



ED900



Low energy operator

Installation instructions:
T/slide channel/pull arm mounting

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Accessories

Electrical connection

Apart from the broad range of **DORMA** accessories, other manufacturers offer various activators, locking devices, safety sensors and additional accessories that are compatible with **ED900** operators.

External activation device minimum requirements

In general external activation devices need to provide a normally open dry contact.

Contact ratings

Operating voltage with power supply via operator:

- 24 V DC +/- 10%

Pulse width:

- min. 200 ms

Dry contact, normally open devices (such as push buttons or overhead sensors):

- Use input terminals 41 and 3 for interior and exterior activation
- Use input terminals 42 and 3 for interior and exterior activation

Energized output (telephone systems):

- 8 - 24 VAC / DC + 10%

Locking device

Immediately upon activation the locking relay is thrown and operator will delay opening the door giving the lock mechanism time to fully release before opening the door. This delay can be between 0 to 4 seconds (0.4 seconds default) and is adjusted by parameter "Ud".

Motor locks without a feedback contact can be directly connected to the operator as long as the delayed opening for the locking mechanism amounts to less than 4 seconds. In order to ensure that the operator and the locking device work together properly, the locking device has to comply with the following specifications:

Minimum requirements

Operating voltage with power supply via operator:

- 24 V DC +/- 10%

Operating voltage with external power supply:

- max. 48 V AC/DC

Current load for relay contact of locking device:

- max. 1 A

Power supply:

- 115 V AC +/- 10%
- 50/60 Hz
- max 6.6 A

Rated for continuous duty: electric strike:

- min. 30%

Rated for continuous duty: motor lock:

- 100 %

Power consumption for accessories:

- The operator will provide a maximum of 1.5 A at 24 V DC for external accessories. Any additional power will require an external power supply in order to avoid malfunctions.

Override Activation Inputs

Note: These inputs bypass the mode switch and are always active.

Dry contact, normally closed devices (frequently used to control systems with smoke and heat evacuation or building management systems):

- Use input terminals 53 and 3 and set parameter "d2" to 1.
- Wet output devices with 8 to 24 volts (such as telephone/intercom systems):
- Use input terminals 57 and 57a.

Template options

- ED900 track installation, pull side mount, on a 2" frame face (08281670)
- ED900 track installation, pull side mount, drop 2" frame face (08281680)
- ED900 track installation, pull side mount, above 2" frame face (08281720)

System Setup

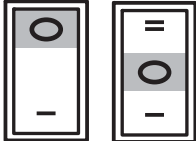
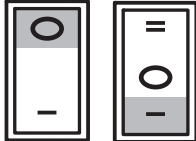
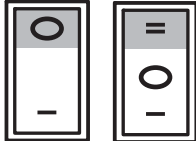
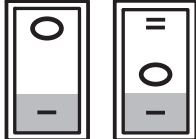
- ⚠ Follow included template to properly prepare door frame for all accessories of the operator installation.
- ⚠ Know the swing of the door which is being installed prior to operator installation.
- ⚠ All electrical components are disabled prior to installation of the unit to ensure proper safety of the installer.
- ⚠ Properly buildup door frame depending upon thickness for appropriate stabilization of operator against the wall.
- ⚠ Prior to installation of the operator, measure the door reveal. Note this measurement in the appropriate chart in ED900 - Quick Start Guide.

Reference information

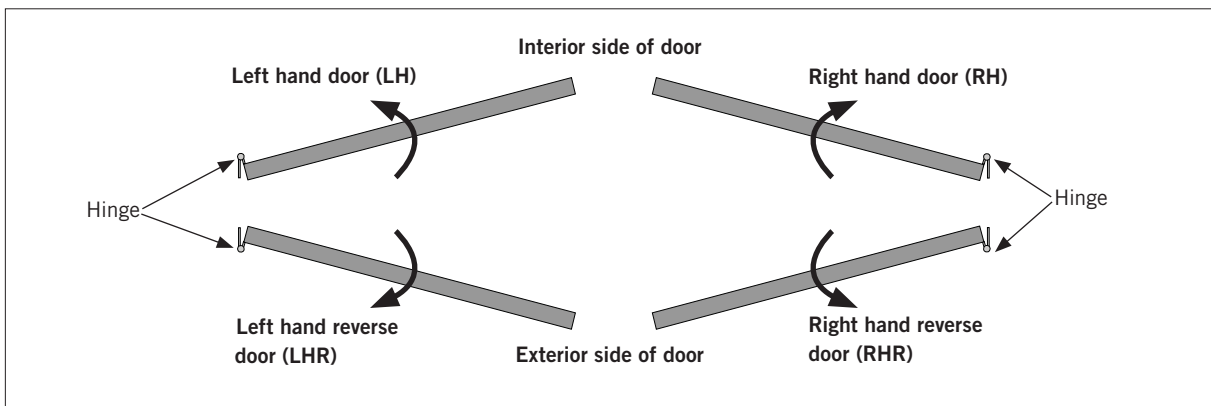
Internal mode switches

Operator modes (See images at below)

The operator can be set to varying modes using the internal mode rocker switches on the end of the unit. See image on page 8 for location. When adjusting any settings or functions of the operator, be sure the unit is in the properly stated mode prior to adjustment.

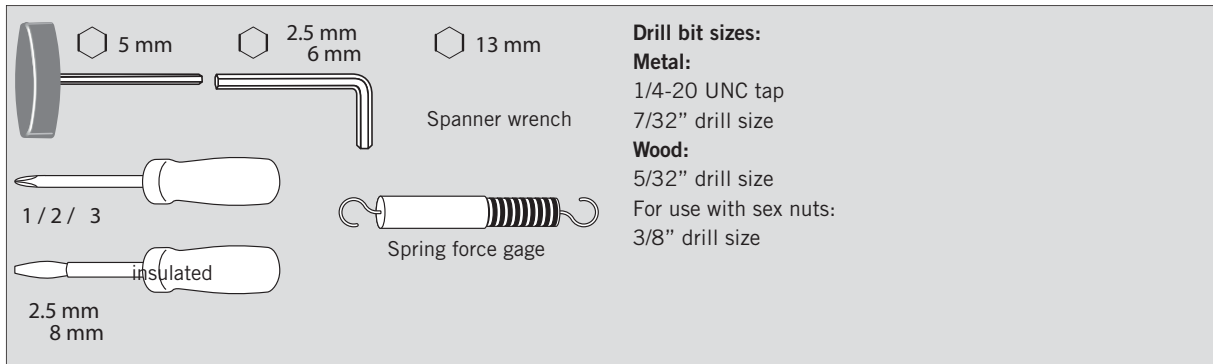
| | | | |
|-----------------------|--|--|---|
| OFF | The door opens automatically when the night bank activator is triggered and closes on expiration of the night bank hold-open time. |  | OFF Adjust both switches to "O" |
| AUTOMATIC | The door opens automatically when one of the activators is triggered and closes on expiration of the adjusted hold-open time. |  | Automatic Adjust the 2 pole switch to "O". Adjust the 3 pole switch to "-". |
| PERMANENT OPEN | The door opens automatically and remains open until the function is deactivated. |  | Permanent Open Adjust the 2 pole switch to "O". Adjust the 3 pole switch to "=". |
| EXIT ONLY | The door only opens automatically after the internal activator or the night bank activator has been activated. The door closes on expiration of the adjusted hold-open time. |  | Exit Only Adjust the 2 pole switch to "-". Adjust the 3 pole switch to "-". |

Handing of the door



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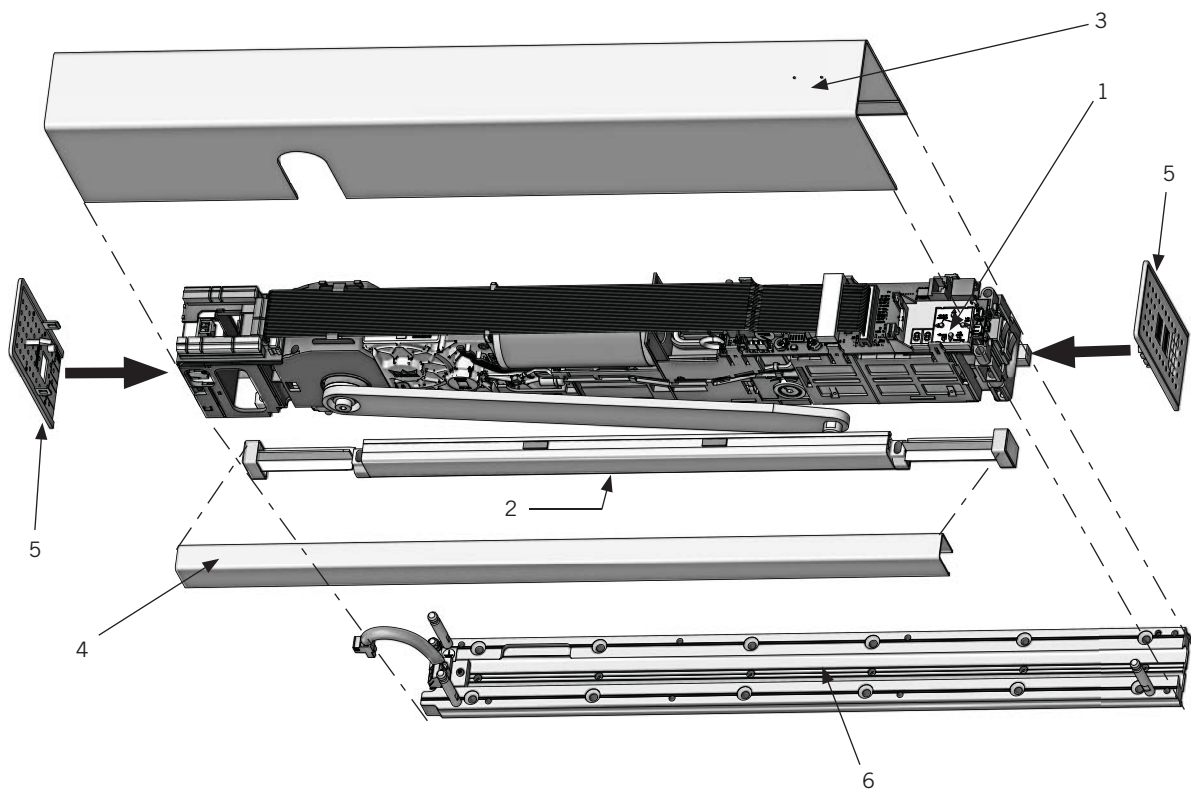
Tools Required



Operator system

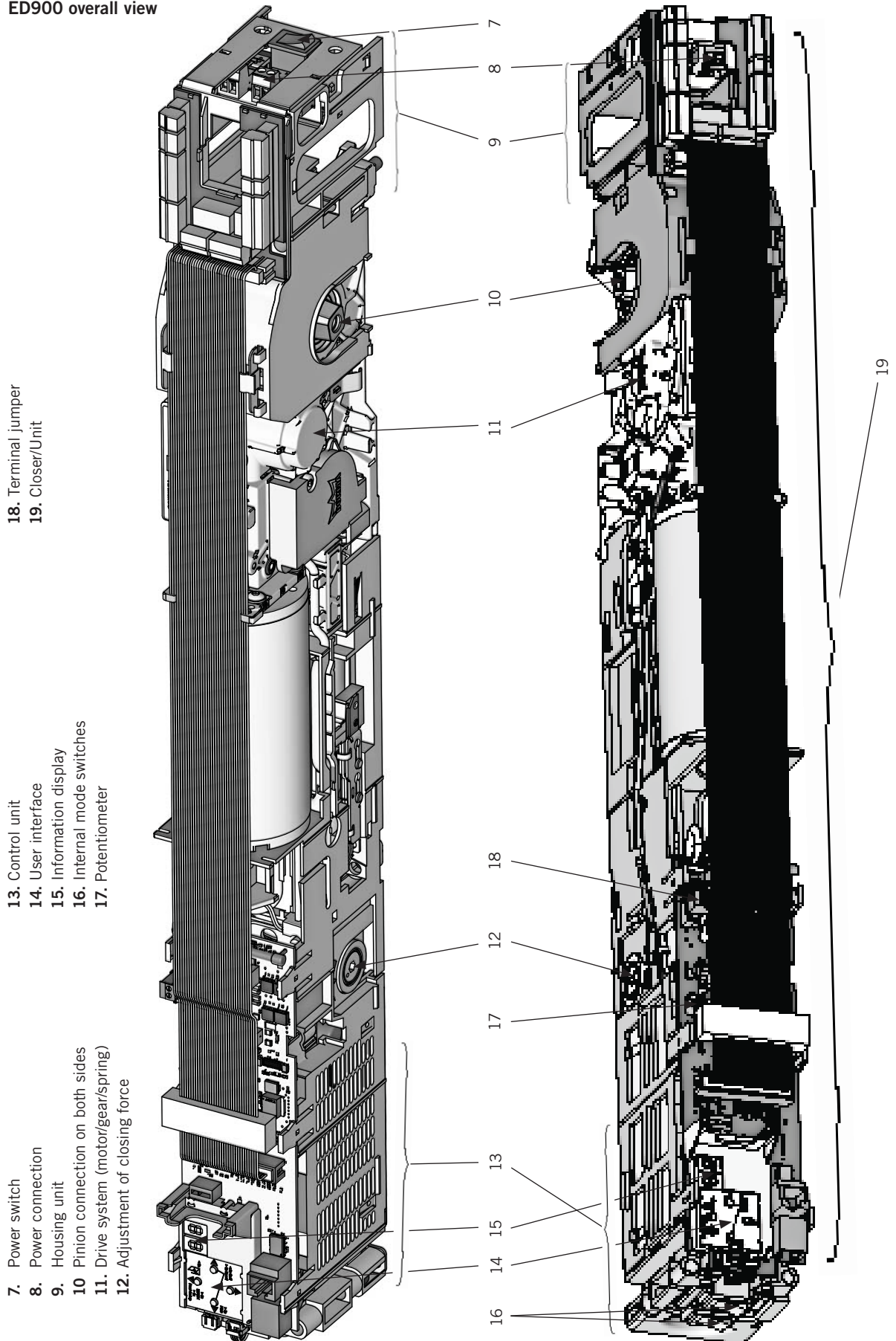
The operator system comprises all core components.

1. Closer/unit
2. T/slide channel pull arm assembly
3. Closer cover assembly
4. Track cover assembly
5. End caps
6. Mounting plate



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ED900 overall view

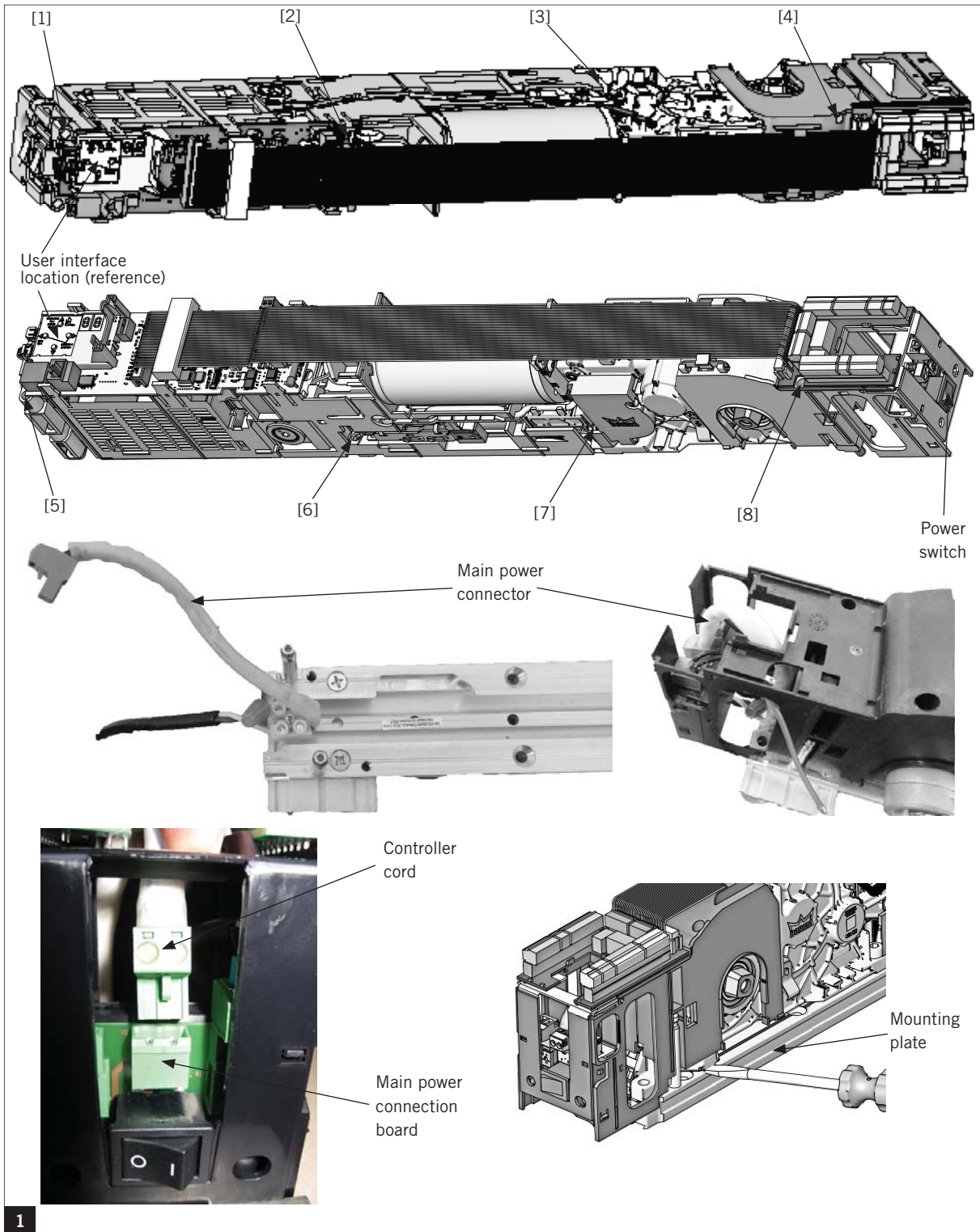


18. Terminal jumper
19. Closer/Unit

13. Control unit
14. User interface
15. Information display
16. Internal mode switches
17. Potentiometer

7. Power switch
8. Power connection
9. Housing unit
10. Pinion connection on both sides
11. Drive system (motor/gear/spring)
12. Adjustment of closing force

A. Preparing to mount the unit

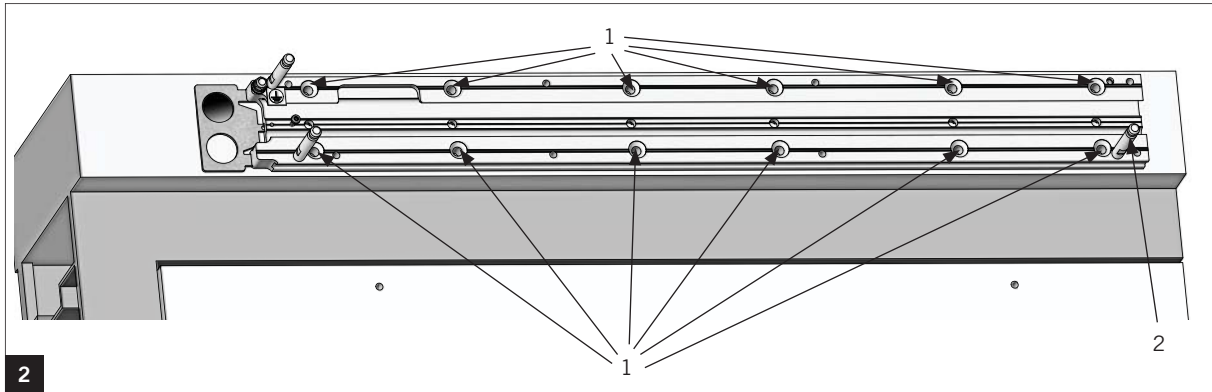


1

1.1 Turn the power switch to the off position, and unplug the main power connector from the main power connection board.

1.2 Remove the unit from its mounting plate by removing the (8) capture screws using a 5mm T-handle (→). If needed, carefully use a screwdriver to pry the operator off the mounting plate.

B. Securing the mounting plate



Reference included templates No. 08281670 Track Arm; 08281720 Track Over Frame; 08281680 Track Drop Angle for drilling and hole dimensions.

⚠ Use the fasteners supplied with this unit.

2.1 Secure the mounting plate with twelve screws [1/4-20 machine screws or No.14 wood screws] (1) through the provided holes, onto the door frame or wall.

2.2 Insert the provided retaining pin (2) into the bottom hole only of the mounting plate. This will properly support the unit.

C. Installing the power cord

Tools required



ATTENTION! When connecting the power cord to **120V 60 Hz ONLY**.

WARNING! Power cords pose a risk of becoming entrapping in moving parts of the operator, door or system.



The flexible power cord should not be routed through doorways, window openings, walls, ceilings, floors, or the like. The cord should also not be attached or secured to the building structure. The cord cannot be concealed behind walls and the like. Make sure the power cord does not become entrapped in any moving parts of the operator, door, or system.



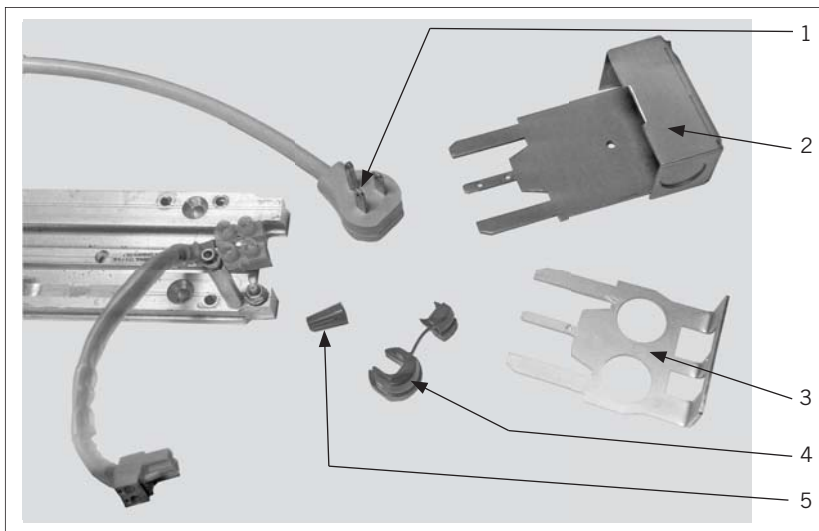
To reduce the risk of electric shock, this equipment has a grounding type plug, that has a third (grounding) pin. This plug will only fit into a grounding type outlet. IF the plug does not fit into the outlet, contact a qualified electrician to install the proper outlet. Do not change the plug in any way.



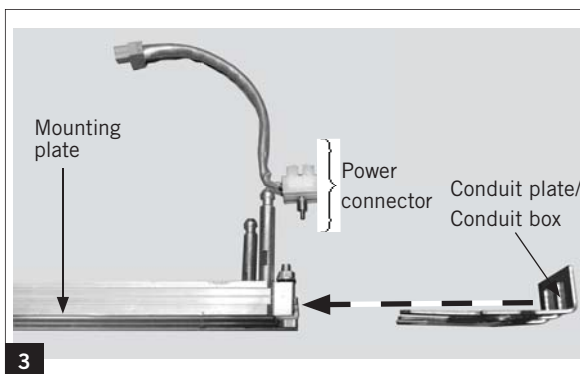
For in-wall mounting: When installing the socket, please remember that the socket should be reached by hand. (maximum 14" away)



Pour réduire le risque de choc électrique, cet appareil est équipé d'une fiche avec mise à la terre comportant une troisième broche (Broche de terre). Cette fiche ne peut être branchée dans une prise avec mise à la terre. S'il n'est pas possible de la brancher dans la prise, faire poser une prise appropriée par un électricien qualifié. **NE PAS MODIFIER LE FICHE.**

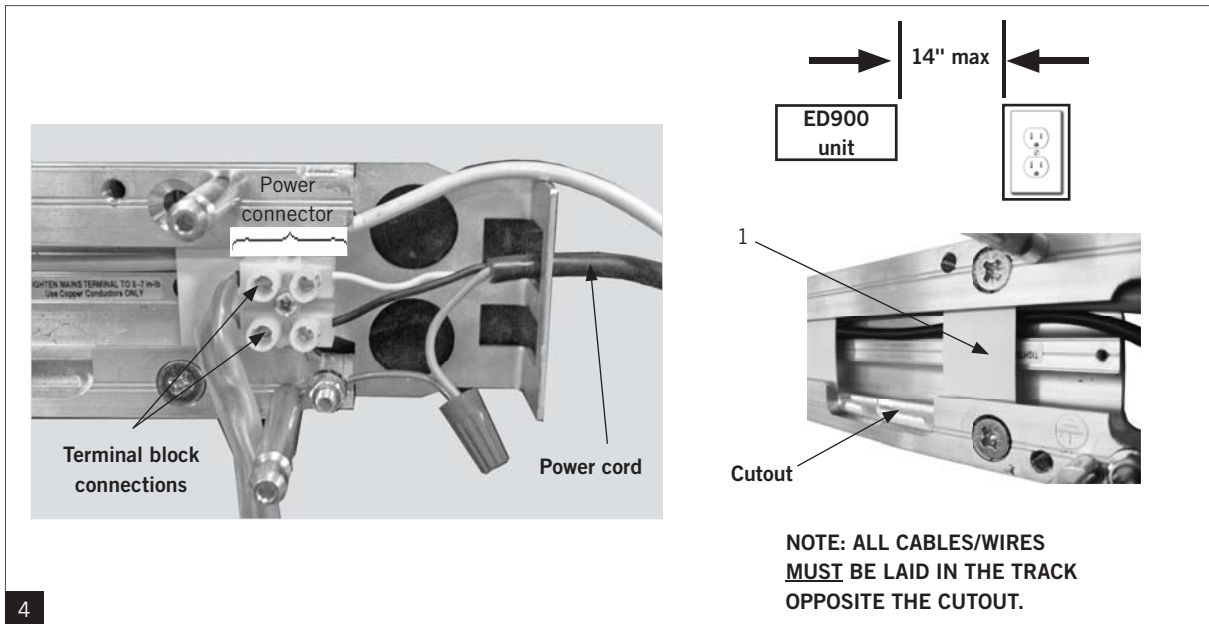


1. 120V power cord
2. Conduit box
3. Conduit plate
4. Cord grip
5. Wire nut



- 3.1 Remove the power connector from the mounting plate.
- 3.2 Insert the conduit plate into the mounting plate on the unit.

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4

NOTE: If there are any additional accessories or trigger inputs to be wired, place the wires into the mounting plate track at this time.

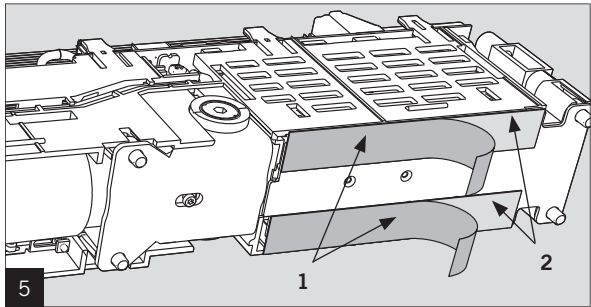
4.1 Reinsert the power connector onto the mounting plate using the provided pan head screw.

4.2 Connect the wires of the power cord to the power connector terminal blocks, and let the cord hang loosely.

- **Black (live) = "L" terminal (connects to brown wire)**
- **White (neutral) = "N" terminal (connects to blue wire)**
- **Green (ground) = connect to ground wire (connects to green wire)**

4.3 Once all wires have been fed through the mounting plates, press the clips (1) down to hold the wires into place.

NOTE: ALL CABLES/WIRES MUST BE LAID IN THE TRACK OPPOSITE THE CUTOUT.

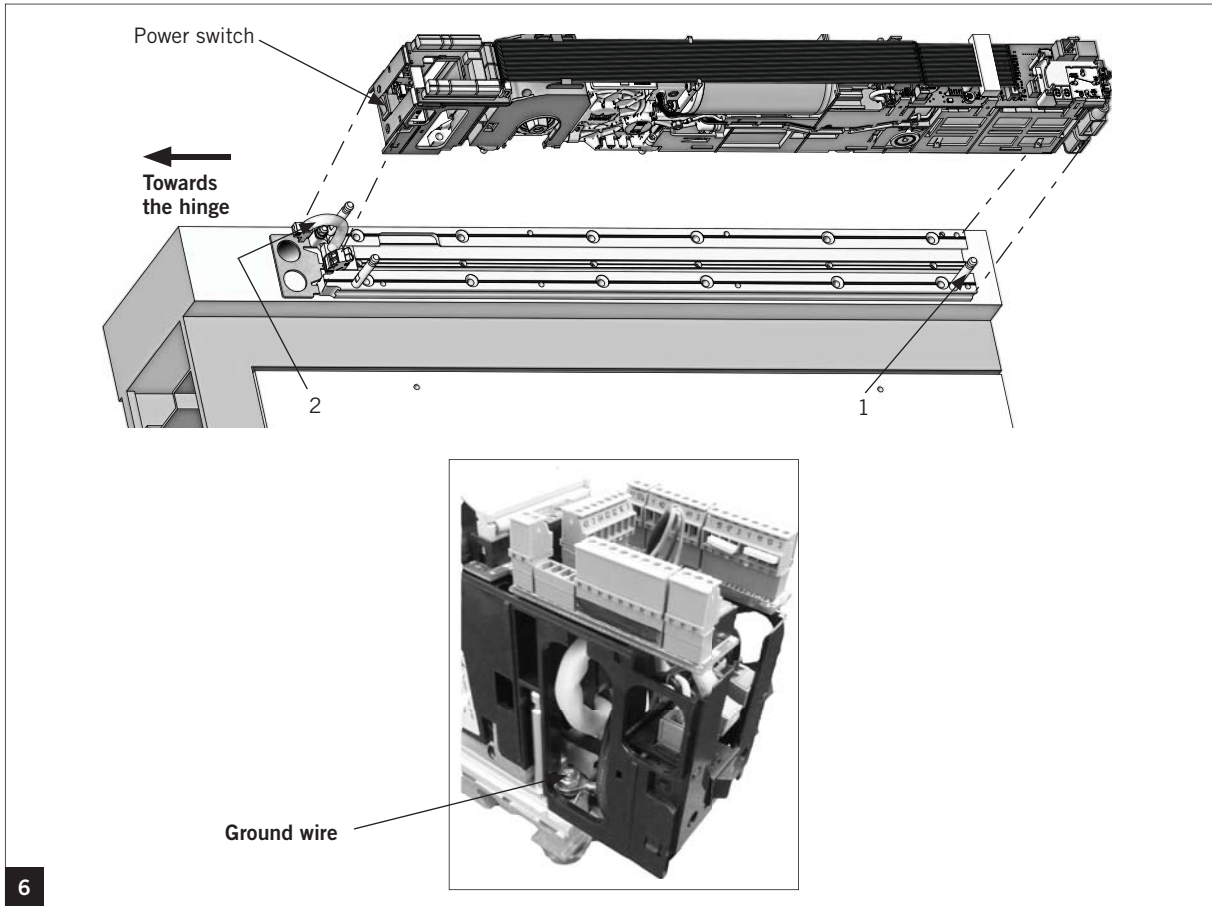


5

5.1 Remove the protective foil (1) from the heat conductive pads (2) on the underside of the operator.

⚠ Heat conductive pads must remain clean.

D. Mounting the ED900 unit



6

6.1 Slide the operator onto the retaining pins (1) of the mounting plate.

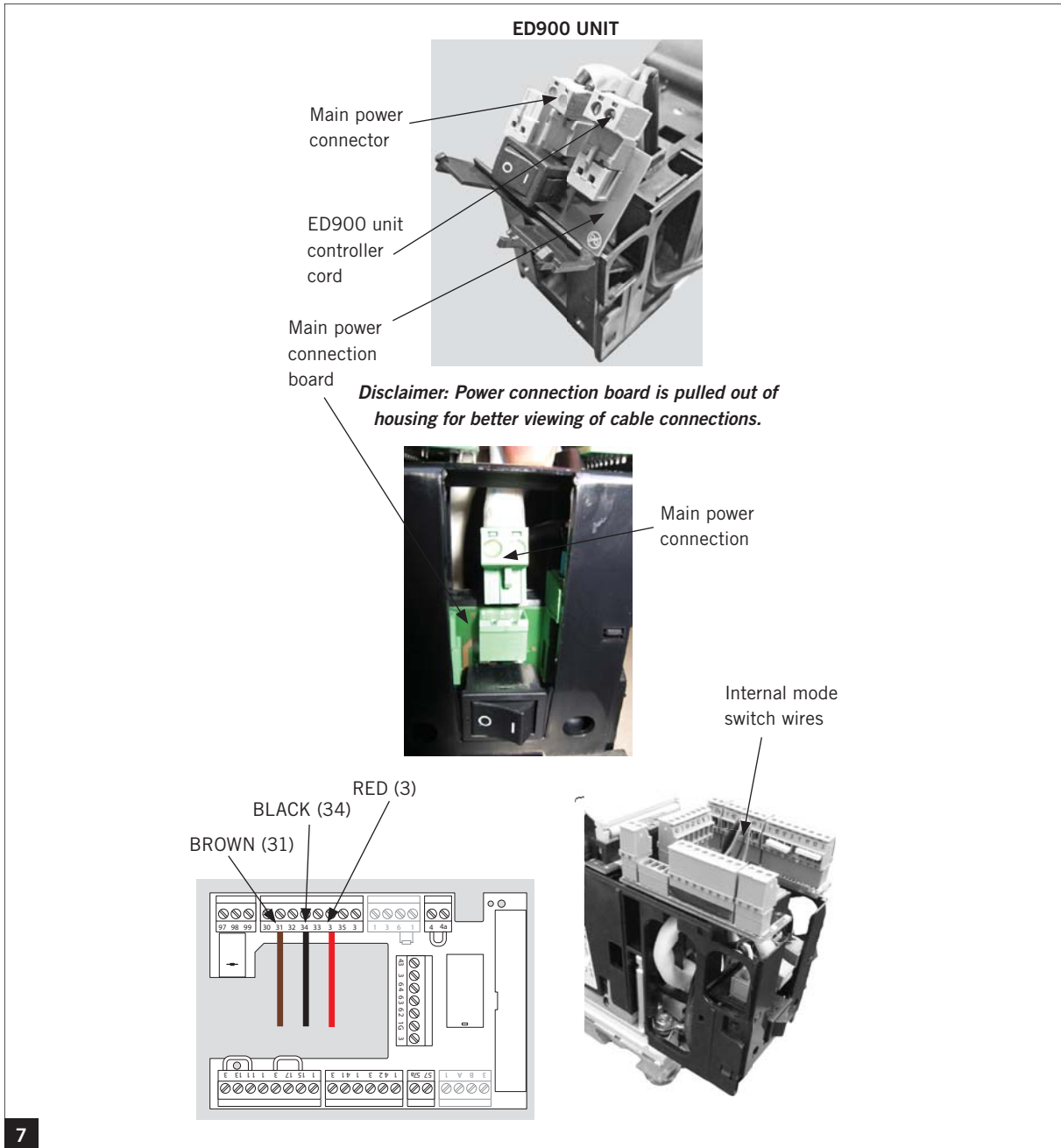
6.2 Feed the connection cable (2) through the housing.

NOTE: Connect the ground wire to the housing on the operator.

NOTE: Orient the operator with the power switch end towards the hinge.

6.3 Secure the operator with the 8 captured screws provided. (See step #1 for capture screw locations.)

E. Wiring connection locations



7

7.1 Connect all wires that were hanging freely: (Door frame was removed from image for better viewing.)

ED900 UNIT:

- The main power connector connects to the power connection board of the ED900.
- The controller cord for the ED900 is already connected.
- The internal mode switch wires connect to the terminal connection board on the ED900.

F. Wiring the operator

8.1 Use the Connection Diagram below for reference of input and output locations.

⚠ Be sure the operator is powered OFF before attempting any wiring due to potential electric shock.

Connection diagram

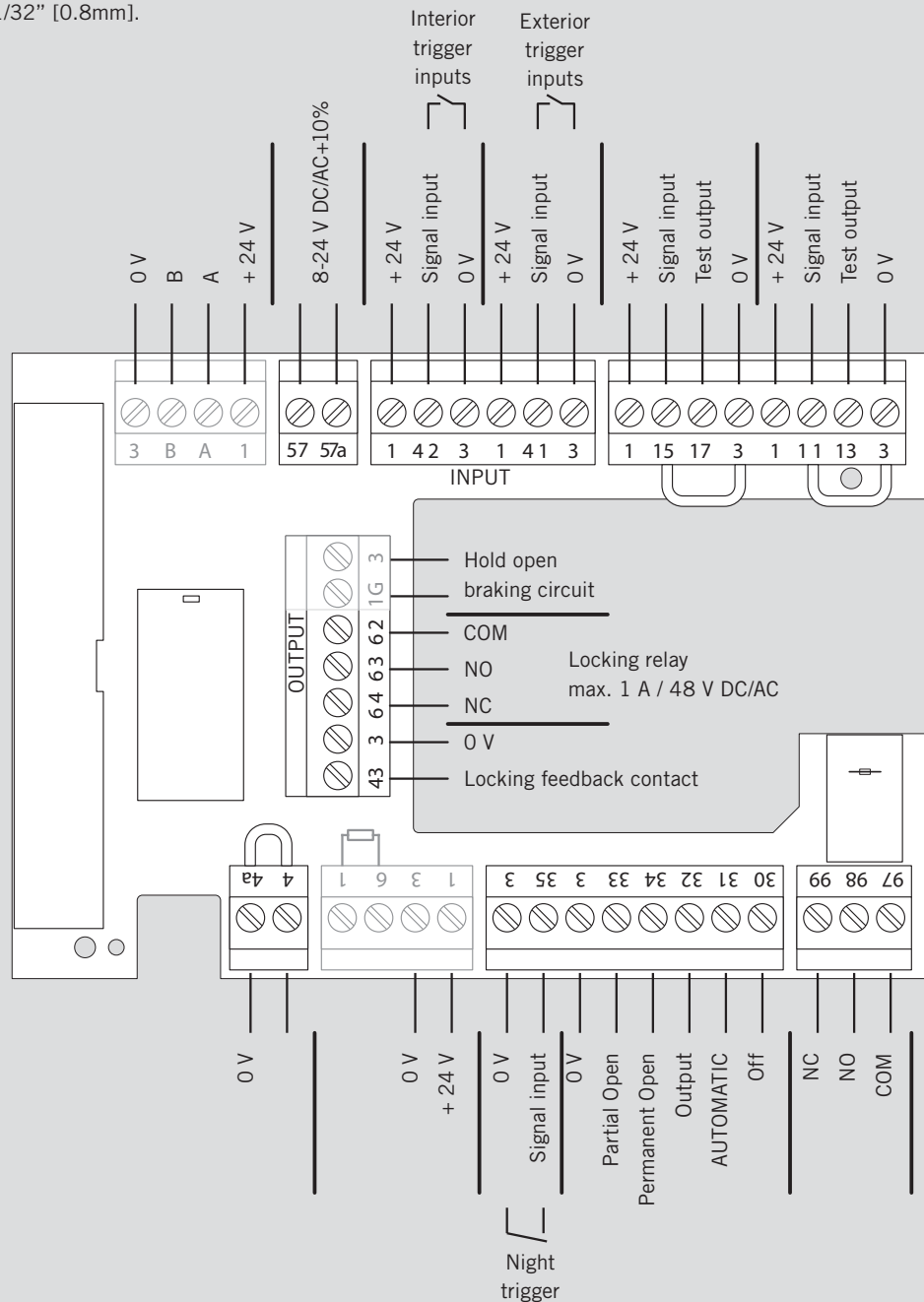
The following jumpers (4/4a; 15/3; 11/3) must be in the proper locations for the unit to be properly commissioned. For additional wiring information please see the ED900 section of Dorma's website.

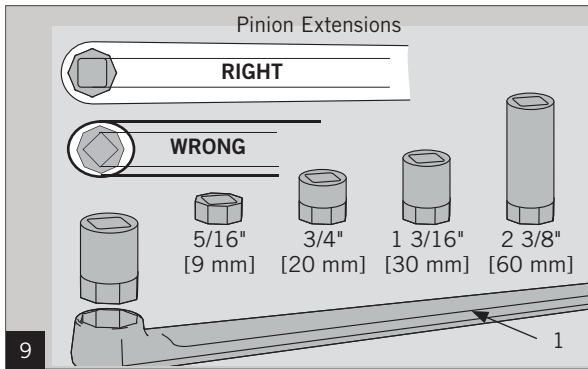
Connect the cables to the connection terminals and attach them to the connection board. These terminals must be connected to their respective locations prior to powering the unit. The jumpers must be in the proper locations for the unit to function properly.

The maximum current load at terminal 1 and 3 is 1.5A.

The cable length must not exceed 98' 5" [30m]

when using J-Y (ST) Y 1/32" [0.8mm].



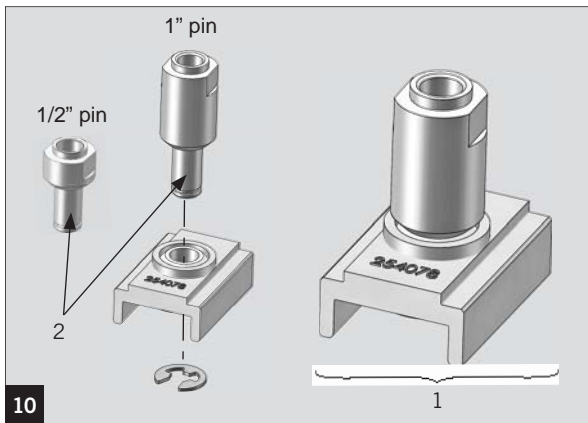


! Determine the length of the pinion which will be needed.

9.1 Turn the square end so that its mounting position corresponds to the picture.

9.2 Place the pinion extension into the arm (1).

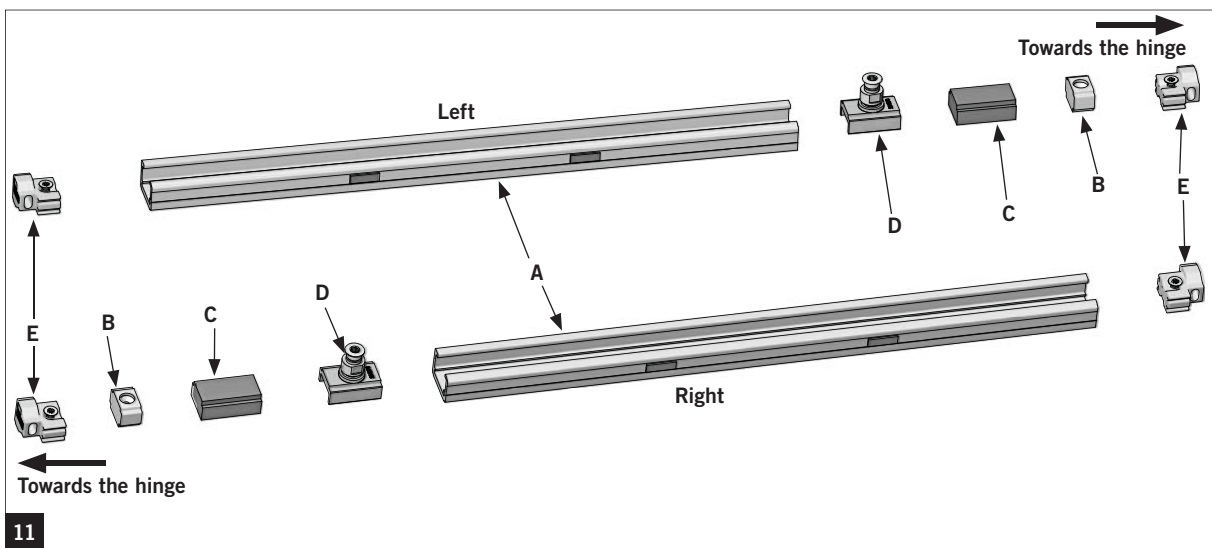
G. Mounting the T/slide channel (Pull side)



Assemble the slide shoe (1)

10.1 Insert the pivot pin (2) (1/2" [12.5mm] or 1" [25mm]) into the slide shoe and secure with lock washer.

10.2 Use larger pin (1") for doors with rabbet.



11.1 Position the individual components inside the slide channel and screw down the fittings.

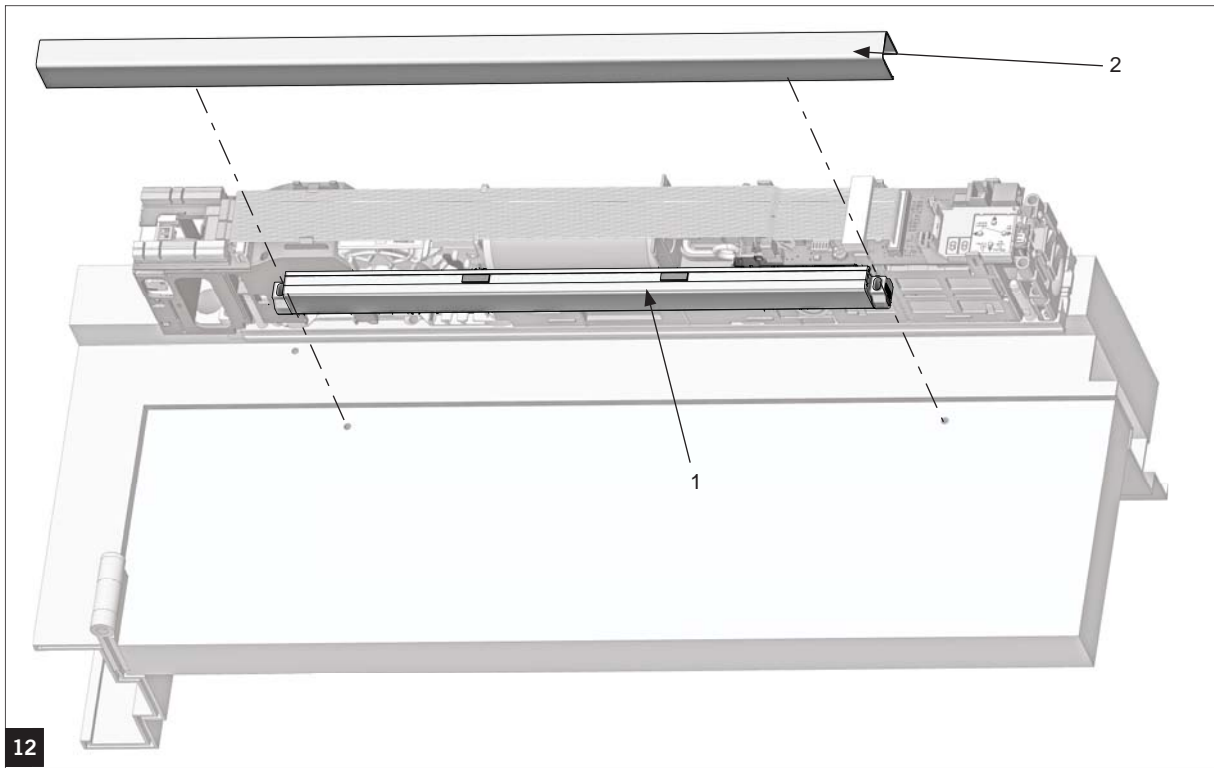
A - Slide channel

D - Slide shoe

B - End stop

E - Fitting

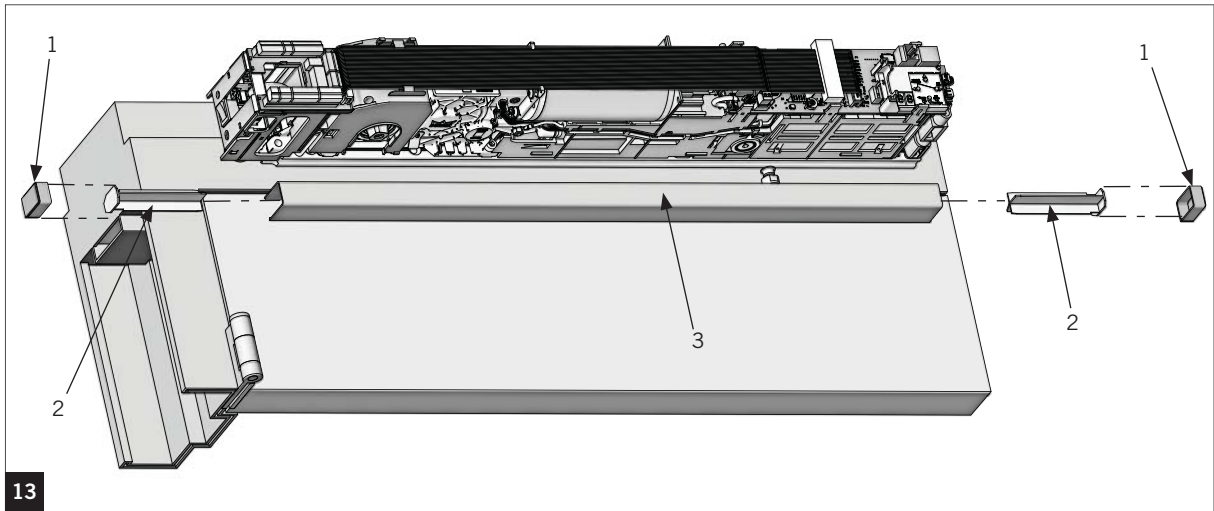
C - Cushion



12

12.1 Secure the slide channel assembly (1) with two screws [#10-32 x 1-1/4 Phillips pan head or No. 21 wood screws] through the appropriate holes.

12.2 Press the slide channel cover (2) onto the slide channel assembly.

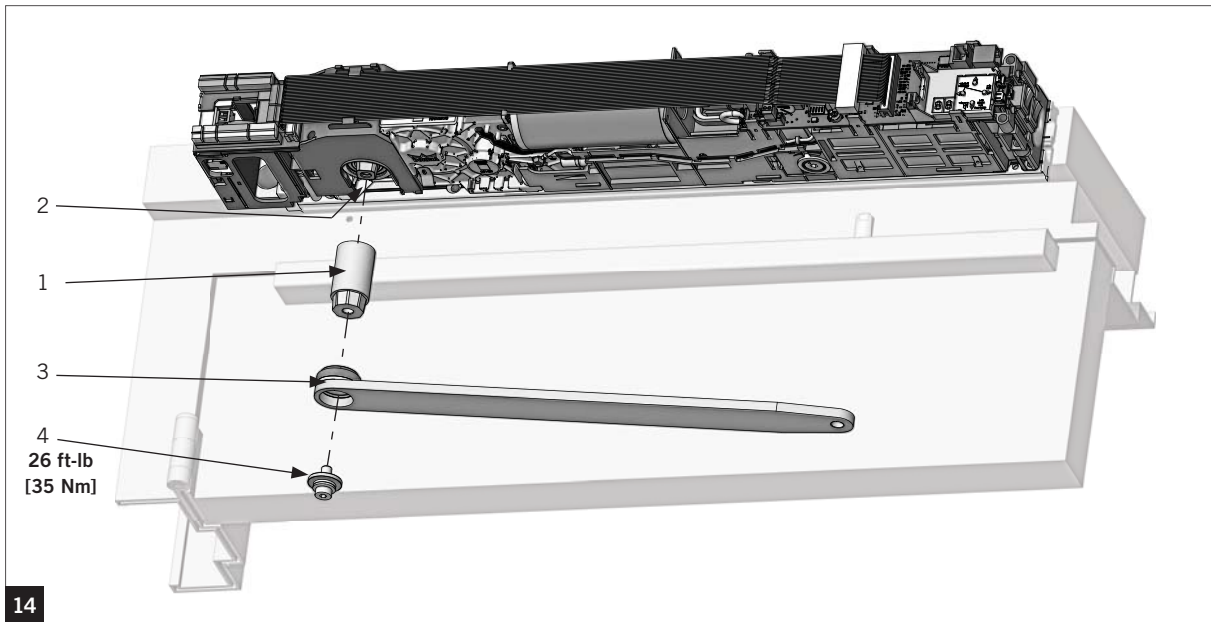


13

13.1 Assemble the end caps (1) onto the spacers (2).

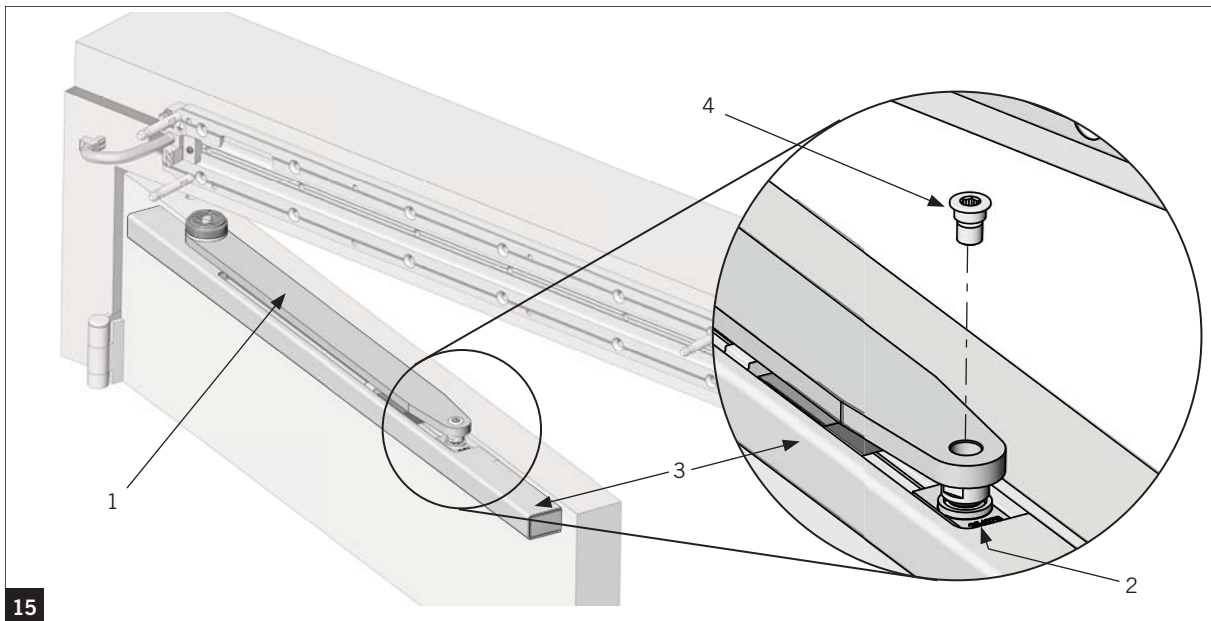
13.2 Insert both components into the slide channel cover (3).

13.3 Align the end caps so that they are flush with the cover on both sides.



- 14.1 Secure the appropriate size pinion axle (1) to the pinion (2). (If necessary.)
- 14.2 Attach the track arm (3) to the operator pinion axle with an M8 x self-locking hex screw with washers (4), using a 5mm allen key (26 ft-lbs [35 Nm]).

⚠ Only use the provided self-locking screw. If the screw has to be removed during repair or maintenance work, it must be replaced by a new self-locking screw, or replace the existing screw with the addition of blue loctite.

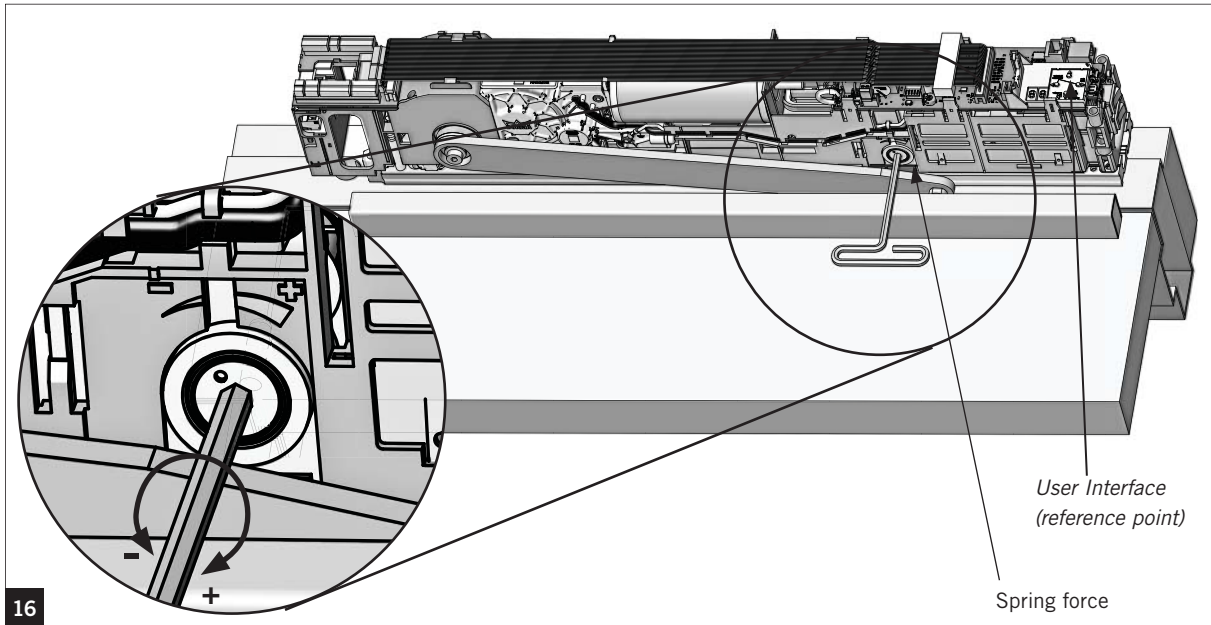


(Operator unit is hidden in the above figure for easier viewing of the arm attachment procedure.)

- 15.1 Press arm (1) onto the slide shoe (2) inside the slide channel (3).
- 15.2 Secure the arm and slide shoe with one 5mm shoulder bolt screw (4), using a 5mm allen key and 13mm wrench.

15.3 Do not adjust the dead stop until after the unit is commissioned. See section J, 'Mounting the unit - continued' (page 23).

Adjusting the spring force



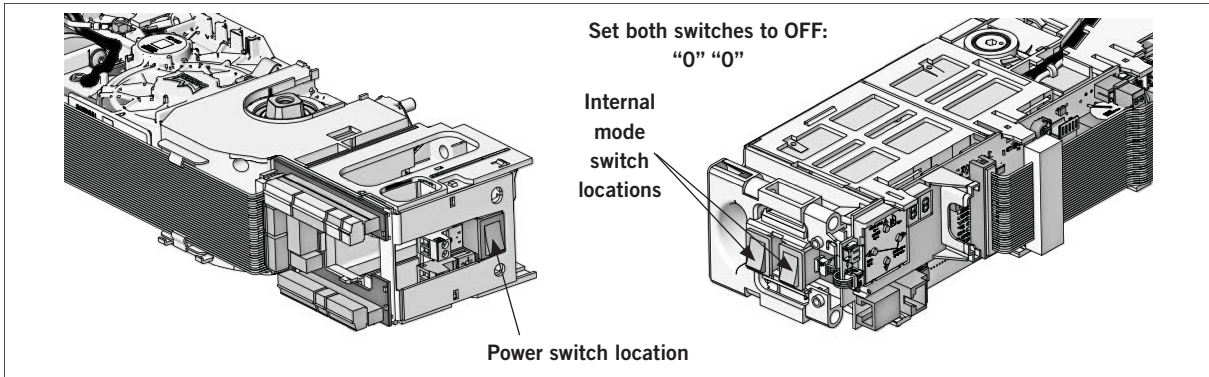
16

- 16.1 Fully turn the spring force counter clockwise (-) until it stops.
- 16.2 Turn at least 10 full revolutions clockwise (+) to add spring force.

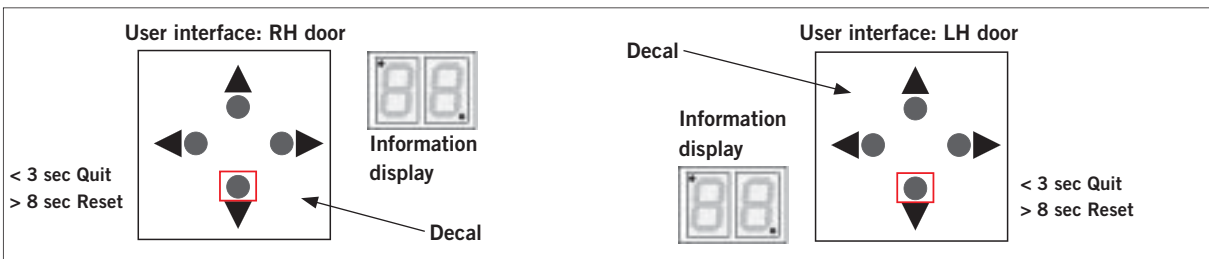
- ➔ The system will check the spring adjustment during the learning cycle; the cycle will be interrupted if the spring is insufficiently tensioned.
- ➔ A learning cycle has to be performed whenever the spring is readjusted.

H. Pre-commissioning

Pre-commissioning information: **READ FIRST PRIOR TO COMMISSIONING**



- The control unit is equipped with a user interface and information display. You can perform all adjustments with this interface display. Use the four yellow buttons to enter information. The buttons can be adapted depending upon the intended mounting of the operator.
- Make sure all terminal strips are properly connected to their respective locations prior to powering up the unit.
- Use connection diagram as reference (page 13).



- Depending upon the mounting orientation of the operator, the display will be located on either the left or right side of the user interface.
- The interface decal can be removed and rotated dependent upon unit orientation.

I. Programming the ED900 unit

17.1 Commission the unit using the steps on the following page.

First commissioning instructions/Quick start guide



THIS STEP SHOULD BE COMPLETED AFTER THE UNIT HAS BEEN MOUNTED.

Prior to starting the Commissioning, verify the manual settings (Adjusting of braking circuit, spring force, closing speed). (Refer to Book 2 of 3 "ED900 Door Operator Installation" for the manual settings).

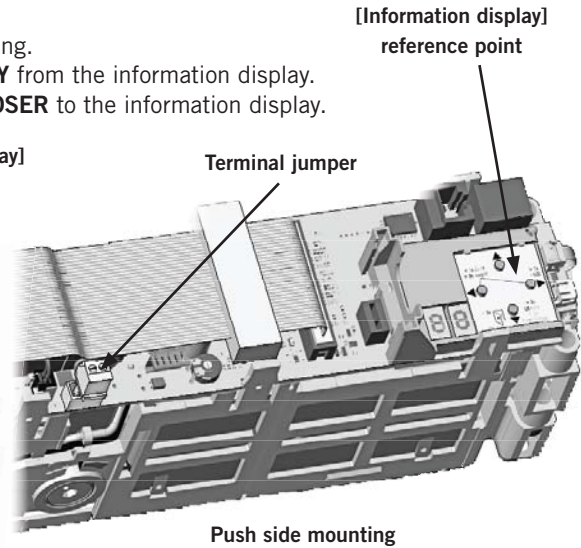
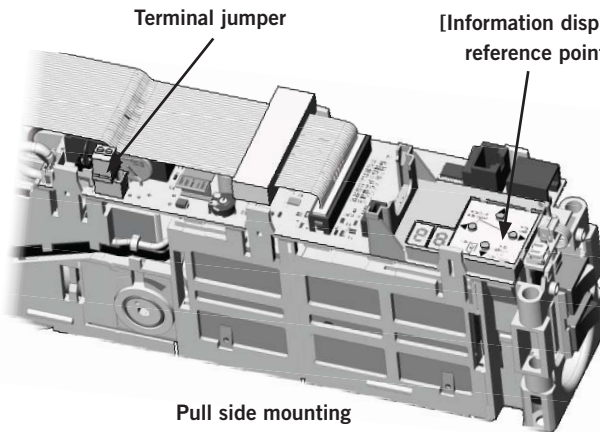
STEP 1: Write your door values in this chart for reference prior to starting the learning cycle.

| | Mount type | PUSH or PULL (circle one) | Coordinating Setting Value |
|--|--|---------------------------|----------------------------|
| See learning cycle reference charts on last page of Quick Start Guide. | Reveal depth measurement: Distance from the face of the mounting surface, to the door face. (see page 4 of this document for more description) | Reveal depth measurement | |
| | Door width measurement: Measure the width of the door in inches and divide by 4. | Door width measurement | |
| | Door type: Single door, double door, etc. | | |

STEP 2

Set the green terminal jumper for push or pull side mounting.

- **Pull side mounting:** terminal jumper is positioned **AWAY** from the information display.
- **Push side mounting:** terminal jumper is positioned **CLOSER** to the information display.

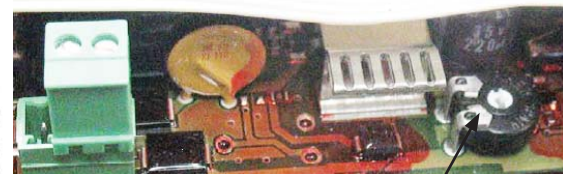
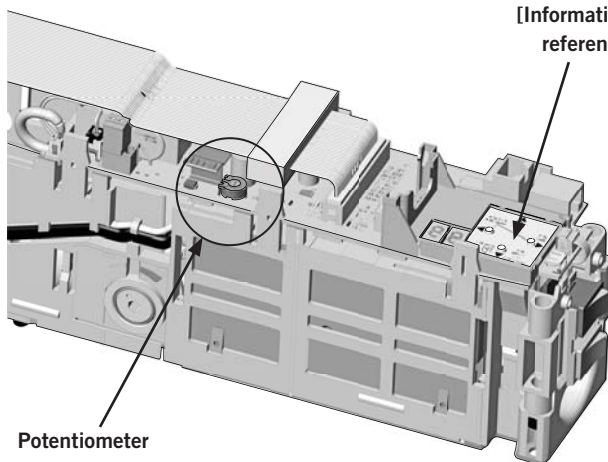


STEP 3

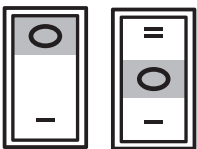
Manually open door to a 90° angle and let it close.



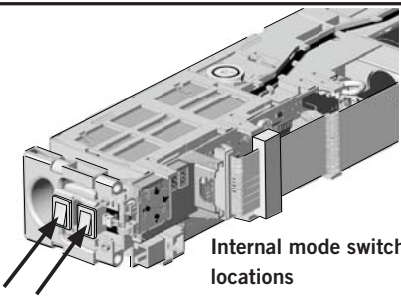
Door should fully close at a speed greater than 3 seconds. If door closes in less than 3 seconds, turn the potentiometer 1/4 turn clockwise and repeat STEP 3.



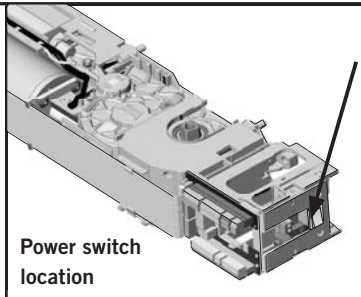
STEP 4
Set the internal mode switches to the OFF position: "O" and "O".



Internal mode switches

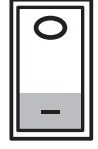


Internal mode switch locations



Power switch location

STEP 5
Set the power switch to the ON position: " ".





Power switch


- 2 horizontal dashed lines will begin moving up and down for 5 seconds.

STEP 6
Press BOTTOM yellow button **WHILE** the 2 horizontal lines are moving up and down.


- This will orient the unit for left or right hand mounting.
- The unit will continue to scroll information on the display as the process is starting.
- "oP" will be displayed.
- If button is not pushed while the 2 horizontal lines are moving up and down, turn operator OFF and ON again to start over.




NOTE: If at any time during the commissioning process, the  [rotating "o" and "P"] appears after approximately 1 minute of inactivity, press and hold the RIGHT yellow button until the previous programming step appears. Then continue with the commissioning process.




STEP 7
Press & hold RIGHT yellow button.
▪ Display will read "AS".
Push/pull screen




STEP 8
Press RIGHT yellow button.
▪ Display will read "00".




STEP 9
Press RIGHT yellow button again.
▪ "00" will begin flashing.




STEP 10
Toggle UP or DOWN to select proper value.
▪ Pull side: "00"
▪ Push side: "01"



STEP 11
Press RIGHT yellow button to lock value entered.




STEP 12
Press LEFT yellow button to return to programming menu.




STEP 13
Press BOTTOM yellow button to move to next item in menu.
Reveal Depth Screen

Reference door value chart




STEP 14
Press RIGHT yellow button.
▪ Display will read "00".




STEP 15
Press RIGHT yellow button again.
▪ "00" will begin flashing.

EXAMPLE




STEP 16
Toggle UP or DOWN to select proper value.
(Reference Reveal Depth Charts, page 4.)

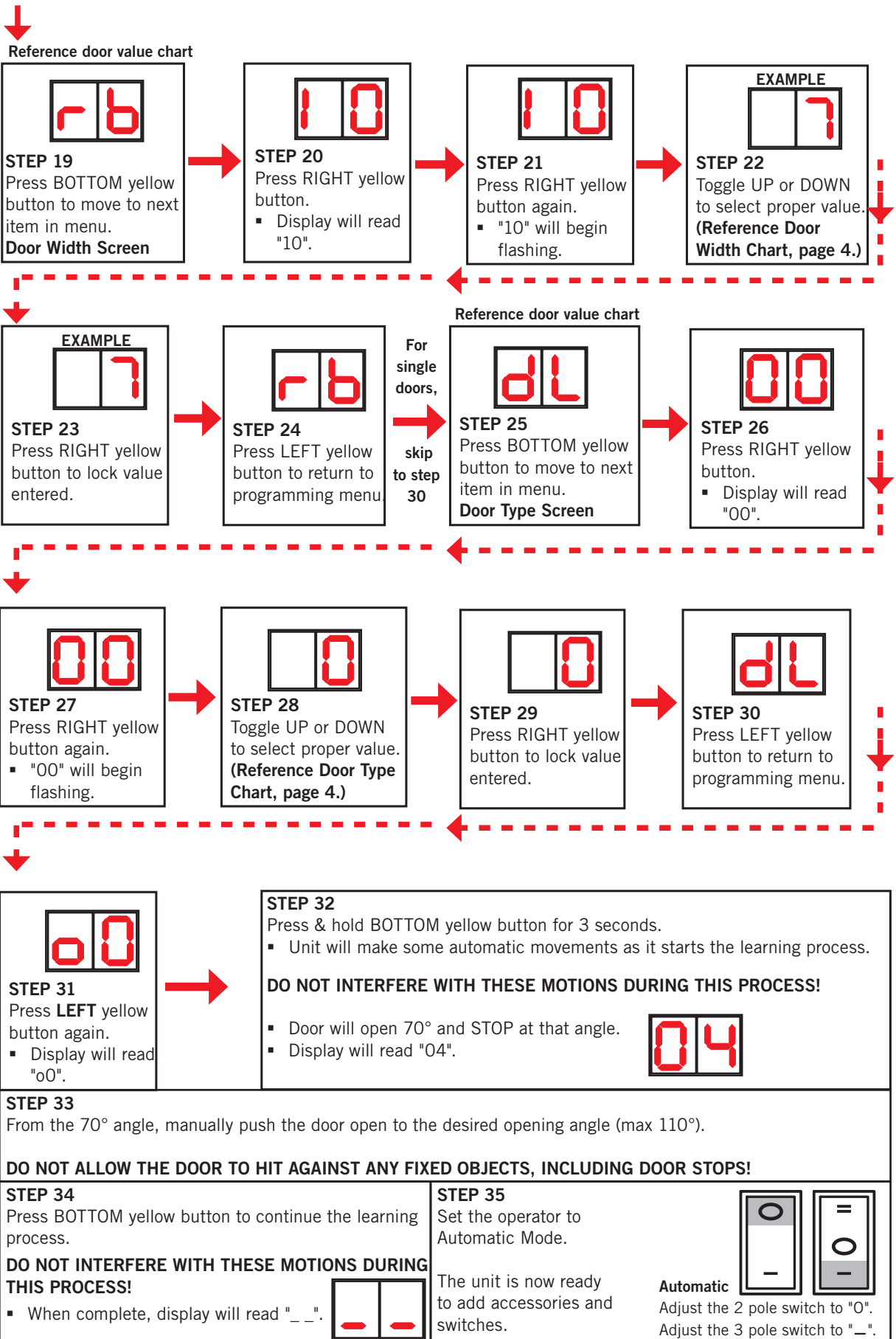
EXAMPLE



STEP 17
Press RIGHT yellow button to lock value entered.



STEP 18
Press LEFT yellow button to return to programming menu.



Learning cycle reference charts

Setting 'AS': Step 7

Mount type chart: push/pull

| Type of Mount | ED900 Type | Value |
|---------------|-----------------|-------|
| Push side | ED900 J8 or J12 | 01 |
| Pull side | ED900 T | 00 |

Setting 'dl': Step 25

Door type chart

| Door type | Value |
|---|-------|
| Single door | 0 |
| Double door leaf (astragal) active door | 1 |
| Double door leaf (astragal) passive door | 2 |
| Double door leaf (no astragal) active door | 3 |
| Double door leaf (no astragal) passive door | 4 |

Setting 'rd': Step 13

Reveal depth chart

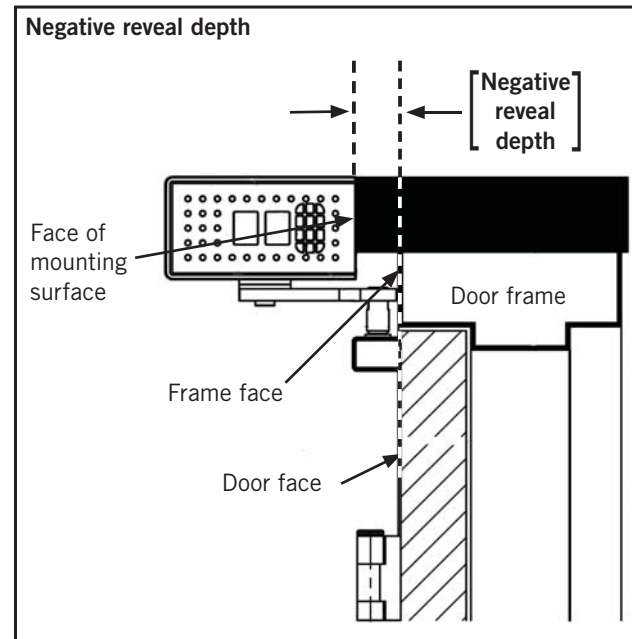
| Reveal in inches | Value |
|------------------|-------|
| - 1-1/8 | -3 |
| -3/4 | -2 |
| -3/8 | -1 |
| 0 | 0 |
| 3/8 | 1 |
| 3/4 | 2 |
| 1-1/8 | 3 |
| 1-1/2 | 4 |
| 1-7/8 | 5 |
| 2-1/4 | 6 |
| 2-5/8 | 7 |
| 3 | 8 |
| 3-3/8 | 9 |
| 3-3/4 | 10 |
| 4-1/8 | 11 |
| 4-1/2 | 12 |
| 4-7/8 | 13 |
| 5-1/4 | 14 |
| 5-5/8 | 15 |
| 6 | 16 |
| 6-3/8 | 17 |
| 6-3/4 | 18 |
| 7-1/8 | 19 |
| 7-1/2 | 20 |
| 7-7/8 | 21 |
| 8-1/4 | 22 |
| 8-5/8 | 23 |
| 9 | 24 |
| 9-3/8 | 25 |
| 9-3/4 | 26 |
| 10-1/8 | 27 |
| 10-1/2 | 28 |
| 10-7/8 | 29 |

Setting 'rb': step 19

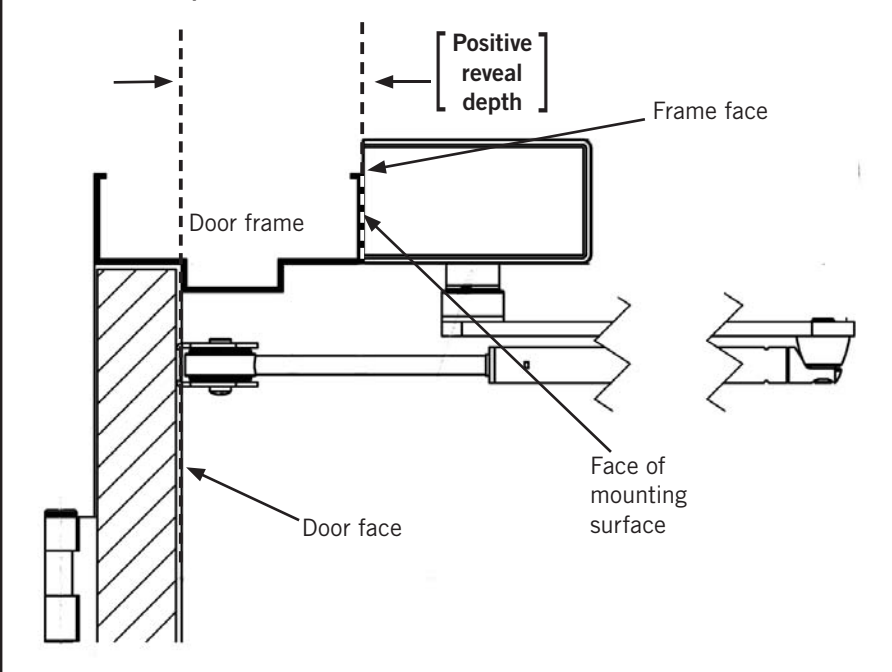
Door width chart

| Door width in inches | Value |
|----------------------|-------|
| 28 to 31-7/8" | 7 |
| 32 to 35-7/8" | 8 |
| 36 to 39-7/8" | 9 |
| 40 to 43-7/8" | 10 |
| 44" | 11 |

Reveal depth

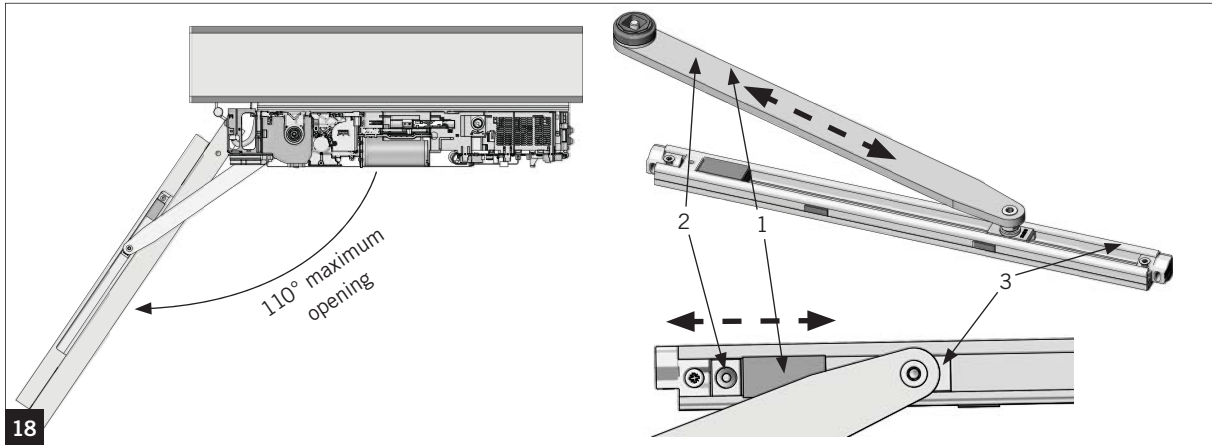


Positive reveal depth



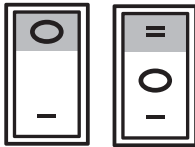
J. Mounting the unit - continued

Adjusting the maximum opening angle



Dead stop adjustment for slide channel. The end stop must exceed the adjusted opening angle when the door is pushed open manually.

18.1 Set internal mode switches to PERMANENT OPEN.



Permanent Open

Adjust the 2 pole switch to "0".
Adjust the 3 pole switch to "=".

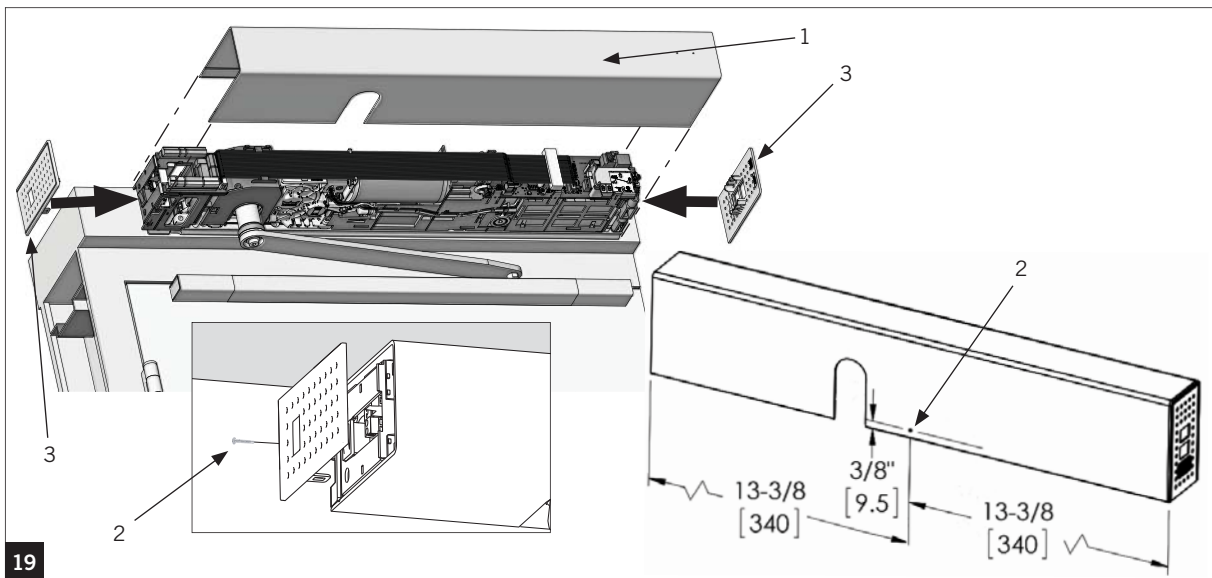
- The door will open until it has reached the desired opening angle in the First Commissioning procedure.

18.2 Move the cushion (1) and the end stop (2) until they are located 3/16" (5mm) from the slide shoe (3).

- Slide the end stop and cushion towards the hinge-end of the slide channel for maximum opening of the door.
- Slide the end stop and cushion away from the hinge to lessen the angle of the door opening.

18.3 Secure the end stop with the included screw when the appropriate stop location is acquired.

Install operator cover and end caps



19.1 Position the operator cover (1) and push until it snaps into place.

⚠ Caution: Do not pinch any cables.

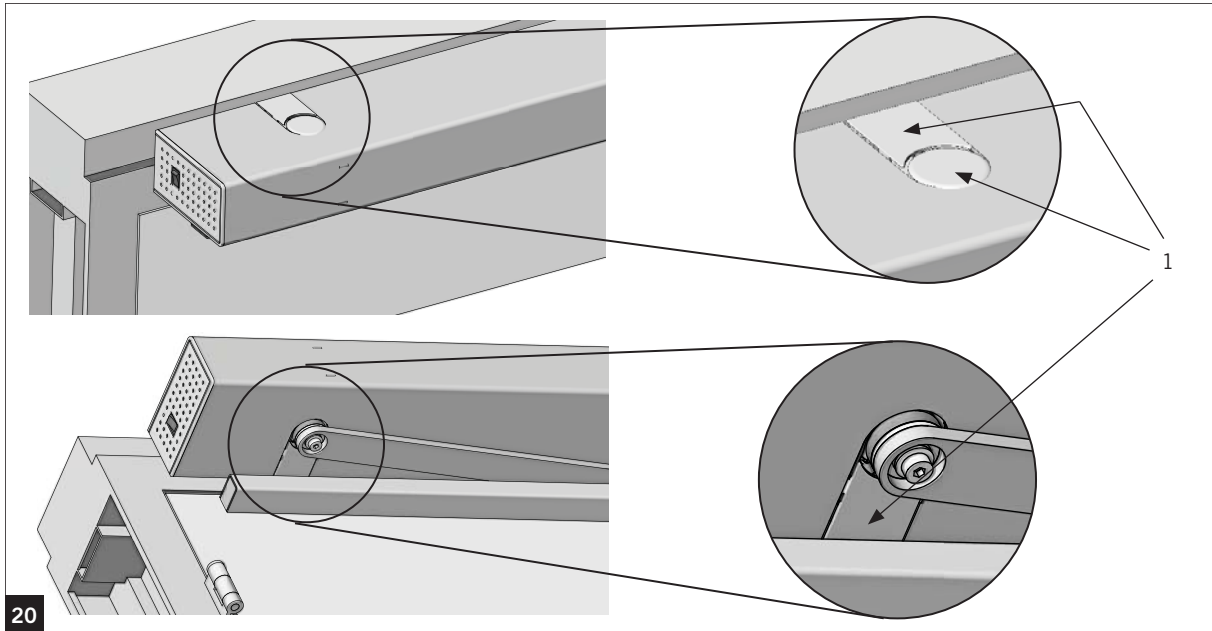
19.2 Drill a hole through the bottom or top of the closer cover and into the mounting plate, using a #31 drill bit (.120" or 3.1mm), 13-3/8" from each outside edge of the cover, and up 3/8" from the bottom edge of the cover.

Drill to a depth of 5/8" (16mm).

19.3 Secure the power-switch end cap and cover each with a fastener (2) to be compliant to US 325 and CSA C22.2 No. 247.

19.4 Snap the end caps (3) into place over the switches.

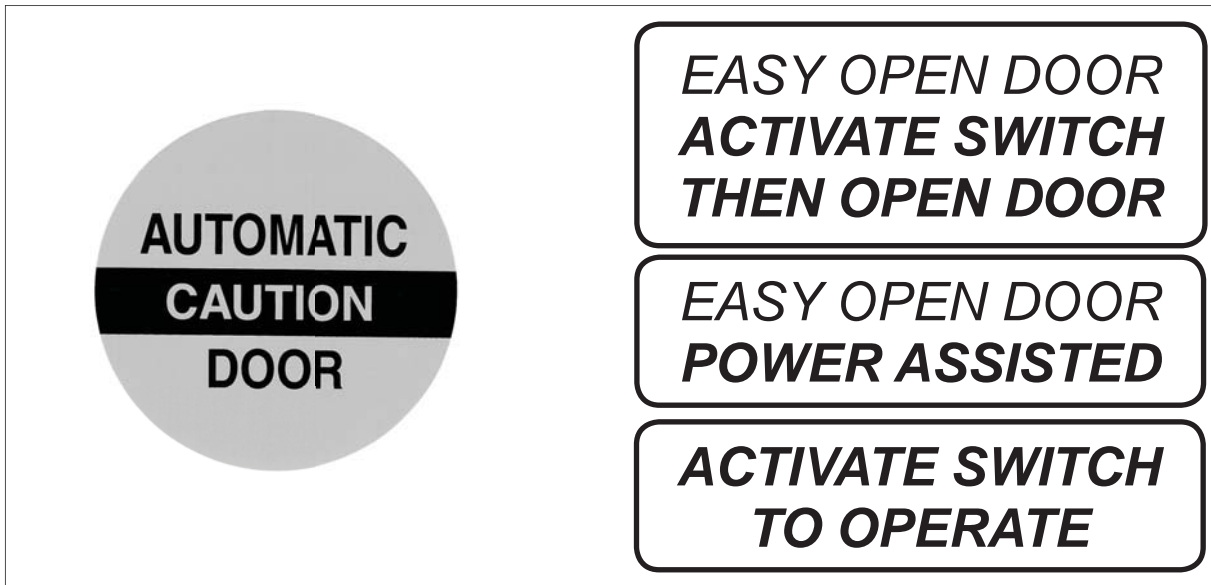
Install operator pinion covers



20.1 Snap the pinion covers (1) onto the top and bottom of the unit cover.

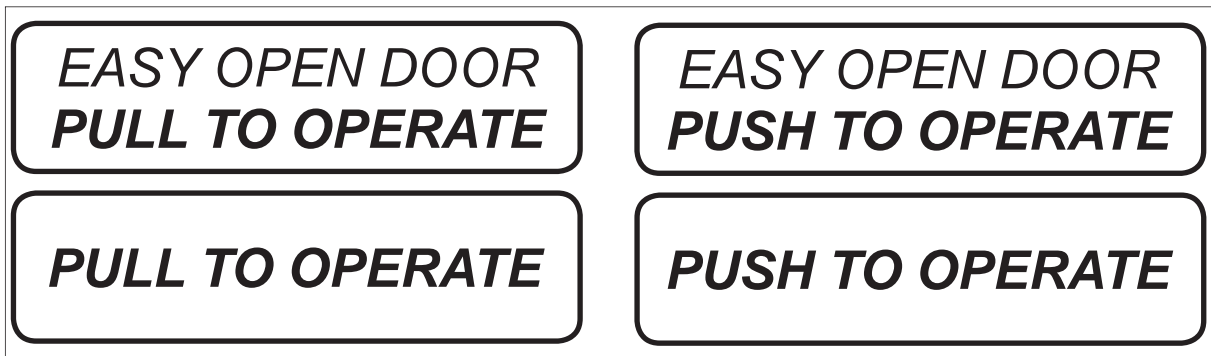
K. Signage

The ED900 is supplied with a pack of door decals to alert and instruct pedestrian traffic in the operation and use of the door. The decals are applied to the door and should be visible from both sides of the door. The method of activation determines the combination of decals required. Not all decals will be used in every application.



The Caution – Automatic Door decal is required under A156.19, the American National Standards for power assist and low energy power operated doors. The decal shall be mounted on the door at a height of 58 inches +/- 5 inches from the floor to the center of the sign. Two decals are supplied, one for each side of the door. For glass doors, only one decal is required since printing is on the both sides.

Decals for doors which are activated by a push button(s) and is applied directly below the Caution – Automatic Door decal on the side of the door where the push button(s) is located.



Decals for doors which are activated by the Push & Go feature and is applied direction below the Caution – Automatic Door decal or the Activate Switch to Operate decal on the **pull** side of the door.

Decals for doors which are activated by the Push & Go feature and is applied direction below the Caution – Automatic Door decal or the Activate Switch to Operate decal on the **push** side of the door.



DORMA AMERICAS
DORMA DRIVE, DRAWER AC
REAMSTOWN, PA 17567
TOLL-FREE: 800-523-8483
FAX: 800-274-9724
E-MAIL: DORMAARCHITECTURAL@DORMA.COM
WWW.DORMA.COM