

ED900

—

Low energy operator



ED900



Contents

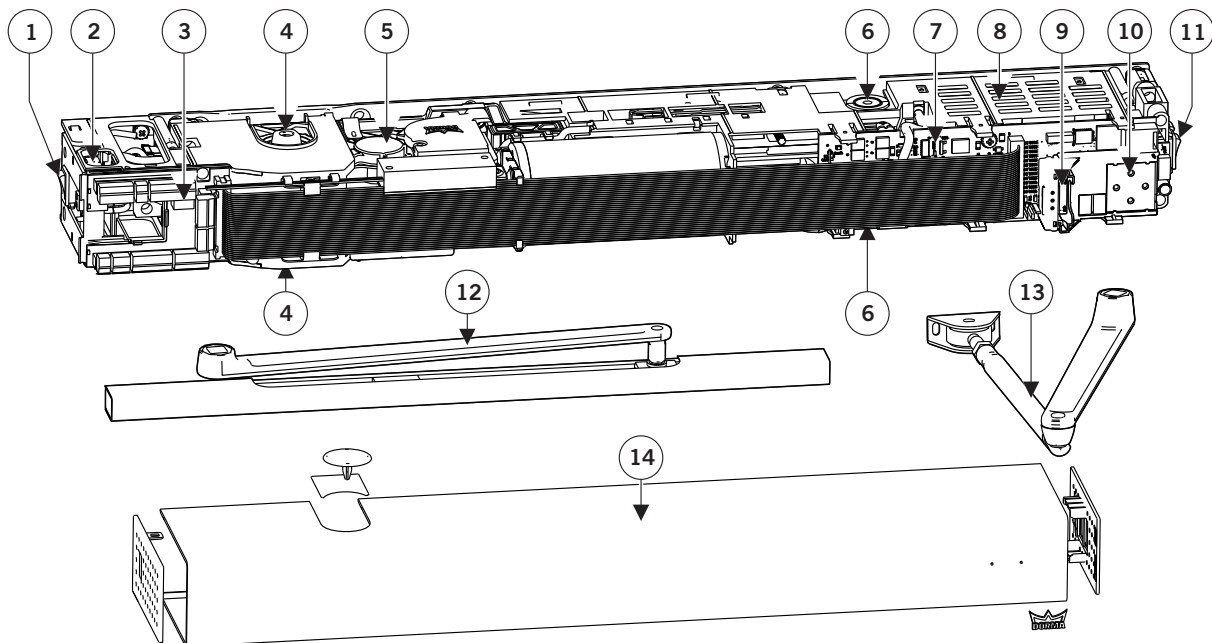
	Page
1. System setup	3 - 4
2. Accessories	4
3. Templates	5 - 10
4. Installation instructions	11 - 15
5. Connection diagram	16
6. Commissioning	17
7. Functions of Mode Switches	17
8. Setting and Changing Parameters	18
9. Learn cycle	19
10. Mounting continued	20
11. Cover and End Caps Securing	21
12. Power cord installation	22 - 23
13. Signage	24

1. System Setup

Operator system

The operator system comprises all core components.

- | | |
|---|--|
| 1. Power switch | 8. Switching power supply |
| 2. Mains power connection | 9. N/A |
| 3. Connection board | 10. Programming panel with 2 digit display |
| 4. Axle (pinion) connection on both sides | 11. Mode switches |
| 5. Drive system (motor/gear/ spring) | 12. Slide channel pull arm assembly |
| 6. Adjustment of closing force | 13. Double lever push arm assembly |
| 7. Control board | 14. Cover assembly |



2. 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 be 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 external activation

Use input terminals 42 and 3 for internal 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

Rated for continuous duty: electric strike:

min. 30%

Rated for continuous duty: motor lock:

100 %

Power consumption for accessories:

The operator may provide a maximum of 1.5 A at 24 V DC for external accessories. In case you need more power (even if only for a short period of time), an external power supply unit is required 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 systems):

Use input terminals 57 and 57a.

3. Templates

Contents

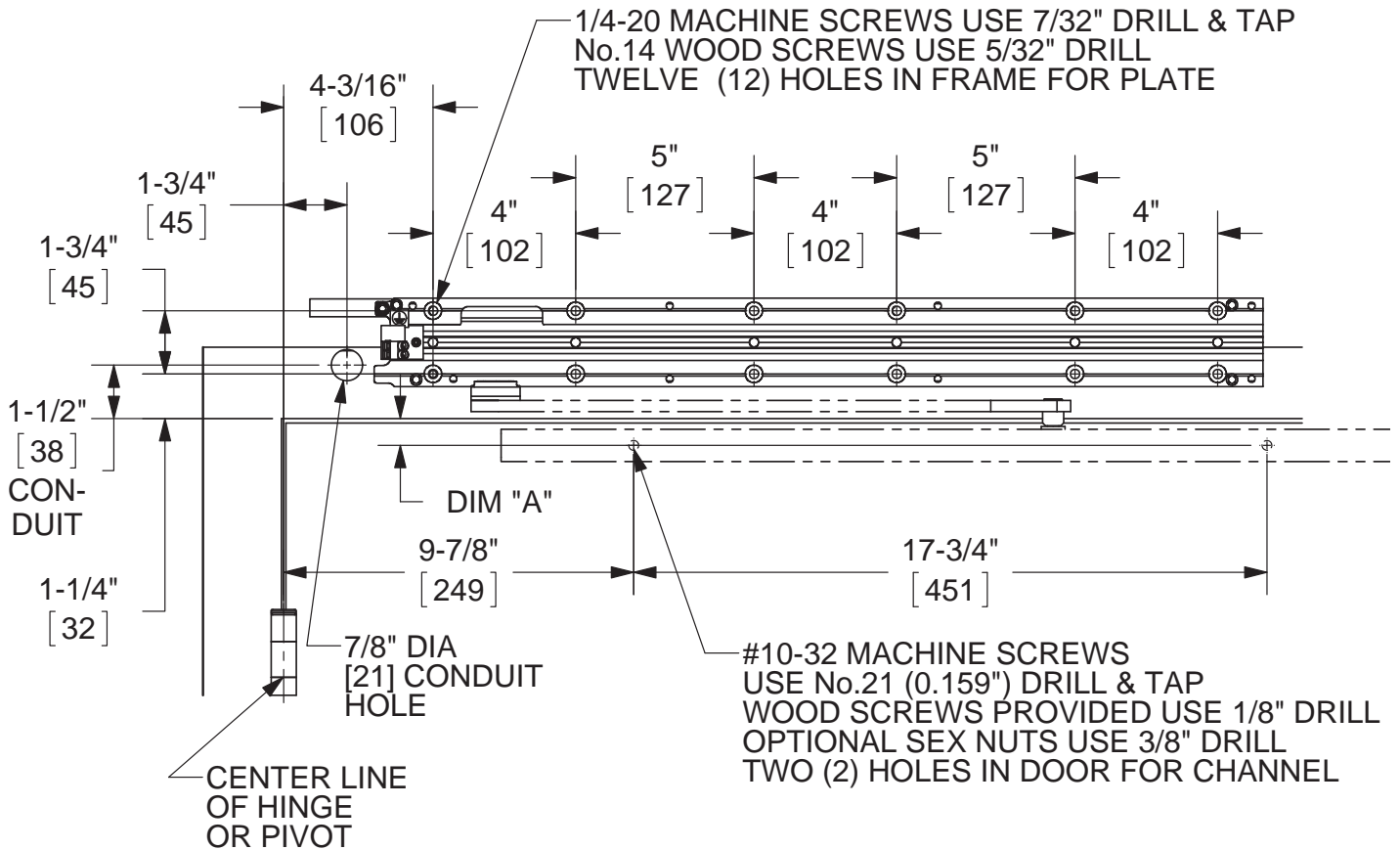
- a ED900 track installation, pull side mount, on a 2" frame face
- b ED900 track installation, pull side mount, dropping above a 2" frame face
- c ED900 track installation, pull side mount, above 2" frame face
- d ED900 jamb arm installation, push side mount, on a 2" frame face
- e ED900 jamb arm installation, push side mount, drop 1" frame face
- f ED900 jamb arm installation, push side mount, above 2" frame face



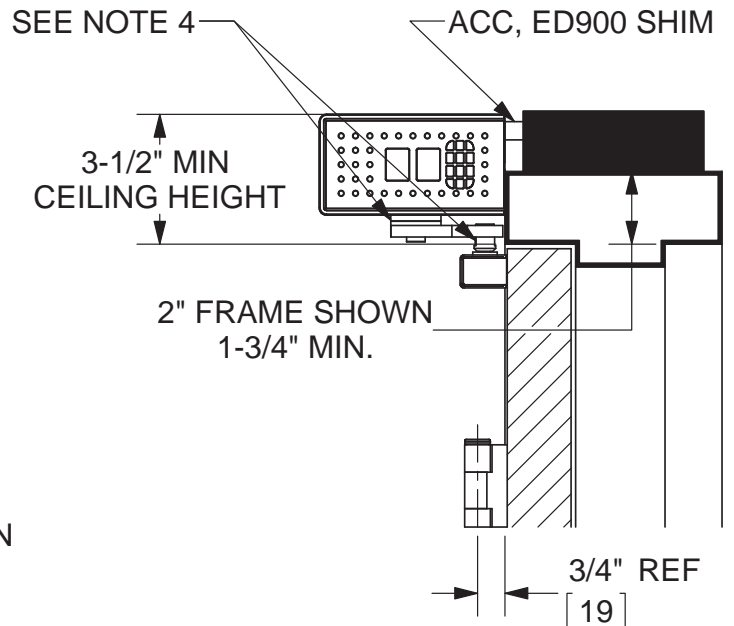
Note

1. Drawing is not to scale.
2. Dimensions are in inches/[mm].
3. Hand door – see template note.
4. Caution: sex nuts are required for attachment of components to unreinforced doors and to wood or plastic faced composite type fire doors, unless an alternative method is identified in the individual door manufacturer's listings.
5. Template is for 4-1/2 x 4-1/2 butt hinges & 3/4" offset pivots
6. Maximum degree – see template note.
7. Min door width – see template note.
8. Doors and frames must be properly reinforce to withstand the operating forces of a low energy operator.
9. Axel extension and swivel pin sizes – see template note.
10. Reveal depths – see template note.

a. Track Installation, Pull Side Mount, on a 2" Frame Face



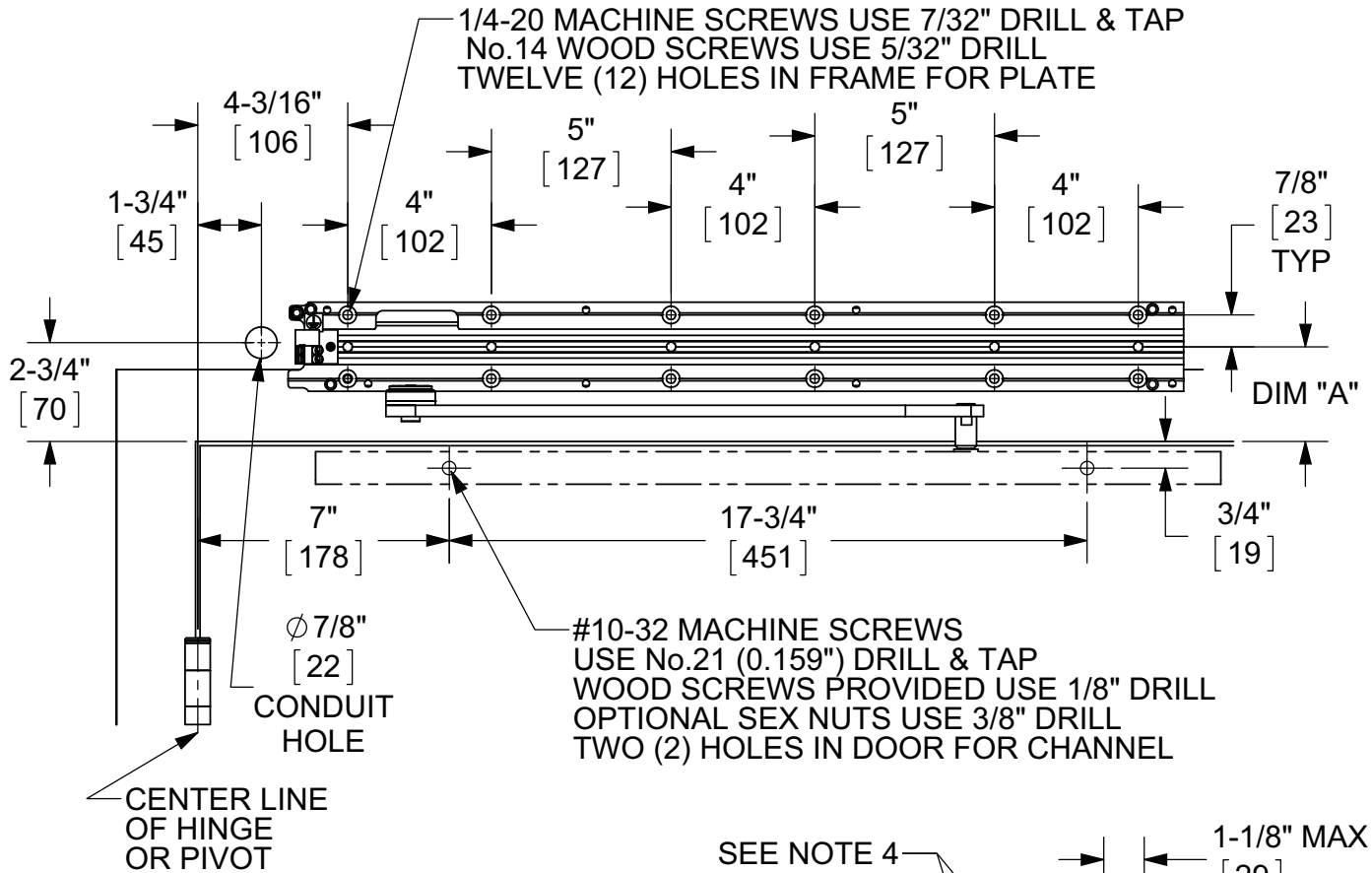
AXEL EXTENSION	DIM "A" W/ 1/2" SWIVEL	DIM "A" W/ 1" SWIVEL
0mm	3/4" [19]	1-1/4" [32]
20mm	1-1/2" [39]	2" [51]
30mm	1-15/16" [49]	2-7/16" [62]
60mm	3-1/8" [79]	3-5/8" [92]



NOTE:

1. RIGHT HAND DOOR SHOWN.
2. MAXIMUM DEGREE OF OPENING 110.
3. MIN DOOR WIDTH 28"
4. SHOWN WITH THE 0mm AXLE EXTENSION & 1/2" [13] SWIVEL.
5. REVEAL DEPTHS 1-1/8" MAX.

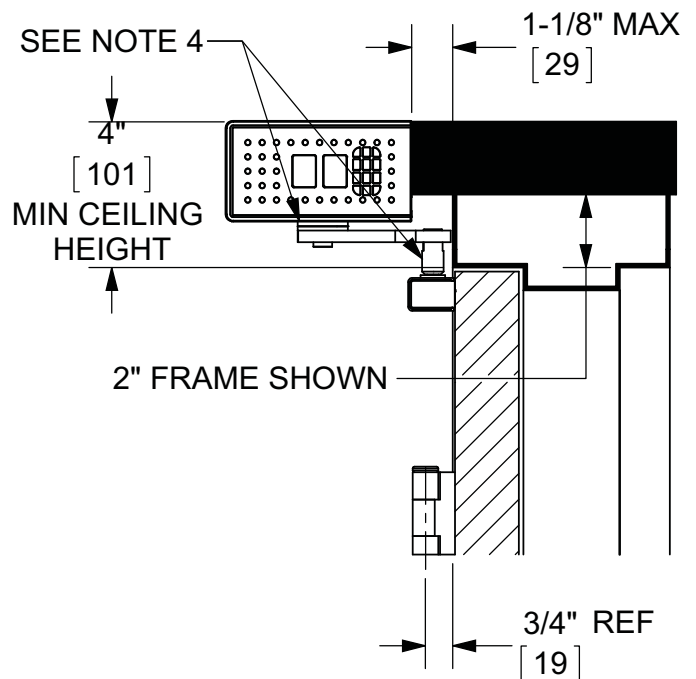
b. Track Installation, Pull Side Mount, Dropping Above a 2" Frame Face



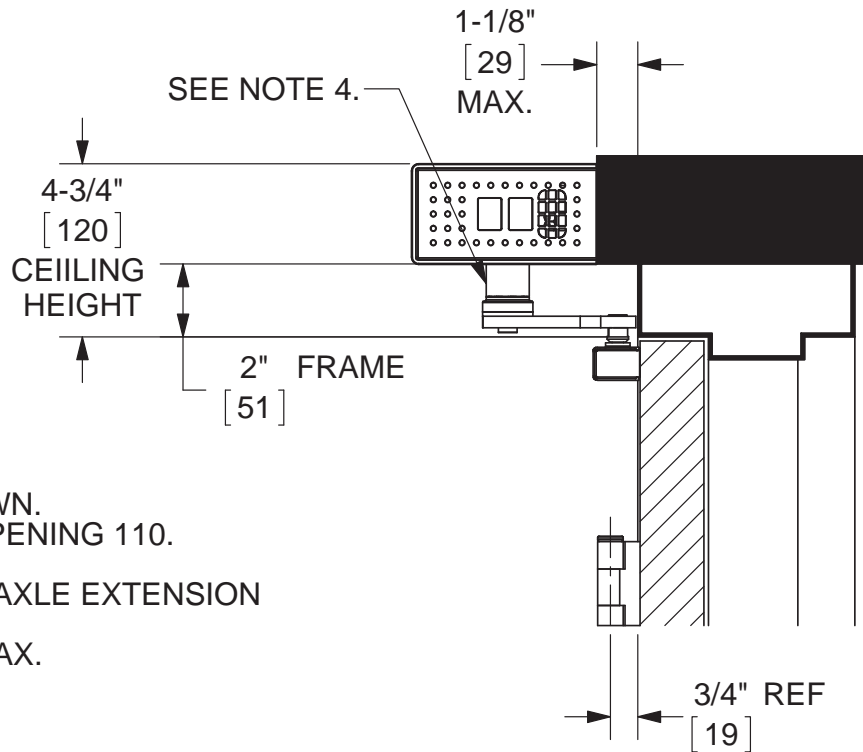
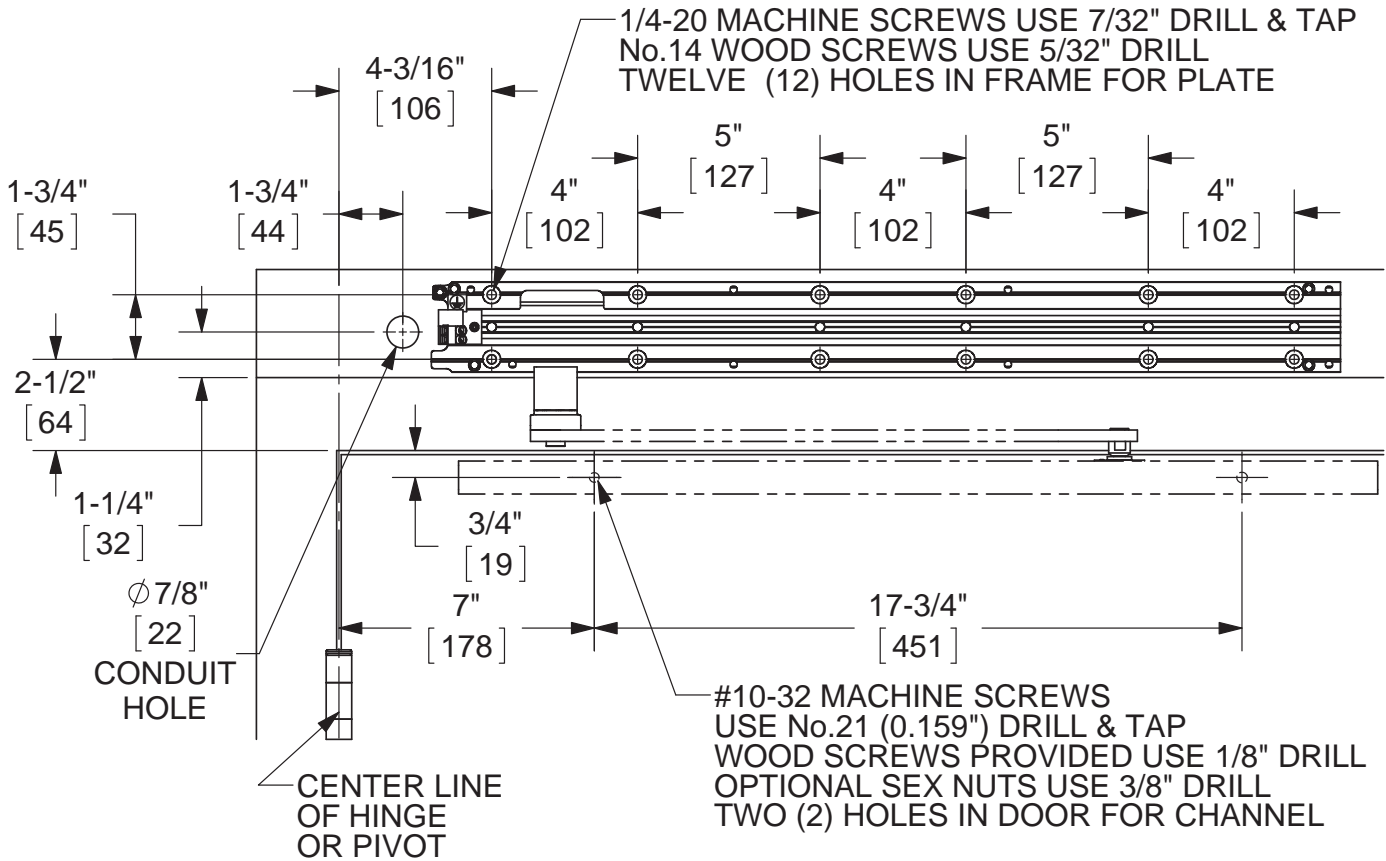
AXLE EXTENSION	DIM "A" W/ 1/2" PIVOT PIN	DIM "A" W/ 1" PIVOT PIN
0mm	-	2-5/8" [67]
20mm	2-15/16" [75]	3-7/16" [87]
30mm	3-3/8" [86]	3-7/8" [98]
60mm	4-1/2" [114]	5 [127]

Note:

1. RIGHT HAND DOOR SHOWN.
2. MAXIMUM DEGREE OF OPENING 110.
3. MIN DOOR WIDTH 28"
4. SHOWN WITH THE 0mm AXLE EXTENSION AND 1/2" [13] PIVOT PIN.
5. REVEAL DEPTHS 1-1/8" MAX.



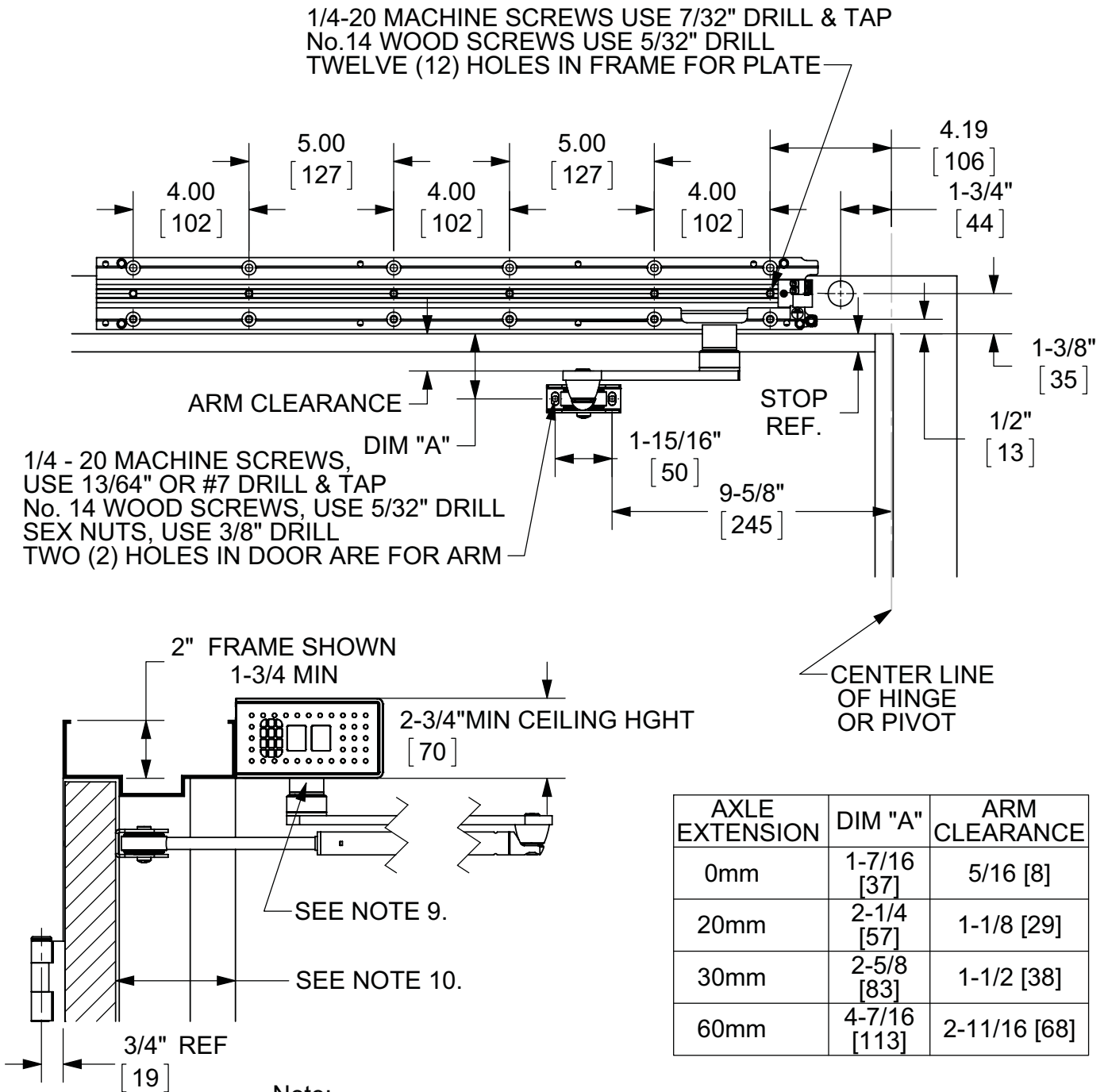
c. Track Installation, Pull Side Mount, above 2" Frame Face



NOTE:

1. RIGHT HAND DOOR SHOWN.
2. MAXIMUM DEGREE OF OPENING 110.
3. MIN DOOR WIDTH 28"
4. SHOWN WITH THE 30mm AXLE EXTENSION AND 1/2" [13] SWIVEL.
5. REVEAL DEPTHS 1-1/8" MAX.

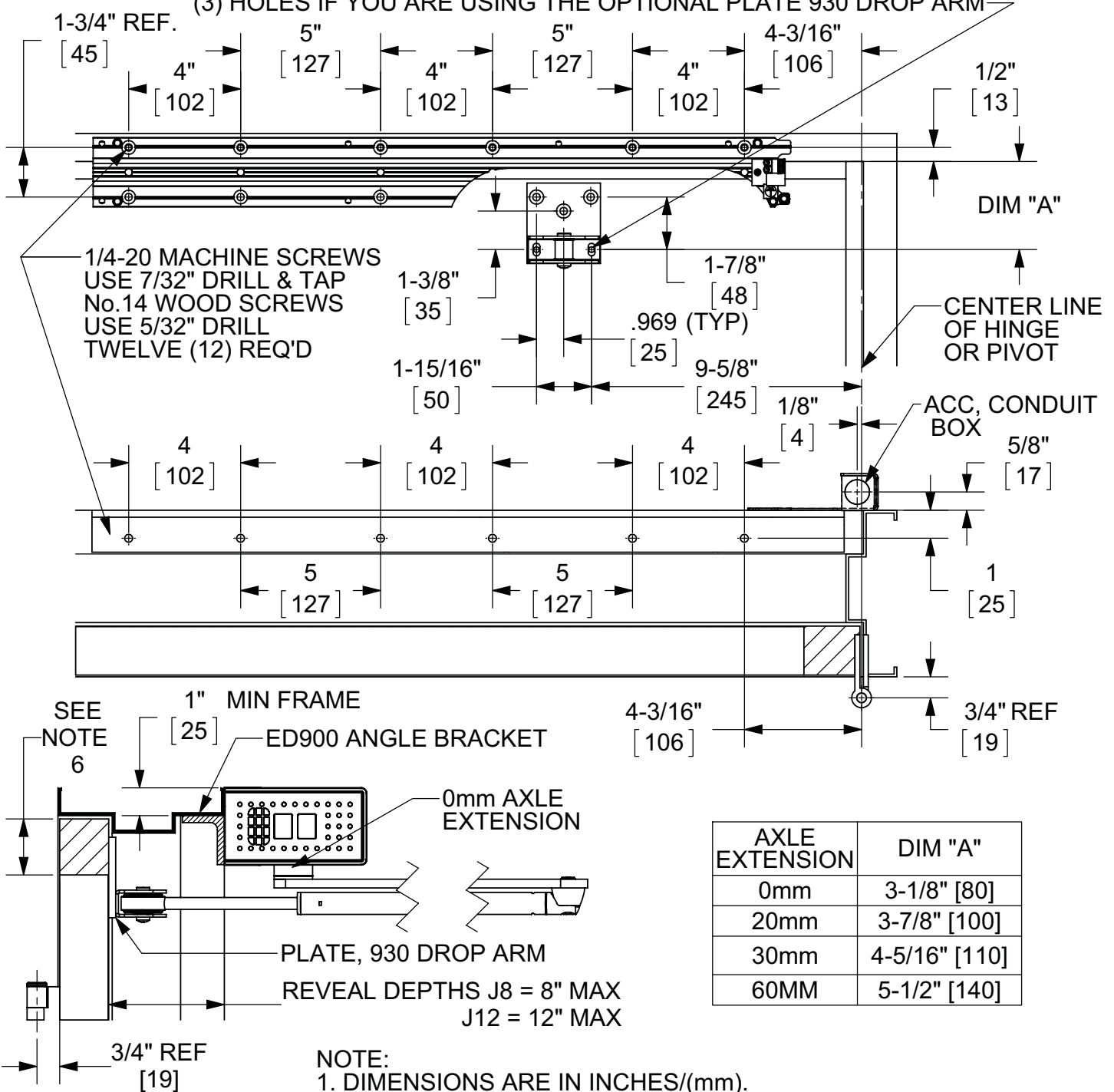
d. Jamb Arm Installation, Push Side Mount, on a 2" Frame Face



- Note:
1. RIGHT HAND DOOR SHOWN
 2. MAXIMUM DEGREE OF OPENING 110
 3. MIN DOOR WIDTH 28"
 4. SHOWN WITH THE 20mm AXLE EXTENSION AND 5/8" STOP
 5. REVEAL DEPTHS J8 = 8" MAX
J12 = 12" MAX

e. Jamb Arm Installation, Push Side Mount, drop 1" Frame Face

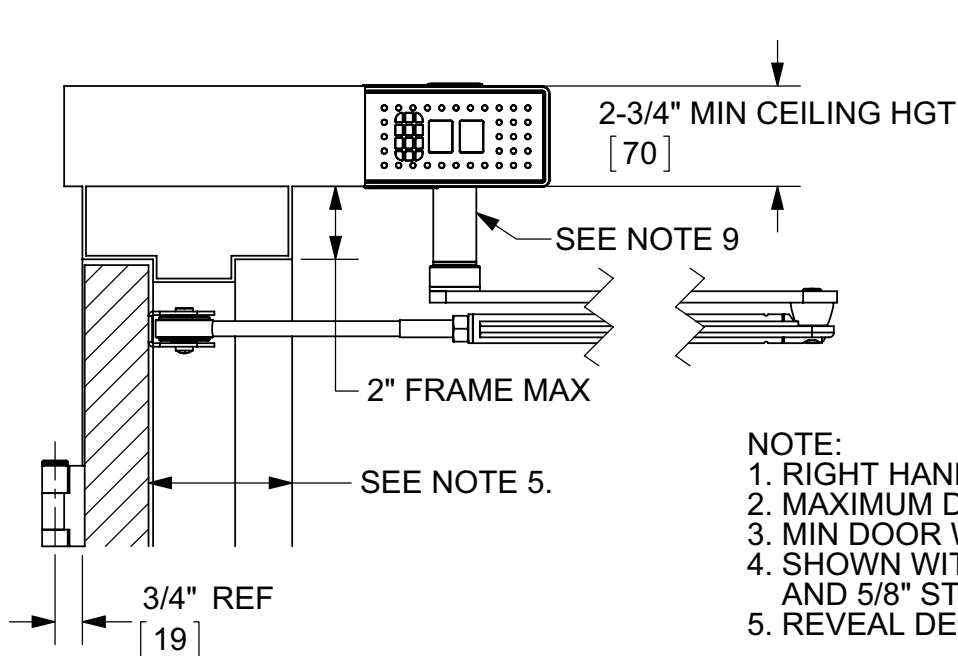
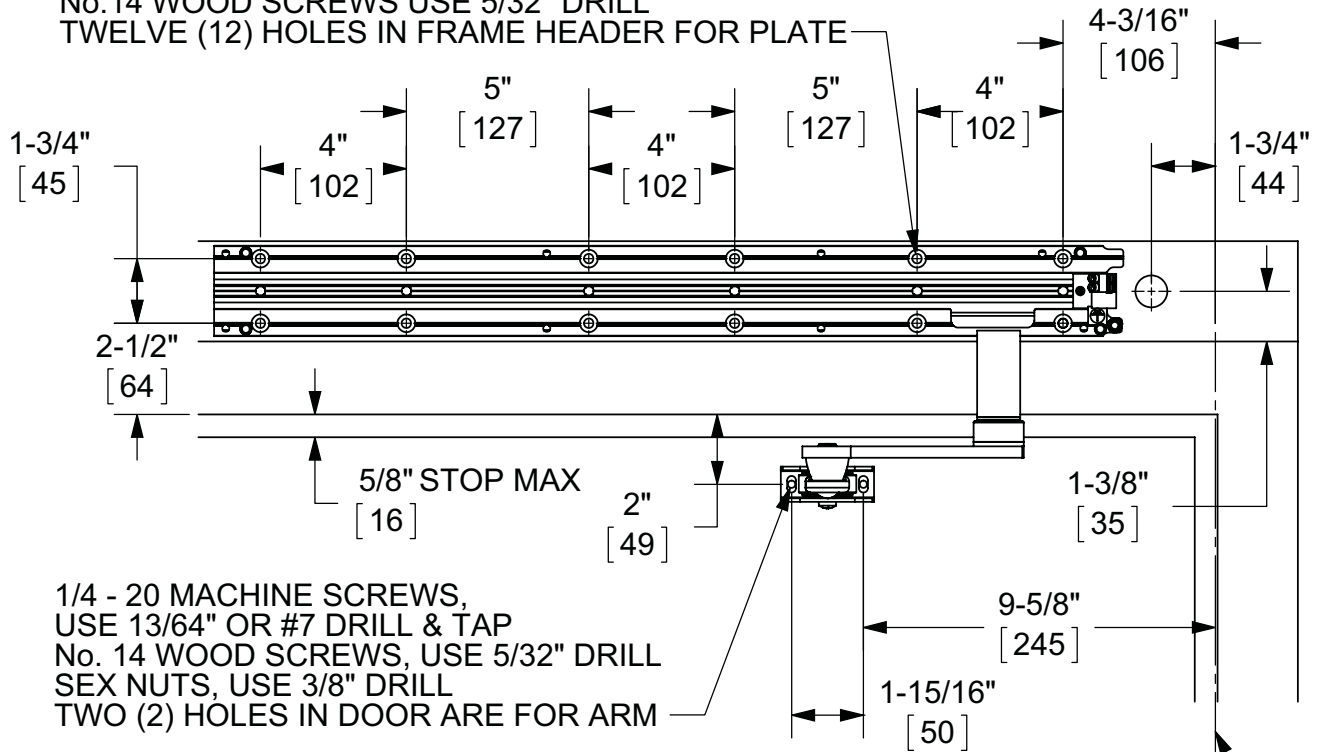
1/4 - 20 MACHINE SCREWS, USE 13/64" OR #7 DRILL & TAP
 No. 14 WOOD SCREWS, USE 5/32" DRILL
 SEX NUTS, USE 3/8" DRILL TWO (2) HOLES IN DOOR ARE FOR ARM
 (3) HOLES IF YOU ARE USING THE OPTIONAL PLATE 930 DROP ARM



- NOTE:**
1. DIMENSIONS ARE IN INCHES/(mm).
 2. RIGHT HAND DOOR SHOWN.
 3. MAXIMUM DEGREE OF OPENING 110.
 4. MIN DOOR WIDTH 28"
 5. SHOWN WITH OPTIONAL E900 ANGLE BRACKET
 6. PLATE 930 DROP ARM, MIN 2" TOP DOOR RAIL

f. Jamb Arm Installation, Push Side Mount, above 2" Frame Face

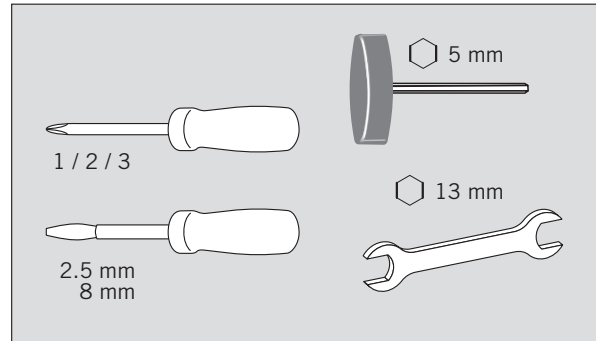
1/4-20 MACHINE SCREWS USE 7/32" DRILL & TAP
 No.14 WOOD SCREWS USE 5/32" DRILL
 TWELVE (12) HOLES IN FRAME HEADER FOR PLATE



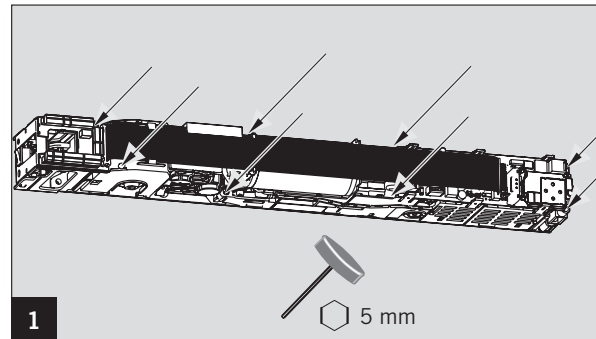
- NOTE:
 1. RIGHT HAND DOOR SHOWN
 2. MAXIMUM DEGREE OF OPENING 110
 3. MIN DOOR WIDTH 28"
 4. SHOWN WITH THE 60mm AXLE EXTENSION AND 5/8" STOP
 5. REVEAL DEPTHS J8 = 8" MAX
 J12 = 12" MAX

4. Installation Instructions

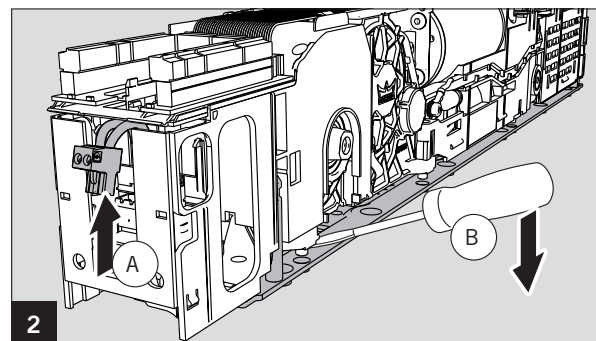
Required tools



- Loosen the 8 screws to loosen the mounting plate from the operator body using the 5mm T-Allen Wrench supplied. Arrows in Fig. 1 show each screw location.




- A Remove 115 V plug.
- B Remove operator from mounting plate. If needed, carefully use a screwdriver to pry the operator off the base plate. See Fig. 2 where to place screwdriver.

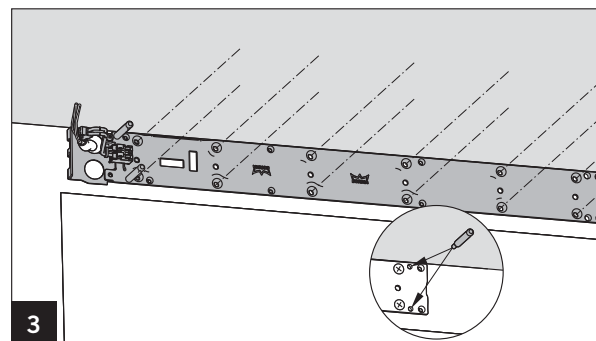


- Install the mounting plate and optional conduit box with 12 screws through the provided holes.

Use adequate fasteners supplied with this unit in accordance with the substructure to attach the mounting plate. See mounting templates.

-  **For best results use the bare mounting base plate as a jig to center punch hole locations.**

- Screw the provided alignment pin into lower of the two tapped holes.



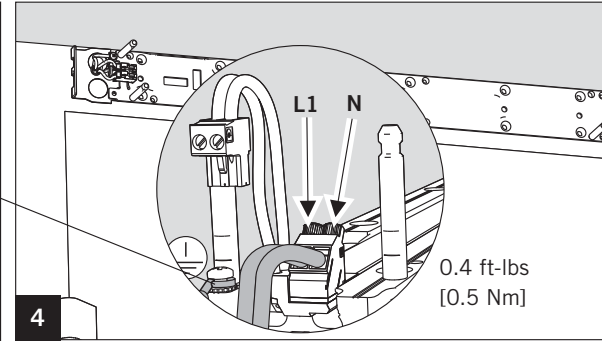
ED900

- Connect the 115 V power supply.

⚠ Work on electrical equipment may only be performed by properly qualified staff (electricians).

⚠ Connect grounding cable. Form a loop of the end of the cable.

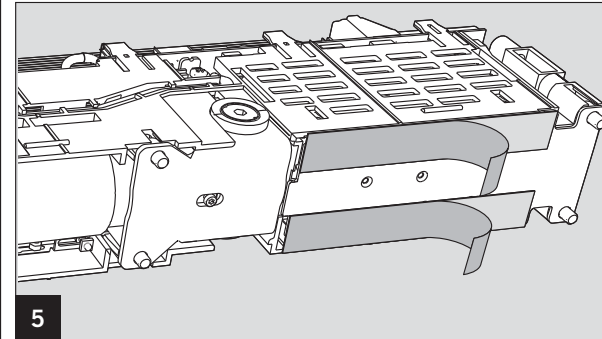
Tighten power supply terminal to 0.4 ft-lbs.
See Fig 4



- For optional power cord, see page 22 for installation instructions.

- Remove the protective film from the heat conductive pads at the bottom of the power supply unit. See Fig. 5

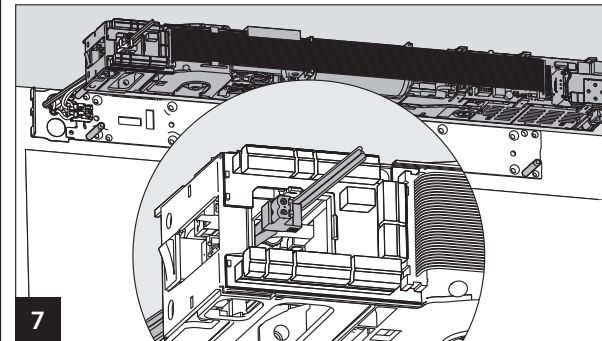
☞ The heat conductive pads must remain clean.



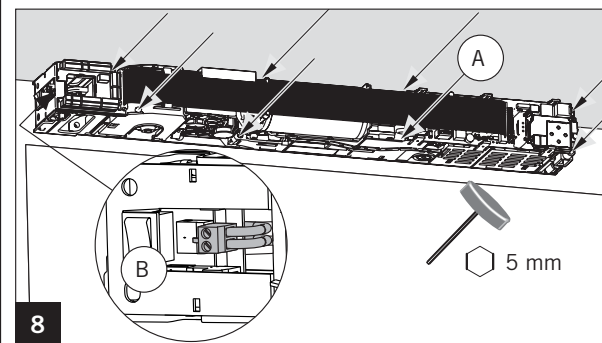
- Attach the operator to the alignment pins on the base plate.

Feed the connection cables through the plastic housing in a way not to damage wires.

Press against the operator until you hear it lock in position. See Fig. 7

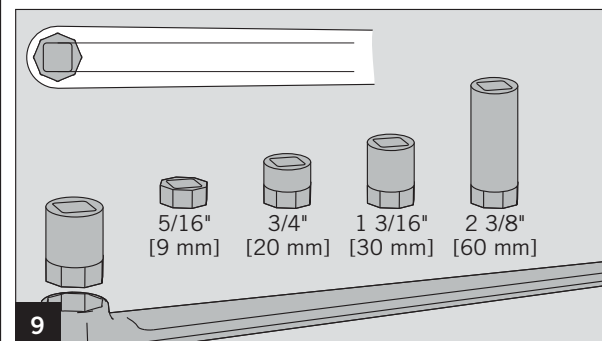


- A Screw down the 8 screws thoroughly.
- B Connect 115V plug to operator. See Fig 8



- Push the appropriate axle extension into the arm.

✎ Turn the square end so that its mounting position corresponds to the picture. Turn the axle extension so that it is parallel with the arm – not diamond.



a Mounting of Slide Channel (pull side)

- Assemble slide shoe.
Insert the pivot pin in the slide shoe (1/2" [12.5 mm] or 1" [25 mm]) and secure with retaining clip.
- Position the individual components inside the slide channel and screw down the fittings.

- 1 - Slide channel
- 2 - End stop
- 3 - Buffer
- 4 - Slide shoe
- 5 - Fitting

- Install the slide channel with 2 screws through the provided holes.
- Mount the slide channel cover.

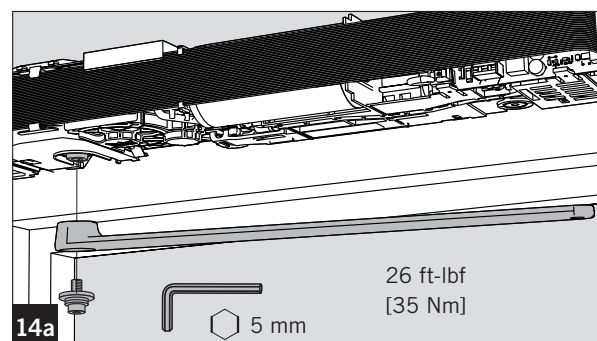
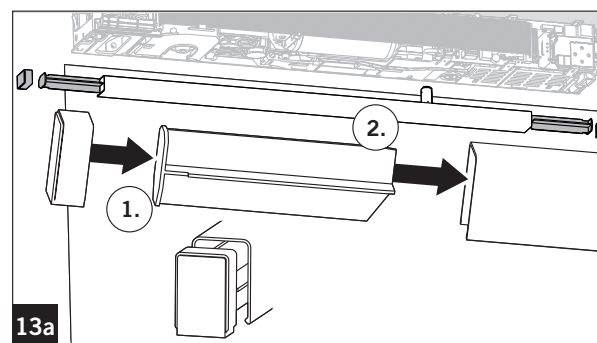
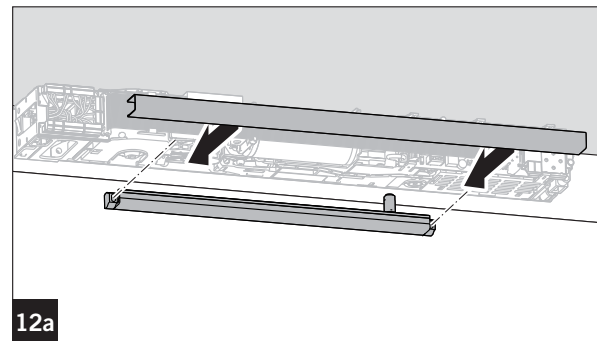
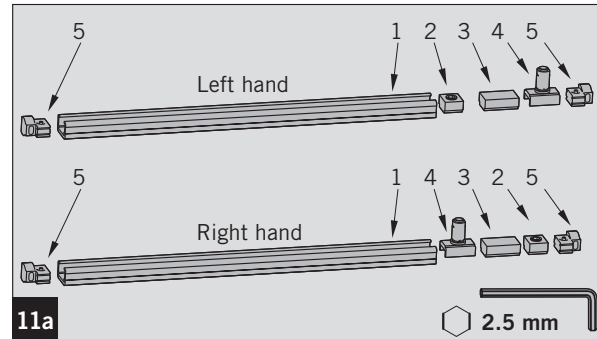
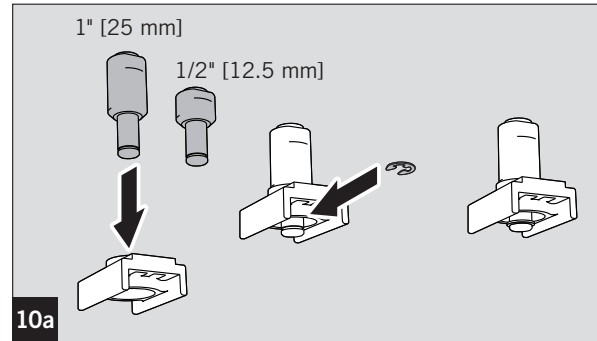
- A Assemble the end caps onto the spacers.
- B Insert assembly into the cover.

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

- Use 5mm T-Allen wrench (26 ft-lbf [35 Nm]) to attach the arm to the axle connection.



Only use the provided self-locking screw. In case the screw has to be removed during repair or maintenance work, it has to be replaced by a new self-locking screw or a dot of blue loctite.



ED900

- Install arm to slide channel. Adjust and set the slide block stop. See Fig. 15a

b Standard Arm (push side)

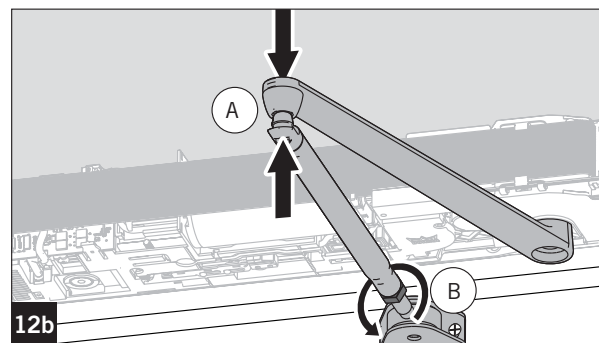
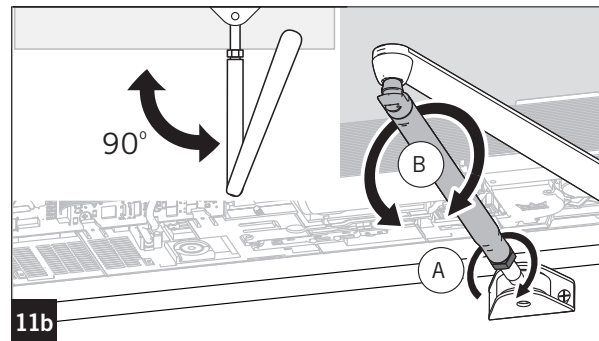
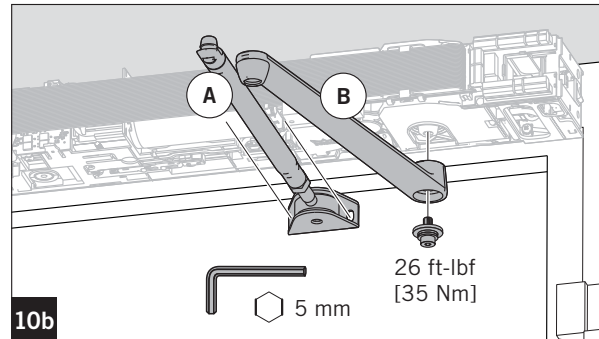
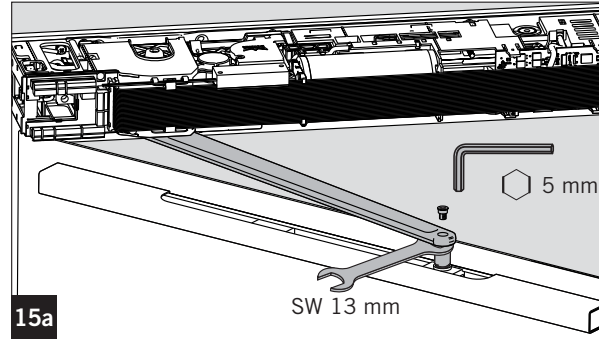
- Install the connecting arm (A) with 2 screws through the provided holes. Use a 5mm T-Allen wrench (26 ft-lbf [35 Nm]) to attach the arm (B) to the operator axle. See Fig. 10b



Only use the provided self-locking screw. In case the screw has to be removed during repair or maintenance work, it has to be replaced by a new self-locking screw or a dot of blue loctite.

- A Loosen the jam nut on the connecting arm.
- B Turn the adjustment screw so that the connecting arm is at a right angle (90°) to the door leaf when the arm is clipped together. Door must be in CLOSED position.

- A Press the ball head of the adjustment screw into the provided hole inside the arm.
- B Secure the adjustment screw with the aid of the hexagon nut.



Adjustment of braking circuit

1. Ensure that the power supply is switched off!
2. Insert double jumper according to the respective way of mounting.

(A) Push – mount jumper towards latch side.

(B) Pull – mount jumper towards hinge side.



The brake circuit will not work if the jumper is improperly connected. The door might close at high speed and be difficult to open.

Adjustment of spring force

When the system is delivered, the spring tension needs to be lowered all the way first (turn counterclockwise).

Then the spring has to be pre-tensioned – at least 10 revolutions clockwise max 18 are required to operate the system.

The system checks 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.

Adjustment of closing speed under power failure conditions

Adjust closing speed.



The speeds has to be adjusted in any case!

If the door requires less than 3 seconds to close, error message 73 (braking circuit test) will be emitted.

Adjustment of latching action (point of activation) while the system is de-energized (disconnected system from power supply)

By moving the micro switch, you may change the angle at which the system switches from one closing speed to the other.

Prior to this setting, the two speeds have to be adjusted with the aid of potentiometer 1 and 2 – see picture 18.

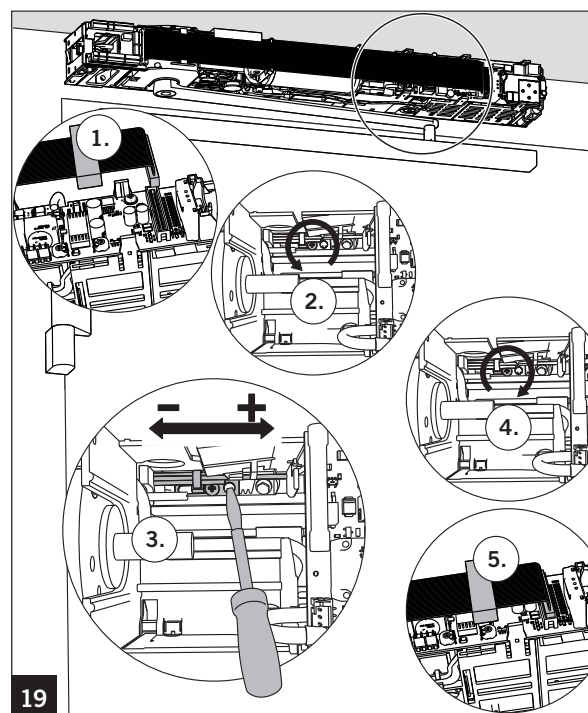
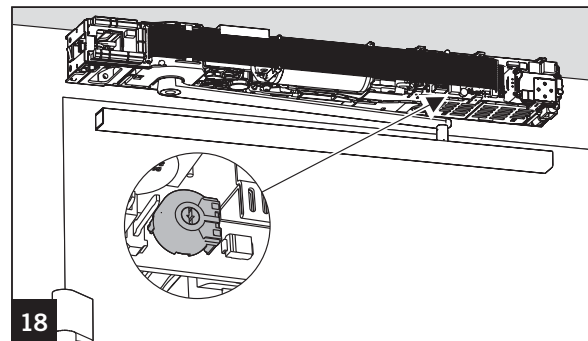
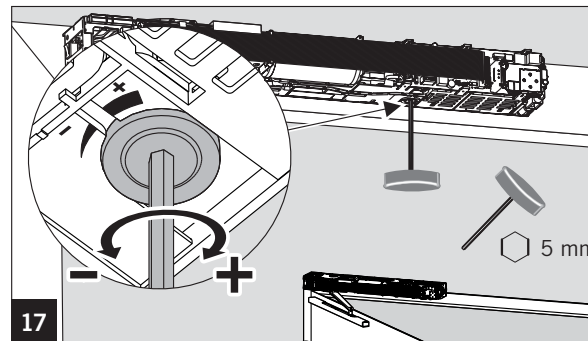
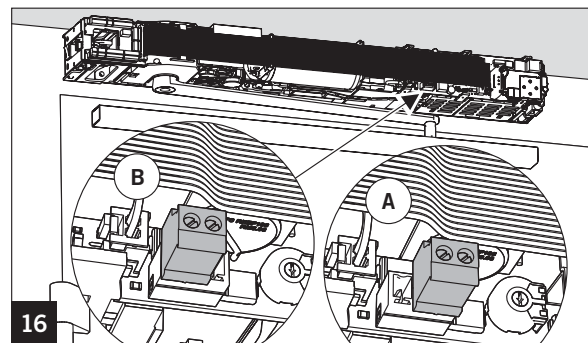
1. Remove ribbon cable
2. Loosen screw
3. Use a screwdriver to move the plate into the desired direction.

Move the lever away from the control unit to increase the angle at which potentiometer 1 determines the speed (picture 18).

4. Tighten the screw
5. Re-connect ribbon cable



In some cases the door has to be slowed down instead of being accelerated. In this case the plug with the red leads (coming from the micro switch for the angle recognition) has to be removed from the control unit and must be replaced by the plug with the black leads.

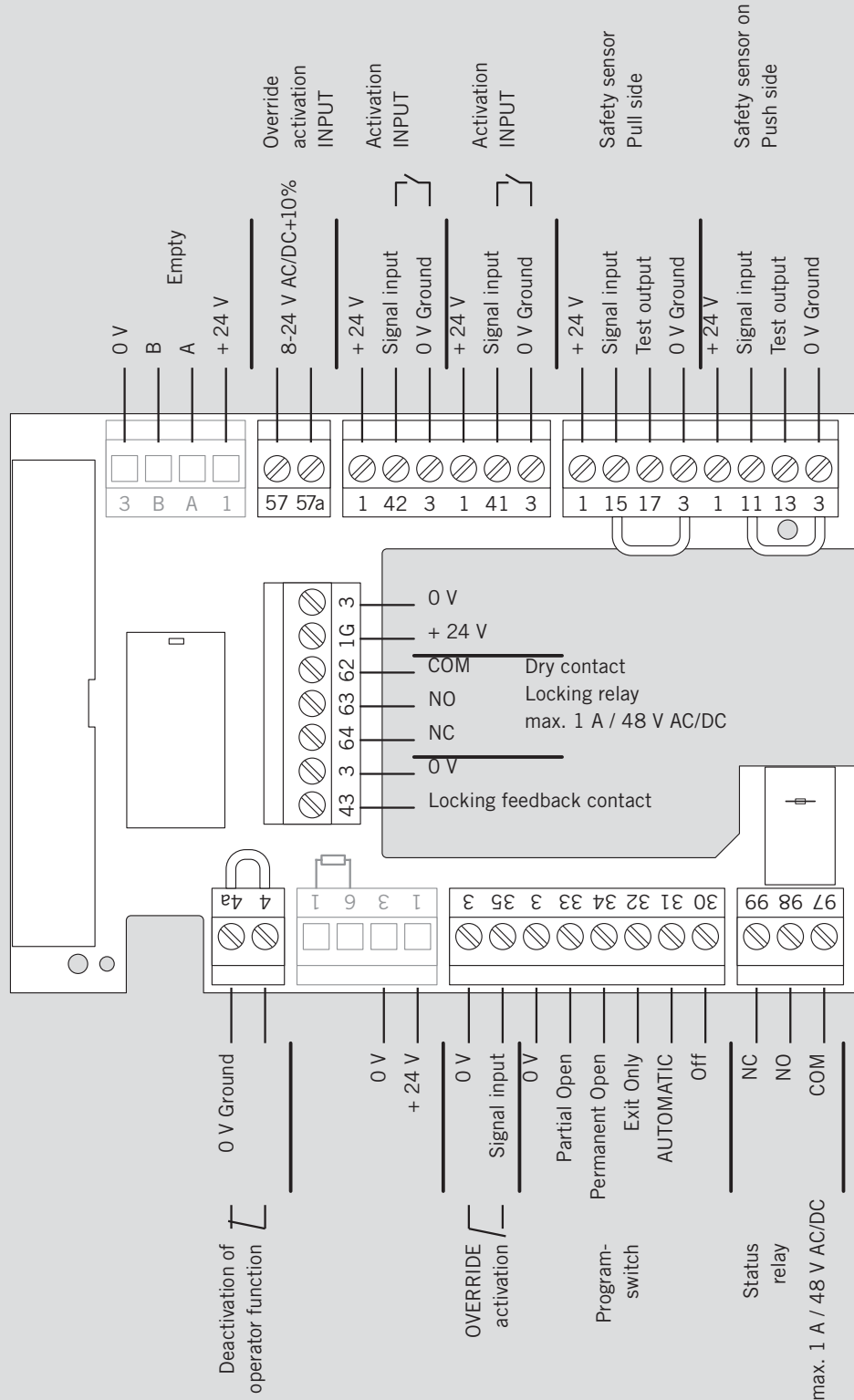


5. Connection Diagram

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, 1G and 3 is to 1.5 A.

The cable length must not exceed 98' 5" [30 m] when using J-Y (ST) Y 1/32" [0.8 mm].



6. Commissioning

The ED900 is equipped with a programming panel, four yellow buttons, with multiple uses explained below. Next to it is a two digit display which displays the setting parameters.

STEP 1 Power on – The operator needs to be completely installed and the door closed. The motor must also be cool during set up. All terminal connectors need to be installed with no safety sensors. Both mode switches in the off position (O). Switch on the power supply (I).

STEP 2 The seven segments will flash on followed by the two horizontal dashes side by side. While the segments are moving up and down push the yellow button pointing towards the ground. This will instruct the operator whether it is mounted right hand or left hand and set the display orientation.

- The display will now scroll with the model “ED-900 + revision information” once that is complete the display will show “P” with moving segments next to it.
- The operator must now have the first three settings entered into it before continuing to the learn cycle.

Note:

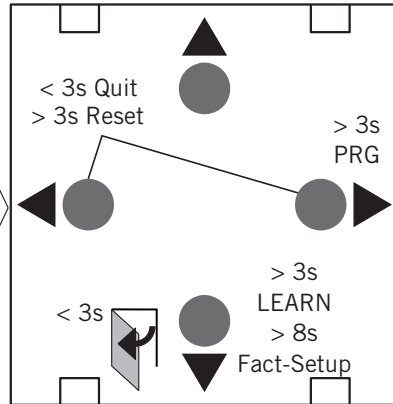
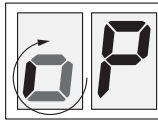
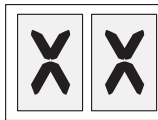
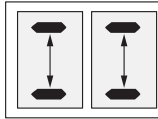
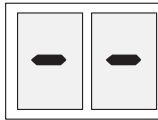
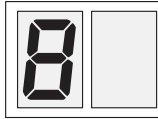
1. Holding the bottom button for more than 3 seconds will start a learn cycle, more than 8 seconds will perform a factory reset, causing all parameters to reset to the original settings.
2. After the ED900 has performed a learn cycle, momentarily pushing the bottom button will cause the door to open.
3. The right and left buttons, when pushed together have two functions. Holding both buttons for less than 3 seconds will acknowledge an error. Holding both buttons for more than 3 seconds will reset the operator to the original factory settings.

7. Functions of Mode Switches

- OFF** The door opens automatically when the Night-/Bank activator is triggered and closes on expiration of the Night-/Bank hold-open time.
- AUTOMATIC** The door opens automatically when one of the activators is triggered and closes on expiration of the adjusted hold-open time.
- PERMANENT OPEN** The door opens automatically and remains open until the function is deactivated.
- 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.



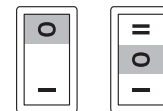
The power switch is located in the endcap on the end of the unit facing the hinge edge of the door.



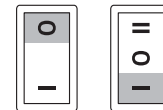
The mode switches are located in the endcap on the end of the unit facing away from the hinge edge of the door.

Mode Switches

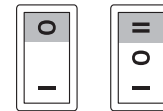
OFF
Push both switches to "0".



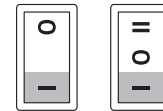
AUTOMATIC
Push the front switch to "0", and the other switch to "I".



PERMANENT OPEN
Push the front switch to "0", and the other switch to "II".



EXIT ONLY
Push the front switch to "I", and the other switch to "I".

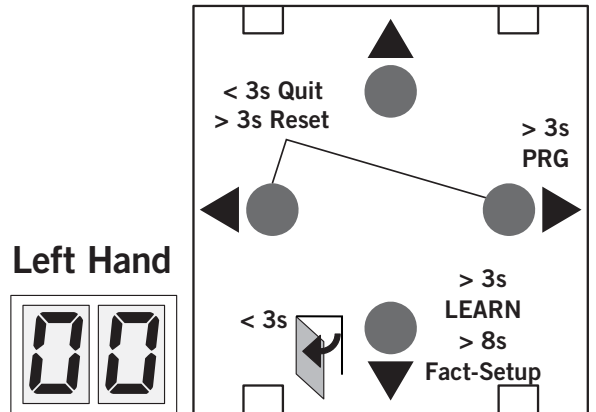


8. Setting and Changing the Parameters:

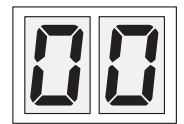
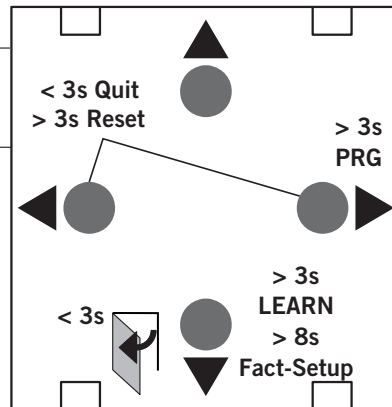
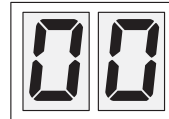
STEPS 3/4/5 Hold the right hand button until the display changes to 2 letters. You are now in the parameter menu. To move to different parameters, use the top and bottom buttons to scroll through the list.

- When the desired parameter is displayed, push the right hand button to show the current parameter value. To edit the value, push the right hand button again and the value number will flash. The flashing indicates that you have entered the edit mode. You can now increase or decrease the value by pushing the top or bottom buttons. After you have changed the value, push the right hand button to save the change. The value number will stop flashing, which indicates acceptance of the new value. Push the left button to move back to the list of parameters. Use the top or bottom button to scroll to another parameter or the left button to exit the parameter list. Once steps 3, 4 & 5 are entered the operator is ready to go into learn.

Mylar Legend Plate



Left Hand



Right Hand

Press and hold bottom button for 8 seconds to return to factory settings. (Mode switches must be in OFF position.)

Notch Location

Tabs

Mylar Legend Plate can be removed to correct upside down text.

To remove; use the notch to pry up on mylar legend plate. Four plastic tabs retain it.

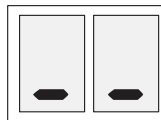
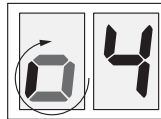
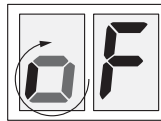
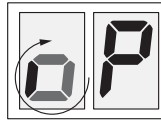
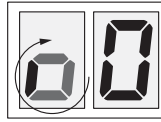
Step	Display	Unit	Range	Factory Setting	Description		
3		na	na	0	0 - operator on pull side of door 1 - operator on push side of door	-3= -1 1/8"	11= 4 1/8"
4		3/8"	-3 to 30	0	Reveal each unit equal to 3/8" → EX. 4= 1-1/2"	-2= -3/4"	12= 4 1/2"
5		4"	7 to 11	10	Width each unit equal to 4", Astragal is included Ex. 8= 32"	-1= - 3/8"	13= 4 7/8"
						0=0	14= 5 1/4"
						1= 3/8"	15= 5 5/8"
						2= 3/4"	16= 6"
						3= 1 1/8"	17= 6 3/8"
						4= 1 1/2"	18= 6 3/4"
						5= 1 7/8"	19= 7 1/8"
						6= 2 1/4"	20= 7 1/2"
						7= 2 5/8"	21= 7 7/8"
						8= 3"	22= 8 1/4"
						9= 3 3/8"	23= 8 5/8"
						10= 3 3/4"	

Note:

Lists of advanced settings are found in book 3.

9. Learn Cycle:


- A zero (0) displayed in the two digit display indicates the unit is ready for the "Learn Cycle". Push and hold the yellow button pointing towards the ground for 3 seconds or until you see the display change.
- If a (P) is displayed the system requires further parameters to be set. Re-enter the previous three settings (steps 3-5).
- The door will make some automatic movements. Do not move or stop the door during this process. Also make sure the door opens unobstructed to open (70 degrees), this will prevent the operator from learning.
- If after several movements the door stops and displays "F", this is an indication that the spring force is too low. Turn off the power and close the door. Increase the spring force by adding at least 2 full turns clockwise, restore power, and restart the learn cycle by pushing the bottom yellow button until the two digit display changes and the learn cycle restarts.
- The door will stand open at 70 degrees and the display will show a four (4). Move the door to the desired degree of opening and push the bottom yellow button. Once the desired degree of opening is made make sure that the door stops that will be installed will allow the door to open to this degree.
- The operator will complete the learn cycle and there will be two horizontal bars side by side on the display.
- The operator is now ready to be set up with all custom features such as times, forces, speeds, etc. You should have the trigger device(s) connected at this point and the mode switch to "Automatic".



10. Mounting Continued


End stop adjustment for openings with slide channel
The end stop has to be adjusted so that the opening angle cannot be exceeded when the door is pushed manually in opening direction.

1. Set program switch to PERMANENT OPEN.
(The door opens until it has reached the adjusted opening width.)
2. Move the buffer and the end stop until they are located 3/16" [5 mm] from the sliding shoe.
3. Fix end stop thoroughly with screws.

 **A door stop must be installed when the system is operated with standard arm.**

Reference DORMA dead stop Installation instructions.

Position operator cover and push until you can hear it snapping in.

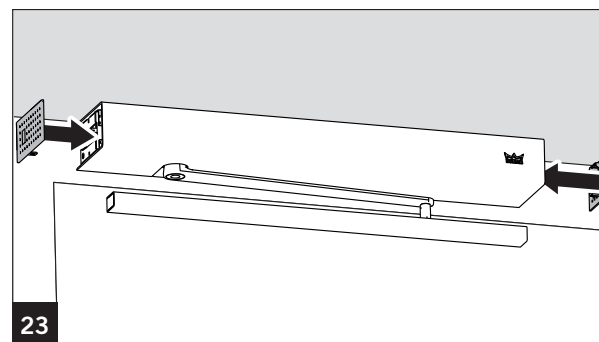
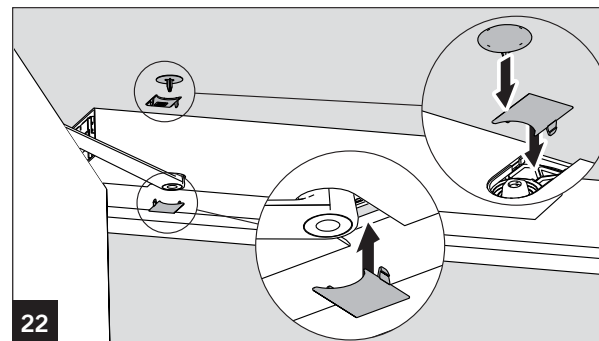
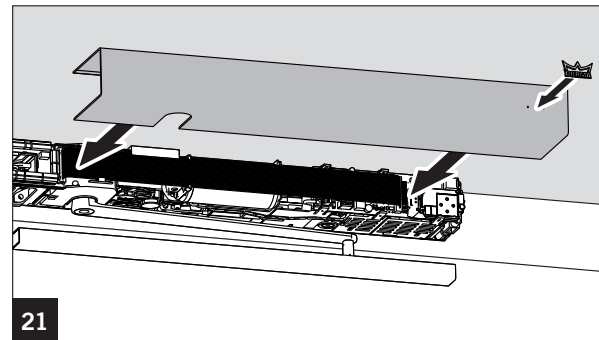
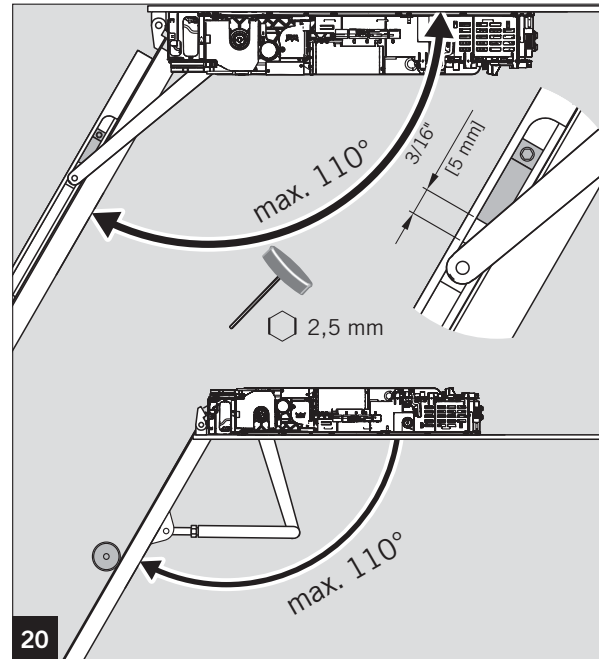
 **Pay attention not to damage any cables.**

Install DORMA logo as shown.

Install axle covers.

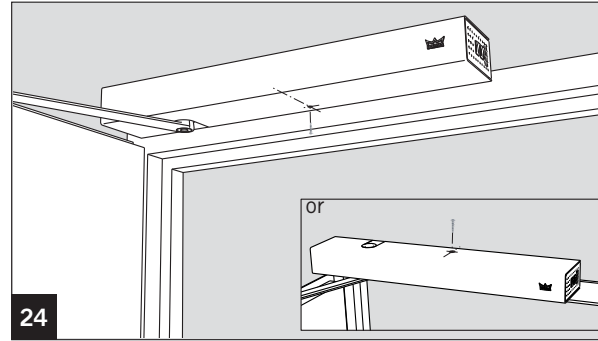
Install end caps to be flush with cover.

On the side of the program switch, the depth is variable via notches in order to compensate minor length tolerances of the cover.

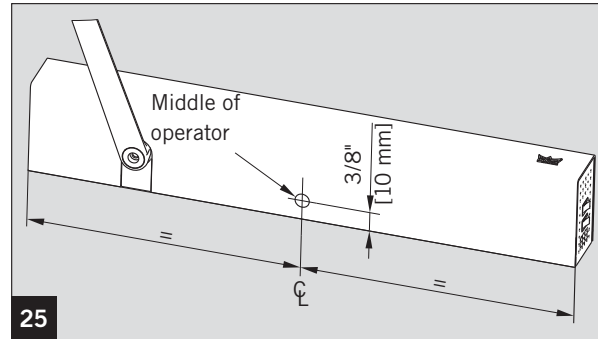


11. Cover and End Cap Securing

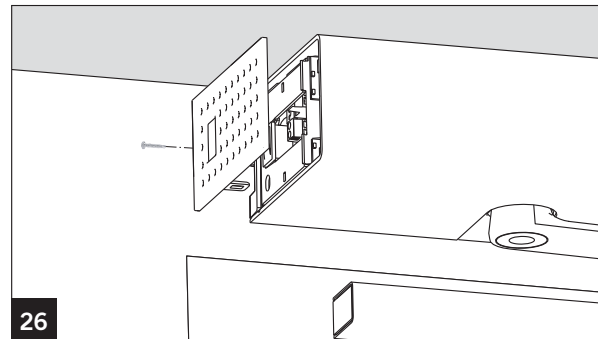
- The cover and power side end cap must be secured with a fastener to be compliant to UL 325.



- Drill for self threading screw drill size 31 (0.12")



- Push on End Caps. Secure with a fastener.



12. Power Cord Installation

Parts List:

No.	Description	Qty
1)	110V Power Cord	1
2)	Conduit Box	1
3)	Cord Grip	1
4)	Wire Nut	1

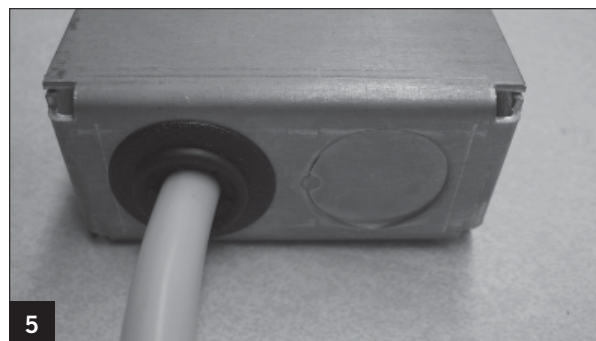
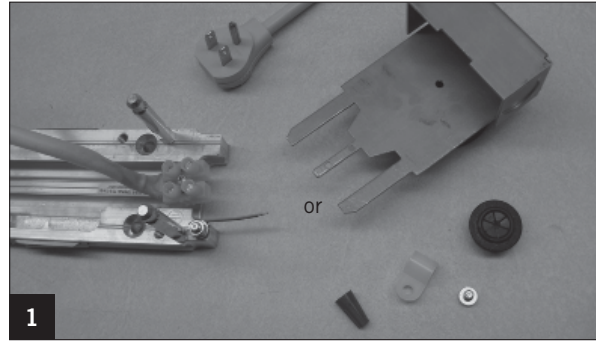
- Disassemble– Unscrew pan head screw from terminal block; using #1 Cross point Screw Driver

- Assemble– tighten pan head screw into terminal block and bushing; using #1 Cross point Screw Driver (5 inch pounds force)

- Punch out conduit hole best suited for your application. Place cord into grommet and insert grommet into the empty hole using a pair of pliers to compress.

Tool List

- #1 Cross-Point Screw Driver
- 1/8" Slotted Screw Driver
- Pliers



ED900

- Use a 1/8 flat head screw driver to loosen and tighten terminal connections:
- Live wire (black) into upper terminal space (brown)
- Neutral wire (white) into lower terminal space (blue)
- Ground wire (green) connect to grounding wire (green)

- Align mounting base plate and main unit as shown in the photo.
- Feed the power line coming off the back of terminal block through the plastic housing as shown being careful not to damage the wires

- Connect power plug to terminal block behind the power switch as shown in the photo's.
- Attach end caps and cover.

ATTENTION!!! Connect power cord to 120V 60HZ ONLY!!!

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

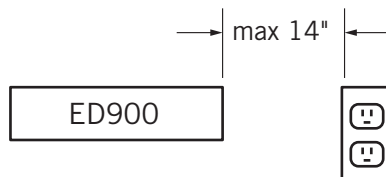
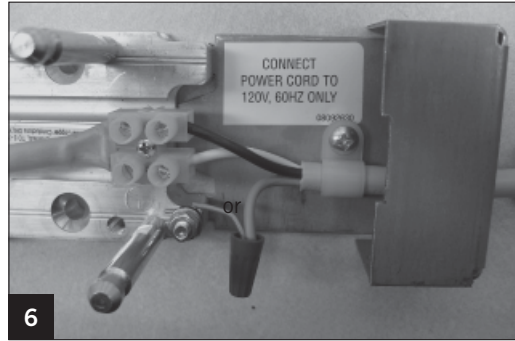
CAUTION:

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.

CAUTION: The flexible power cord should not be routed through doorways, window openings, walls, ceiling, 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.

FOR IN WALL MOUNTING:

When installing the socket, please remember that you should be able to reach it by hand. (max 14" away)



“Pour réduire le risqué de choc électrique, cet appareil est équipement d'une fiche avec mise a la terre comportant une troisieme broche (Broche de terre). Cette fiche ne peut etre brancheeque dans une prise avec mise a 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 LA FICHE.”

13. 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 or the Activate Switch to Operate decal on the push side of the door.





ED900





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-USA.COM