## **D6001DE-R Series**

# Double Egress Power Operator Installation Instructions

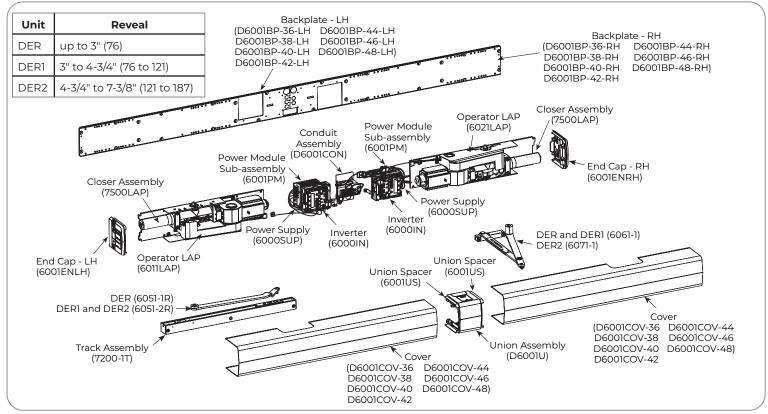


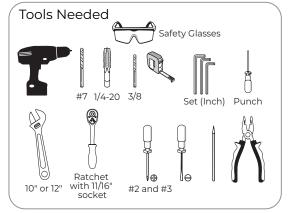


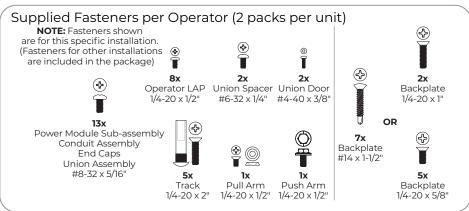


This product can expose you to lead which is known to the state of California to cause cancer and birth defects or other reproductive harm. For more information go to: www.P65warnings.ca.gov.

Pour la version francaise voir NortonRixson.com. READ AND FOLLOW ALL INSTRUCTIONS. SAVE THESE INSTRUCTIONS.







The table below provides a list of documents associated with this product. These documents are available for download from www.nortonrixson.com. If additional information or assistance is needed, contact Technical Product Support.

Document Title	Document Number
6000 Series Double Door Installation Programming Instructions	80-9360-1049-020
Template for installing conduit holes above frame (into wall)	80-7360-1043-020
D6001DER Series Template	80-7360-1057-020
D6001DER1 Series Template	80-7360-1059-020
D6001DER2 Series Template	80-7360-1061-020



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## **Certifications and Standards**

- ETL Certified: Operator conforms to ANSI/UL standard 325 for automatic closing doors and UL10C Positive Pressure Fire Test for Door Assemblies.
- ANSI A156.19: These products are designed to conform to this specification "for power assist and low energy power
  operated doors." These products are designed to exceed all the requirements for "Low Energy Power Operated Door".
- Americans with Disabilities Act (A.D.A.): These door operators can be installed and adjusted to conform with A.D.A. regulations.
- ANSI All7.1: These door controls permit door assemblies to conform to the requirements of this specification "for buildings and facilities providing accessibility and usability for physically handicap people".

## **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.
- 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.

- 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. Failure to adjust operator properly may cause severe injury or death.
- 8. KEEP DOOR PROPERLY OPERATING. An improperly operating door could cause severe injury or death.

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9. SAVE THESE INSTRUCTIONS.



#### **General Information**

#### **Operation:**

Your Low Energy Operator can be configured in three variations to meet the standards:

- 1. Push plates, Wave-to-open switches, etc. are available to activate the operator.
- 2. Push & Go can be enabled. In this mode, your door is pushed (or pulled) slowly 15° manually, and then automatically opens to full open position.
- 3. Door can be used as a manual door. The door will work and act like a standard door closer, with or without power, when pushed or pulled open manually. If Push & Go is enabled and door is opened quickly, door will function as a manual door (energy save feature). Push plates are still active.

If desired, overhead presence devices can be provided for an extra level of protection. Consult local authority having jurisdiction. These are not required by current ANSI/BHMA A156.19 standards.

#### Opening:

When an opening signal is received by the control unit, the door opens to the fully open position. The open position is held by the motor and is adjustable from 0 to 30 seconds. If the door is obstructed while opening, the door will stop; the operator will sense obstruction (obstruction time is adjustable from 0 to 5 seconds) and the door will close.

**NOTE:** Door must be visible by person operating activation switch(s). Switch(s) to comply with ANSI/BHMA requirements. Auxiliary door stop (by others) required.

#### Closing:

When the hold open time has elapsed, the door closer will close the door automatically. The door will slow to low speed at latch before it reaches the fully closed position. The door is kept closed by spring force of the closer. If the door is obstructed while closing, the door will stop against the obstruction; the operator will sense obstruction and reopen to fully open position after obstruction time has been reached. Once the hold open time has elapsed a second time, the door closer will close the door automatically. If the door is obstructed during this second closing cycle, the door will stop and rest against the obstruction using only the force of the closer spring. To reset, allow door to fully close and re-activate push plates to test operation.

#### Infinite Hold Open:

An optional feature to be used if door is desired to be held open for more than 30 seconds.

Set selector mode switch on underside of union assembly to hold open. Door will immediately begin to open to the fully open position. Once door is fully open, brake on end of motor energizes holding door in open position. To release from hold open, if door is set up for executive operation (see Programming Instructions, document #80-9360-1049-020 for executive wiring instructions), door can be closed with activation device. A pull on the door will also allow the unit to be taken out of hold open. Once door has closed, the door will reopen to fully open position unless activation device is pressed or selector mode switch is changed from hold open position.

**NOTE:** Door must be visible by person operating activation switch(s). Switch(s) to comply with ANSI/BHMA requirements. Auxiliary door stop (by others) required.



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

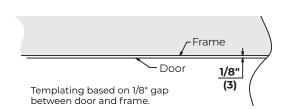


## **Before You Begin**

- All dimensions are given in inches.
   DO NOT scale drawings.
- Thickness recommended for reinforcements in hollow metal doors and frames is charted.
- This template information based upon use of 5" maximum width butt hinges.
- Frame reveal is 2-1/4" to 4-3/4" for push arm and 1/8" to 3" for pull arm.
- Before beginning the installation, verify that the door frame is properly reinforced and is well anchored in the wall. Frame header must be straightwithout 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:

- 1/4-20 Machine screws for hollow metal and aluminum.
- #14 x 2-3/4" (70mm) long sheet metal screws for wood.



Hollow Metal Door Frame Reinforcing			
Fueres Material	Reinforcing		
Frame Material	Recommended	Min. Required	
12 Ga.	12 Ga.	18 Ga.	
.105	.105	.048	
(2.66)	(2.66)	(1.21)	
14 Ga.	10 Ga.	12 Ga.	
.075	.134	.105	
(1.90)	(3.41)	(2.66)	
16 Ga.	10 Ga.	12 Ga.	
.060	.134	.105	
(1.52)	(3.41)	(2.66)	
18 Ga.	8 Ga.	10 Ga.	
.048	.164	.134	
(1.21)	(4.18)	(3.41)	

Mounting Hardware		Door or Frame	Drill	
	<b>Backplate:</b> 14 x 1-1/2 Oval Head Self Drilling Screw	Wood	3/16" (4.76mm)	
←	<b>Backplate:</b> 1/4-20 x 1 Flat Head Machine Screw	Makal	Drill #7 (.201 dia. or 5.10mm)	
	<b>Backplate:</b> 1/4-20 x 5/8 Flat Head Machine Screw	Metal	Tap 1/4-20	
(Trinning)	<b>Track:</b> Sex Nut and Bolt (SNB)	Hollow Metal	9/32" (7.00mm) thru 3/8" (9.50mm) door face opposite to closer	
	(optional)	Aluminum or Wood	3/8" (9.50mm) thru	

## **Technical Data**

Input power:	120VAC, 60Hz
Power consumption:	.9 amps
Circuit breaker:	3 amps
Power supply:	24 V DC, max. 2.2 amp.
Door width:	36" - 48" (91-122 cm)
Door weight:	100-250 lb. (43-113 kg)
Door opening angle:	up to 110° with reveal of 3" (7.6 cm) max
Hold open time:	0-30 seconds (A.D.A. 5 seconds min.) Indefinite for optional Infinite Hold Open

## 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 LINE and NEUTRAL (120VAC; 60Hz) on Power Input Terminal mounted on inside of end cap.
  - 14AWG at all other terminals
  - Rate of operation shall not exceed 300 cycles of opening and closing per hour.

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## **Prepare Frame and Doors**

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

### A. Prepare frame.

1. Verify correct installation. (Figure 2)

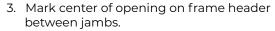


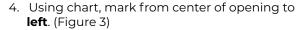
OR

**NOTE:** These instructions are for Pair of Doors, where door on right is a Push door and door on left is a Pull door. Arms included with this assembly will fail if both doors are Pull doors or if both doors are Push doors. Please contact Customer Service or your local distributor if this is the case.

2. Frame header MUST be flat / without twists. Backplates can be used as reference.

**NOTE:** If frame is not flat or is twisted, additional steel back plates or shimming is required. Failure to mount units properly can result in improper function of operator or inability to snap on covers.





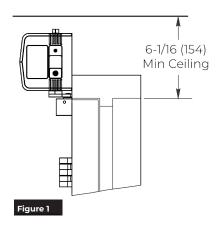
**NOTE:** Template available for download from www.nortonrixson.com.

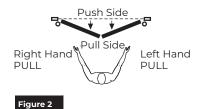
- 5. Measure 1" up from frame rabbet and mark at Dim A and Dim B locations.
- 6. Drill holes.
- Using supplied backplate screw pack in Box 1, insert screws into prepared mounting holes.

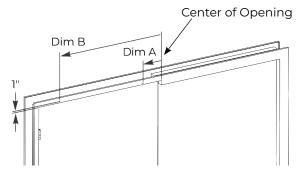
For Metal Frame: Use two (2) 1/4-20 x 1" flat head machine screws.

For Wood Frame: Use two (2) #14 x 1-1/2" oval head self-drilling screws.

**NOTE:** Do not tighten mounting screws at this time. Leave 5/16" minimum (thickness of backplate) between frame face and back of screw head.

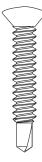






Door Size	Dim A	Dim B
Pair of 36" doors:	5-9/16" (141mm)	30-9/16" (776mm)
Pair of 38" doors:	7-9/16" (192mm)	32-9/16" (827mm)
Pair of 40" doors:	9-9/16" (243mm)	34-9/16" (878mm)
Pair of 42" doors:	11-9/16" (294mm)	36-9/16" (929mm)
Pair of 44" doors:	13-9/16" (344mm)	38-9/16" (979mm)
Pair of 46" doors:	15-9/16" (395mm)	40-9/16" (1030mm)
Pair of 48" doors:	17-9/16" (446mm)	42-9/16" (1081mm)

Figure 3



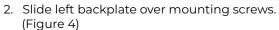


## B. Mount Backplates.



OR

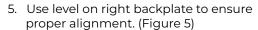
 Select backplate with 2 small "fingers" for interlocking plates and marked "Mount This Plate First" from Box 1. (This is LEFT backplate.)



**NOTE:** Left backplate conduit slot is ALWAYS at bottom of plate and toward center of opening.

- 3. Use level in backplate to align then tighten mounting screws. (Figure 4)
- 4. Interlock right backplate (3 small "fingers") from Box 2 with left backplate. (Figure 5)

**NOTE:** Right backplate conduit slot is ALWAYS at bottom of plate and center of opening.



6. Using backplate as template, mark conduit slot and Dim D mounting hole. (Figure 5)

**NOTE:** Dim D should be 1" up from Push side frame rabbet if backplate is properly aligned.

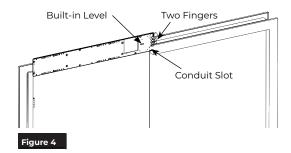
- 7. Drill hole for mounting screw at Dim D.
- Using supplied backplate screw pack in Box 2, insert screw into prepared mounting hole. (Figure 6)

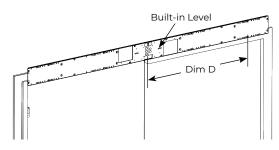
For Metal Frame: Use one (1) 1/4-20 x 1" flat head machine screw.

For Wood Frame: Use one (1) #14 x 1-1/2" oval head self-drilling screw.

**NOTE:** Do not tighten mounting screw at this time. Leave 5/16" minimum (thickness of backplate) between frame face and back of screw head.

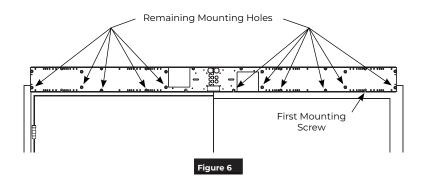
9. Using countersunk holes in backplates as a template, drill/tap remaining eleven (11) mounting holes: 1/4-20 for steel frame or #14 for wood frame. (Figure 6)

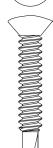




Door Size	Dim D
Pair of 36" doors:	30-9/16" (776mm)
Pair of 38" doors:	32-9/16" (827mm)
Pair of 40" doors:	34-9/16" (878mm)
Pair of 42" doors:	36-9/16" (929mm)
Pair of 44" doors:	38-9/16" (979mm)
Pair of 46" doors:	40-9/16" (1030mm)
Pair of 48" doors:	42-9/16" (1081mm)

Figure 5







## C. Secure Backplates.

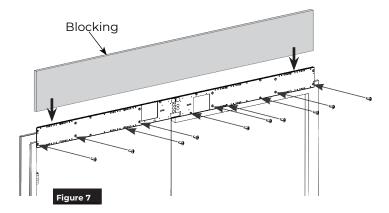


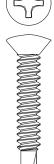
 Secure backplates to frame using eleven (11): 1/4-20 x 5/8" machine screws or 1/4 x 1-1/2" self-drilling screws from screw packs in Boxes 1 and 2 (Figure 7).



OR

NOTE: It is important to properly secure top edge of backplate. Use of blocking (supplied by others) or shims (provided) 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 7)





## D. Prepare doors for Track and Arm Shoe.

 Locate and prepare track holes in door. (Figure 8)

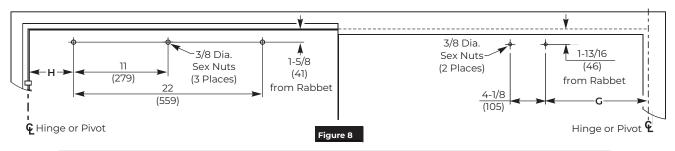
**NOTE:** Template available for download from www.nortonrixson.com.

2. Drill 3/8" (9.5mm) through (3 places) for sex bolts.

3. Locate and prepare arm shoe holes in door. (Figure 8)

**NOTE:** Template available for download from www.nortonrixson.com.

 Drill 3/8" (9.5mm) through (2 places) for sex bolts.



Door Opening Angle	85°	90°	95°	100°	105°	110°
Dimension G	13-1/4"	12-5/8"	12"	11-1/2"	11-1/8"	10-3/4"
	(337mm)	(320mm)	(305mm)	(292mm)	(283mm)	(273mm)

Model	Dim H	
DER	5-3/8" (137mm)	
DER1 DER2	7-3/4" (197mm)	

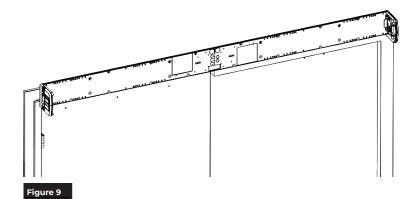


## **Install Operators**

### A. Install End Caps.

 Secure end caps to each end of connected backplates using four (4) (two each) #8-32 x 5/16" Phillips pan head screws. (Figure 9)



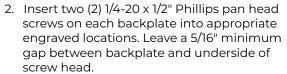


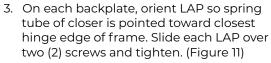


**NOTE:** Backplates are printed with text to assist installation.

 With backplates mounted to frame, use text to locate holes along bottom of backplates that correspond to your specific closer installation -6011/6051 for left door and 6061/6071 plus open angle for right door. (Figure 10)





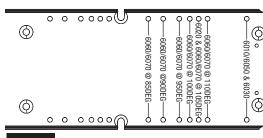


#### NOTES:

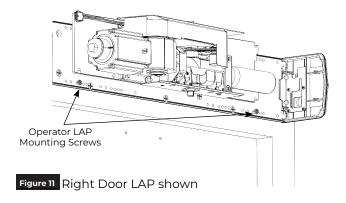
- LAP for left door should have "PULL" label and door closer valves should point toward chain. LAP for right door should have "PUSH" label and door closer valves should point away from chain.
- When properly oriented, spring tube is at bottom on left hand backplate (Figure 11) and at top on right hand backplate.
- 4. For each LAP, use six (6) 1/4-20 x 1/2" Phillips head screws to secure. (Figure 12)

#### **NOTES:**

- Holes in LAP align with threaded holes in backplate.
- Screws to be torqued to 80 in-lb minimum.







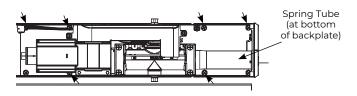
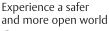


Figure 12 Remaining LAP Mounting Screws - Right Door View





## C. Install Conduit Assembly and wire to building.

- Orient conduit assembly so two (2) conduit holes are at bottom and text on wire input label is legible. (Figure 13)
- 2. Secure assembly to backplate using four (4) #8-32 x 5/16" Phillips head screws. (Figure 13)



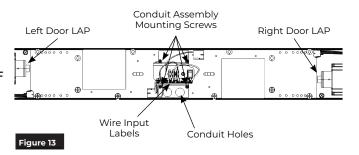


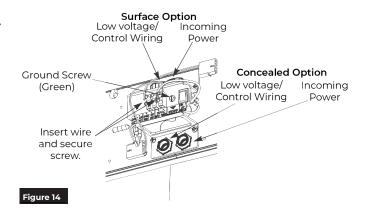
# WARNING: BUILDING POWER MUST BE OFF BEFORE PROCEEDING!

- 3. Secure conduits to conduit assembly (surface or concealed conduit). (Figure 14)
- 4. Wire building 120VAC to conduit assembly LINE, NEUTRAL, and GROUND. (See General Electrical Information on page 14.)
- Wire 24VDC for accessories to conduit assembly 24VDC + / - as required. (See General Electrical Information on page 14.)



WARNING: DO NOT TURN ON BUILDING POWER UNTIL DIRECTED TO DO SO! RISK OF INJURY OR DEATH!





#### D. Install Power Module Sub-assemblies.



 Using three (3) #8-32 x 5/16" Phillips screws per assembly, secure power module sub-assemblies to backplate at location marked on backplates. (Figure 15)

**NOTE:** Orient assemblies so LCD screens on inverters are toward corresponding closer assemblies. (Figure 15)

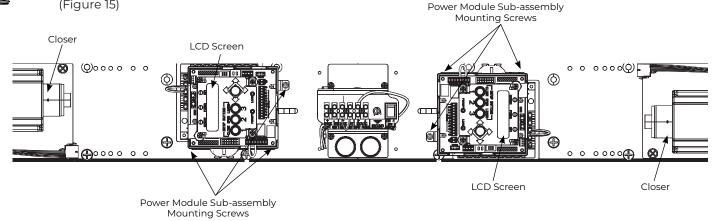


Figure 15 Wiring Removed From View

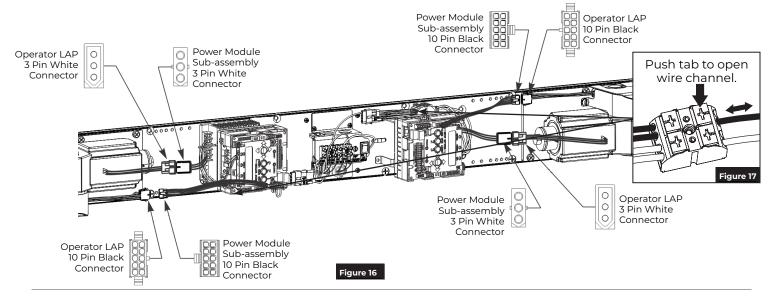


#### E. Connect Power Module Sub-assemblies to LAPS.

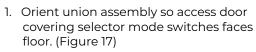


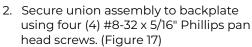
Power module wiring may loosen during shipping. Gently tug each wire on the connector. If a wire is loose, push the connector tab and reinsert wire. Release tab and verify the wiring is secure. (Figure 17)

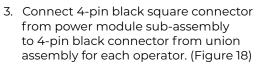
- 1. Attach 10-pin black connectors between each power module sub-assembly and its operator LAP. (Figure 16)
  - NOTE: Connectors are keyed and only attach one way.
- 2. Attach 3-pin white connectors between each power module sub-assembly and its operator LAP. (Figure 16)v



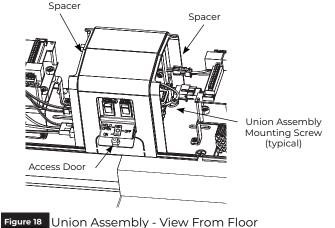
## F. Install Union Assembly.

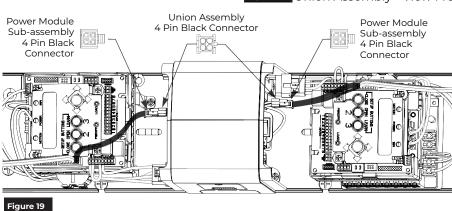






**NOTE:** Connectors are keyed and only assembly one way.





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## Install Track and Arm to Left Door

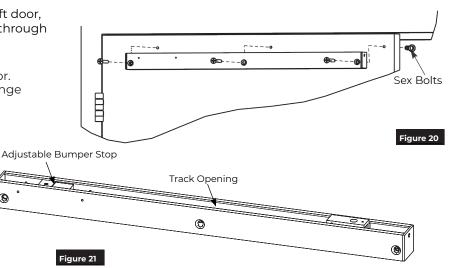
#### A. Mount Track.

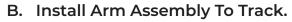


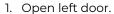
1. Using previously prepared holes in left door, install three (3) 1/4-20 x 1-5/8" screws through track and into sex bolts. (Figure 20)

#### **NOTES:** (Figure 21)

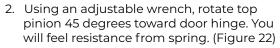
- Opening of track is toward top of door.
- Adjustable bumper stop is toward hinge edge of door.







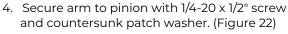






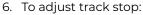


NOTE: Pinion flat should be aligned as 🚨 shown. (Figure 23)

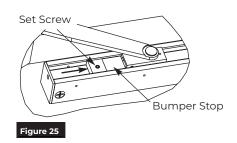


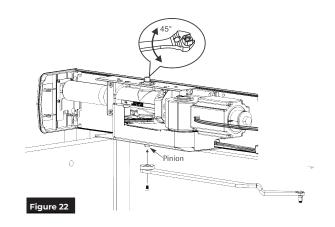


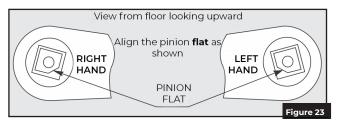
5. Insert stud on arm into slider in track by pressing clip on backside of slider onto stud. (Figure 24)

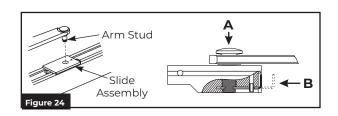


- Use Allen wrench to loosen set screw in bumper stop.
- Open door to full open position.
- Slide bumper stop until it just touches end of slider.
- Tighten set screw in bumper stop so bumper will stay in position. (Figure 25)









11



## **Install Arms to Right Door**

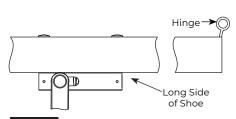
#### A. Mount Forearm and Shoe.



1. Using previously prepared holes in door, install two (2) 1/4-20 x 1-5/8" screws through shoe and into sex bolts. (Figure 26)

**NOTE:** Orient shoe with long side of shoe toward hinge. (Figure 27)





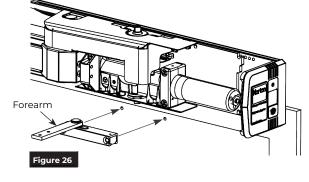


Figure 27 View from ceiling looking downward

#### B. Install Main Arm.

- 1. Open right door.
- 2. Slide forearm into main arm adjusting tube. (Figure 28)
- 3. Place square of main arm onto closer pinion. (Figure 28)



**NOTE:** Pinion flat should be aligned as shown. (Figure 29)



- 4. Attach main arm to pinion with screw then tighten with 7/16" wrench. (Figure 28)
- 5. With door closed, rotate main arm away from hinge until forearm is perpendicular (90 degrees) with door. (Figure 30)



6. While holding arm in position, secure forearm to adjusting tube with forearm screw. (Figure 31)

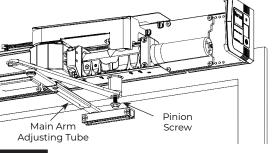


Figure 28

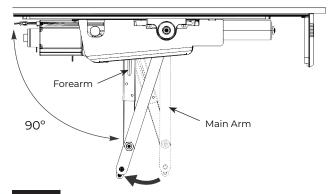
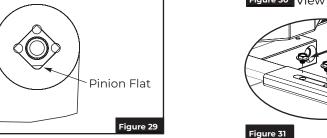


Figure 30 View from ceiling looking downward

örèarm Screw





## Adjustments

## A. Adjust mechanical closer features on each operator.

#### **NOTES:**

- 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.
- Valve location S/D is not adjustable.
- Chain protection plate cutouts allow access to valves. Use hex wrench to make adjustments. (Figure 32)



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

- 1. Closing Speed Controls (Figure 32)
  - Valve "S" controls Sweep Range from full open to 10°.
  - Valve "L" controls Latch Range from 10° to closed.
- 2. Opening Cycle (Figure 32)
  - Valve "B" controls strength of cushioning in Backcheck Range.



**NOTE:** NEVER close Backcheck valve completely – it is not to provide a positive stop.

 Valve "P" adjusts angle that backcheck is felt in open cycle. Factory preset is typically acceptable.

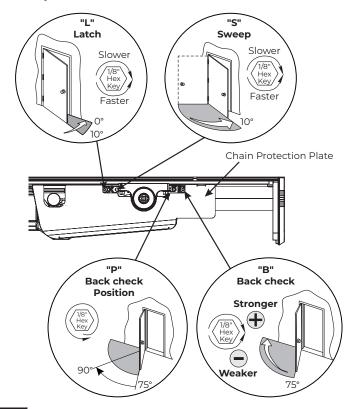


Figure 32 View of Right Door operator from ceiling looking down

## B. Adjust spring force on each operator.

#### **NOTES:**

- 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.

**Push Side Unit**: Using an adjustable wrench or a ratchet with an 11/16" socket, turn the nut in end of closer body tube clockwise to increase or counterclockwise to decrease force until desired setting is reached. (Figure 33)

**Pull Side Unit**: To adjust the spring force, access the Spring Force Adjustment Nut through the End Cap Access Door.

- 1. Remove the small torx head screw from end cap.
- 2. Slide the End Cap Access door, exposing the spring adjustment nut.
- 3. Using a ratchet with an 11/16" socket, turn the nut in end of closer body tube clockwise to increase or counterclockwise to decrease force until the desired setting is reached. (Figure 34)
- 4. Once the desired force has been set:
  - Remove the ratchet.
  - Slide the end cap access door closed.
  - Replace the end cap screw.

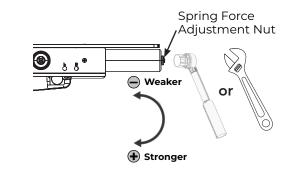
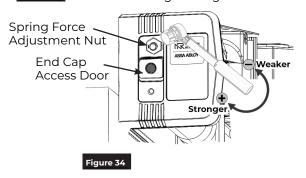


Figure 33 View from ceiling looking downward



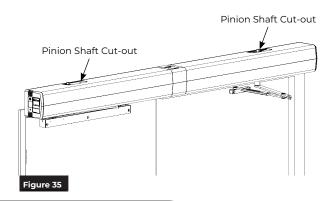


### Finalize Installation

#### Attach Covers to finalize installation

- 1. Align cut-outs in each cover to corresponding pinion shafts.
- 2. Slide covers onto units using end caps and union spacers as guides.
  - **NOTE:** Verify all wiring and sheet metal guards are inside cover.
- 3. Snap covers securely to backplates. Pull on covers to verify they are secure.

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



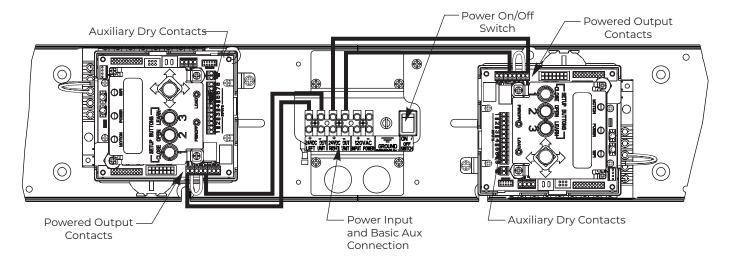


WARNING: Make sure no wiring is loose or can be caught by cover when it is snapped into place.

The **D6001DE-R Low Energy Operator** has now been installed. Continue with separate Programming Manual 80-9360-1049-020 for operator setup and adjustments.

## **General Electrical Information**

- Power inputs at power input connection and power output contacts must be made with copper wire only.
- Maximum wire size:
   12 AWG at power input connection
   14 AWG at all other terminals.
- Power input at terminals LINE and NEUTRAL must be 120VAC at 60 Hz (+10%, -15%).
- Maximum current draw from auxiliary devices is 1.3 amps.
- All wiring and connections use standard wiring practice conforming with local wiring codes
- Labeled fire or smoke barrier door assemblies require 120VAC 60Hz power input be supplied through normally closed alarm contacts of the alarm system / alarm panel.





# **Troubleshooting Guide**

Problem	Solution
Door closing too fast	Adjust Latch and/or Sweep valves on closer clockwise (see page 13)
Door closing too slow	Adjust Latch and/or Sweep valves on closer counterclockwise (see page 13)
Door does not open to desired location	1) Adjust Backcheck valve on closer counterclockwise, <u>OR</u> 2) Decrease spring force on closer body (door must still close in event of power failure (see page 13), <u>OR</u> 3) Ensure shoe is properly oriented on door (see page 12)
Door does not reach fully opened position	Adjust Backcheck valve on closer counterclockwise, <u>OR</u> Decrease spring force on closer body (door must still close in event of power failure (see page 13), <u>OR</u> Should be properly oriented on door (see page 12)
Door opens and closes repeatedly	Change selector mode switch from H/O to On
Cover will not snap onto backplate	Wire protruding from under cover     Backplate is twisted / not mounted properly. (see page 7)
Cover will not stay on operator	Cover extrusion has been stretched too wide and will not properly secure

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