

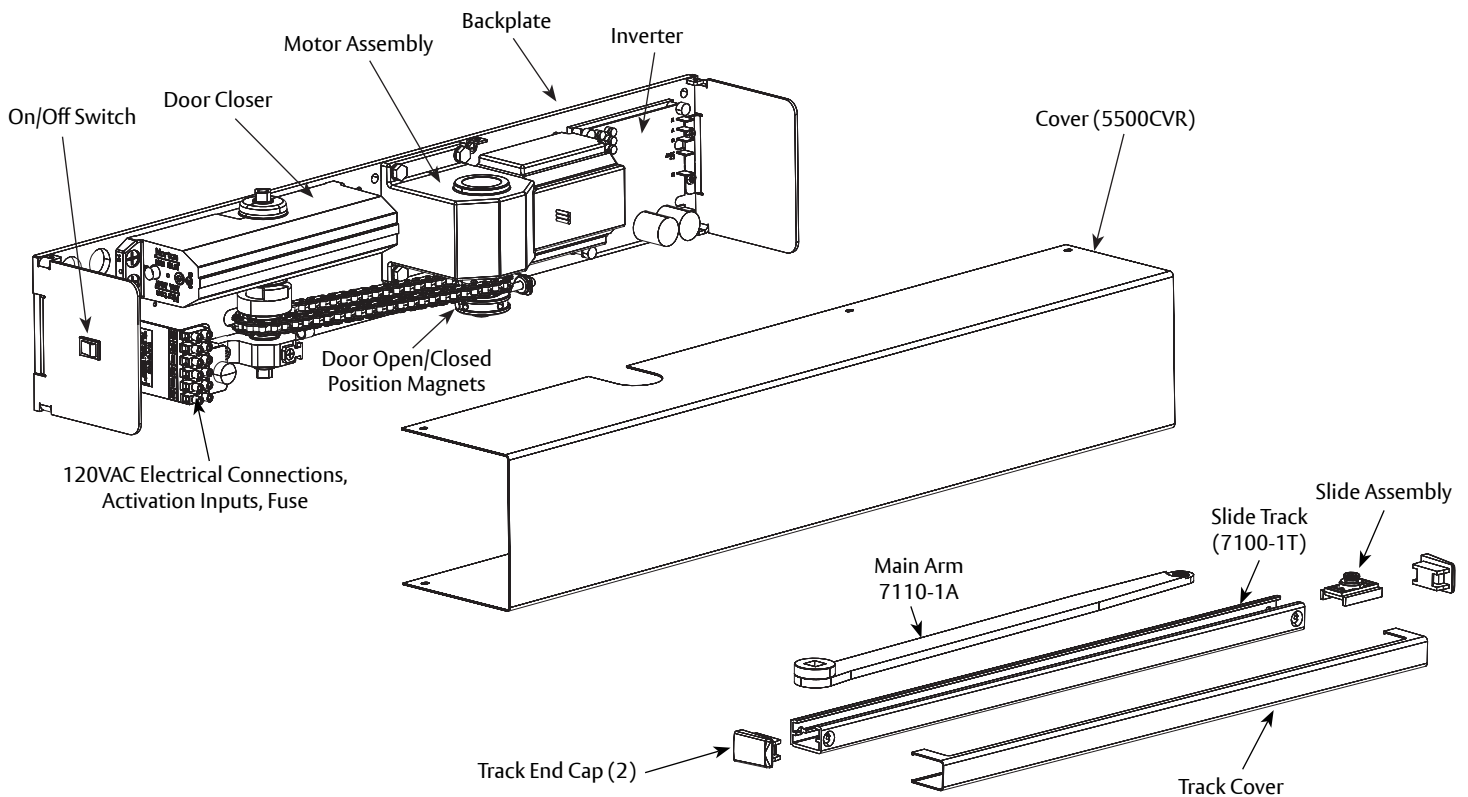
# 5500 Series Power Operator PULL Side Installation Instructions

**⚠ WARNING**

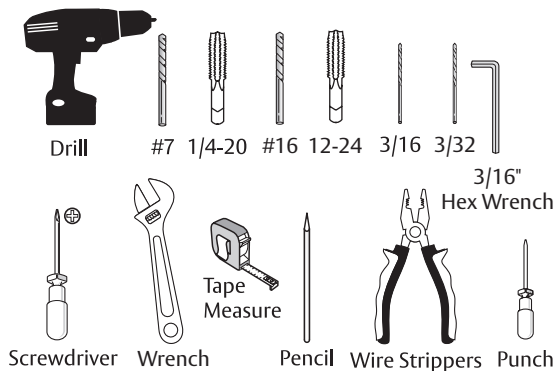
This product can expose you to lead which is known to the state of California to cause cancer and birth defects or other reproductive harm. For more information go to [www.P65warnings.ca.gov](http://www.P65warnings.ca.gov).

Pour la version française voir [www.nortondoорcontrols.com](http://www.nortondoорcontrols.com).  
READ AND FOLLOW ALL INSTRUCTIONS. SAVE THESE INSTRUCTIONS.

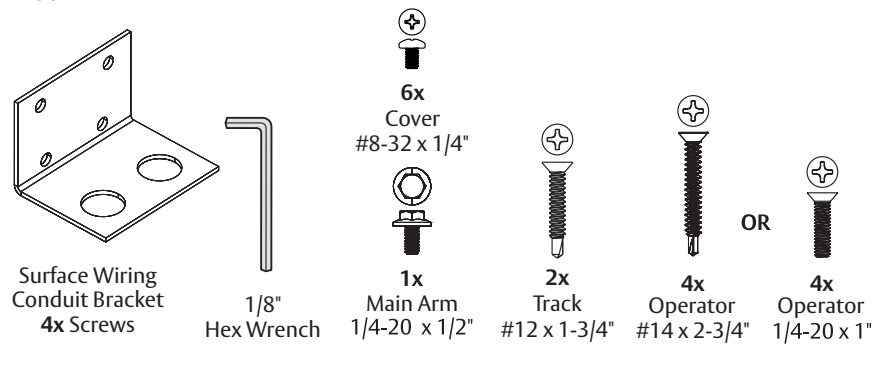
**5510 Right Hand  
(Wiring not shown)**



**Tools Needed**



**Supplied Fasteners**



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**ADA / ANSI / UL**

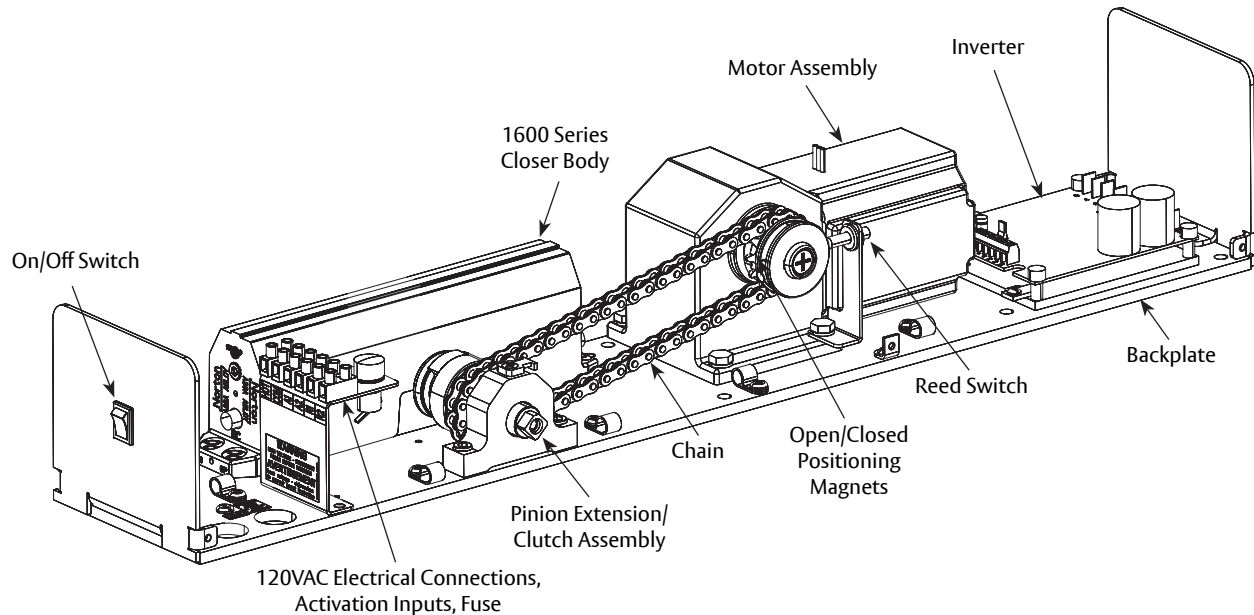
1. **Americans With Disabilities Act (A.D.A.)**  
 These door operators can be installed and adjusted to conform with A.D.A. regulations.
2. **ANSI Standards** ♿  
**ANSI A117.1** – These door operators permit door assemblies to conform to the requirements of this specification “for buildings and facilities – providing accessibility and usability for physically handicapped people”.  
**ANSI A156.19** – These products are designed to conform to this specification “for power assist and low energy power operated doors”.
- “PAS” Function is designed to meet or exceed all of the requirements for the “Power Assist Door”.  
 – “POR” Function is designed to meet or exceed all of the requirements for the “Low Energy Power Operated Door”.
3. **U.L. Listing** Ⓛ  
 Underwriters Laboratories, Inc. listed for use on fire and smoke barrier door assemblies when the 120VAC (60Hz) power input is supplied through the normally closed alarm contacts of a compatible UL Listed alarm system or alarm panel.

**Product Safety Warnings**

**WARNING:** To reduce risk of injury to person, use this operator only with Pedestrian Swing doors. **FOR INDOOR USE ONLY**

1. READ AND FOLLOW ALL INSTRUCTIONS.
2. Install only on a properly operating and balanced door. A door that is operating improperly could cause severe injury. Have qualified service personnel make repairs to any hardware before installing the operator.
3. Remove, or make inoperative, all locks (unless mechanically and/or electrically interlocked to the power unit) that are connected to the door before installing the operator.
4. Do not connect the door operator to the source power until instructed to do so.
5. Never let children operate or play with door controls. Keep remote control (when provided) away from children.
6. Personnel should keep away from a moving door in motion.
7. Test door’s features at least once a month. After adjusting either force or limit of travel, retest door operator’s features. KEEP DOOR PROPERLY OPERATING. An improperly operating door could cause severe injury or death.
8. Maximum door size: 48" (1219mm) wide x 250 lb (113.4kg)
9. SAVE THESE INSTRUCTIONS.

## Components



## General Information

- UL labeled fire or smoke barrier door assemblies require that the 120VAC (60Hz) power input to the 5500 door operator be supplied through normally closed alarm contacts of the alarm system / alarm panel.
- Power input to 5500 door operator must be 120VAC (60Hz) to terminals HOT and COM at Power Inputs terminal strip. Earth ground (GND) to green screw on backplate.
- All wiring must conform to standard wiring practice in accordance with national and local wiring codes.
- Unit is Non-Handed.
- Door must swing freely through the entire opening and closing cycle before beginning the installation.
- Use of an auxiliary door stop (by others) is always recommended.
- An incorrectly installed or improperly adjusted door operator can cause property damage or personal injury. These instructions should be followed to avoid the possibility of misapplication or misadjustment.

## Technical Data

|                     |                                      |
|---------------------|--------------------------------------|
| Input power:        | 120VAC, 60Hz                         |
| Power consumption:  | .6 amps                              |
| Fuse:               | 3 amps                               |
| Door width:         | 28" - 48" Max. (71-122 cm)           |
| Door weight:        | 100-250 lb Max. (43-113 kg)          |
| Door opening angle: | up to 120°; Manually to 180°         |
| Hold open time:     | 5-30 seconds (A.D.A. 5 seconds min.) |

### Notes:

- Permanent wiring is to be implemented as required by local codes.
- Activation devices: push plates, access control, mats, touchless wall switches, etc.
- Maximum wire size is:  
12AWG at terminals HOT and COM (120VAC; 60Hz)  
14AWG at terminals A1, A2, R1, R2
- Rate of operation shall not exceed 300 cycles of opening and closing per hour.



**WARNING: Make sure (120V, 60Hz) input power is turned OFF at facility's main circuit breaker before proceeding with installation**

**Before You Begin**

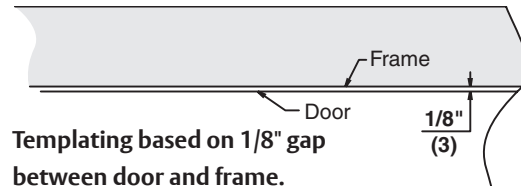
- All dimensions are given in inches (millimeters). DO NOT scale drawings.
- Thickness recommended for reinforcements in hollow metal doors and frames is charted.
- Template information is based on use of 5" (127mm) maximum width butt hinges or 3/4" (19mm) offset pivots.
- Maximum frame reveal is 1/8" (3mm) for PULL units.
- Before beginning the installation, verify that the door frame is properly reinforced and is well anchored in the wall. Frame header must be straight - without warp or bow.
- Unreinforced hollow metal frames and aluminum frames should be prepared and fitted with 1/4-20 blind rivet nuts, furnished by others.
- Concealed electrical conduit and concealed switch or sensor wires should be pulled to the frame before proceeding.

Fasteners for Frame:




- Hollow metal and aluminum: 1/4-20 Machine screws
- Wood:  
No. 14 x 2-3/4" (70mm) sheet metal screws

Fasteners for Door (Pull Side Mounting):

- No. 12 x 1-3/4" Sheet Metal screws



| Hollow Metal Door Frame Reinforcing |                                 |                                 |
|-------------------------------------|---------------------------------|---------------------------------|
| Frame Material                      | Reinforcing                     |                                 |
|                                     | Recommended                     | Min. Required                   |
| <b>12 Ga.</b><br>.105<br>(2.66)     | <b>12 Ga.</b><br>.105<br>(2.66) | <b>18 Ga.</b><br>.048<br>(1.21) |
| <b>14 Ga.</b><br>.075<br>(1.90)     | <b>10 Ga.</b><br>.134<br>(3.41) | <b>12 Ga.</b><br>.105<br>(2.66) |
| <b>16 Ga.</b><br>.060<br>(1.52)     | <b>10 Ga.</b><br>.134<br>(3.41) | <b>12 Ga.</b><br>.105<br>(2.66) |
| <b>18 Ga.</b><br>.048<br>(1.21)     | <b>8 Ga.</b><br>.164<br>(4.18)  | <b>10 Ga.</b><br>.134<br>(3.41) |

| Mounting Hardware   | Door or Frame            | Drill  |
|---|--------------------------|--|
|  <b>Unit:</b><br>14 x 2-3/4" Sheet Metal Screw       | Wood                     | 3/16" (4.76mm)                               |
|  <b>Unit:</b><br>1/4-20 x 1" Flat Head Machine Screw | Hollow Metal or Aluminum | Drill #7 (.201 dia. or 5.10mm)<br>Tap 1/4-20 |
|  <b>Track:</b><br>12 x 1-3/4" Sheet Metal Screw      | Wood                     | Drill 3/32" (2.38mm)                         |
|   | Hollow Metal or Aluminum | Drill #16<br>Tap 12-24                       |

## Prepare Frame and Door for PULL Side Installation

Become familiar with operator components and fasteners. It is recommended that components remain in box until installed. Verify there is minimum ceiling clearance for operator installation before proceeding. (Figure 1)

### A. Prepare frame for operator.

1. Verify frame reveal is maximum 1/8" (3mm). (Figure 1)
2. Determine if push or pull and if left hand or right hand installation. (Figure 2)



**NOTE: These steps are for PULL side only.**

3. Frame header MUST be flat / without twists. Backplate of operator can be used as reference.

**NOTE: If frame is not flat or is twisted, an additional steel back plate or shimming is required. Failure to mount unit properly can result in improper function of operator.**

4. Using detailed template on page 15, prepare four (4) holes for 1/4-20 machine screws or 14 x 2-3/4" sheet metal screws. Blind rivet nut (by others) is suggested for unreinforced hollow metal or aluminum frames. (Figure 3)
5. For concealed mounted conduit (if applicable): Prepare two (2) 7/8" (22mm) diameter holes for conduit, for power input and for switch/sensor wires.

**NOTE: On new construction, these holes will generally be drilled by frame supplier at their shop or at time-of-install.**

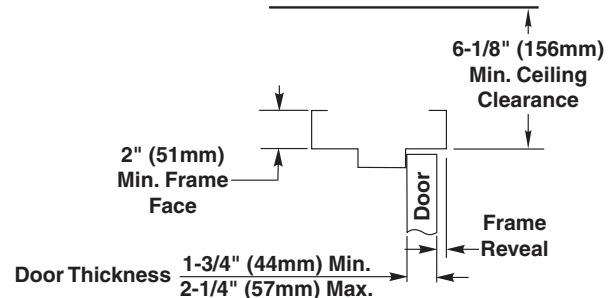


Figure 1

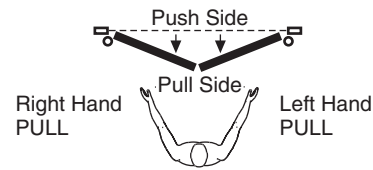


Figure 2

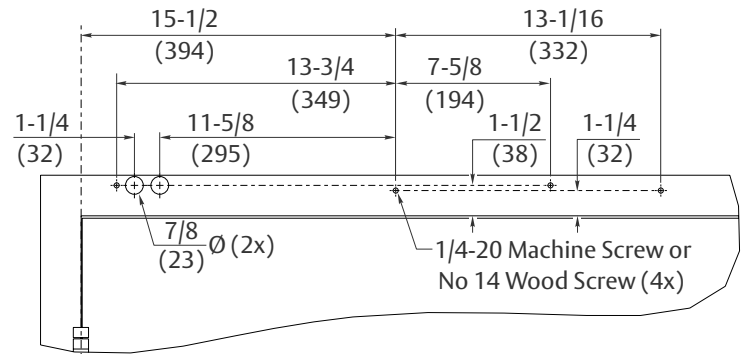


Figure 3 Right Hand Shown

### B. Prepare door for track.

1. Using template on page 15, locate and prepare holes in door for two (2) 12 x 1-3/4" sheet metal screws (Figure 4)

**NOTE: Standard units are supplied with sheet metal screws for 1-3/4" (44mm) thick door. Sex nuts and bolts (by others) are suggested for unreinforced hollow metal or aluminum doors.**

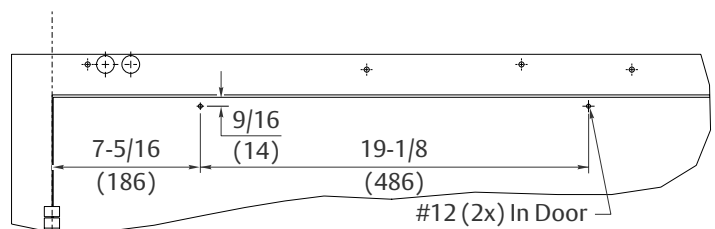
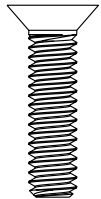


Figure 4 Right Hand Shown

**Install Operator**

A. Remove cover from unit and set cover and screws aside.

B. Mount unit to frame. (Figure 5)



OR



**NOTE:** Conduit hole nearest hinge is suggested for 120VAC power input.

Select Concealed or Surface option.

**Concealed Wired Units Only:**

- Connect conduit to frame side of backplate.
- Secure unit to frame with four (4) 1/4-20 x 1" FHMS or #14 x 2-3/4" FHSM screws.

**Surface Wired Units Only:**

- Secure unit to frame with four (4) 1/4-20 x 1" FHMS or #14 x 2-3/4" FHSM screws.
- Mount conduit bracket (found in screw pack) to unit backplate with two (2) provided screws.
- Connect wiring conduit to bracket.



**NOTE:** It is important to properly secure top edge of backplate. Use of blocking (supplied by others) to fill gap between backplate and wall above header is **HIGHLY** recommended. Material must comply with local codes. Failure to properly secure top of backplate could result in operator being allowed to 'rock' during operation. This could result in damage to operator and diminish operator function.

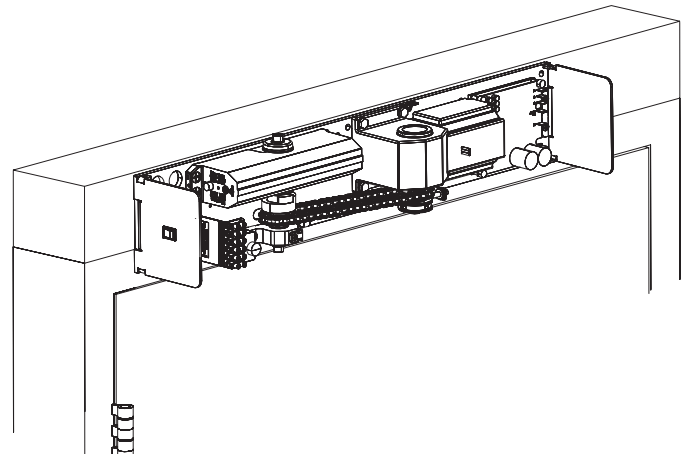
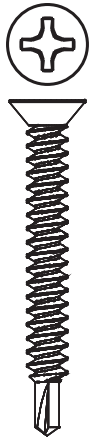


Figure 5

## Install Track and Arm



### A. Mount track to door.

1. Insert slider into track.
2. Insert end caps into track (both ends).
3. Using previously prepared holes in door, secure track to door with two (2) 12 x 1-3/4" screws. (Figure 6)



**NOTE:** Sex nuts and bolts (by others) are suggested for unreinforced hollow metal or aluminum doors.

4. Snap on track cover.

**NOTE:**

- Track opening is toward top of door.
- Slider and end caps must be in track before attaching track to door.
- Slider must slide freely in track.

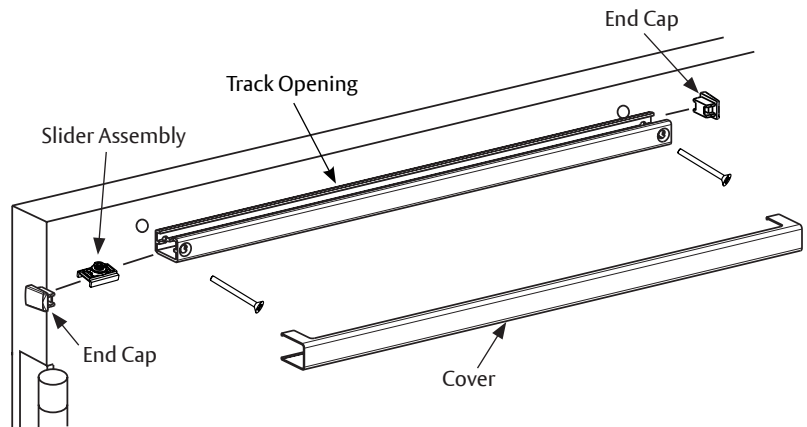
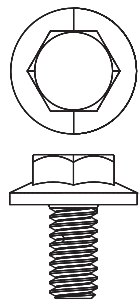


Figure 6



### B. Install main arm to operator.

1. Open door.
2. Using an adjustable wrench, rotate top pinion 45 degrees toward door hinge. You will feel resistance from spring. (Figure 7)
3. While holding pinion at 45 degrees, slide arm onto bottom pinion extension/clutch assembly.



**NOTE:** Pinion flat should be aligned as shown. (Figure 8)

4. Secure main arm to pinion with 1/4-20 x 1/2" screw.

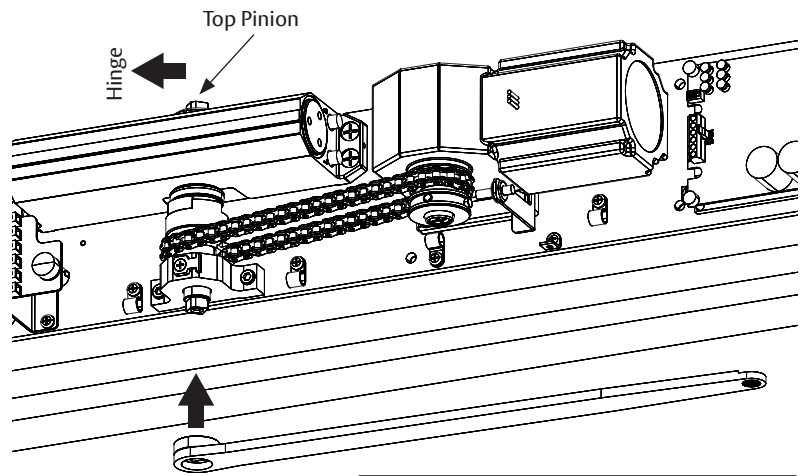


Figure 7

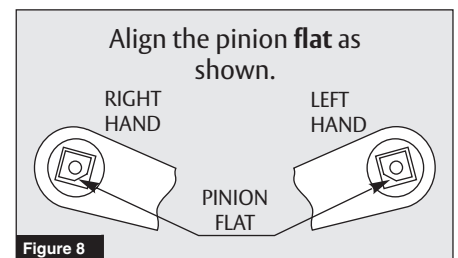


Figure 8

### C. Install main arm to track.

1. Open Latch and Sweep valves on closer of operator with provided 1/8" hex wrench. (Figure 9)
2. Secure main arm to track slider using 3/16" hex wrench. Turn wrench counterclockwise to tighten. (Figure 10)
3. Fully close Latch and Sweep valves.
4. Use main arm to rotate pinion by hand until pinion flat is visible.

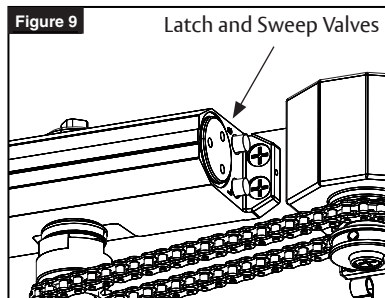


Figure 9

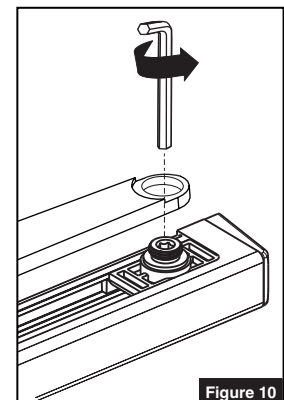


Figure 10

## Adjustments

### A. Adjust mechanical closer features.

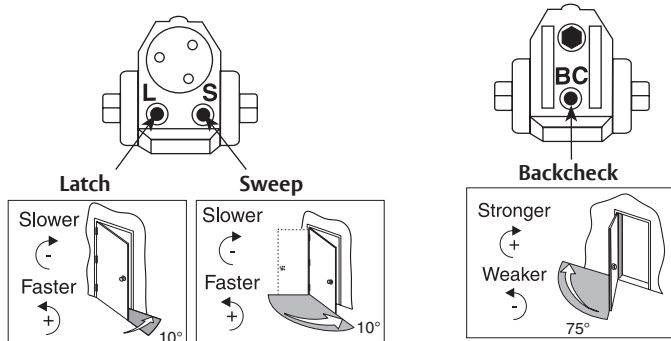
**NOTE:**

- Make necessary mechanical adjustments so unit functions as a standard surface mounted door closer before adjusting spring force, applying power, adding accessories or making electrical/programming adjustments.
- Refer to table for recommended minimum opening/closing times per ANSI/BHMA A156.19. (Figure 13)
- Use provided 1/8" hex wrench to make adjustments.

**!** Do not remove valves from closer. Hydraulic oil will escape.

1. Closing Speed Controls (Figure 11)
  - Valve "S" controls Sweep Range from full open to 10°.
  - Valve "L" controls Latch Range from 10° to closed.
2. Opening Cycle (Figure 12)
  - Valve "BC" controls strength of cushioning in Backcheck Range.

**!** **NOTE:** Too much backcheck can affect operation of unit pump, preventing full open of door. This valve may require fine tuning after all other adjustments have been made.



A.D.A. requires that from an open position of 70°, door will take at least 3 seconds to move to a point 3" (75mm) from latched position, measured at leading edge of door.

Figure 11

Figure 12

| ANSI/BHMA A156.19 Minimum Opening/Closing Times |                           |            |            |            |            |
|---|---------------------------|------------|------------|------------|------------|
| Door Leaf Width Inches (mm)                     | Door Weight - 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 sec                   | 3.5 sec    | 3.5 sec    | 4.0 sec    | 4.0 sec    |
| 42" (1067)                                      | 3.5 sec                   | 4.0 sec    | 4.0 sec    | 4.5 sec    | 4.5 sec    |
| 48" (1219)                                      | 4.0 sec                   | 4.5 sec    | 4.5 sec    | 5.0 sec    | 5.5 sec    |

Backcheck: Adjust backcheck to have minimum opening time to backcheck or 80 degrees (whichever comes first) based on Table.

Closing Time: Adjust latch and sweep to have minimum closing time from 90 degrees to latch check or 10 degrees (whichever comes first) based on Table.

Figure 13

### B. Adjust spring force.

**NOTE:**

- The amount of effort to manually open or close a door is called force and is controlled by the operator's closer spring.
  - Make necessary mechanical adjustments described in "A" above.
  - A closer set to ADA required 5 lbs opening force may not be strong enough to close door due to latching hardware, air pressure, or frame issues.
1. Using 1/8" hex wrench, turn power adjustment screw clockwise to increase door closing power. (Figure 14)

**NOTE:** Door control is shipped set at midpoint of power setting. Maximum closing power can be achieved with 8 (360°) clockwise turns of power adjustment screw.

Power Adjustment

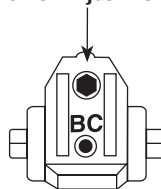


Figure 14



## Input Power Configuration

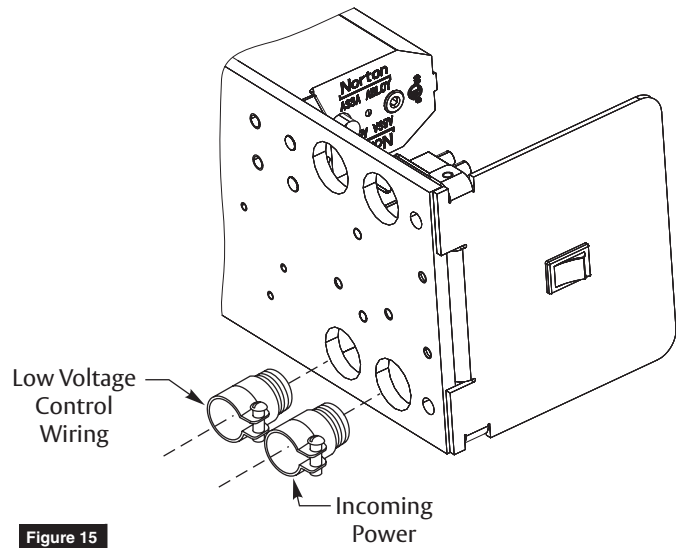
1. Thread conduit fitting(s) into backplate.  
**Concealed Wiring (Figure 15)**  
**Surface Wiring (Figure 16)**

**NOTE:**

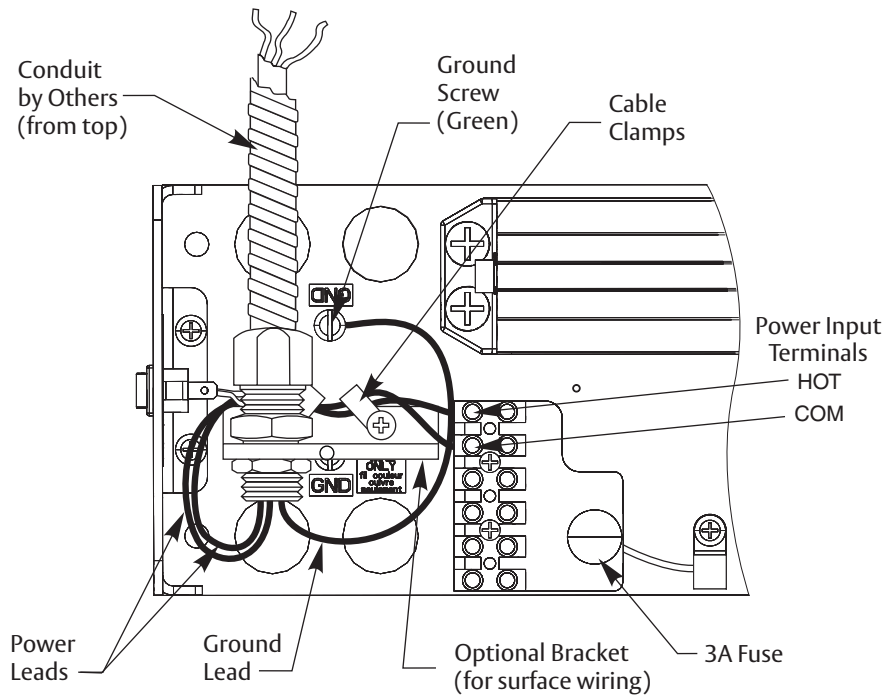
- A second conduit fitting is required for low voltage control wiring.
- Check local codes.

2. Pull conduit out of header and attach to conduit fittings before mounting unit.
3. After installing operator, attach incoming ground wire to backplate with ground screw as illustrated. (Figure 16)

**NOTE: Ground wire must be secured to backplate under head of (green) ground screw.**



**Figure 15**



**Figure 16**

## Final Electrical and Mechanical Setup

1. Confirm all mechanical adjustments have been made and wiring connected.
2. Turn on facility's main circuit breaker.
3. Turn on power of operator at On/Off switch. (Figure 17)
4. Using a short jumper cable, jump terminals A1 and A2 to activate unit. When door reaches 20°, flip On/Off Switch to "OFF" position cutting power to unit. Allow door to fully close (door may be manually pulled closed).
5. Adjust Closed Position Magnet (Figure 18)
  - With door in closed position, use finger to slide Closed Position Magnet so it aligns directly with Reed Switch.
6. Adjust Open Position Magnet (Figure 18)
  - Use finger to slide Open Position Magnet 180° from Closed Position Magnet.
7. Flip On/Off Switch to "ON" to turn power on.
8. Jump terminals A1 and A2 to activate door. Note open position of door. Allow door to close.
9. Use finger to readjust Open Position Magnet to desired door open position.
10. Repeat Step 7 to verify door open position.
11. Make all connections necessary for any accessories to A1, A2, R1, and R2 on terminal strip. See Wiring Section.
12. Make necessary adjustments to inverter. See Inverter Details Section.

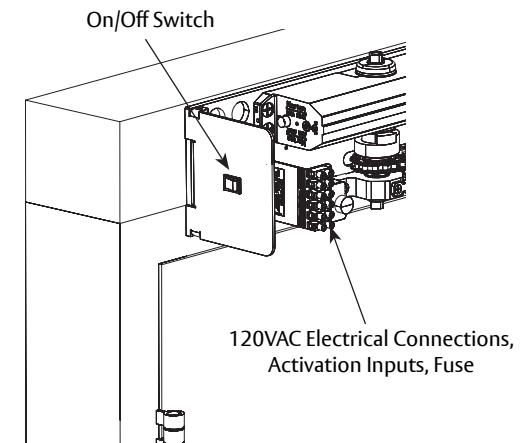


Figure 17

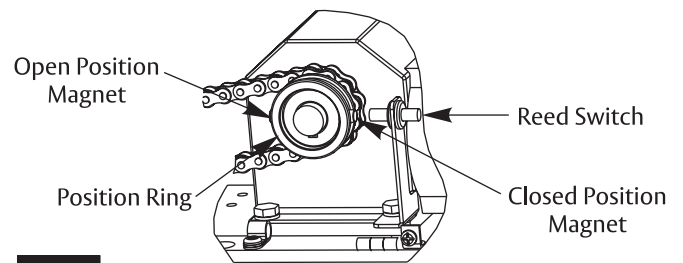


Figure 18



**WARNING: 120VAC power supplied to operator must be a dedicated circuit from the main circuit breaker panel and must NOT be connected into any building lighting system that operates fluorescent lights.**

You've now installed the **5500 Operator - PULL SIDE**.  
Continue with Electrical Instructions to customize the installation.

## Attach Cover and Label to finalize installation



1. Align cut-outs in cover to pinion shafts. (Figure 19)
2. Slide cover onto unit.

**NOTE: Verify all wiring is inside cover.**

3. Secure cover to backplate with six (6) cover screws.

**NOTE: If cover will not securely install onto unit, verify backplate is not warped or twisted. Additional support or shimming may be required. See Sections A & B under Prepare Frame and Door.**

4. Attach Norton label to front of cover approximately 1/2" (13mm) from side and bottom edges.

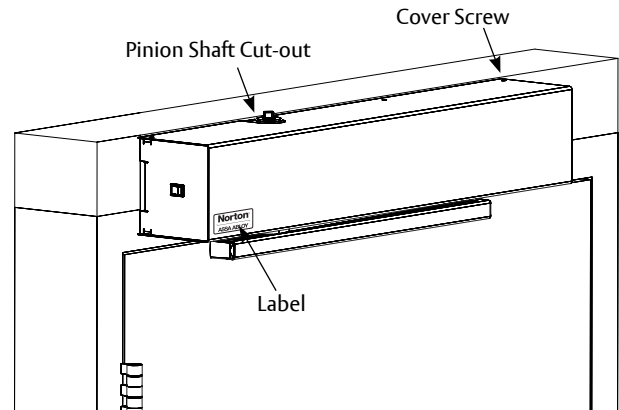
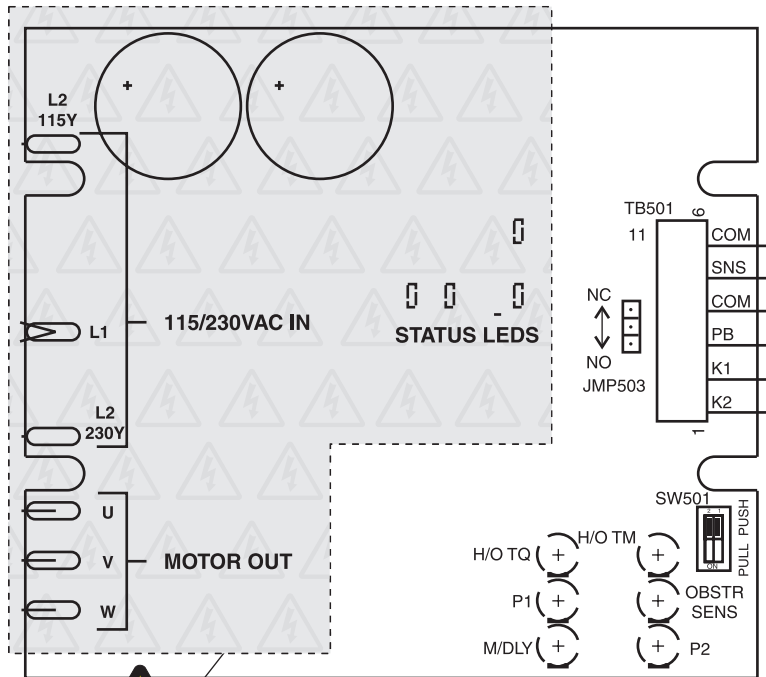


Figure 19



**WARNING: Make sure no wiring is loose or can be caught by cover when it is snapped into place.**

### Inverter Details



**Inverter Adjustments:**

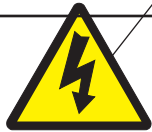
Use table to determine which POT to adjust based on function.

| POT        | Description                        | Function                    |
|------------|------------------------------------|-----------------------------|
| M/DLY      | Motor Delay on Opening             | Clockwise: Increase         |
| OBSTR SENS | Obstruction Detection on Open      |                             |
| P1         | Closing Speed                      | Counter Clockwise: Decrease |
| H/O TM     | Hold Open Time (5-30 Secs)         |                             |
| H/O TQ     | Motor Torque at Hold Open Position |                             |
| P2         | Opening Speed                      |                             |

**Dip Switch Settings**



1. Door Mounting - ON - pull  
OFF - push
2. Push Recognition - ON - active  
OFF - inactive



Adjustments made in the shaded area should be performed by Authorized Factory Personnel.

**WARNING**  
Electric Shock Risk



**WARNING: 120 high volt potential present.**  
Make sure power is turned off during installation procedure.

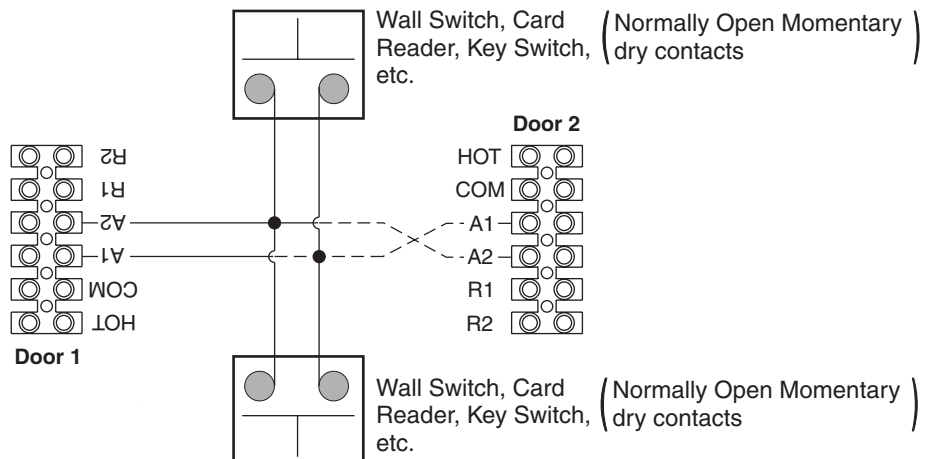
### Standard Function With Switches Wiring

**Operation:**

- Doors are normally closed.
- Activating either switch will open both doors.
- Door will close after hold open time delay has elapsed.

**NOTE:**

1. Power input to Door Operator Unit is at HOT/COM on terminal strip shown 120VAC 60Hz.
2. Door must be visible by person operating activation switch(es).



## Fail Safe Electromagnetic Lock 24VDC Wiring

**Operation:**

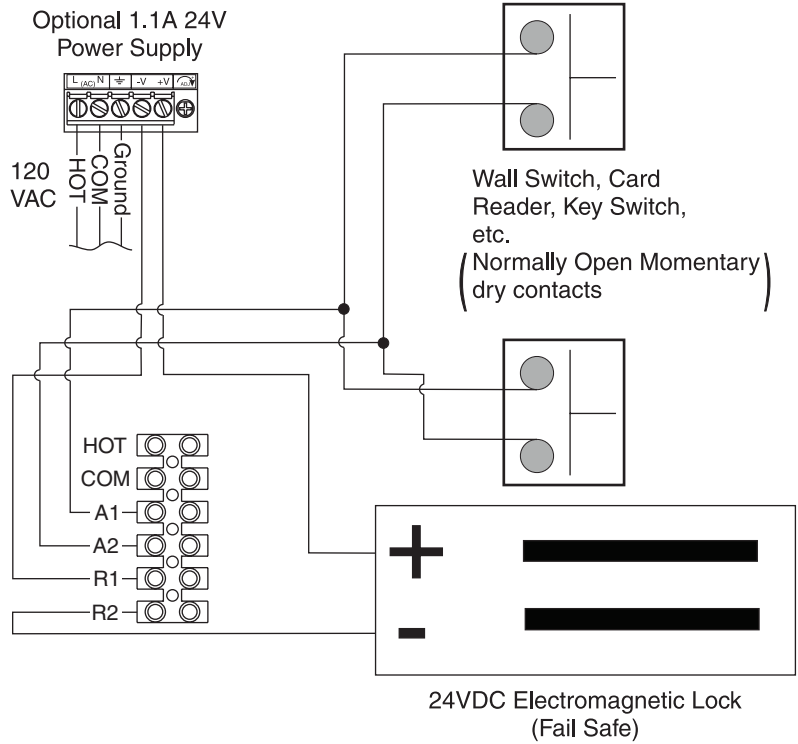
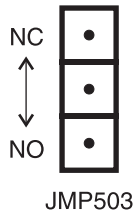
- Door is normally closed and latched.
- Activating switch will cut power to mag lock and door will automatically open.
- Door will close after hold open time delay has elapsed.
- Door will **unlock** during power failure.

**NOTE:**

1. Power input to Door Operator Unit is at HOT/COM on terminal strip shown 120VAC 60Hz.
2. Unit Relay Rating: 30VDC @ 1A or 125VAC @ .5A
3. Door must be visible by person operating activation switch(es).

**Jumper Settings:**

Place jumper to upper position for normally closed operation or to lower position for normally open operation.



## Fail Secure/Fail Safe Electric Strike Wiring

**Operation:**

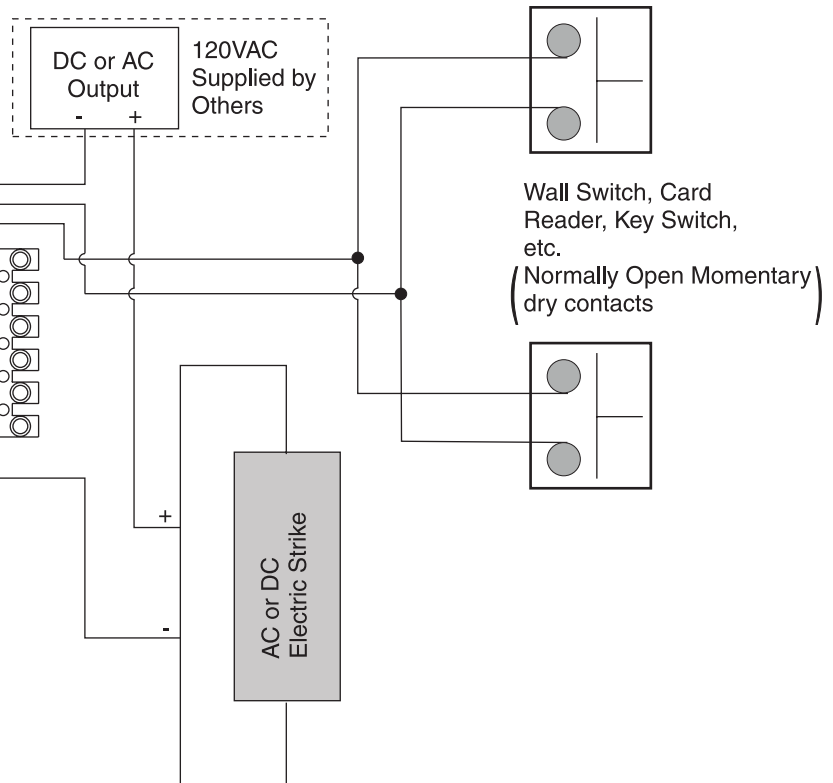
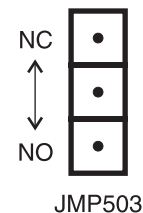
- Door is normally closed and latched.
- Activating switch will unlock electric strike and door will automatically open.
- Door will close after hold open time delay has elapsed.
- **For Fail Secure Strike** - door will remain **locked** during power failure.
- **For Fail Safe Strike** - door will remain **unlocked** during power failure.

**NOTE:**

1. Power input to Door Operator Unit is at HOT/COM on terminal strip shown 120VAC 60Hz.
2. Unit Relay Rating for strike interface: 30VDC @ 1A or 125VAC @ .5A
3. Door must be visible by person operating activation switch(es).

**Jumper Settings:**

Place jumper to upper position for normally closed operation or to lower position for normally open operation.



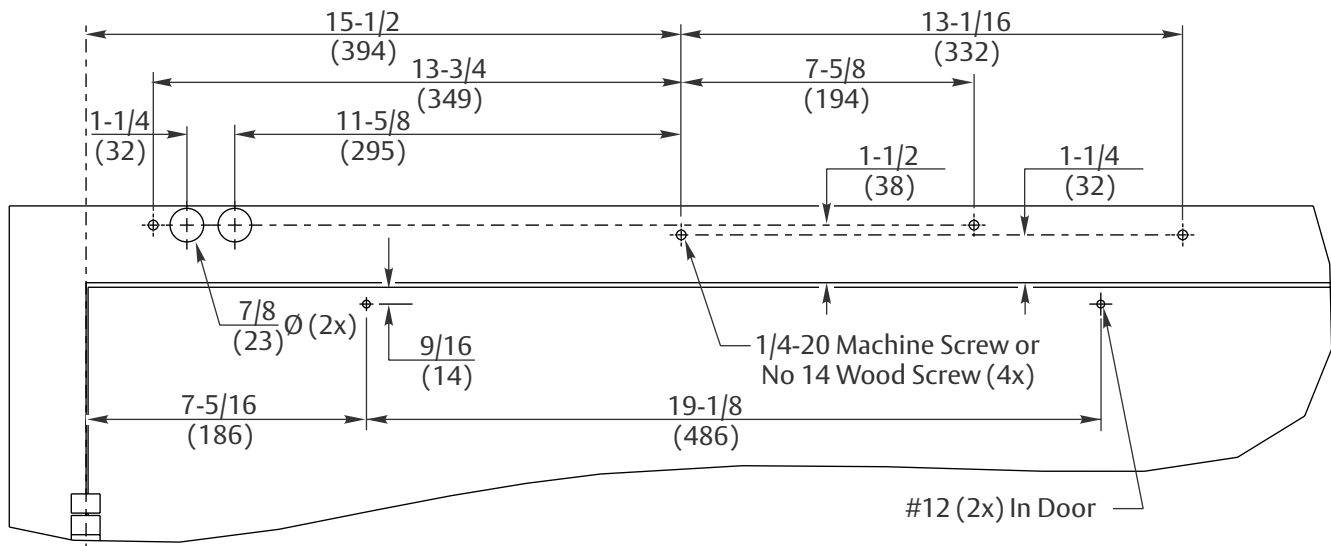
## Troubleshooting Guide

| Problem   | Possible Reasons Why                  | Solution   |
|---|---------------------------------------|--|
| <b>The door does not open</b><br>- The motor does not start | Control switch is set to OFF position | Change the setting of the ON/OFF switch          |
|   | 3A fuse in fuse holder is blown       | Replace fuse: 3A - 5mm x 20mm glass fuse         |
|   | Electrical power is missing           | Check the electrical power switch                |
|   | Activation unit does not function     | Jump activation input                            |
| - The motor starts  | Motor is driving in wrong direction   | Flip Door Mounting dip switch to other direction |
|   | Something jammed beneath the door     | Remove object                                    |
|   | Arm has come loose                    | Re-time and re-install arm                       |
| <b>The door does not close</b>                              | Spring tension too low                | Increase spring tension                          |
|   | Arm has come loose                    | Re-time and re-install arm                       |
|   | Something jammed beneath the door     | Remove object                                    |

# PULL Template



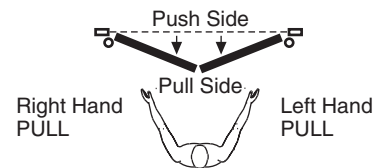
Right hand door opening to 120° shown.



- Do not scale drawing.
- Right hand door shown.
- All dimensions given in inches (mm).
- Maximum frame reveal is 1/8" (3mm) for this application.

**Notes:**

1. Thickness recommended for reinforcements in hollow metal doors and frames is charted on page 4.
2. This template information based upon use of 5" (127mm) maximum width butt hinges or 3/4" (19mm) offset pivots. A separate template is required for other conditions.
3. Conduit hole nearest hinge is suggested for 120 VAC power input.
4. Door must be visible by person operating activation switch(es).



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