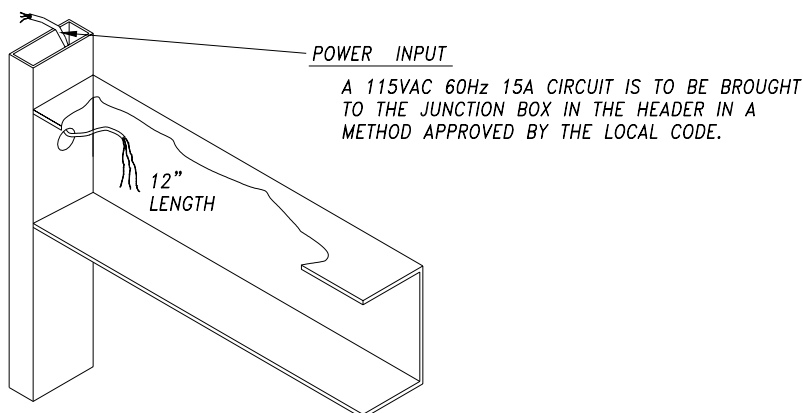
Component	Nuts per Channel		
	Top	Middle	Bottom
LH Operator		2	2
RH Operator		2	2
Control Box	2		
Mag-Lock Panel	2		

6. Attaching the header to the jamb tubes:
  - a) Remove the snap in section of each jamb tube.
  - b) Attach each jamb tube to the header using three  $\frac{1}{4}$ -20 bolts (Figure 3).
  - c) If installing an overhead-concealed package, replace the snap-in section of the jamb tube.



**FIGURE 3:** Jamb Tube Mounting

7. Raise the frame assembly into position and feed the main electrical supply conduit and wires through the factory prepped 1" access hole in the side of the jamb (Figure 4).
8. Use shims as necessary to assure that the entire frame is level, plumb, and square. Attach each jamb to the opening using the appropriate fasteners (4 per jamb). If installing a surface applied package, these fasteners may be concealed within the jamb tubes.
9. If installing a surface applied package, the snap-in section of the jamb tubes may now be applied.



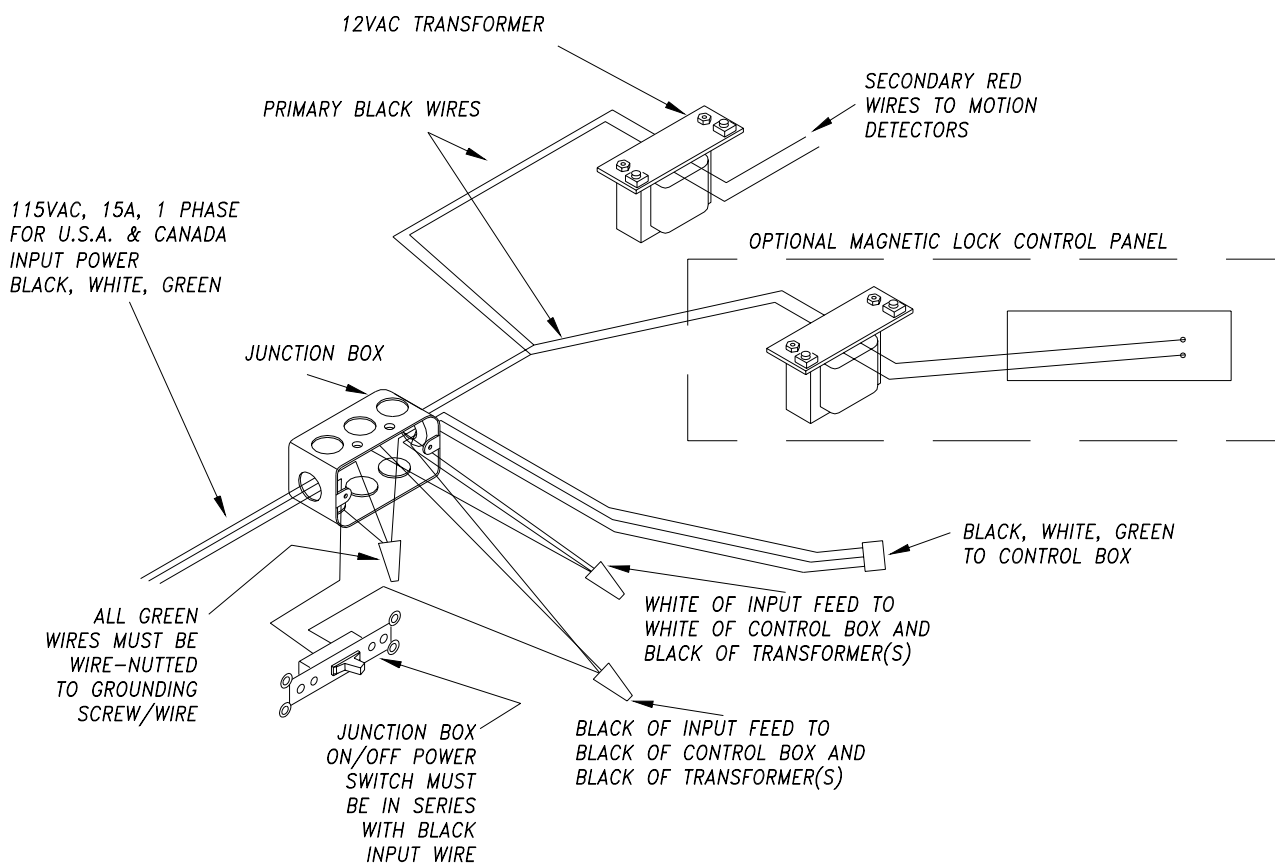
**FIGURE 4:** Power Input

## POWER SUPPLY

The Dor-O-Matic Astro-Fold system requires a 115 VAC, 1 phase, 60 Hz, 15 amp, 3-wire power supply (North America) to be brought into the header. This work must be done according to local codes and is usually supplied by the electrical contractor. The use of UL Listed flexible conduit is recommended for running through the jamb to the header location. Approximately 12 inches of wire should be left for hook up.

### Connection of Power:

Bring the main power supply leads into the junction box. Using wire nuts **and** electrical tape, connect the female Molex power plug to the main power supply leads. Be sure to connect the green ground wire from the junction box to the other two ground wires. Connect one black lead from the transformer to the black power input wire. Connect the other black transformer lead to the white power input wire. Use the supplied junction box – on/off power switch to break the black wire and provide a convenient on/off control (Figure 5). **When routing the line-voltage wires through the header, be sure to separate them from any low-voltage wires such as breakaway switches.** Use the supplied plastic clips to route the line-voltage wires along the top of the header and route the low-voltage wires along the bottom of the header.



**NOTE:** ALL HIGH VOLTAGE WIRING MUST BE WIRE-NUTTED IN THE JUNCTION BOX!

FIGURE 5: Wiring Diagram

## OPERATOR, BOTTOM PIVOT & FINGER GUARD INSTALLATION

### Mounting the Operator:

Attach two brackets to each operator using four 5/16-18 hex head bolts (Figure 6). Mount each assembly in the header using four 1/4-20 hex head bolts and four square nuts.

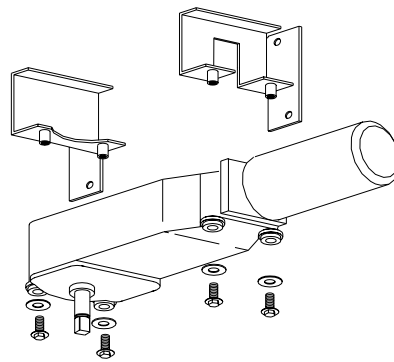


FIGURE 6: Operator Mounting

### Mounting the Lower Pivot:

1. If using a threshold, verify that it is the correct length for the opening (cut if required). Secure the threshold to the floor.
2. Find the exact location for each lower pivot by dropping a plumb line from the center of each operator spindle to the center of each pivot (Figure 7).
3. Screw each lower pivot in place.

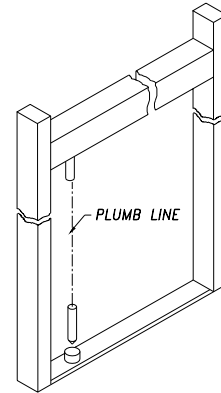


FIGURE 7: Pivot Alignment

### Finger Guard Installation:

1. Align the finger guard in the center of each door jamb (Figure 8). In some cases, the lower pivot may have to be temporarily removed to allow access to the lowest hole in the finger guard.
2. Drill #21 (.159 dia.) holes in each door jamb by first inserting the drill bit through the holes in the finger guard.

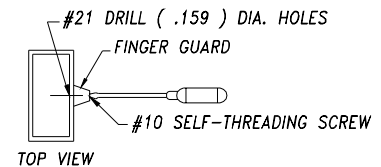
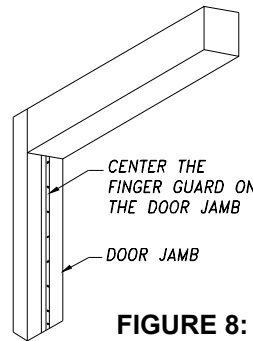


FIGURE 8: Finger Guard Installation

3. Secure each finger guard by first pushing the #10 self-threading screws through the holes and screwing them into the holes drilled in the jamb. It is advisable to use a magnetic screwdriver.

## SAFETY RAIL INSTALLATION

Mount each safety rail with four 1/4-20 flat head machine screws and the appropriate floor anchors (Figure 9). **Care should be taken to assure that the safety rails are square to the door and parallel to each other.**

DRILL AND TAP FOR  
1/4-20 FHMS  
(4 HOLES PER RAIL)

NOTE:  
USE RAIL AS TEMPLATE  
FOR PROPER HOLE  
LOCATIONS ON JAMB TUBE.

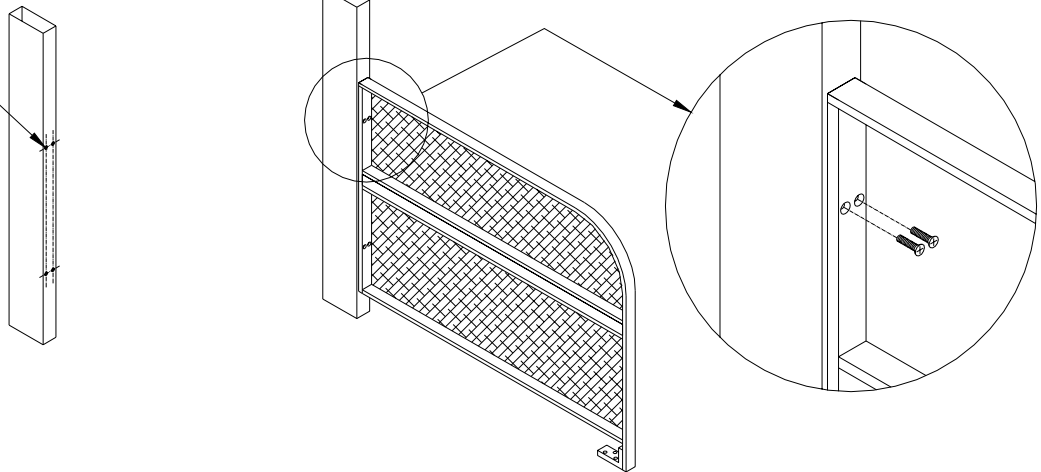


FIGURE 9: Safety Rail Installation

# DOOR & ARM INSTALLATION

## Preparing the Door:

1. All doors manufactured by Dor-O-Matic are factory-prepped for all necessary mounting hardware, arms, pivots and locks. The Astro-Fold system is intended for use only with Dor-O-Matic doors. If other types of doors are to be used, consult Dor-O-Matic for preparation instructions.
2. Install the arm attachment bar (#65399-100) and the spacer block (#65406-100) with four 1/4-20 x 1-1/4" long flat head screws. Install the bottom pivot assembly (#10140-000) with four #10 pan head screws (Figure 10).
3. Install the roller and spacer to the roller block at the leading edge of the top rail using a 5/16-18 screw (Figure 11).

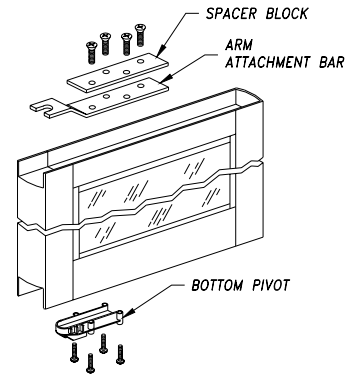


FIGURE 10: Door Preparation

## Preparing the Operator:

1. To install the carrier rail...
  - a) Slide it onto the spindle in the full breakout position and swing it closed until it seats in the header. This will hold it in place while you finish securing it.
  - b) Place the first washer, the wave washer, the second washer and then the snap ring onto the spindle. The snap ring should set securely in the groove on the spindle (Figure 12).
  - c) The track should now be secure. Check to see that it is free to swing through the breakout position.
2. When the operator is received from the factory and installed in the header, the spindle is in the normal breakout position, which is 90° past the fully closed position. Keeping this in mind, determine the breakout position and install the arm (#65225-900) onto the spindle pointing in that direction (Figure 13). The end of the spindle should be flush with the bottom surface of the arm.
3. Tighten the allen-head cap screw through the arm securely.

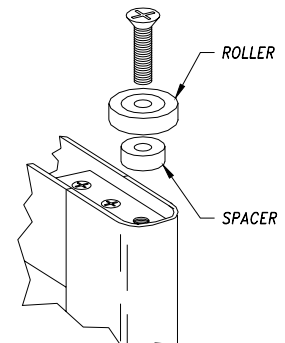


FIGURE 11: Roller Assembly

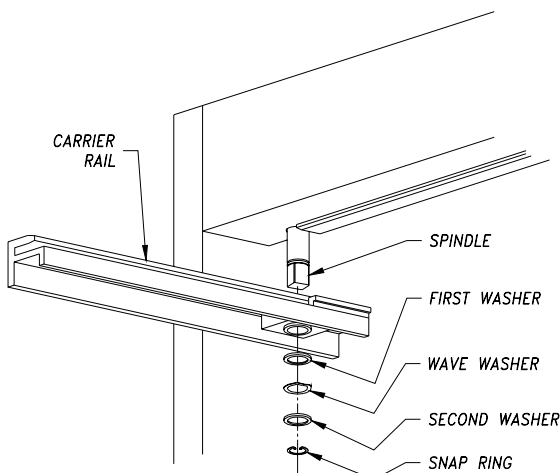


FIGURE 12: Carrier Rail Assembly

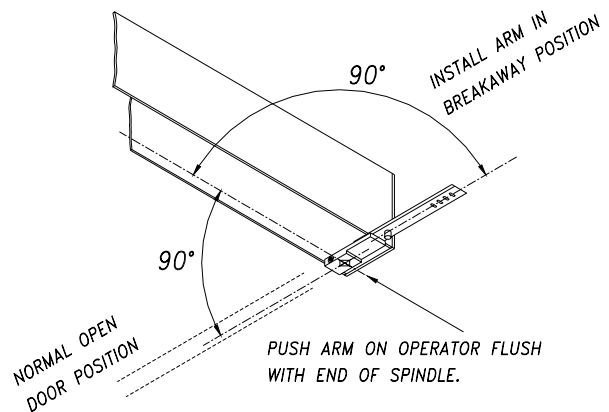
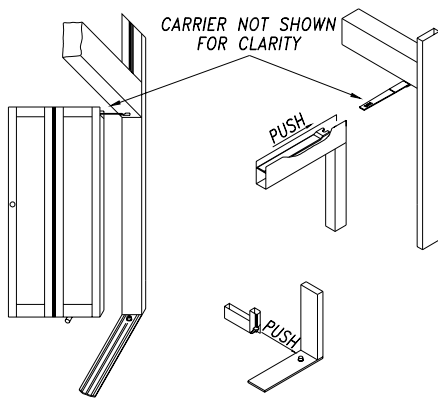


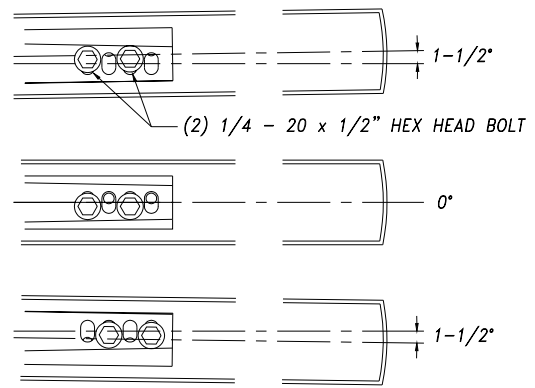
FIGURE 13: Arm Assembly

## Hanging the Door:

1. Align the unfolded door with the arm. Make sure the arm is in the top channel of the door and the roller is in the carrier channel, and gently slide the door up against the bottom pivot (Figure 14).
2. Lift the door up slightly and push back until the bottom pivot locks into place.
3. Raise the nose of the door and push back until the arm is directly over the attachment bar and spacer block on the door.



**FIGURE 14:** Door Mounting Detail



**FIGURE 15:** Arm Adjustment

**Final Arm Attachment:**

1. Final attachment and proper centering of the door is provided by the four oval holes in the end of the arm. The oval holes permit the door to be adjusted approximately 1-1/2° in each direction from the center line of the arm.
2. Visually line up the inner half of the door to the exact 90° breakout position. Bend the outer half of the door leaf beyond the 90° breakout position. This will swing the carrier rail out of the way allowing access to the arm for final attachment.
3. Secure the arm to the attachment bar with two 1/4-20 x 1/2" long hex head caqp screws. Two of the four holes and slots will always line up properly. Fasten using two of the four oval holes (Figure 15).
4. Manually push the door through a full 180° arc of swing to make sure that everything is connected properly. It should be possible to push the door up to the normal closed position, snap the rail into place and fold the door to the 90° full open position. When the door is released, it should close under spring control. If the control box is connected and power is applied, the door will close quickly to the latch position and then glide slowly to the fully closed position.

**ADDITIONAL COMPONENTS**

**Ball Detent:**

The ball detent holds the carrier in the closed position, but allows the door to break out in emergency conditions. It is installed and adjusted at the factory, but field adjustment to meet local codes may be necessary. Generally, a breakaway force of 40lbf or less will satisfy most local codes, but this requirement varies.

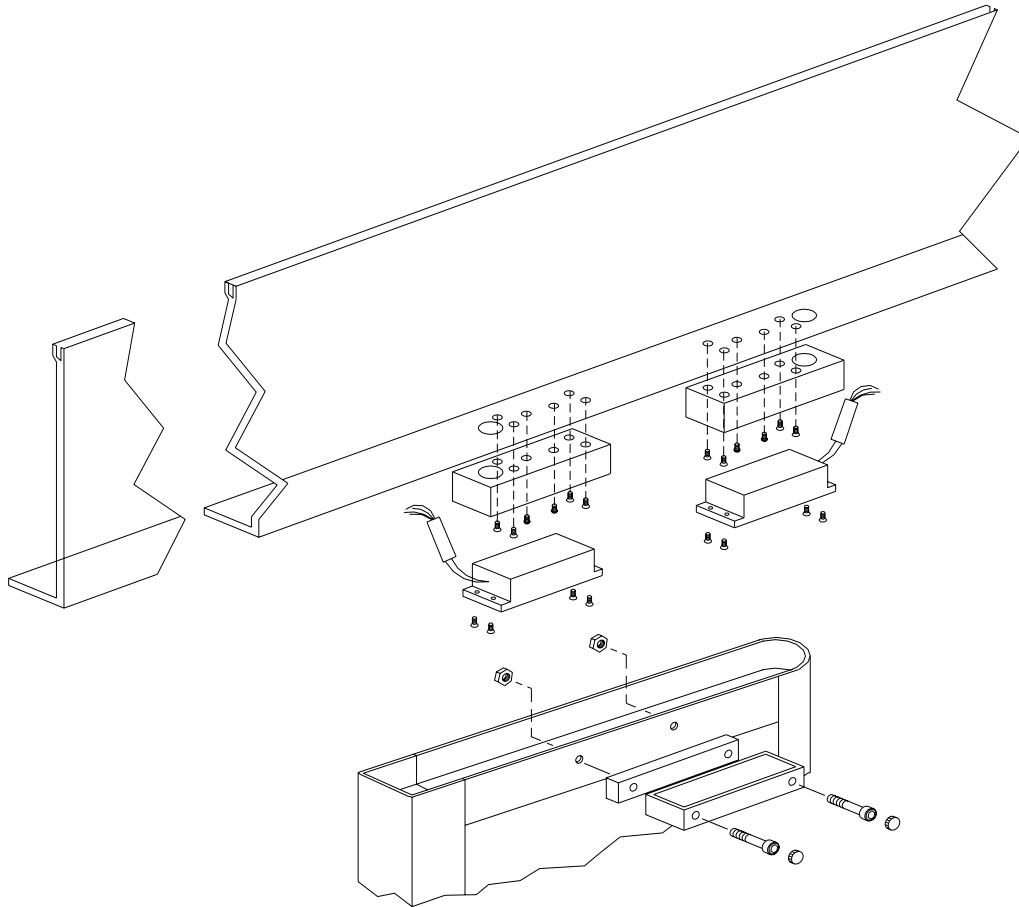
**Astro-Fold Control Box:**

The Astro-Fold control box (#85435-900) must be installed using two 1/4-20 hex head bolts and two square nuts. Refer to the Astro-Fold Control Box Instruction Manual (#85435-984) for proper adjustment procedures.

**Optional Dor-O-Matic Magnetic Locking System:**

1. All holes for the magnetic locks are factory-prepped. Simply attach the locks to the doors with the screws provided (Figure 16).
2. The locks are shipped in the 24VDC position. Check the instruction sheet provided with the locks and set them in the 12VDC position.
3. Complete the magnetic lock installation by wiring it into the system. Refer to the proper wiring diagram in the Astro-Fold Control Box Manual #85435-984. Be sure that the purple wires from the lock are shorted together.
4. The magnetic lock control panel consists of a transformer and a small circuit board. The three sets of connections are as follows:
  - a) The black primary wires from the transformer must be connected to the incoming 115VAC power wires in the junction box using wire nuts.
  - b) The 4-pin plug from the circuit board must be connected to the mating plug on the #65205-900 harness.
  - c) The red and black wires from the circuit board (labeled 1 & 2 on the board) must be connected to the matching red and black wires from the magnetic locks using wire nuts.

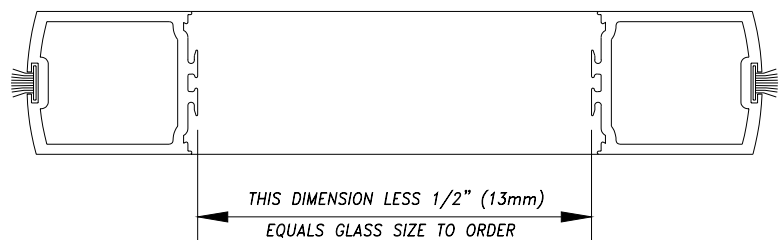
5. This system is designed to energize the locks after the master operator has closed completely. If the slave operator has not fully closed when the locks engage, the slave door will not be secure. To solve this problem, perform one of the following:
  - a) Adjust the closing speed potentiometers on the Astro-Fold control box so that the slave operator closes before or at the same time as the master operator.
  - b) Adjust the time delay potentiometers on the magnetic locks. This adjustment will cause the locks to delay engagement for a period of time after the master operator has closed. Each lock is adjusted separately. Refer to the instructions included with the locks.
6. Included with the magnetic lock system is a 2-position on/off switch. The installation of this switch is optional. Refer to the instructions included with the switch.



**FIGURE 16:** Magnetic Lock Mounting Detail

## GLAZING

Correct glass size may be determined by subtracting  $\frac{1}{2}$ " from the clear opening width (Figure 17). Glazing is usually provided by outside contractors. In any case, it must comply with the current UL-325 Standard Section 28.10 on Glazing Material. Generally, this means it must conform to ANSI Z97.1-1975 Performance Specifications and Methods of Test for Safety Glazing Material Used in Buildings.



**FIGURE 17:** Glass Measurement

## OPERATIONAL TEST

NOTE: It is assumed that during the installation process, any problems would have been found and corrected before this point. However, it is recommended that a complete walk-through now be performed.

1. Activate the door operator. The door should open smoothly and silently to the back check point, where it should slow down rapidly and drift to the full open position without slamming.
2. Maintain the activation signal to ensure that the door does not time out and close while being activated.
3. Step through the door opening and into the safety area. Again, remain in the safety area, making sure that the door does not close while the safety area is occupied.
4. Step out of the safety area. After both the activation and safety areas are clear, the door should time out at the pre-set time delay period. The door should then close smoothly and quietly to the latch point, where it rapidly slows down and drifts into the fully closed position without slamming.
5. Safety function with the door closed:
  - a) Step back into the safety area, and have someone else activate the door. The door must not open.
  - b) Step out of the safety area. The door should open fully. Have the other person release the activation signal. The door should stand open until the end of the time delay cycle, and then close as before.
6. Release for service:
  - a) Remove all tools and installation equipment, and clean any debris from the vicinity of the door.
  - b) Install all safety, traffic control, and instruction decals to the door as required. **THIS IS VERY IMPORTANT!** Failure to do this leaves the installer **LIABLE** for any accident that might occur. **THIS MUST BE DONE!**
  - c) Verbally explain the proper operation of the door system to the owner or person in charge.

## COVER REMOVAL

### Removal:

To remove the cover, slide it off the flexible hinge. If the system is installed in a narrow corridor or vestibule, there will not be room to slide the cover off. In this case, the cover must be pulled off, destroying the hinge in the process. This is unfortunate, however, the hinge is easily replaceable.

### Re-Installation:

Snapping the cover onto the hinge is usually the easiest method. Remember that the carrier rails will prevent the cover from closing properly when they are in the breakaway position, but will prevent access to the cover screws when closed. To finish the installation and secure the cover:

1. Snap the carriers into the normal closed position.
2. Close the cover.
3. Move the carriers into the breakaway position.
4. Secure the cover with the two #8-32 screws provided (Note: There are three screws on packages with a pair of doors and magnetic locks).
5. Snap the carriers into the closed position.