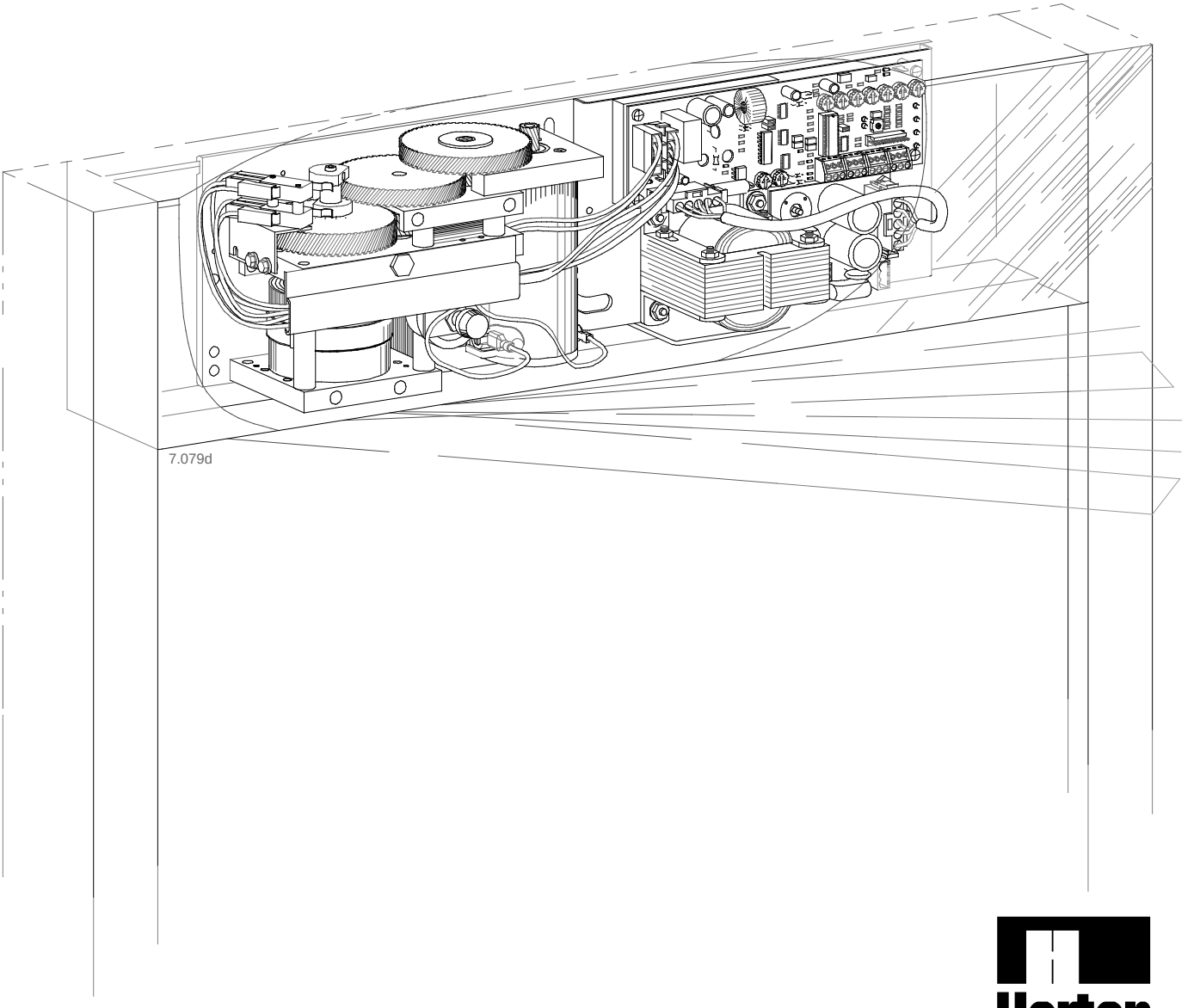
Series 7500 Easy Access™

Overhead Concealed & Direct Drive Swing Door Operator

with C4190 Control

Installation Instructions

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



Horton AUTOMATICS

G705, OCT 2000

CONTENTS

1. INSTRUCTIONS TO INSTALLER

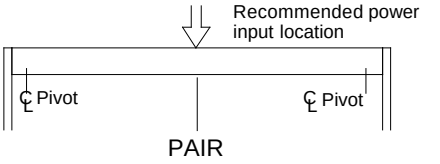
- This door is to be installed by a trained and experienced installer with knowledge of local codes and ANSI A156.19 standards for power operated doors.
- To ensure safe and proper operation, the door must be installed and adjusted to conform to Horton Automatics recommendations, all code requirements and ANSI A156.19.
- If there are any questions about these instructions, call Horton Automatics Technical Assistance.

INFORMATION TO BE PROVIDED BY THE DISTRIBUTOR TO THE OWNER

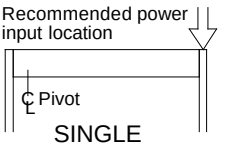
- After installation instruct the owner on the safe operation of the door.
- Present the Owners Manual M310 and explain how to perform the daily safety check.
- Location of power cut off switch.
- Necessary warnings not covered in these general instructions.
- Date equipment shipped from Horton Automatics.
- 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.
- **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 opening must be plumb and square. The threshold and swing area must be level.



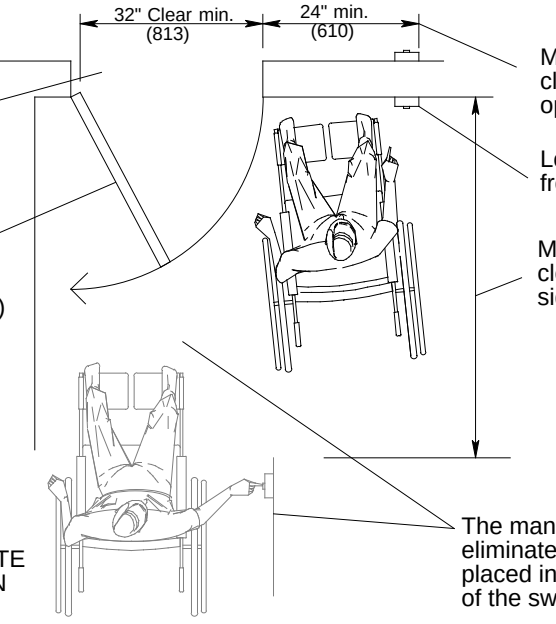
PAIR



SINGLE

3. HANDICAP CODE REQUIREMENTS

Switch location may be selected by the owner,however the switch must be in view of the door and not on the door or frame. See ANSI 117 for accessibility requirements.



Beveled threshold with a maximum height of 1/2"(6)

Bottom horizontal rail must be at least 7 1/2"(190) on aluminum / glass doors. (Local codes may require more)

Minimum 24" (610) opening clearance from door jamb at opening side to any structure.

Located 36" (914) to 42" (1067) from floor.

Minimum of 5'(1524) x 5'(1524) clear and level floor is required on both sides of the door way.

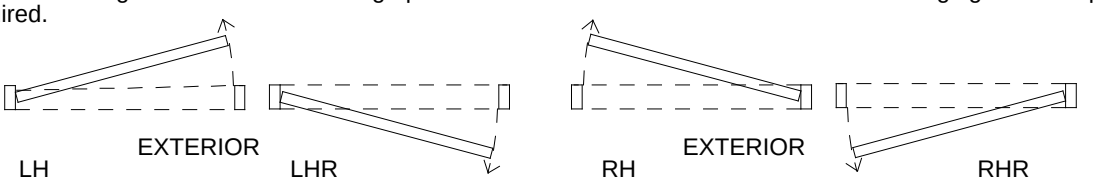
NOTE:
Refer to section 16 for required decals.

ALTERNATE LOCATION

The maneuvering room can be eliminated if actuating switch is placed in accessible location out of the swing of the door.

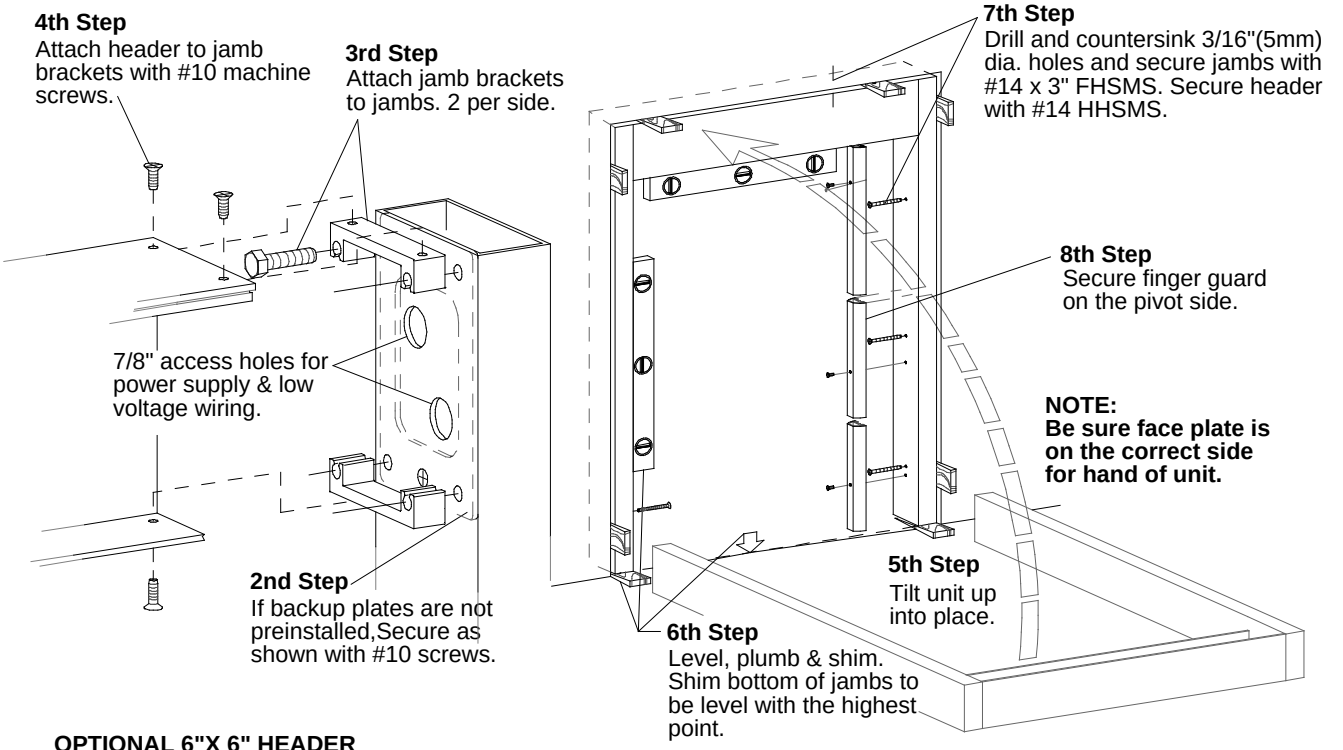
4. OPERATOR HANDING

Confirm handing of door before installing operator. Refer to section 15 for instructions if changing hand of operator is required.

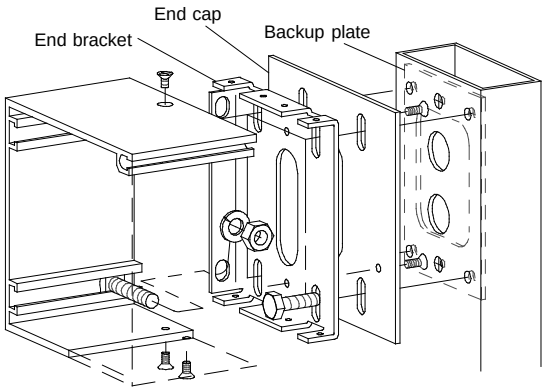


5. INSTALLING FRAME

Take care the frame is not racked. Wood shingles 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.



OPTIONAL 6"X 6" HEADER
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. The operator may be removed, if necessary, to provide ease in installation.

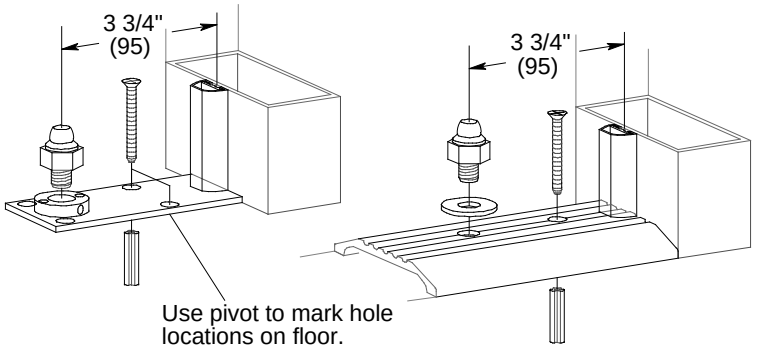
FASTENER CHART

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 BOTTOM PIVOT

All the pivots shown below are secured to the floor with FHSMS and plastic anchors. For bottom prep of doors by others see section 9.

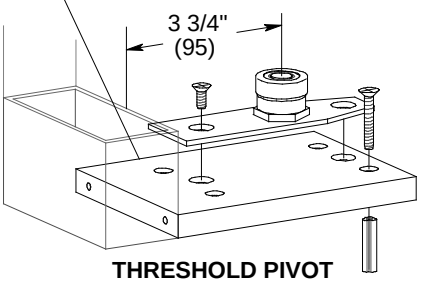
PIVOTS FOR OVER HEAD CONCEALED UNITS



NON THRESHOLD PIVOT **THRESHOLD PIVOT**

PIVOT FOR DIRECT DRIVE UNITS

For non threshold condition omit bottom plate. Mount pivot to floor with 1/4-20 x 1 1/2" FHSMS & anchors.



THRESHOLD PIVOT

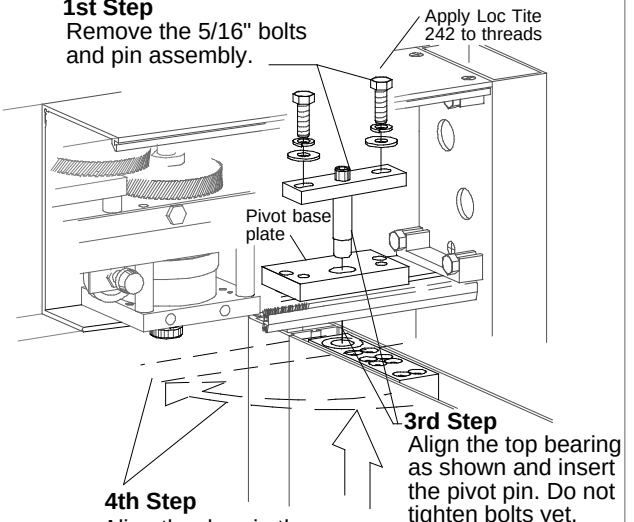
7. INSTALLING DOOR WITH OVERHEAD CONCEALED ARM FOR 7500 / 7800 SERIES

Re-install the operator if it was removed during frame installation.

CAUTION: When installing the power arm or when servicing any swing door operator, be sure to keep your face, hands and arms clear of the power arm's swing path. Serious injury could result should the operator be accidently activated to an open position or should the operator return to a relaxed position.

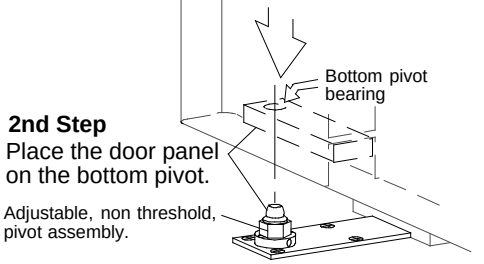
INSTALLING THE DOOR PANEL

1st Step
Remove the 5/16" bolts and pin assembly.



3rd Step
Align the top bearing as shown and insert the pivot pin. Do not tighten bolts yet.

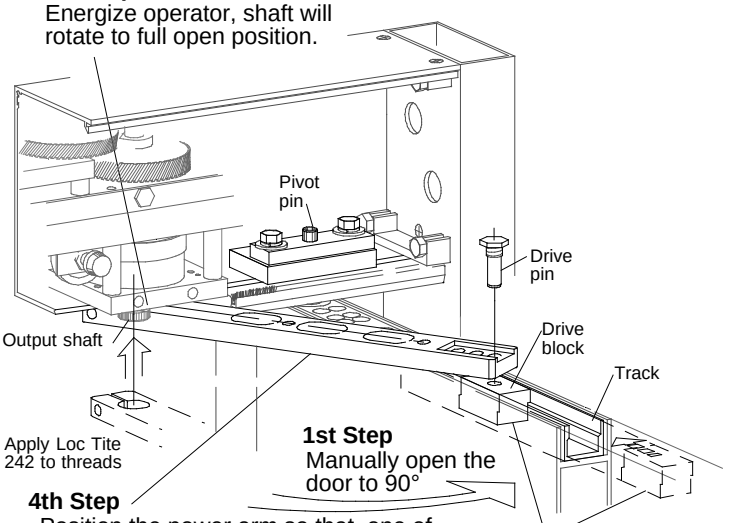
4th Step
Align the door in the closed position. When alignment is correct, tighten bolts in pin assembly.



2nd Step
Place the door panel on the bottom pivot.

INSTALLING THE POWER ARM

3rd Step
Energize operator, shaft will rotate to full open position.

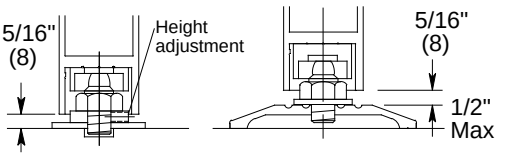


1st Step
Manually open the door to 90°

4th Step
- Position the power arm so that one of the 3 holes lines up with the hole in the slide block.
- Slide the arm onto the output shaft. (Tighten the 1/4" socket screw to 10 FP 13.5N)
- With the door at 90° insert drive pin. (Tighten pin to 25FP 33.9N)

2nd Step
Slide drive block into track.

BOTTOM DOOR CLEARANCE

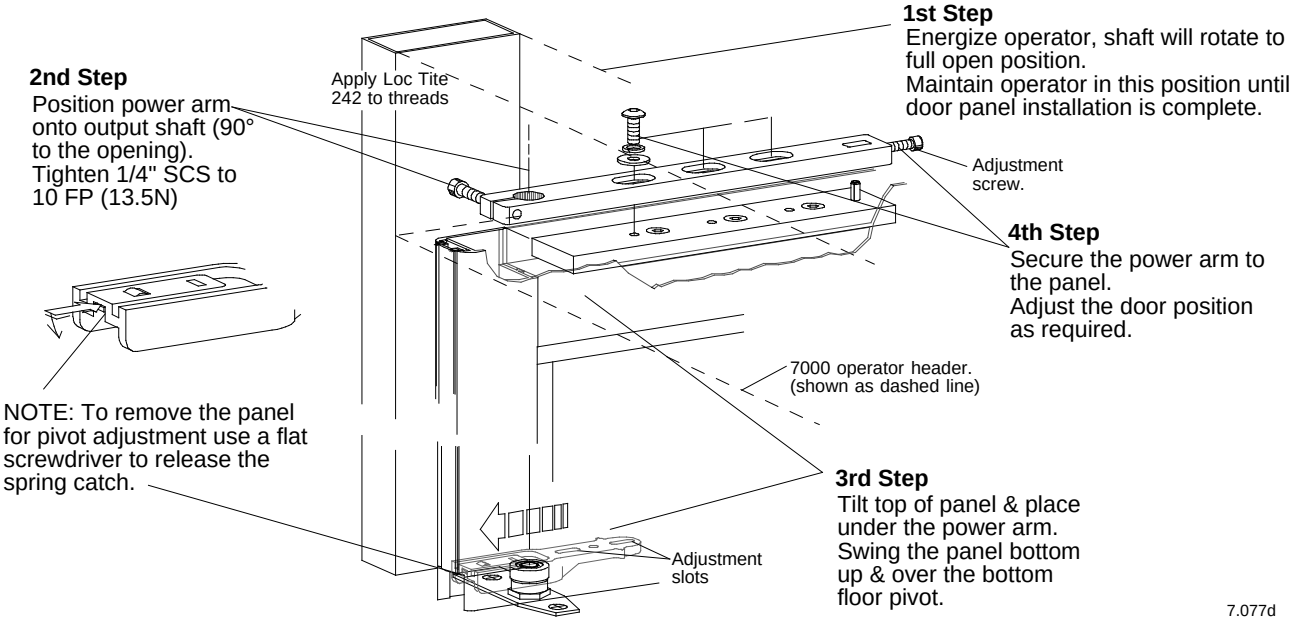


For 7600 / 7800 series (doors by others) see section 9 for door prep.

8. INSTALLING DOOR WITH DIRECT DRIVE ARM

1st Step
Energize operator, shaft will rotate to full open position.
Maintain operator in this position until door panel installation is complete.

2nd Step
Position power arm onto output shaft (90° to the opening).
Tighten 1/4" SCS to 10 FP (13.5N)



4th Step
Secure the power arm to the panel.
Adjust the door position as required.

NOTE: To remove the panel for pivot adjustment use a flat screwdriver to release the spring catch.

3rd Step
Tilt top of panel & place under the power arm.
Swing the panel bottom up & over the bottom floor pivot.

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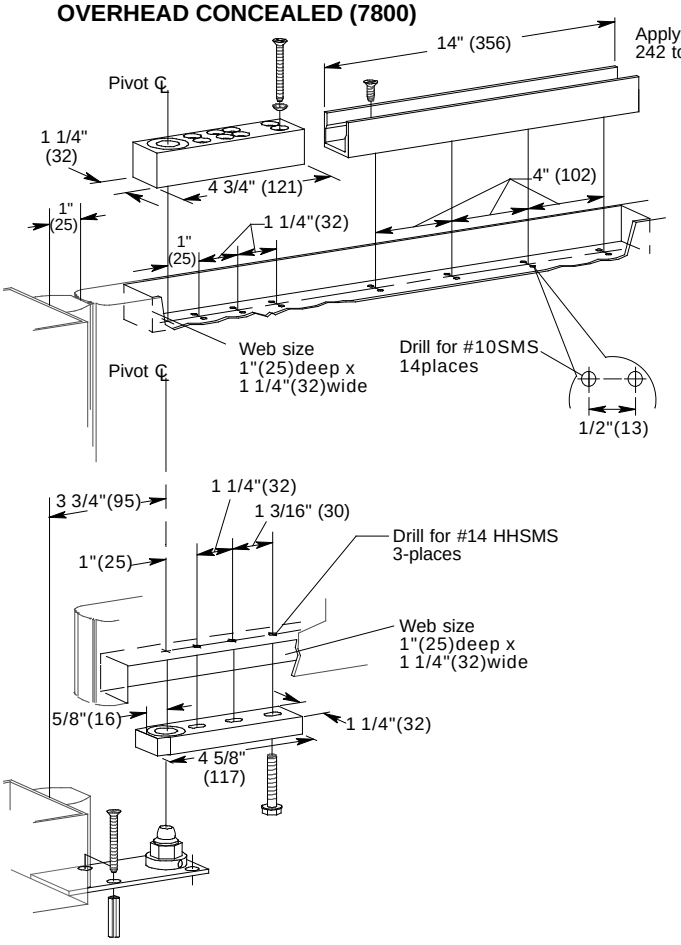
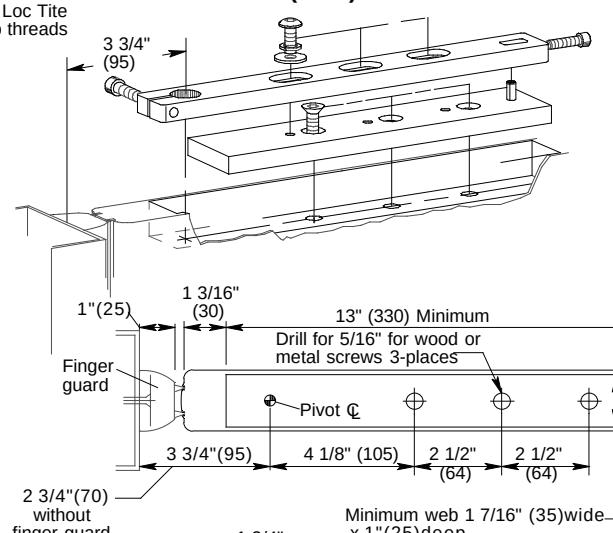
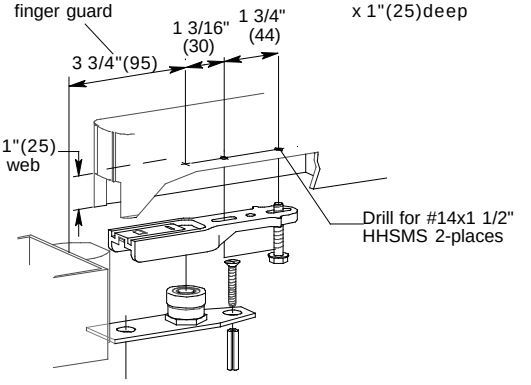
9. DOOR PANEL PREP (7600 & 7800) FOR WOOD OR METAL DOORS

OVERHEAD CONCEALED (7800)



DIRECT DRIVE (7600)



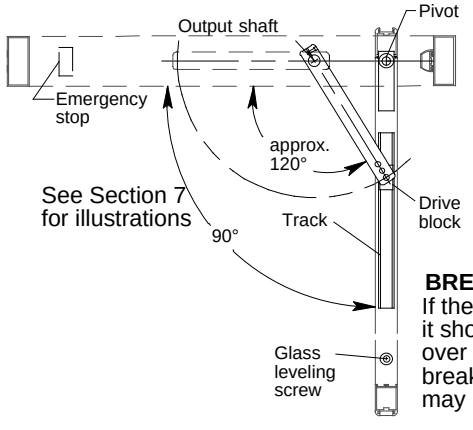


10. DOOR PANEL ADJUSTMENTS

Manually open the door, it should swing smoothly without binding. If adjustment is required follow the outline below.
NOTE: The added weight of the glass can influence adjustments to the panel. Glazing at this point is advised.
After glazing adjust the glass leveling screw located in the top rail close to the strike rail. The door must not drag at any point.

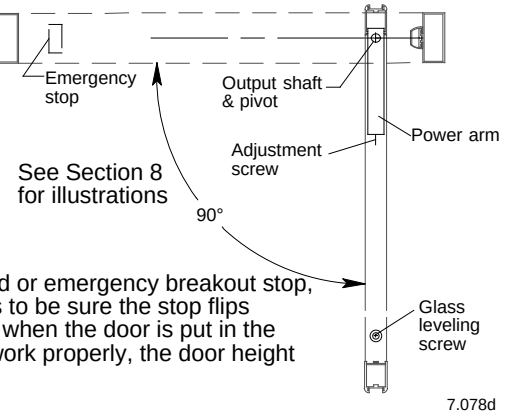
OVERHEAD CONCEALED

1. If the drive block binds the arm must be adjusted parallel to the track.
2. To adjust the door to 90° at full open. The drive pin may be located at 3 different locations. Swing is decreased by moving the pin closer to the operator shaft.
3. After adjustments are complete replace power arm cover and face plate (be sure screws are replaced in face plate).



DIRECT DRIVE

1. The panel can be adjusted by loosening the socket head screws that secure the power arm and adjusting the screw at the end of the arm (see section 8).
2. To adjust the bottom pivot the panel will have to be removed.
   - •Place the operator in hold open position.
   - •Remove the socket head screws that secure the power arm.
   - •Use a small flat screwdriver to release the catch on the back of the bottom pivot (See section 8).
   - •Loosen the pivot bolts to adjust the pivot in the slots.

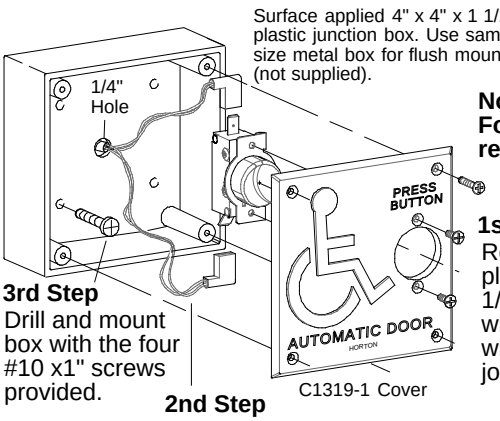


BREAKOUT STOP

If the door is equiped with a fixed or emergency breakout stop, it should be tested several times to be sure the stop flips over and turnes off the operator when the door is put in the breakout position.If it does not work properly, the door height may need adjustment.

11. INSTALLING ACTUATION SWITCHES

C1316-2 SWITCH ASSEMBLY



Note: See Section 2 For switch location requirements.

1st Step
Remove cover plate and drill 1/4" hole for wiring. Location will vary with job conditions.

3rd Step
Drill and mount box with the four #10 x1" screws provided.

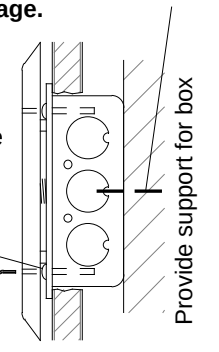
2nd Step
Pull the low voltage wire into the box.

C1260 SWITCH ASSEMBLY

Note: Junction box not included in assembly.

1st Step
Pull the 24 VAC, 2 conductor wire into the box and connect to the microswitch terminals. **Do not connect to high voltage.**

2nd Step
Attach the microswitch & pushplate to the junction box using the four Allen screws provided.



12. OPERATOR 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 swing door operator. See ANSI 156.19.

CloseCheck Switch Cam: Adjust for switchto fall onto cam flat when door is 10 deg from full-closed.

Open Check Switch Cam: Adjust for switchto fall onto cam flat when door is 10 deg from full-open.

Open/Close Check Microswitches

L.OUT: Lock Out Time Delay - Sets the length oftime neededtoignore the safetysensor during door closing. Rotate clockwise to increase.

LIMIT: Current Limiting - Sets the amountof opening force. Rotate counter-clockwise to increase.

OBST: Replacestime delay cancel on old C7160-3 controls. Rotate clockwise to increase.

DELAY: Time Delay Adjustment - Suggested setting is 5 seconds minimum after full open. Rotate clockwise to increase.

HOLD: Hold Voltage Function - Control switches to hold-open voltage after a nominal 10-12 second delay from beginning to 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.

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

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

ACCEL: Open Acceleration Adjustment - Sets motor acceleration to open speed setting. Rotate clockwise to increase.

***JB3Jumper** lock enable

D4- Orange
D3- Green
D2- Red
D1- Green
S1
CN4
CN2- Switching Circuit
C3959-1 5 pin Power Supply Lace
CN1
CN2- Power Supply

C7115-1 Motor
C9156 Harness
MotorLeads
Output shaft

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

JB2 Jumper: Removeto disable touch stop

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

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

To ground wire on incoming line

Power in: 120 VAC,15Amp.

JB1 Jumper: **(Push-n-Go**) With jumperin place, a slight pushon the door will actuate the operator and open the door.

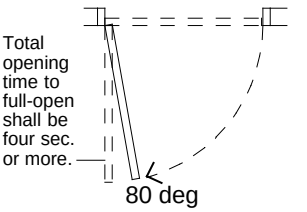
7.065d2

ANSI CHART - OPENING & CLOSING TIME IN SECONDS

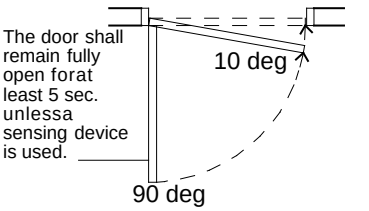
DoorLeaf Width in Inches(mm)	DoorWeightinPounds (kg)				
	100 (45.4)	125 (56.7)	150 (68.0)	175 (79.4)	200 (90.7)
30 (762)	3.0 Sec.	3.0 Sec.	3.0 Sec.	3.0 Sec.	3.5 Sec.
36 (914)	3.0	3.5	3.5	4.0	4.0
42(1067)	3.5	4.0	4.0	4.5	4.5
48(1219)	4.0	4.5	4.5	5.0	5.5

The force required to prevent a door from opening or closing shall not exceed 15 lbf (67N) applied one inch (25) from the latch edge at any point of opening or closing.The kinetic energy of a door in motion shall not exceed 1.25 lbf (5.56N). **Note:** To be in compliance with the force and energy requirements set closing and opening speeds as per the chart above.

Power Failure: manual pressure not to exceed 15 lbf (67N) at a point one inch (25) from the latch edge (may vary by local code).



OPENING TIME: Doorsshall be field adjusted sothat opening time toopen check or80 deg shall be three sec. or more.



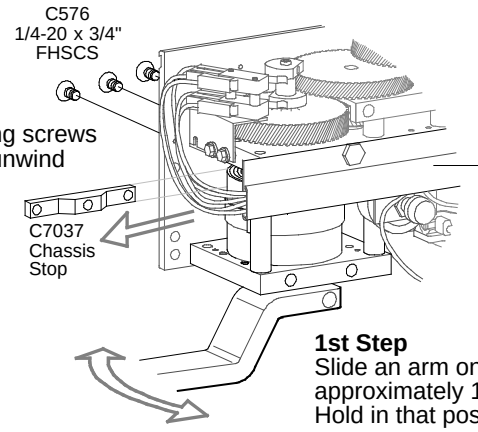
CLOSING TIME: Doorsshall be field adjusted to close from 90 deg to10 deg in three seconds or longer.Doors shallclose from 10deg to fully closed in 1.5 sec. or more.

13. CHANGING OPERATOR HAND AND/OR CLOSING SPRING

The following information is provided as a guide for:
- Removing and replacing a broken spring.
- Changing spring direction.
- Changing both spring direction and operator hand.
- Changing operator hand but not spring direction.

NOTE: IN ALL CASES, SECURE THE BASEPLATE OF THE GEAR TRAIN ASSEMBLY (PREFERABLY IN A VISE) WITH THE OUTPUT SHAFT FACING UP.

REMOVING THE SPRING:

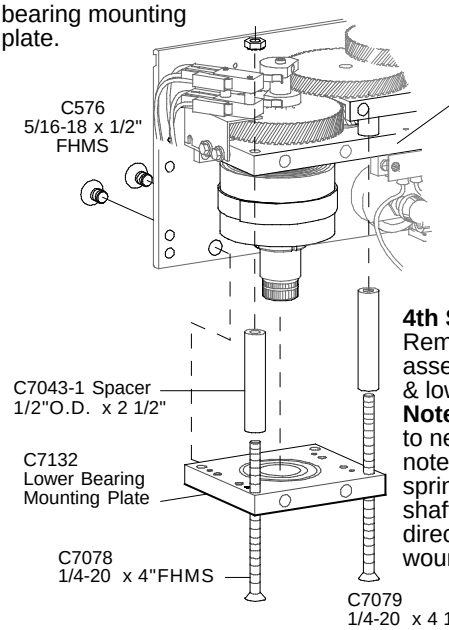


2nd Step
Remove three chassis mounting screws thus allowing spring to slowly unwind and push out the chassis stop. Remove both arm and chassis stop.

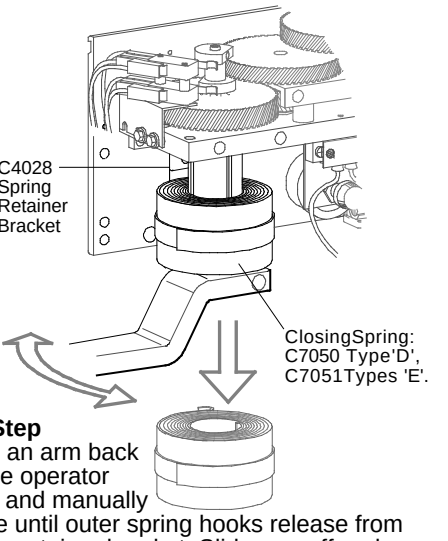
Optional Step
To clear work space, detach C7083 Wire Guide & Operator Wiring Harness from upper bearing plate and move out of way.

1st Step
Slide an arm on the operator shaft and manually rotate arm approximately 1/4 turn to relieve pressure on chasis stop. Hold in that position.

3rd Step
Remove the two screws for lower bearing mounting plate.



4th Step
Remove the two assembly bolts, spacers & lower bearing plate. **Note:** Before proceeding to next step, be carefull to note location of inner spring hook in output shaft, as well as, the direction the spring is wound.



5th Step
Slide an arm back on the operator shaft and manually rotate until outer spring hooks release from spring retainer bracket. Slide arm off and remove spring.

IF SPRING WAS BROKEN:

A. Replace new spring on output shaft. Be careful to place inner spring hook in same slot in shaft as before.

B. Re-install lower bearing plate with it's assembly bolts, spacers and mounting screws.

C. Slide arm on output shaft and manually rotate until the outer spring hooks clip into the spring retainer bracket. Next rotate the shaft approximately 1/2 turn (180°) and hold in that position.

D. Re-install chassis stop and secure with mounting screws. Allow arm to slowly counter-rotate until the stop lug on the output shaft rests against the chassis stop. The spring is now preloaded for most general applications.

IF CHANGING SPRING DIRECTION FROM LH TO LHR OR RH TO RHR (INSWING TO OUTSWING):

A. After spring is removed, turn upside-down and replace on output shaft (after shaft has been rotated 1/4 turn). Be careful to place inner spring hook in same slot in shaft as before.

B. Re-install the rest of the assembly as outlined in steps B thru D (left).

C. Reverse motor leads at potentiometer (see Operator Adjustments, Section #9).

IF CHANGING BOTH SPRING DIRECTION & OPERATOR HAND (FROM LHR TO RHR OR RHR TO LHR) :

A. After changing spring direction, as outlined above, follow steps on next page for changing operator hand.

B. After both tasks are done, reverse motor leads at potentiometer (see Operator Adjustments, Section #9).

IF CHANGING OPERATOR HAND BUT NOT SPRING DIRECTION (FROM LH TO RHR OR RH TO LHR):

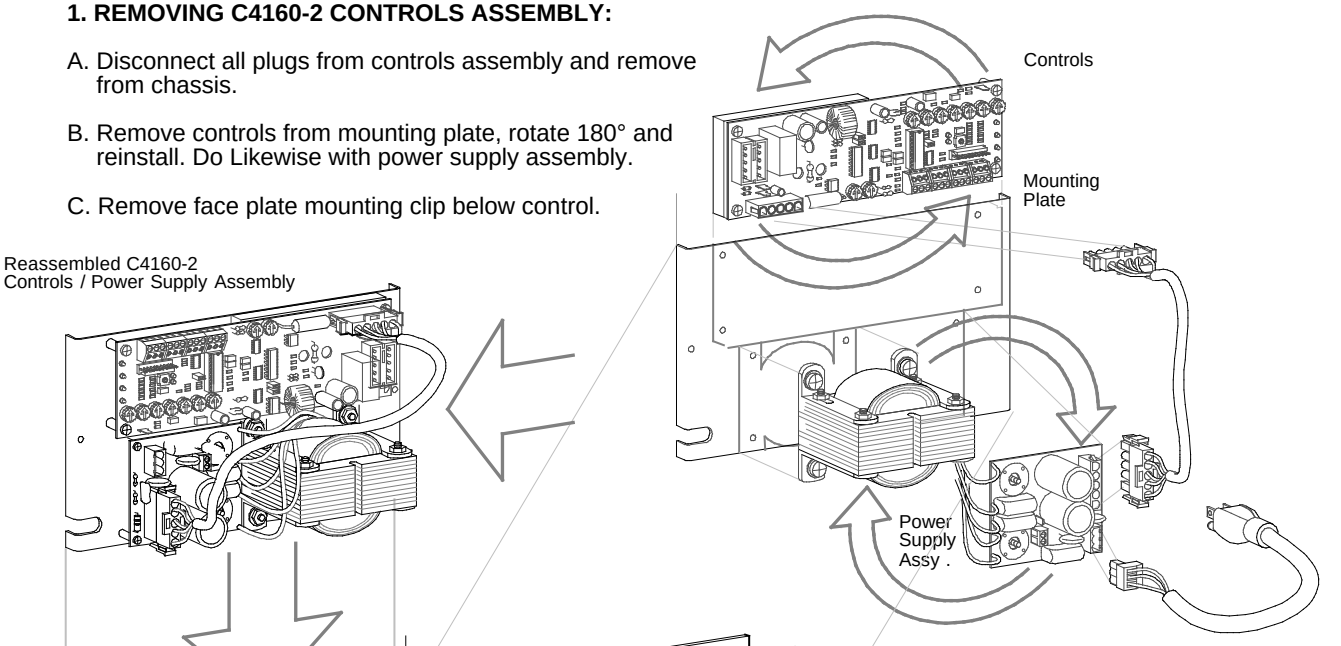
Follow the steps outlined in the previous page for removing the chassis stop and allowing the spring to unwind. The gear train and controls will then have to be moved to opposite sides of the operator base plate chassis.

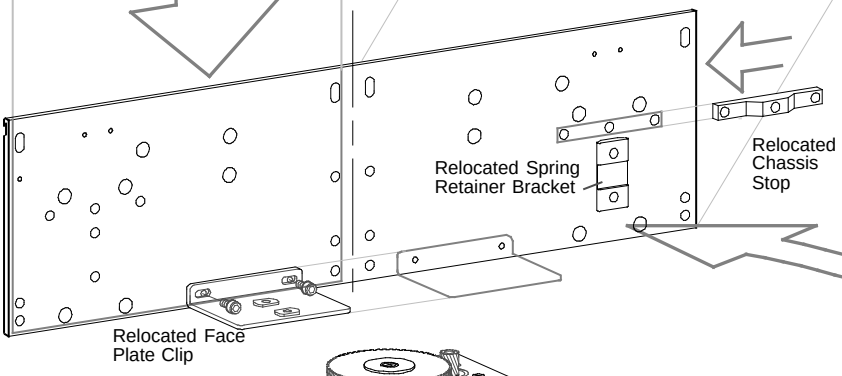
1. REMOVING C4160-2 CONTROLS ASSEMBLY:

A. Disconnect all plugs from controls assembly and remove from chassis.

B. Remove controls from mounting plate, rotate 180° and reinstall. Do Likewise with power supply assembly.

C. Remove face plate mounting clip below control.

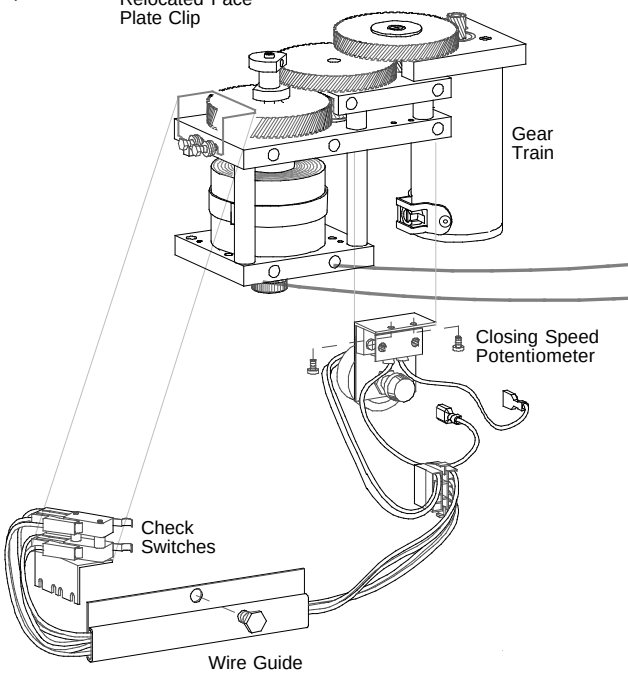




4. REINSTALLING CHASSIS STOP:

A. Slide arm on output shaft and manually rotate shaft until outer spring hook clips into spring retainer bracket. Then rotate 1/2 turn (180°) and hold in that position.

B. Reinstall chassis stop in new location as shown. Allow arm to slowly counter rotate until the stop lug on the output shaft rests against the chassis stop. The spring is now pre-loaded for most applications.



2. REMOVING GEAR TRAIN ASSEMBLY:

A. Remove closing speed potentiometer by removing mounting screws.

B. Loosen two screws securing check switch mounting bracket and slide bracket from slots.

C. Remove wire guide installed on front of gear train.

D. Remove seven bolts securing bearing plates of gear train to chassis base plate. Set gear train aside.

3. REINSTALLING GEAR TRAIN AND CONTROLS:

A. Remove spring retainer bracket and relocate to opposite end of chassis as shown.

B. Re-install gear train assembly at same end of chassis as shown. Note that motor assembly is nearest center of chassis.

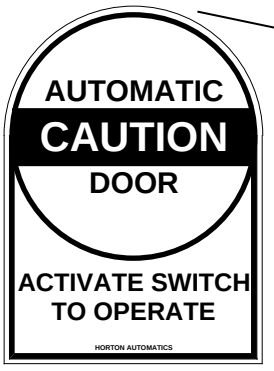
C. Re-install control assembly as shown. Reconnect all plugs.

D. Re-install all previously removed brackets onto gear train.

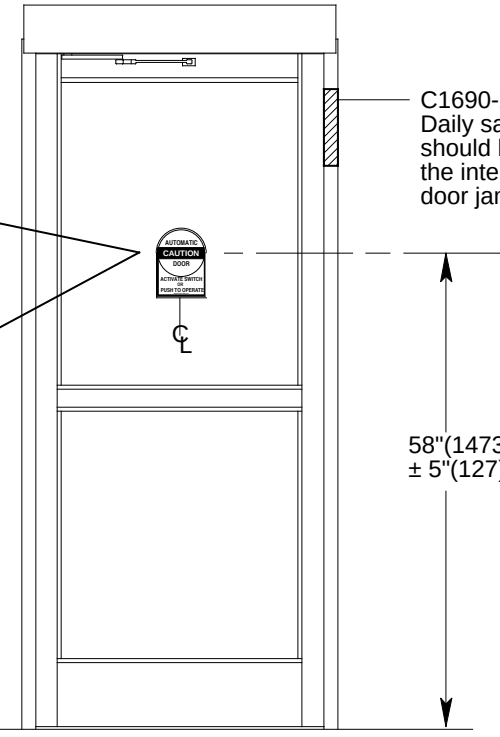
NOTE: AFTER SPRING IS PRE-LOADED IT WILL BE NECESSARY TO ADJUST OPEN CHECK CAM AND CLOSE CHECK CAM WHEN OPERATOR IS INSTALLED.

14. PLACEMENT OF SAFETY DECALS

Decals should be a minimum of 6"(152) diameter and be visible from both sides of the door. Apply decals as shown.

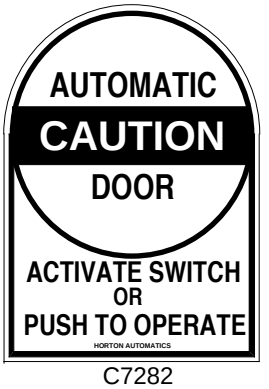


C7280
Required to meet ANSI standards. This decal is included with each door package.

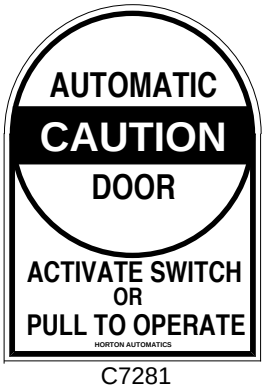


Interior elevation

THE DECALS SHOWN BELOW ARE AVAILABLE OPTIONS.



C7282



C7281

For Push-n-Go™ option

C1688

C1631-3

For one-way traffic non-approach side.

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