

# Folding Doors

with 4000 or 7000 operators  
and C4190 Control

## Installation Instructions

To be used in conjunction with H-SW C4190 Setup Instructions



G-BIF, OCT 2000

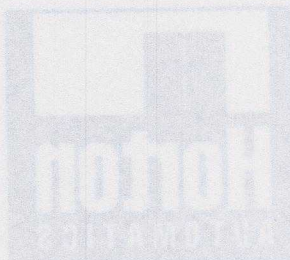


4.123d1



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## 1. INSTRUCTIONS TO INSTALLER

- This door is to be installed by a trained and experienced AAADM certified installer with knowledge of local codes and ANSI A156.10 standards for power operated doors.
- To ensure safe and proper operation, the door must be installed and adjusted to conform to Horton Automatics recommendations, all code requirements and ANSI A156.10.
- If there are any questions about these instructions, call Horton Automatics Technical Assistance.

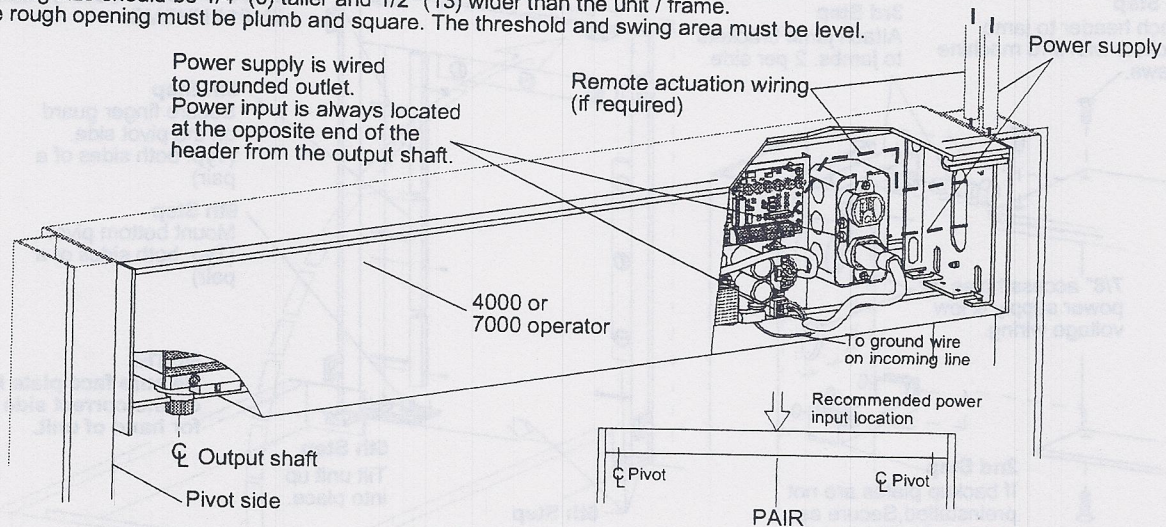
### INFORMATION TO BE PROVIDED BY THE DISTRIBUTOR TO THE OWNER

- After installation instruct the owner on the safe operation of the door.
- Present the Owners Manual M-Bif and explain how to perform the daily safety check.
- Location of power on / off switch.
- Necessary warnings not covered in these general instructions.
- Date equipment shipped from Horton Automatics.
- Date equipment placed in service.
- Horton Automatics' invoice number for warranty reference.
- Equipment type.
- Accessories included.
- Phone number to call regarding problems or request for service.
- A completed AAADM compliance form from an AAADM certified inspector.

- **Give caution** to owner: if a potentially hazardous situation is suspected, the door should be taken out of automatic service until a professional inspection is made and the problem is corrected.

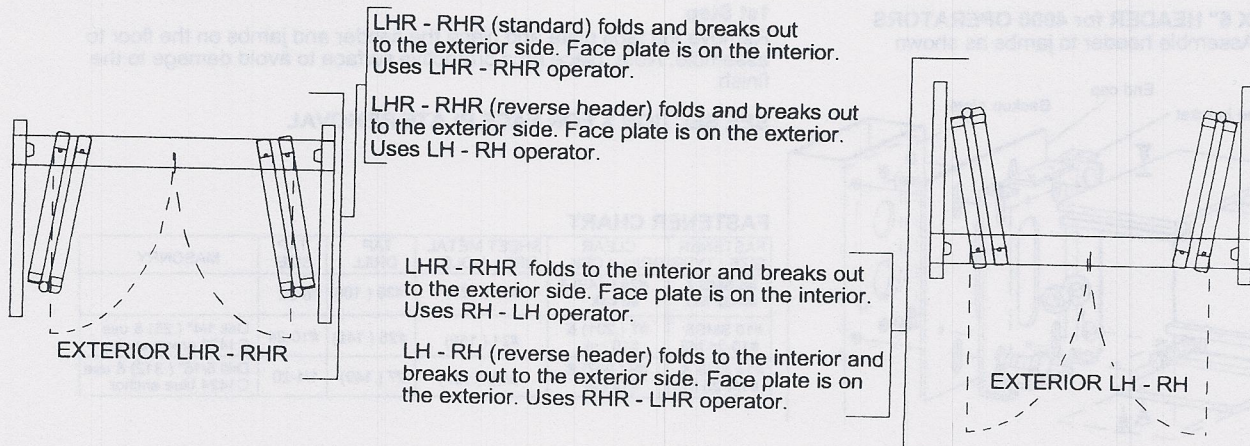
## 2. GENERAL REQUIREMENTS

- Power: 120 VAC, 60Hz, 15 Amp service (in conduit) to the header.
- Non-North American voltages can be 240 VAC, if so be sure the operator has a 240VAC power supply.
- Power may be brought in through the top of the jamb on single swing units or at the center of the header on pairs.
- For remote switch locations, routing of low voltage class II wiring (in conduit) to the operator controls will be required.
- Remote switch locations should be predetermined and wired before installation begins.
- Opening size should be 1/4" (6) taller and 1/2" (13) wider than the unit / frame.
- The rough opening must be plumb and square. The threshold and swing area must be level.



## 3. OPERATOR HANDING

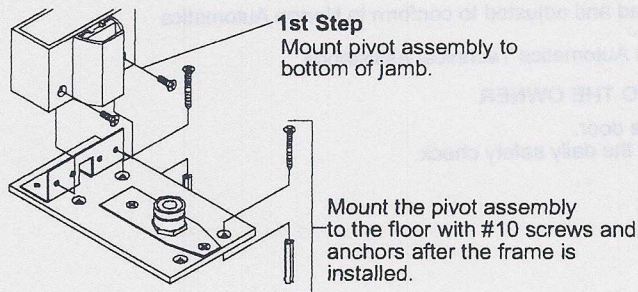
Confirm handing of door before installing operator.



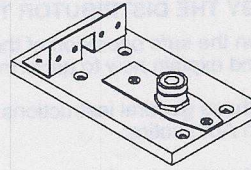


## 4. INSTALLING BOTTOM PIVOTS

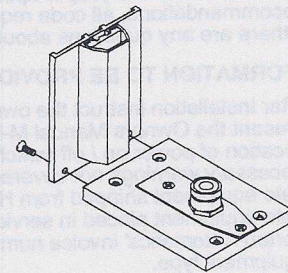
Install the bottom pivots to the bottom of jambs before installing the frame.



**C7611**  
Non-threshold pivot assembly



**C7612**  
Threshold pivot assembly



**C7610**  
Threshold pivot assembly  
for 1/4" jambs

## 5. INSTALLING FRAME

Take care the frame is not racked. Shims will be needed to shim the unit. All fasteners shown below are provided with each unit. If these are inappropriate, alternate fasteners are shown in the fastener chart.

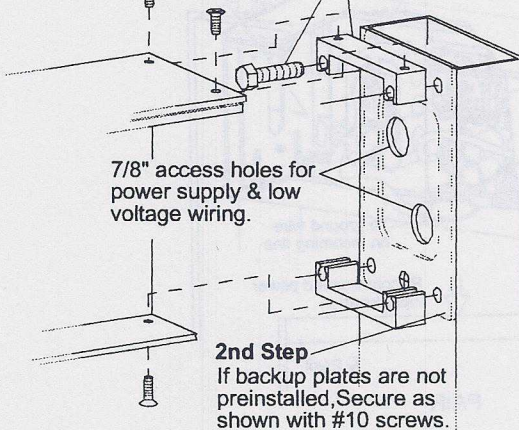
### 4"X 6" HEADER for 7000 OPERATORS

#### 4th Step

Attach header to jamb brackets with #10 machine screws.

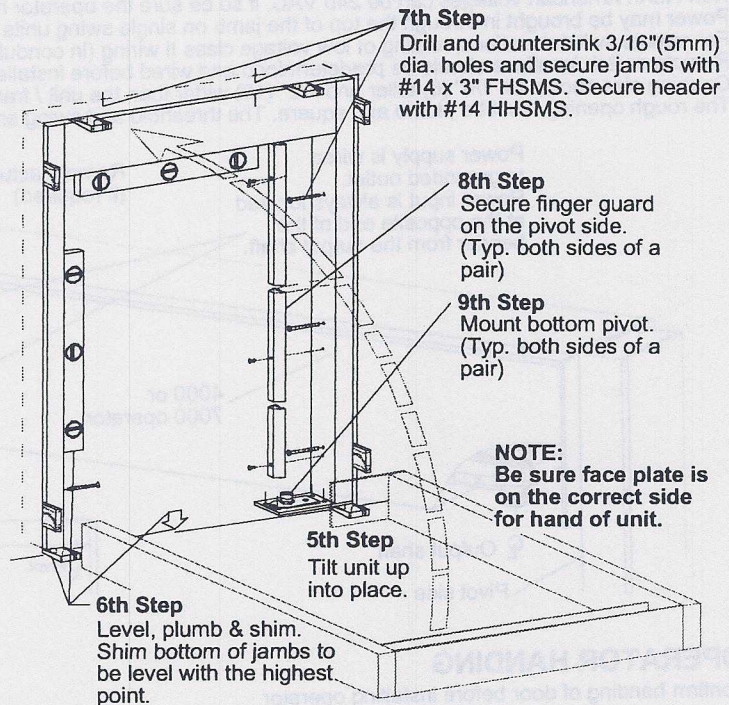
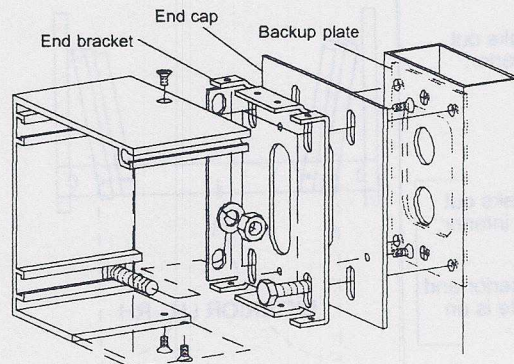
#### 3rd Step

Attach jamb brackets to jambs. 2 per side.



### 6"X 6" HEADER for 4000 OPERATORS

Assemble header to jambs as shown



#### 1st Step

Remove the face plate and place the header and jambs on the floor to assemble. Note: place on a protective surface to avoid damage to the finish.

### SEE SECTION X FOR FACE PLATE REMOVAL

### FASTENER CHART

FASTENER SIZE / TYPE	CLEAR DRILL / CSK	SHEET METAL DRILL HOLE	TAP DRILL	TAP SIZE	MASONRY
#6 SMS & #6-32 MS	#25 (.149) & #6 csk	#31 (.120)	#36 (.106)	#6-32	
#10 SMS & #10-24 MS	#7 (.201) & #10 csk	#21 (.159)	#25 (.149)	#10-24	Drill 1/4" (.25) & use C1423 green anchor
#14 SMS & #1/4-20 MS	#F (.257) & #14 csk	3/16 (.187)	#7 (.149)	1/4-20	Drill 5/16" (.312) & use C1424 blue anchor

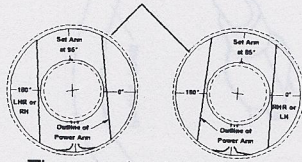


## 6. INSTALLING DOOR PANELS

When installing the folding panels the active and inactive panels should be kept connected and unfolded like a large swing door.

### 2nd Step

Remove the power arm from the top of the active door panel and position power arm onto output shaft as per the label on the bottom of the header.



- The arm should be at approximately 95 deg. or less.
- The bottom of the spindle should be flush with the bottom of the arm.

Tighten 1/4" SCS to 10 FP (13.5N)

### 3rd Step

Tilt top of panel & place under the power arm. Swing the bottom up & over the bottom floor pivot.

**NOTE**  
Apply Loc Tite 242 to fasteners.

### 1st Step

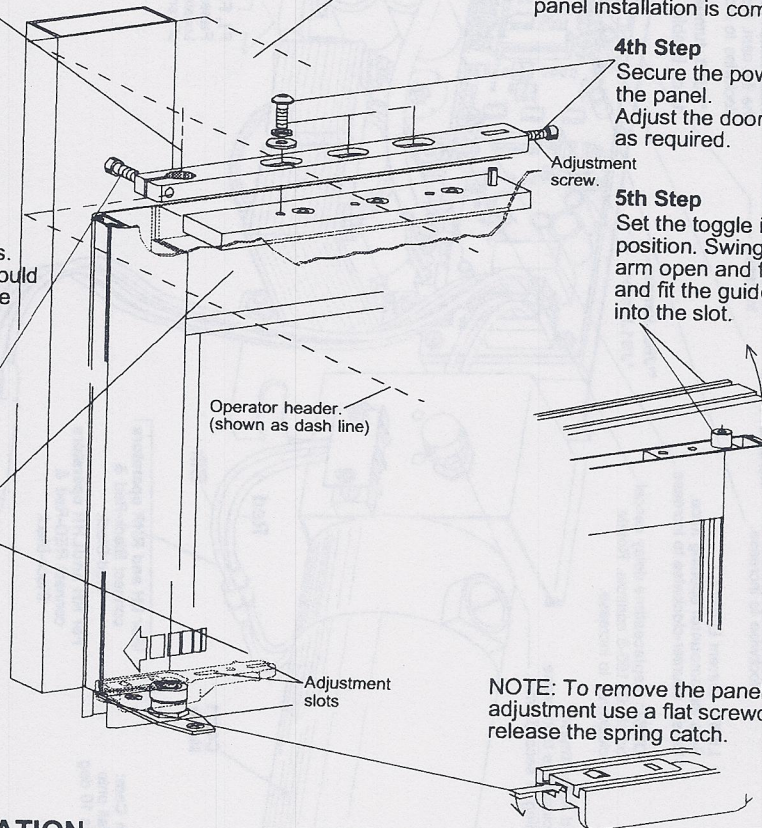
Energize operator by toggling the rocker switch to the hold open position, shaft will rotate to full open position. Maintain operator in this position until the arm, bottom pivot and door panel installation is complete.

### 4th Step

Secure the power arm to the panel. Adjust the door position as required.

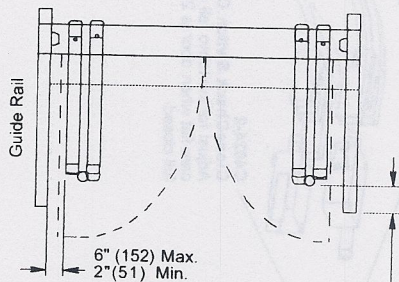
### 5th Step

Set the toggle in the off position. Swing breakout arm open and flex it up and fit the guide roller into the slot.



## 7. GUIDE RAIL INSTALLATION

ANSI 156.10 requires guide rails on the fold side of power operated doors used by the general public. A typical layout is shown below. A single fold unit only requires a guide rail on the active panel side.

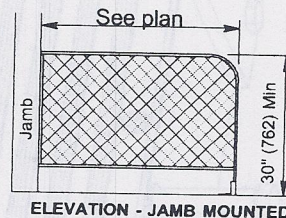


Depending on direction of traffic flow

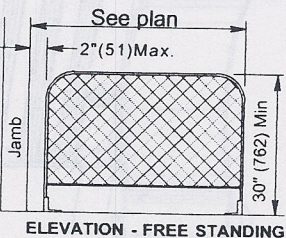
12" inches (305mm), for 2-way traffic or one way traffic approaching from the fold side.

OR..

5 inches (130mm), for one way traffic approaching from the non-fold side.



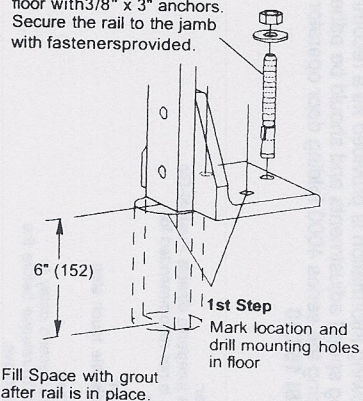
ELEVATION - JAMB MOUNTED



ELEVATION - FREE STANDING

### 2nd Step

Secure the rail to the floor with 3/8" x 3" anchors. Secure the rail to the jamb with fasteners provided.



### 1st Step

Mark location and drill mounting holes in floor.

Fill Space with grout after rail is in place.

SEE ANSI 156.10 (SECTION 6) FOR ADDITIONAL INFORMATION



## 8. 4000 OPERATOR ADJUSTMENT

The following information is provided as a recommendation for safe operating speed adjustments and should be adhered to when installing or servicing the series 4000 folding door operator.  
See ANSI 156.10

**\*JB1 Jumper:**  
Remove this jumper to disable Push-N-Go.  
This feature is not recommended for folding doors.

**\*\*JB2 Jumper:**  
Remove to disable touch stop

**\*\*\*JB3 Jumper:**  
Inserts a 0.25 second delay to allow the lock to release before the door starts to move.

**Closing Speed Adjustment:**  
rotate counterclockwise to increase.  
suggested setting: 4 seconds min.

**LIMIT:** Current Limiting -  
Sets the amount of opening force.  
Rotate counter-clockwise to increase.

**OBST:** Replaces time delay cancel  
on old C7160-3 controls. Rotate  
clockwise to increase.

**LOCK:**  
Lock Out Time Delay -  
Sets the length of time  
needed to ignore the  
safety sensor during  
door closing. Rotate  
clockwise to increase.

**DELAY:**  
Time Delay  
Adjustment -  
Rotate clockwise to  
increase.

**HOLD:**  
Hold Voltage  
Function - Control  
switches to hold -  
open voltage after a  
nominal 10-12  
second delay from  
beginning of actuate  
signal. Also sets  
speed for Stop &  
Seek mode.  
Rotate clockwise to  
increase.

**SPEED:**  
Open Speed Adjustment -  
Sets the open speed of the  
operator. Rotate clockwise  
to increase.

**DACCL:**  
Open Deceleration  
Determines how  
quickly the door  
slows after the open  
check switch is  
tripped. Rotate  
clockwise to  
increase.

**CHECK:**  
Open Check Speed  
Adjustment - Sets the  
speed after the open  
check switch falls onto  
the flat cam. Rotate  
clockwise to increase.

**\*\*\*JB3 Jumper:**  
Lock Enable

**\*\*JB2 Jumper**  
**\*JB1 Jumper**

**ACCEL:**  
Open  
Acceleration  
Adjustment -  
Sets motor  
acceleration to  
open speed  
setting. Rotate  
clockwise to  
increase.  
D4 - Orange  
D3 - Green  
D2 - Red  
D1 - Green

**CN4**  
**S1**

**CN2**  
Switching  
Circuit

**C3959-1**  
5 pin  
Power  
Supply  
Lace

**CN2**  
Power  
Supply

**CN1 Power in:**  
120 VAC, 15Amp.

**F1, F2 & F3**  
Fuses:  
Located to right  
of transformer

**Red**  
**Blk**

**C4011**  
Motor

**For LH and RHR operators**  
connect Black-Red &  
Red-Black

**For RH and LHR operators**  
connect RED-Red &  
Black-Black

**C4024-2**  
Open Check Switch Cam:  
Adjust for switch to fall onto  
cam flat when door is 10 deg  
from full open.

**C4024-2**  
Close Check Switch Cam:  
Adjust for switch to fall onto  
cam flat when door is 2" from  
full closed.

**Output shaft**

**C4156-1**  
Harness

**Power cord**

Gbif.4



## 9. OPERATOR ADJUSTMENTS FOR CODE COMPLIANCE

The following information is provided as a recommendation for safe operating speed adjustments and should be adhered to when installing or servicing the folding door operator.

**Opening Force:** Shall not exert more than 40 ft.lb. (180N) through the last 10 deg. (open check), measured 1" (25) from the leading edge of the FS panel.

**Closing Force:** Shall not exert more than 30 ft.lb. (133N) at any point in the closing cycle, measured 1" (25) from the leading edge of the FS panel.

**Opening Speed:** The opening time of a power operated folding door to open check shall not be less than 1.5 seconds.

**Closing Speed:** Maximum 1ft / second.

### Time Delay (Minimum):

After loss of actuating signal shall be as follows:

Approach side using either sensors or mats...1 1/2 to \*2 Sec.

Fold / safety side using either sensors or mats 1 1/2 to \*\*2 Sec.

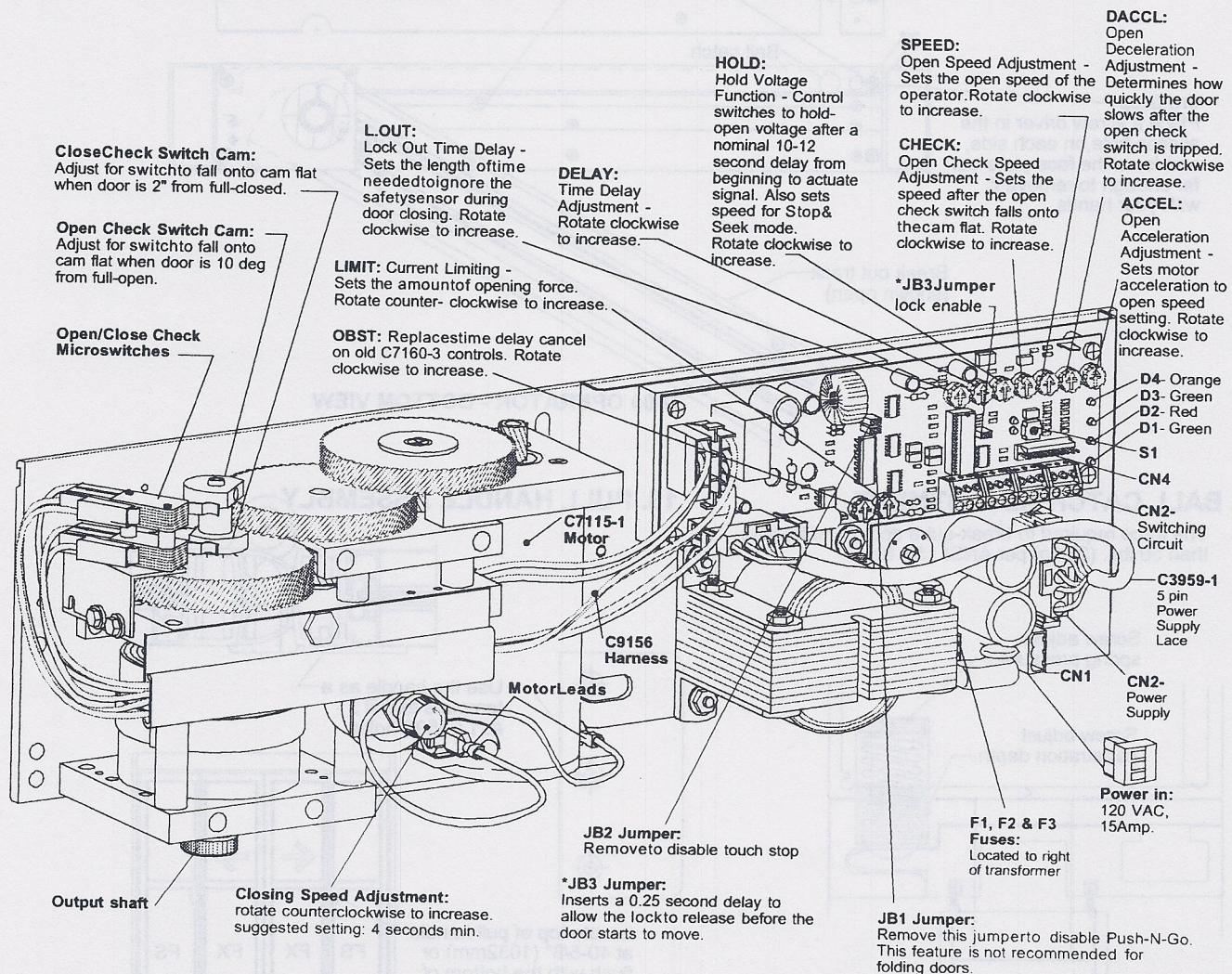
Using "knowing act" momentary contact switch.....5 Sec.

\* Horton recommended time.

\*\* 4 seconds are required if distance between non overlapping zones at the threshold is greater than 8"

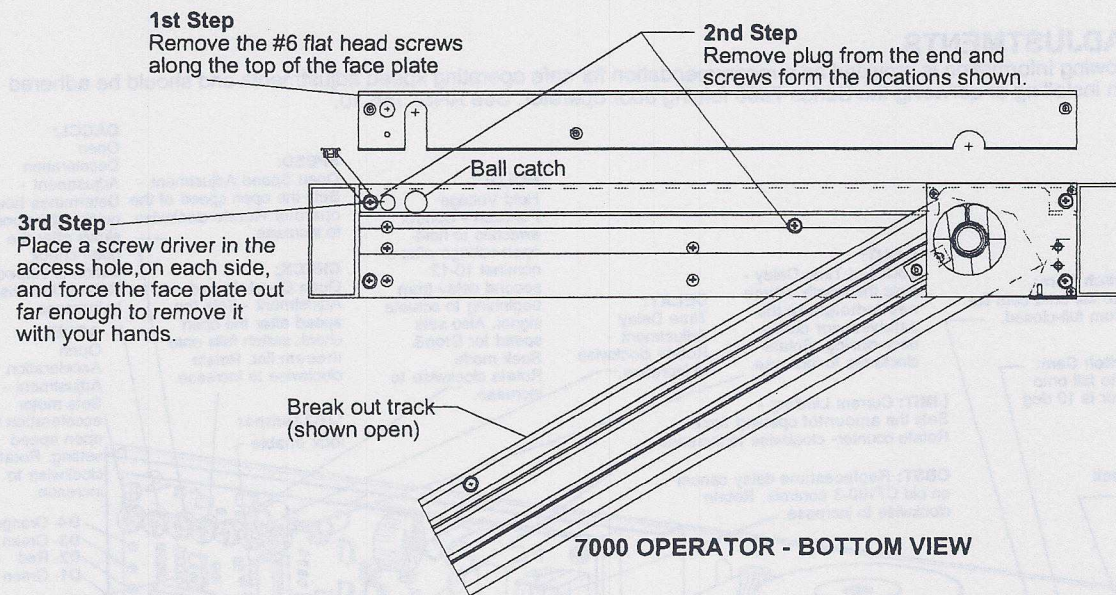
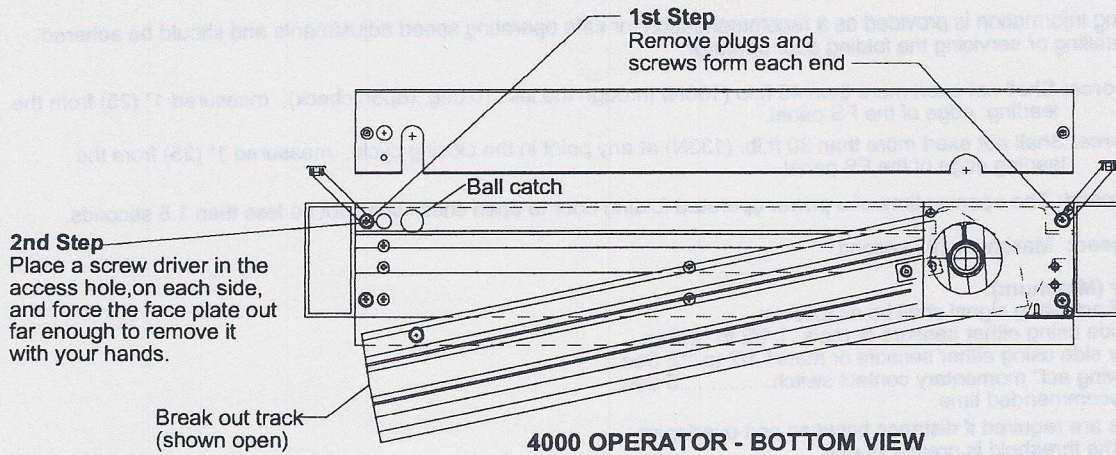
## 10. 7000 ADJUSTMENTS

The following information is provided as a recommendation for safe operating speed adjustments and should be adhered to when installing or servicing the Series 7000 folding door operator. See ANSI 156.10.



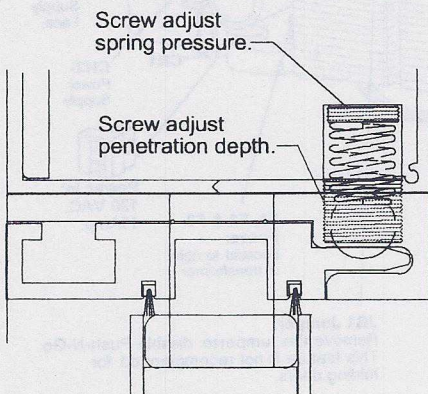


## 11. FACE PLATE REMOVAL

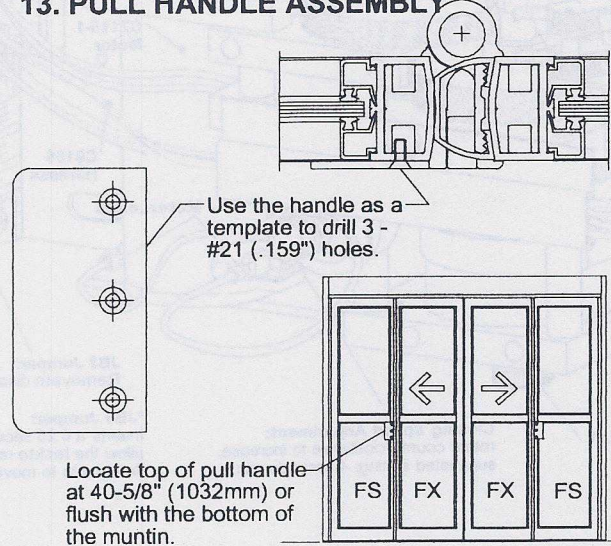


## 12. BALL CATCH ADJUSTMENT

The force required to break-out a door must be less than 50 lbs. (23 kg) per ANSI 156.10.



## 13. PULL HANDLE ASSEMBLY

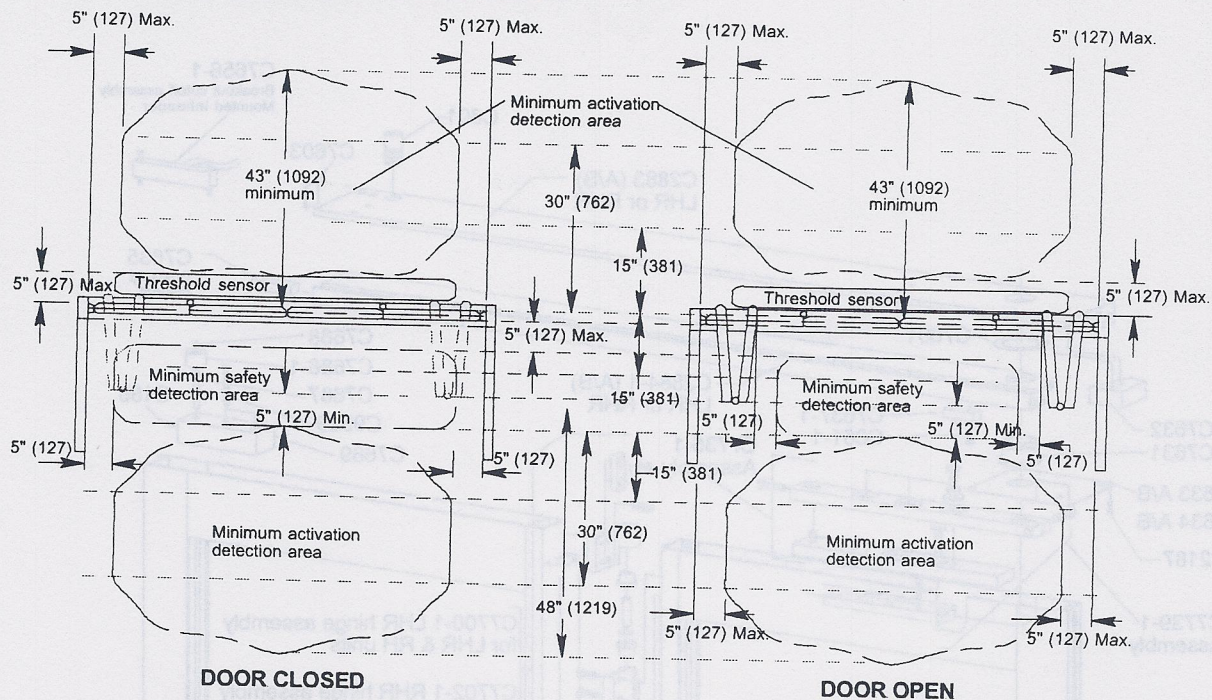




# 14. ACTIVATION AND SAFETY ZONES (Horton VISTA system shown)

The following general information is provided as a recommendation for safe operation. See ANSI 156.10 for standards compliance of folding door activation, safety zones, guide rails and mat layouts. See manufacturers instructions for installation and adjustments of motion and presence detectors.

## PAIR OF FOLDING DOORS WITH 2-WAY TRAFFIC.



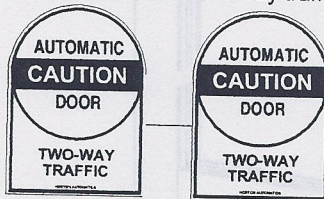
If push button activation (knowing act) is used see ANSI 156.10 sect. 9 for secondary activation and safety zones.

# 15. SAFETY DECALS (Per ANSI 156.10 Specifications) for SWING AND FOLDING DOORS

Decals should be a min. of 6\"(152) diameter and be visible from both sides of the door.

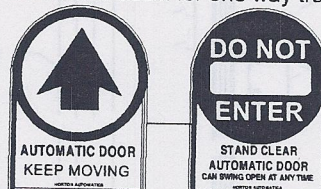
C1633-2

Two sided decal for two way traffic



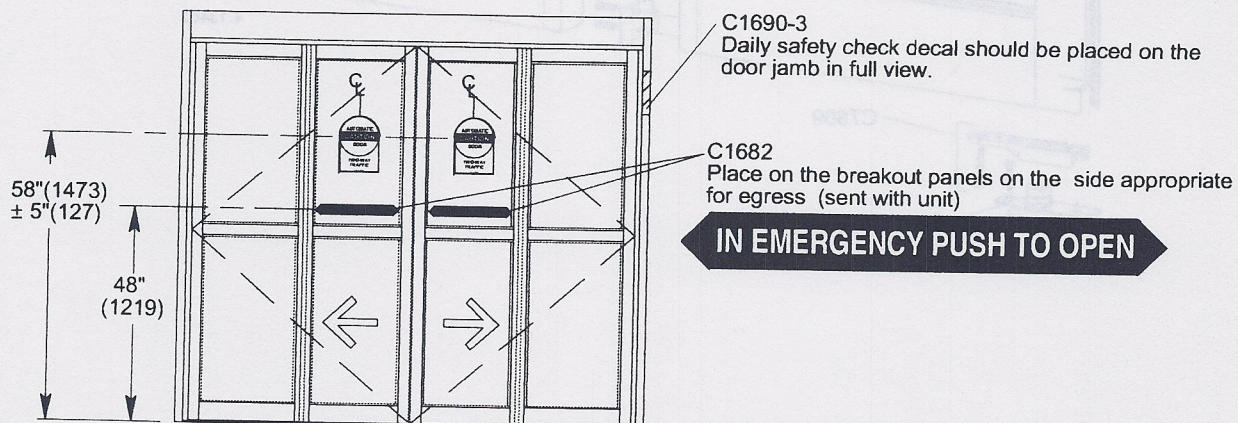
C1631-2

Two sided decal for one way traffic



C1633-3

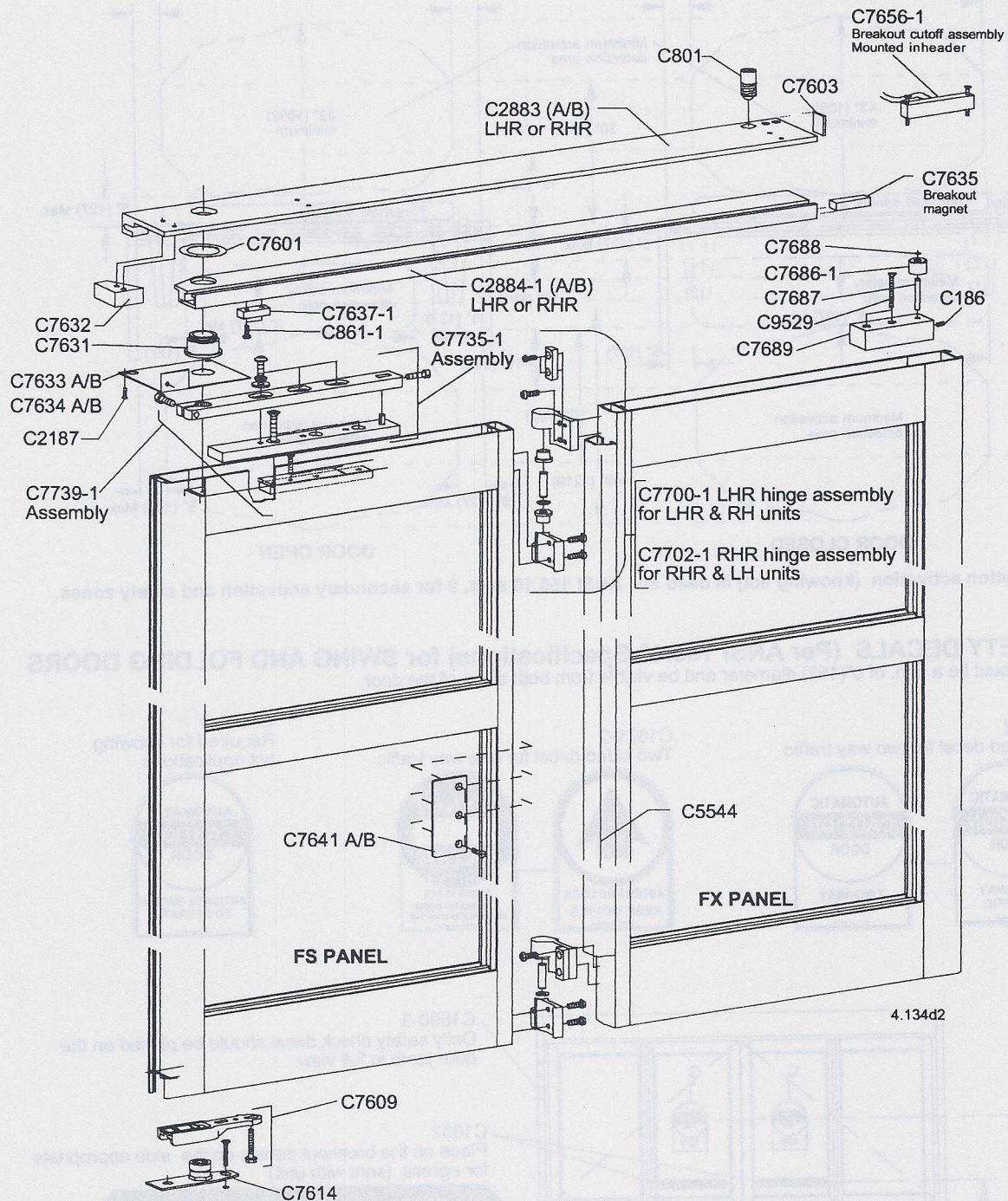
Required for knowing act applications





# 16. ILLUSTRATED PARTS LIST

Gbif.8







4242 Baldwin Boulevard  
Corpus Christi  
Texas 78405-3399  
800-531-3111  
361-888-5591  
Fax: 800-531-3108 361-888-6510  
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A Division of Overhead Door Corporation

Form G-BIF Oct 2000

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Product equipment depicted in the various figure drawings are approximate and for illustration purposes only. Consult manufacturer for detail product specifications. Horton Automatics reserves the right to improve the product and change its specifications without notice.



