

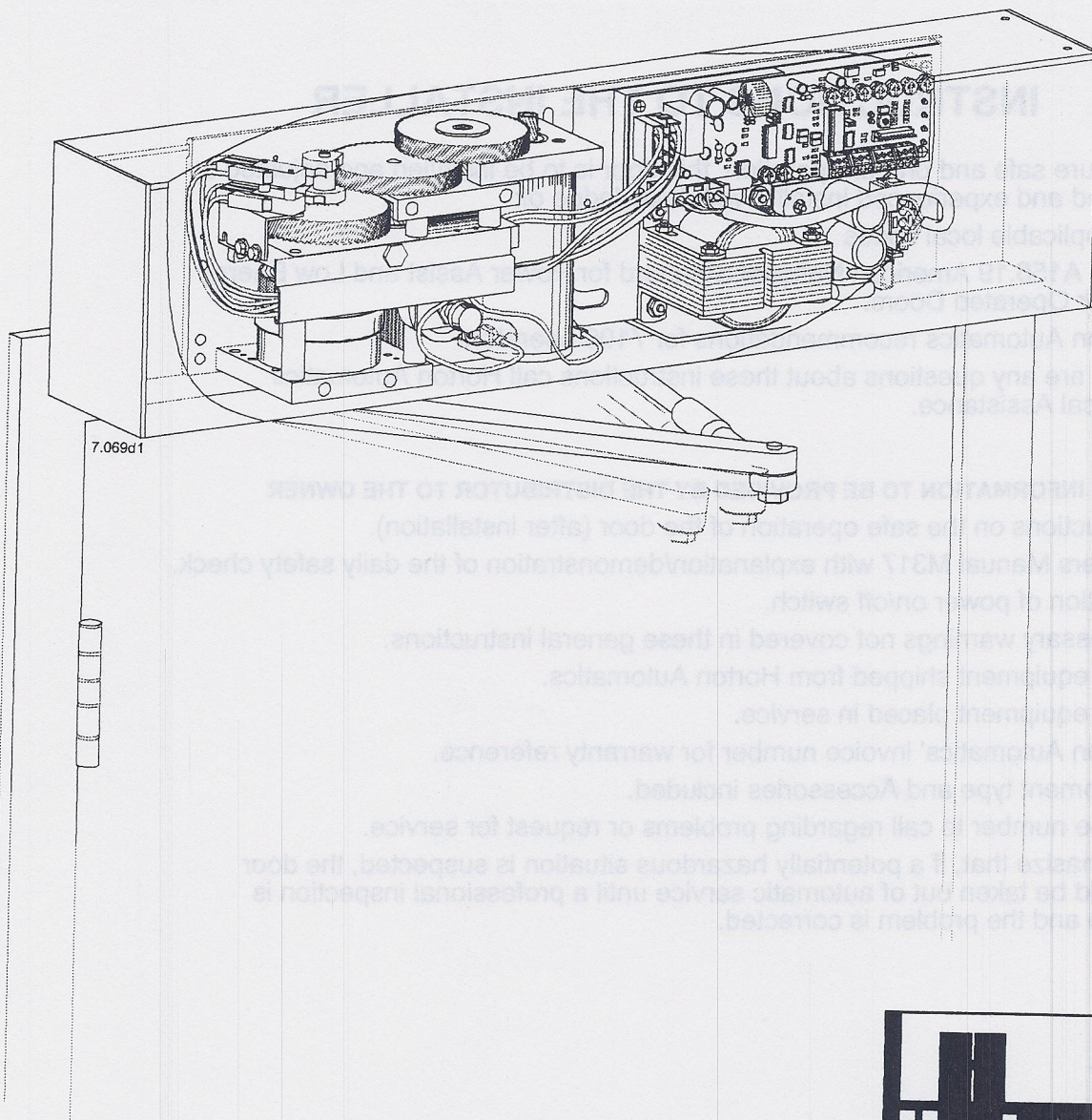
Series 7100 Easy AccessTM

Surface Applied Swing Door Operator

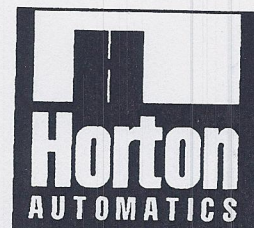
for C4190 Control

Installation Instructions

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



G710, OCT 2000



CONTENTS

1. General requirements.....	G710.1
2. Handicap code requirements.....	G710.1
3. Operator handing.....	G710.1
4. Installation - surface applied series 7100.....	G710.2
5. Installing adjustable connecting arm.....	G710.3
6. Setting the open stop and loading operator spring.....	G710.4
7. Installing parallel arm and track.....	G710.4
8. Installing actuation switches.....	G710.5
9. Operator adjustments.....	G710.5
10. Changing operator hand and/or closing spring.....	G710.6
Changing operator hand cont.....	G710.7
11. Placement of safety decals	G710.8

INSTRUCTIONS TO THE INSTALLER

To ensure safe and proper operation, this door is to be installed and adjusted by a trained and experienced installer with knowledge of:

- All applicable local codes
- ANSI A156.19 American National Standard for Power Assist and Low Energy Power Operated Doors.
- Horton Automatics recommendations for 7100 operators

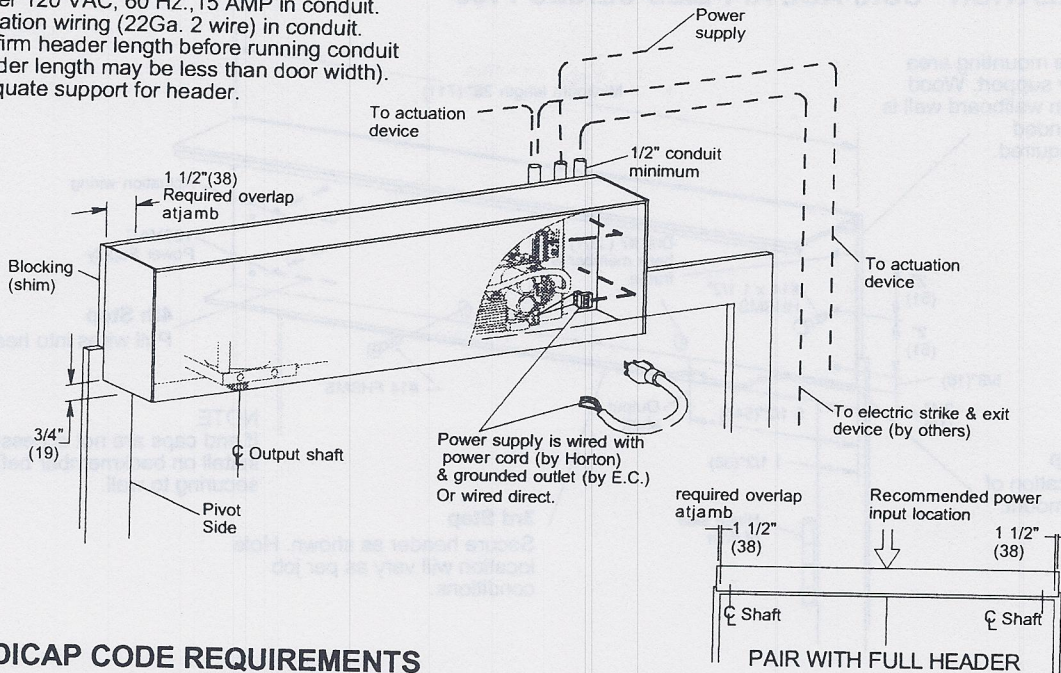
If there are any questions about these instructions call Horton Automatics Technical Assistance.

INFORMATION TO BE PROVIDED BY THE DISTRIBUTOR TO THE OWNER

- Instructions on the safe operation of the door (after installation).
- Owners Manual M317 with explanation/demonstration of 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 and Accessories included.
- Phone number to call regarding problems or request for service.
- Emphasize that, 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.

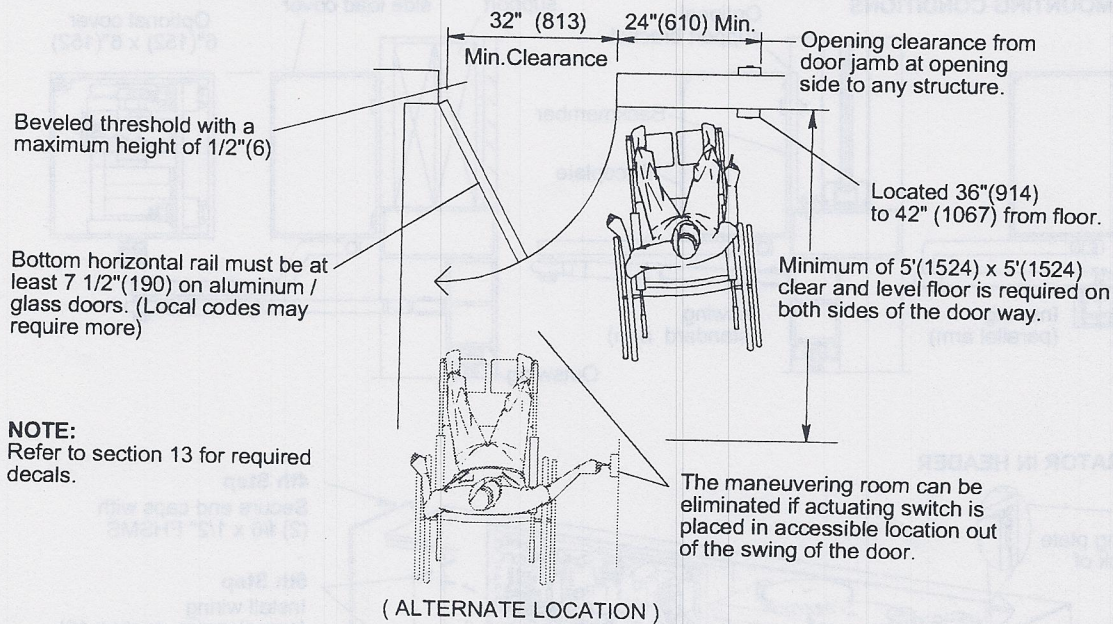
1. GENERAL REQUIREMENTS

- Power 120 VAC, 60 Hz., 15 AMP in conduit.
- Actuation wiring (22Ga. 2 wire) in conduit.
- Confirm header length before running conduit (header length may be less than door width).
- Adequate support for header.



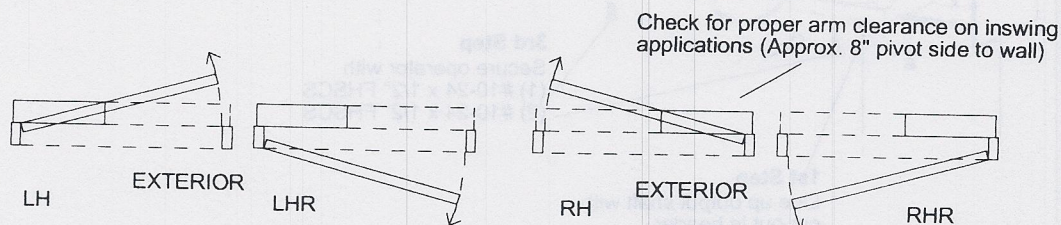
2. HANDICAP CODE REQUIREMENTS

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 guide lines on switches.



3. OPERATOR HANDING

Confirm handing of door before installing operator. Refer to section 12 for instructions if changing hand of operator is required.



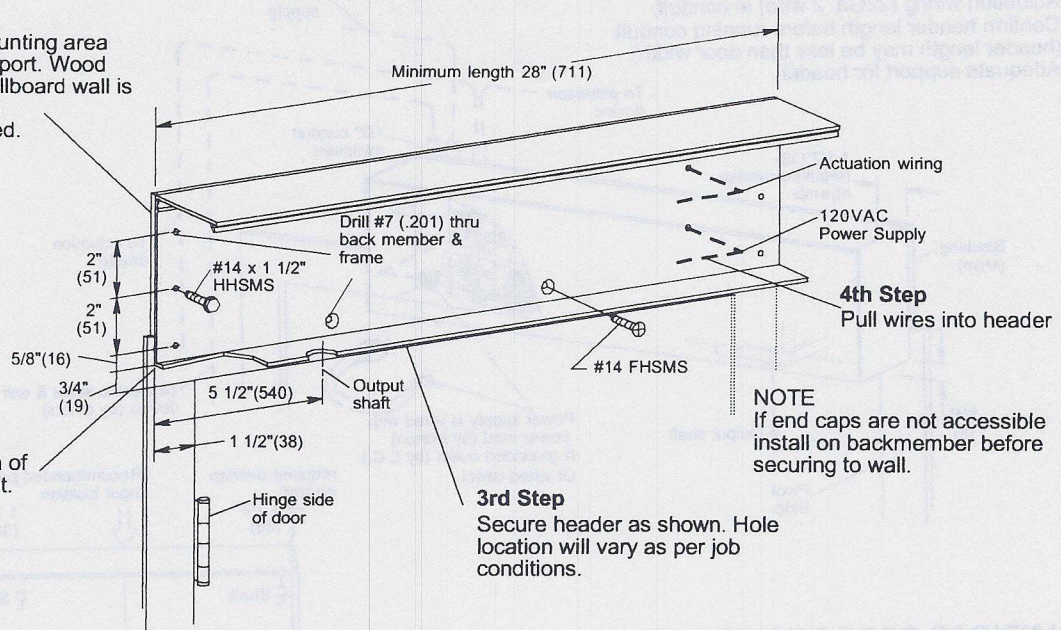
4. INSTALLATION - SURFACE APPLIED SERIES 7100

1st Step

Check the mounting area for proper support. Wood blocking in wallboard wall is recommended. Shim if required.

2nd Step

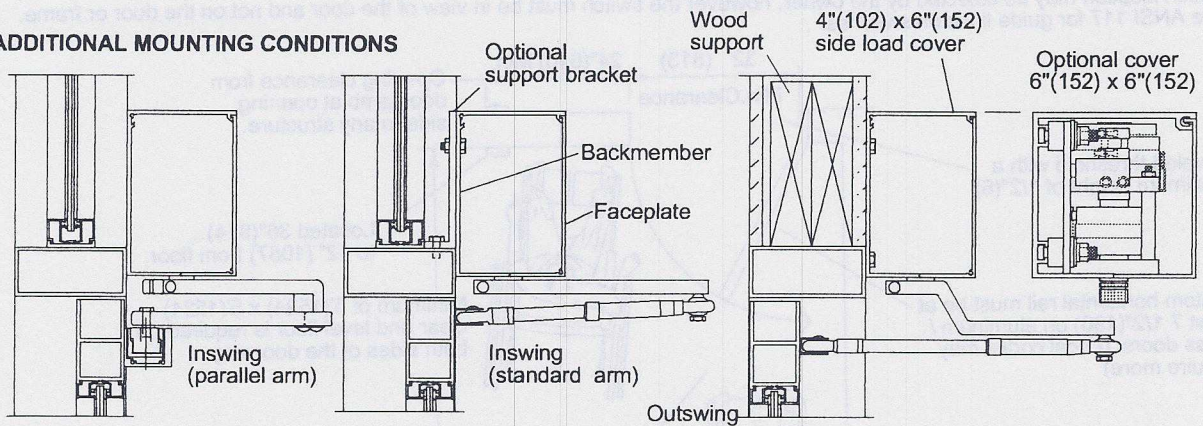
Mark location of header mount.



3rd Step

Secure header as shown. Hole location will vary as per job conditions.

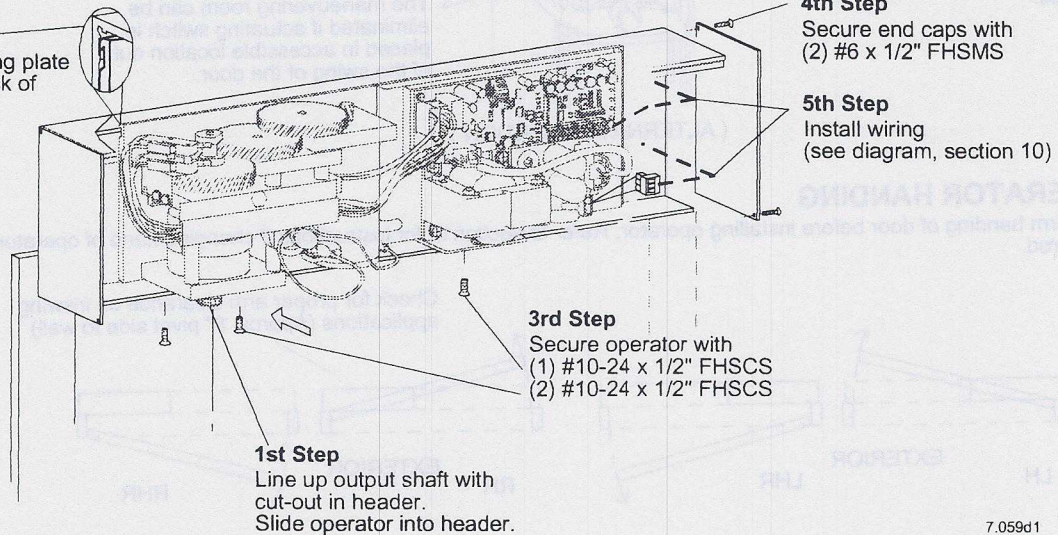
ADDITIONAL MOUNTING CONDITIONS



MOUNT OPERATOR IN HEADER

2nd Step

Position mounting plate over cleat in back of header.

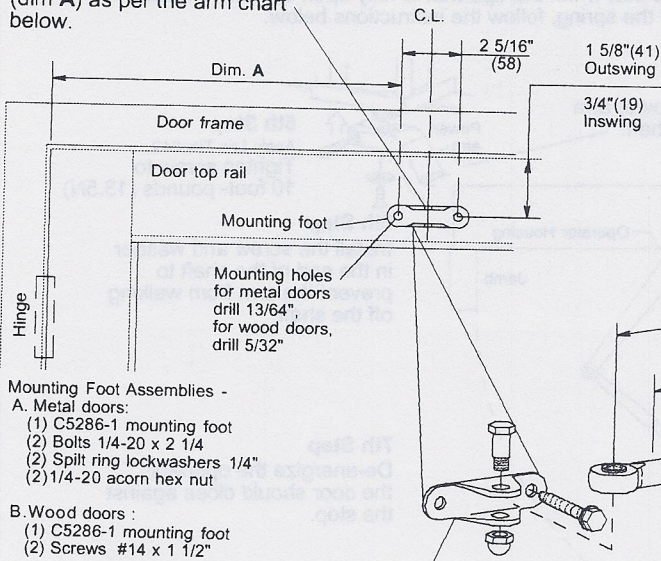


5. INSTALLING ADJUSTABLE CONNECTING ARM

NOTE: For inswing doors without arm clearance, see section 7 for parallel arm installation.

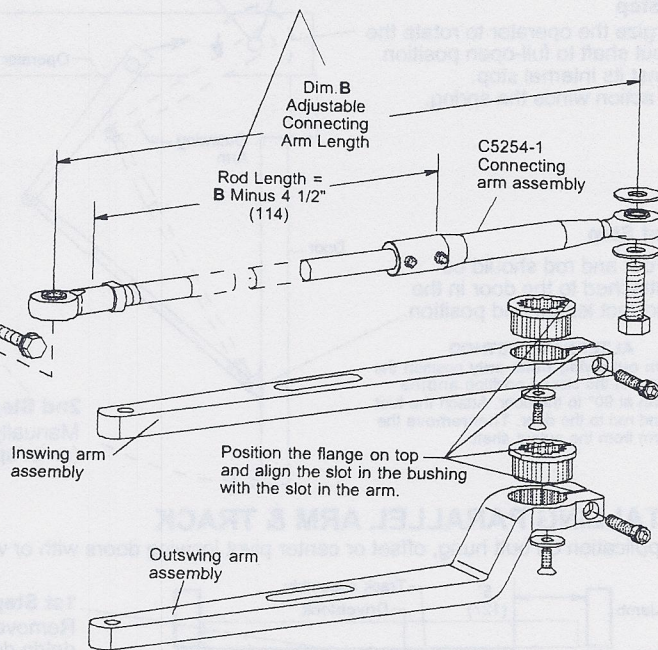
1st Step

Locate and mount the foot (dim A) as per the arm chart below.



2nd Step

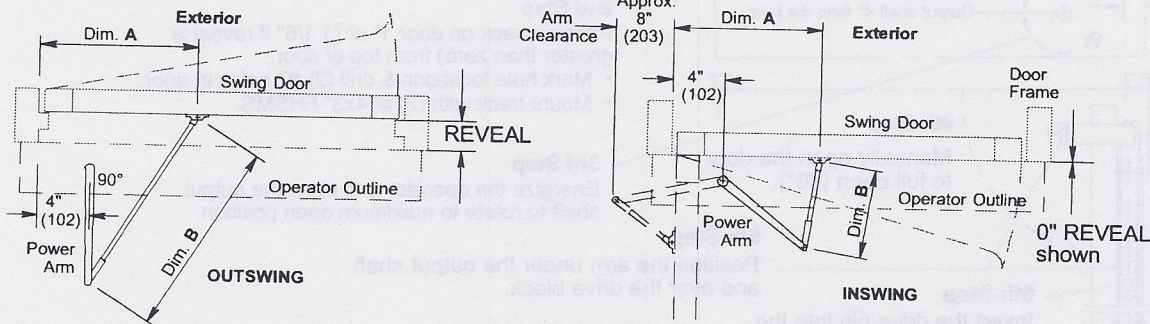
Determine the proper length of the adjustable rod (dim B) and cut as required.



3rd Step

Assemble the connecting arm and attach it to the mounting foot.

STANDARD ARM CONNECTIONS



ARM LENGTH CHART

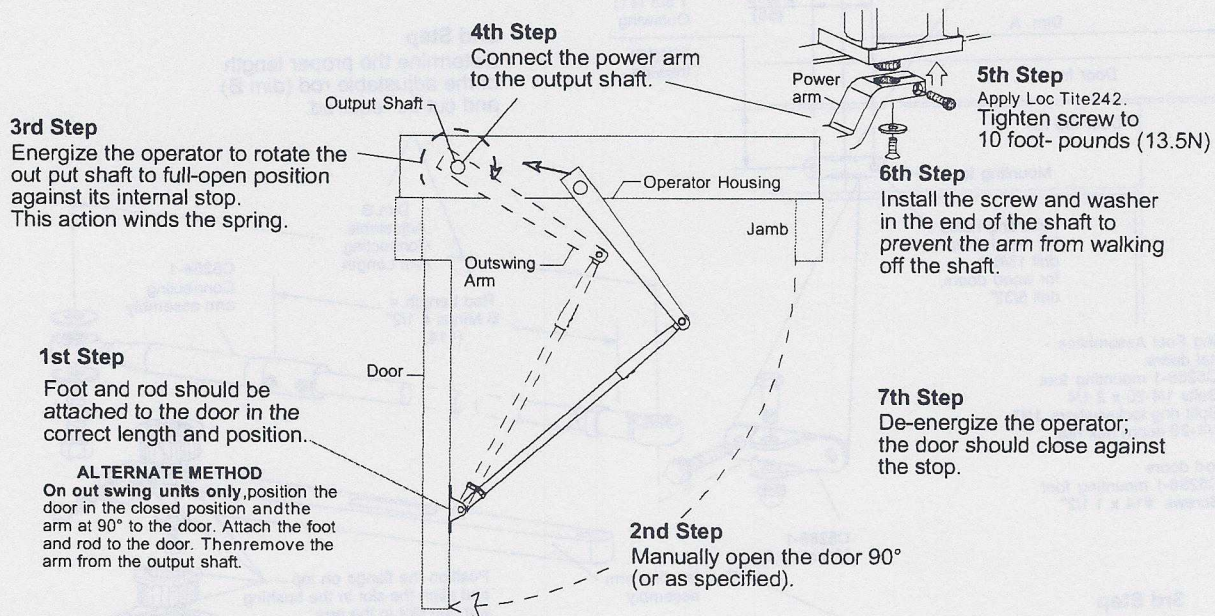
REVEAL	BUTT HINGE OR OFFSET PIVOT				CENTER PIVOT 2 3/4" *			
	INSWING		OUTSWING		INSWING		OUTSWING	
	A	B	A	B	A	B	A	B
0	13"(303)	10"(254)	16"(406)	17 1/8"(435)	17"(432)	9"(229)	16"(406)	16 1/2"(419)
1/2"(13)	13"(303)	10"(254)	16"(406)	17 1/2"(445)	17"(432)	9"(229)	16"(406)	16 7/8"(429)
1"(25)	13"(303)	10"(254)	16"(406)	17 3/4"(451)	17 1/2"(445)	9 1/2"(241)	16"(406)	17"(438)
1 1/2"(38)	14"(356)	10"(254)	16"(406)	18 1/4"(464)	17 1/2"(445)	9 1/2"(241)	16"(406)	17 3/4"(451)
2"(51)	14"(356)	10 1/2"(268)	16"(406)	18 1/4"(464)	18"(457)	10"(254)	17"(432)	18 3/4"(476)
2 1/2"(64)	14"(356)	11 1/2"(292)	16 1/2"(419)	19 1/4"(489)	19"(483)	10 1/2"(268)	17"(432)	19"(483)
3"(76)	15"(381)	12 1/2"(317)	16 1/2"(419)	19 3/4"(489)	19"(483)	10 1/2"(268)	18"(457)	20"(508)
3 1/2"(89)	16"(406)	11"(379)	16 1/2"(419)	20 1/8"(511)	19"(483)	10 1/2"(268)	18"(457)	20 1/2"(521)
4"(102)	17"(432)	12"(305)	17"(432)	20 3/4"(527)	25"(635)	17"(432)	19"(483)	21 1/2"(546)

NOTE: If reveal is greater than 4" consult factory.

* For 3 3/4" center pivot add 1" to dim. A

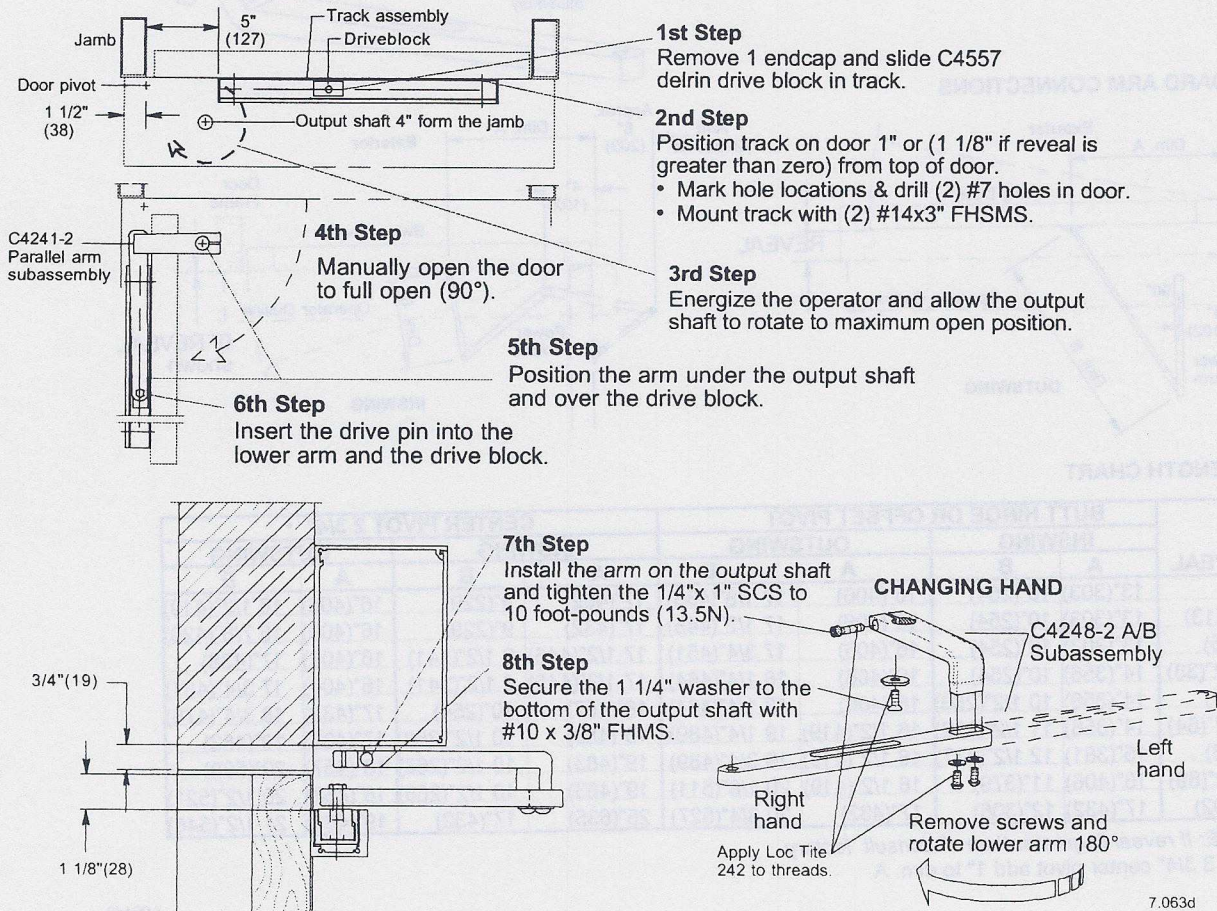
6. SETTING THE OPEN STOP and LOADING OPERATOR SPRING

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 accidentally activated to an open position or should the operator return to a relaxed position. The power arm must be located correctly on the output shaft so that when the operator is fully open the door will be positioned at 90° from its frame. To set the open stop and load the spring, follow the instructions below.



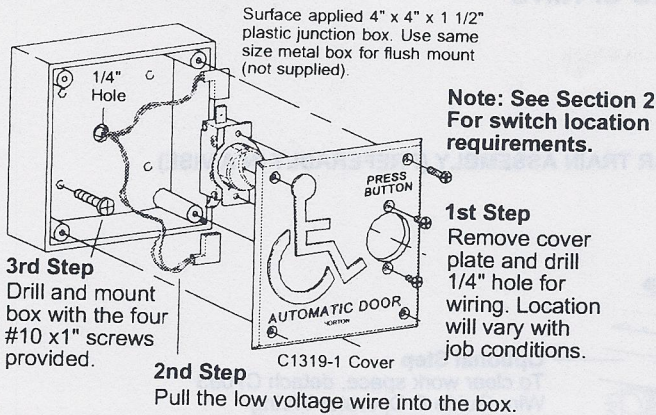
7. INSTALLING PARALLEL ARM & TRACK

For application on butt hung, offset or center pivot inswing doors with or without breakout capability.



8. INSTALLING ACTUATION SWITCHES

C1316-2 SWITCH ASSEMBLY



C1260 SWITCH ASSEMBLY

Note: Junction box not included in assembly.

6 1/4" diameter plate. C1260-4 shown. See catalog for optional designs.

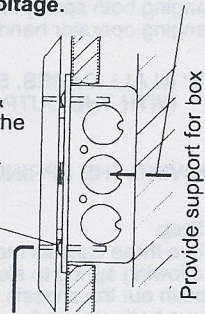


1st Step

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.



9. 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 switch to fall onto cam flat when door is 10 deg from full-closed.

Open Check Switch Cam:
Adjust for switch to 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 of time needed to ignore the safety sensor during door closing. Rotate clockwise to increase.

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

OBST: Replace time 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 the cam 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.

*JB3 Jumper lock enable

D4- Orange
D3- Green
D2- Red
D1- Green

S1

CN4

CN2- Switching Circuit

C3959-1 5 pin Power Supply Latch

CN1

CN2- Power Supply

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

To ground wire on incoming line

Power in: 120 VAC, 15 Amp.

7.065d2

JB1 Jumper:
(Push-n-Go) With jumper in place, a slight push on the door will actuate the operator and open the door.

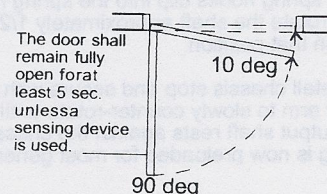
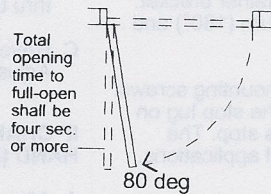
For **KNOWING ACT** (push button) see ANSI 156.10 sec. 9 & Sec 10 of G710.

ANSI CHART - OPENING & CLOSING TIME IN SECONDS

Door Leaf Width in Inches (mm)	Door Weight in Pounds (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:
Door shall be field adjusted so that opening time to open check or 80 deg shall be three sec. or more.

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

10. CHANGING OPERATOR HAND AND/OR CLOSING SPRING

The following information is provided as a guide for:

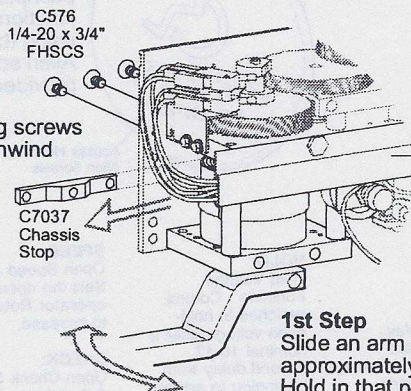
- Removing and replacing a broken spring.
- Changing spring direction.
- Changing both spring direction and operator hand.
- Changing operator hand but not spring direction.

NOTE: IN ALL CASES, SECURE THE BASE PLATE 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

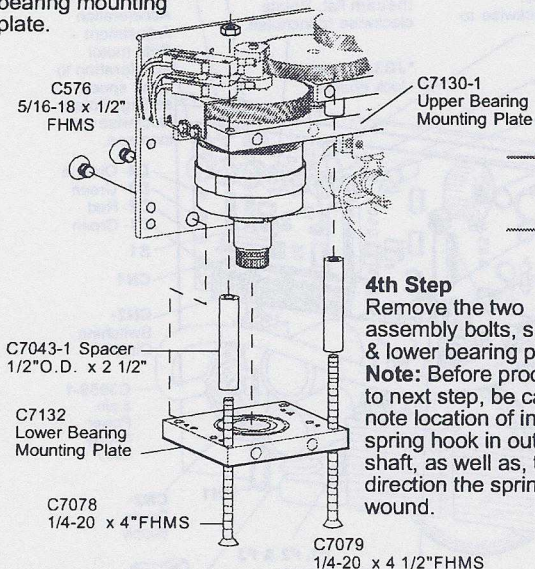
To clear work space, detach C7083 Wire Guide & Operator Wiring Harness from upper bearing plate and move out of way.

1st Step

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

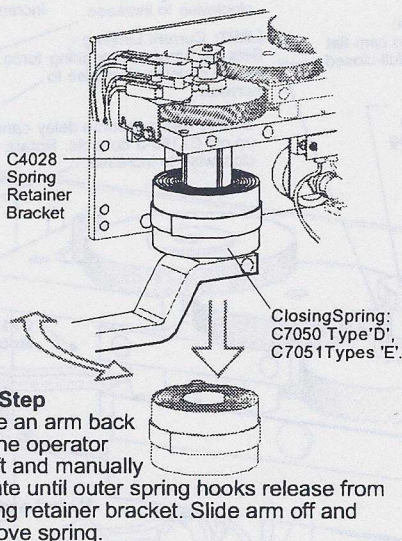
3rd Step

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 careful 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:

- Replace new spring on output shaft. Be careful to place inner spring hook in same slot in shaft as before.
- Reinstall lower bearing plate with it's assembly bolts, spacers and mounting screws.
- 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.
- Reinstall 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):

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

- After changing spring direction, as outlined above, follow steps on next page for changing operator hand.
- After both tasks are done, reverse motor leads at potentiometer (see Operator Adjustments, Section #9).

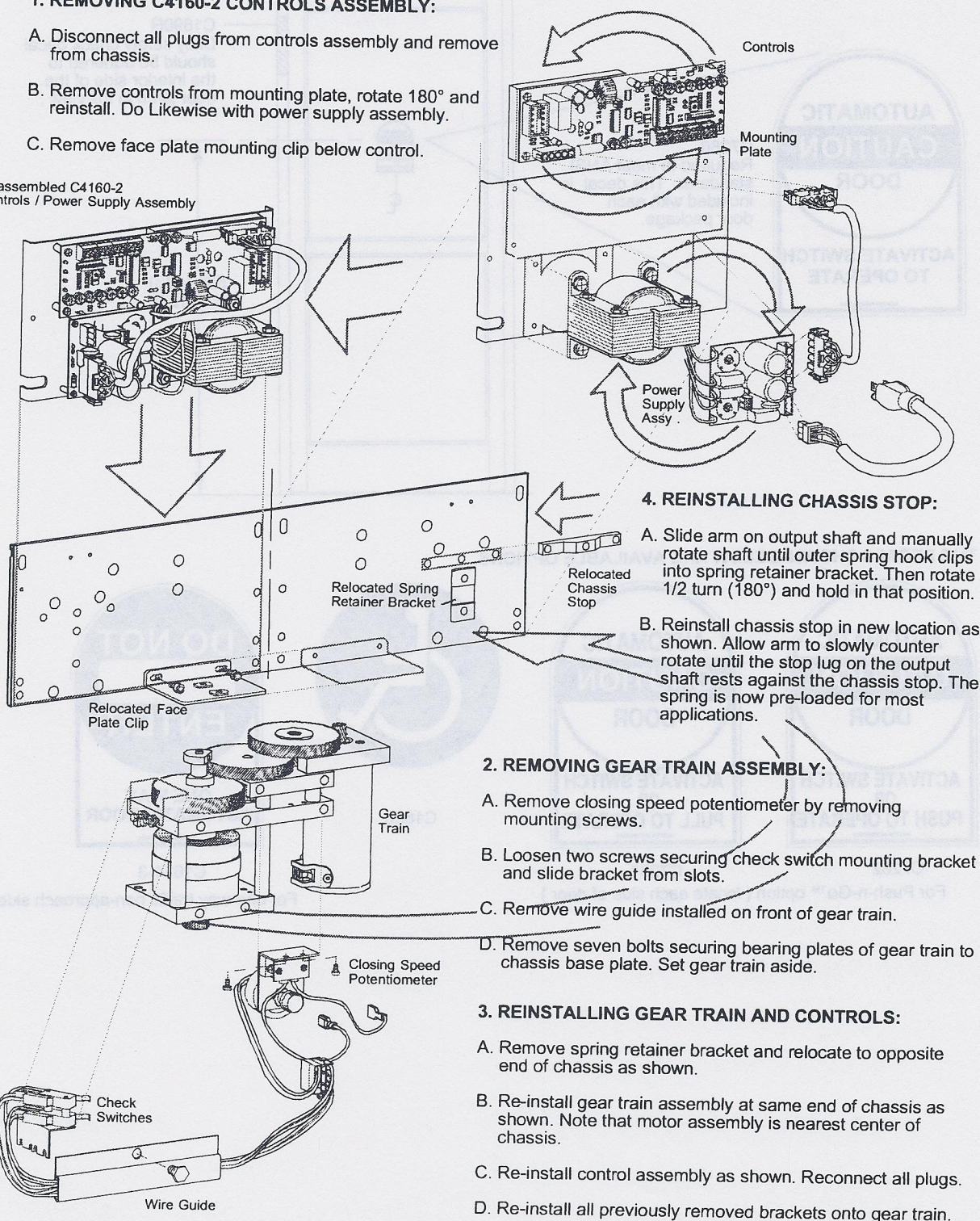
**IF CHANGING OPERATOR HAND BUT NOT SPRING DIRECTION
(FROM LH TO RHR OR RH TO LHR):**

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.

Reassembled C4160-2
Controls / Power Supply Assembly



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.

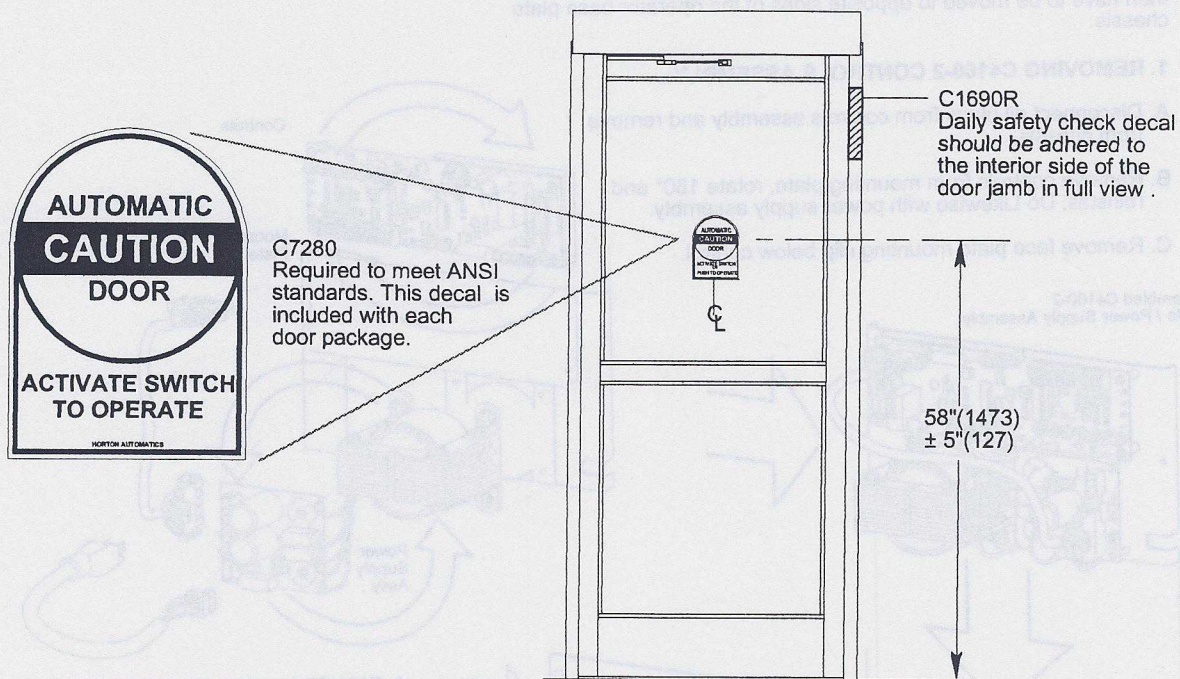
3. REINSTALLING GEAR TRAIN AND CONTROLS:

- 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.

11. 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.

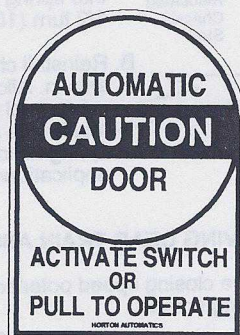


THE DECALS SHOWN BELOW ARE AVAILABLE OPTIONS.



C7282

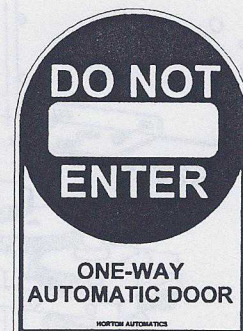
For Push-n-Go™ option (locate each side of door)



C7281



C1688



C1631-3

For one-way traffic non-approach side.

Product equipment designed in the United States. Horton Automatic reserves the right to improve the product and change its specifications without notice. Product specifications: Horton Automatic. Form 0710, Oct 2000 printed in U.S.A.



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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.