

DOR-O-MATIC®

AUTOMATIC DOOR SYSTEMS

Benchmark Swing Operator

Installation Instructions

95239-900 Standard
95339-900 Premium



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GENERAL

The Benchmark is an automatic electromechanical swinging door operator for indoor use on hinged, center pivoted, and offset pivoted doors. When activated, the Benchmark drives the door to the full open position, then electrical power is turned off and the door is closed by spring force. The activating circuit opens the door from any position in the closing swing. During a power failure, the Benchmark acts as a manual door closer (size 3). Door opening and closing cycles, including opening speed, back check speed, hold open time delay, closing speed, and latch position, are adjustable.

WARNING

Always disconnect main power to the operator prior to servicing or cleaning.

CAUTION

This operator is for indoor use only.

CAUTION

Do not mount any accessories directly to the operator.

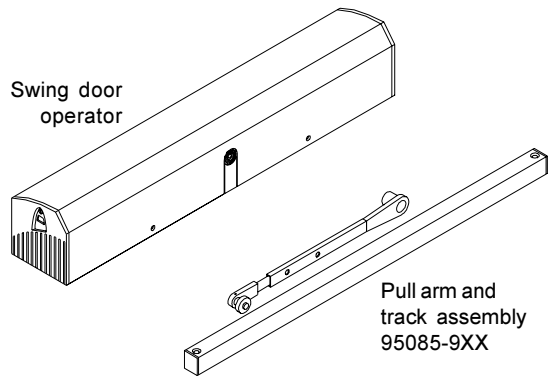
REPLACEMENT PARTS AND SYSTEM COMPONENTS

Part	27" Header	Full Length Header Single	Full Length Header Double
Standard Control Box	95229-900	95229-900	95229-900
Premium Control Box	95329-900	95329-900	95329-900
Gear Box	95100-000	99040-000	95100-000
Cover	95171-9XXR	99201-9XXR	99201-9XXR
Insert	N/A	99067-9XX	N/A
End Caps	99060-900	99060-900	99060-900

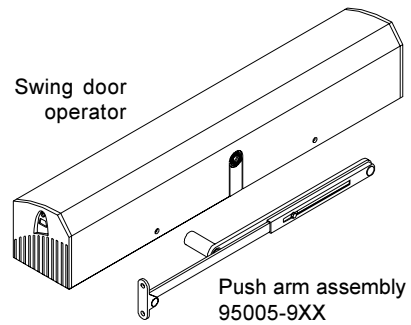
Part	Pull	Standard Push	Extended Reveal Push
Arm Assembly	95085-9XX	95005-9XX	95025-9XX

XX	Finish
75	US 28
79	DC 13

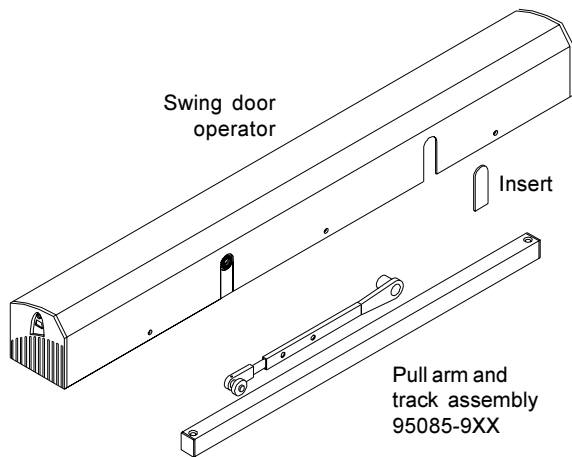
REPLACEMENT PARTS AND SYSTEM COMPONENTS (continued)



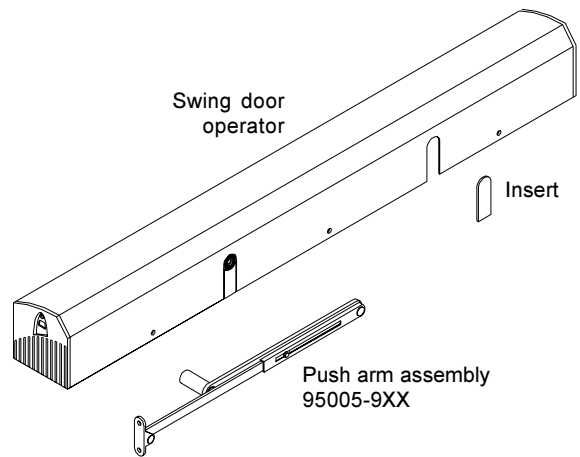
27" Pull System
(screw pack not shown)



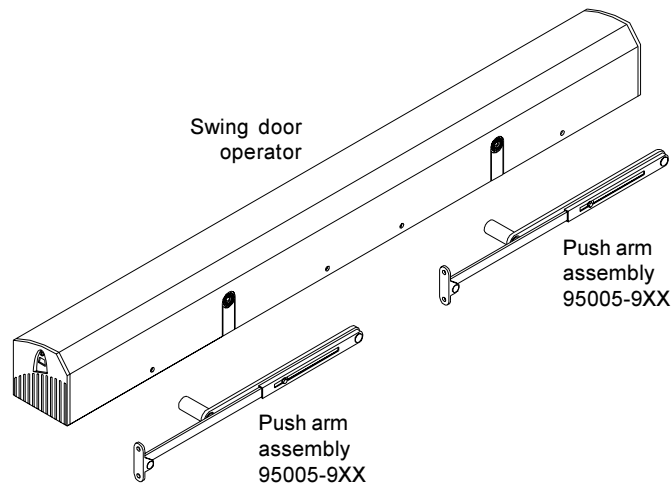
27" Push System
(screw pack not shown)



Full Length Pull System
(screw pack not shown)



Full Length Push System
(screw pack not shown)

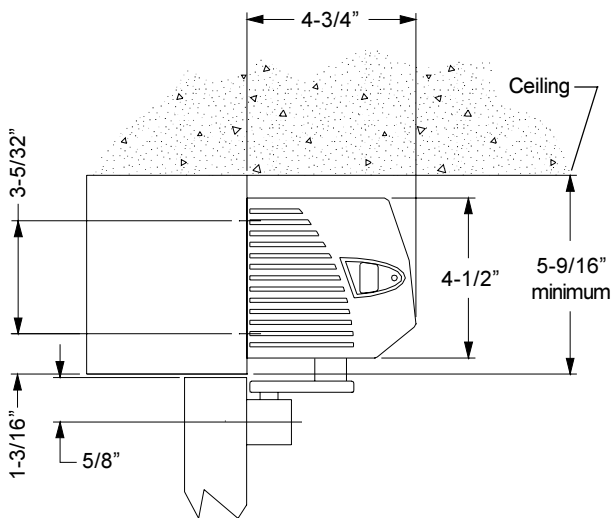


Double Push System
(screw pack not shown)

1. PRE-INSTALLATION SITE AND PRODUCT CHECK

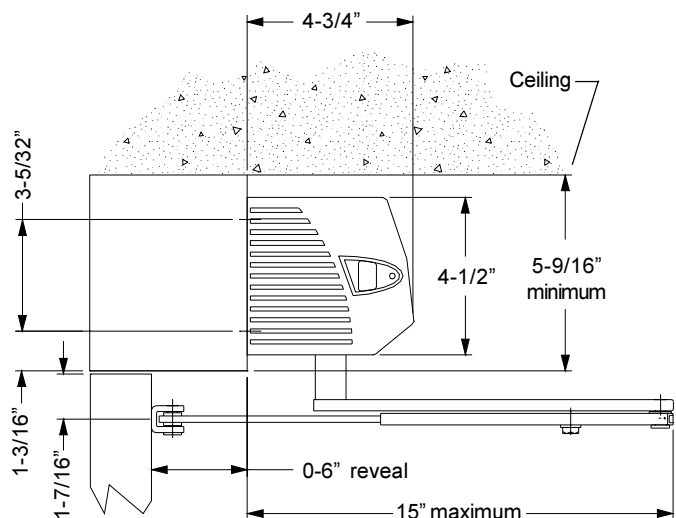
- 1.1. Check that the product model is correct for the required application.
- 1.2. Check that all parts listed on the bill of material are in the shipping container.
- 1.3. Check architectural drawings and final approved shop drawings for position of frame and structural openings.
- 1.4. Check header and frame dimensions and required clearances:

Clearances for 27" Pull System and Full Length Pull System



1-3/8" frame face minimum
1-7/8" top rail in door minimum

Clearances for 27" Push System, Full Length Push System, and Double Push System



1-3/8" frame face minimum
1-7/8" top rail in door minimum

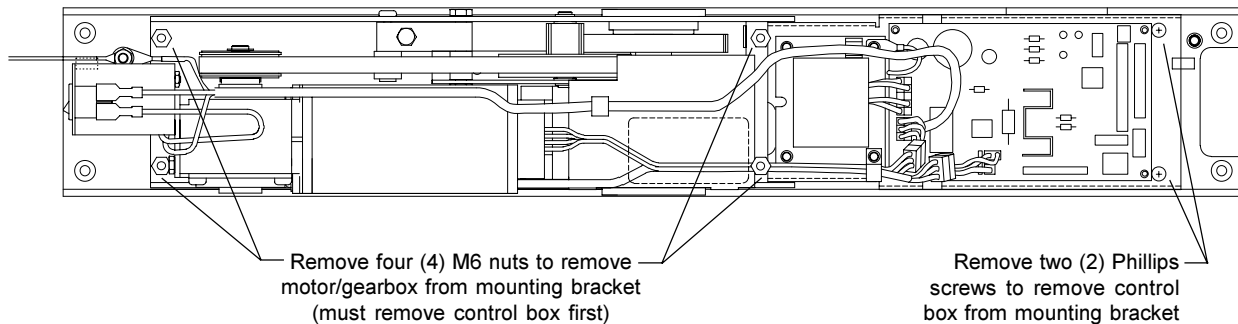
- 1.5. Check door width: 26" minimum for 27" push operator
30" minimum for 27" pull operator
36" minimum for full length push or full length pull operator
- 1.6. Check that door weight is 200 lbs or less. For heavier doors, consult factory.
- 1.7. Check that a 115 volt, single phase, 60 Hz, fused, 15 amp, 3-wire power supply is available at the side jamb with approximately 12" of wire available to connect to the operator. UL approved type flexible conduit is recommended for the 115 volt power line.

The 115 volt power supply must be a dedicated circuit from the main circuit breaker panel and **must not** be connected into a building lighting system operating fluorescent lights.

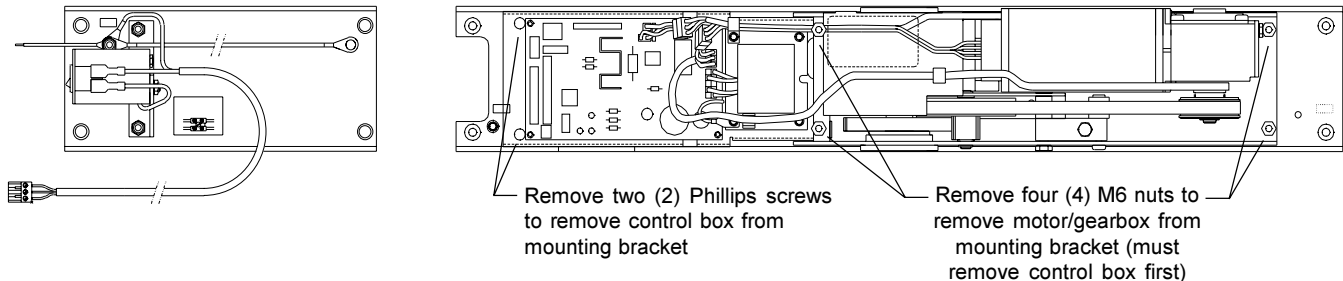
2. OPERATOR INSTALLATION

- 2.1. Remove control box from operator mounting bracket, then remove motor/gearbox from bracket:

Control Box and Motor/Gearbox Removal 27" Pull, 27" Push, and Double Push Systems



Control Box and Motor/Gearbox Removal Full Length Pull and Full Length Push Systems



- 2.2. Prepare header/frame and door:
- 27" Pull System see page 6
 - Full Length Pull System see page 6
 - 27" Push System see page 7
 - Full Length Push System see page 7
 - Double Push System see page 8
 - Low Ceiling Application see page 8



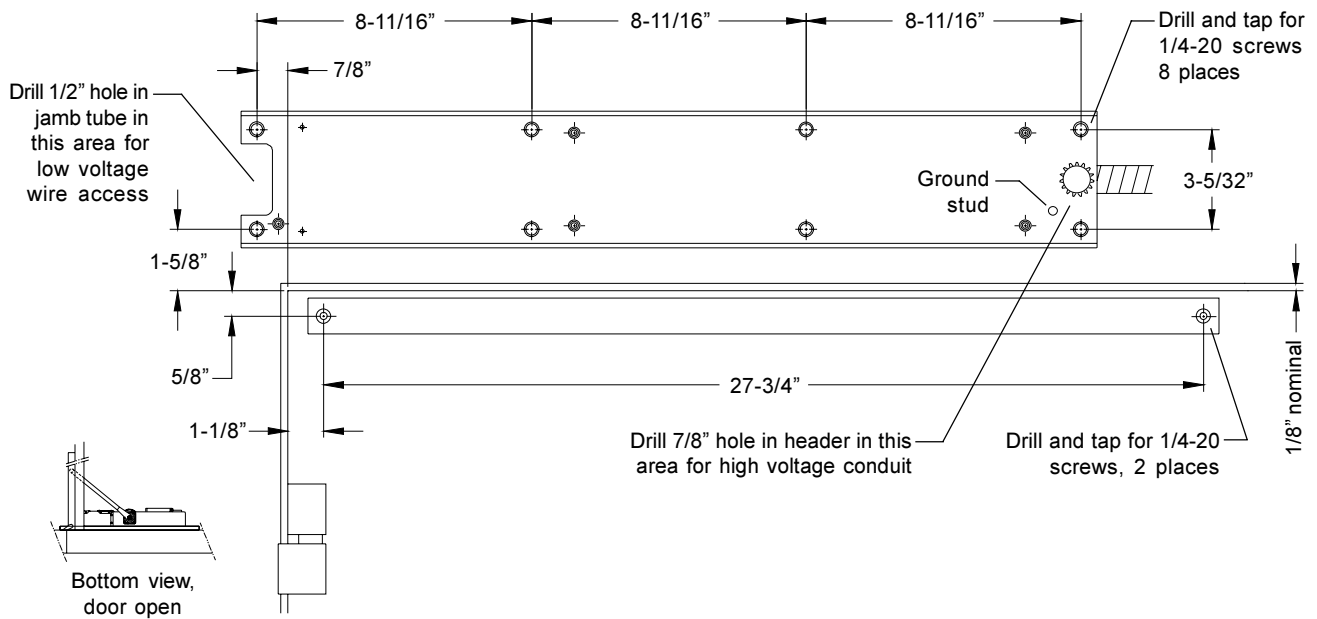
NOTE

For push units with a reveal greater than 6" refer to the installation sheet included in the extended arm packaging.

- 2.3. Install operator mounting bracket on header/frame. For full length systems, also install switch bracket on header/frame.
- 2.4. Install motor/gearbox on operator mounting bracket, then install control box on bracket.
- 2.5. Go to "Wiring" on page 9.

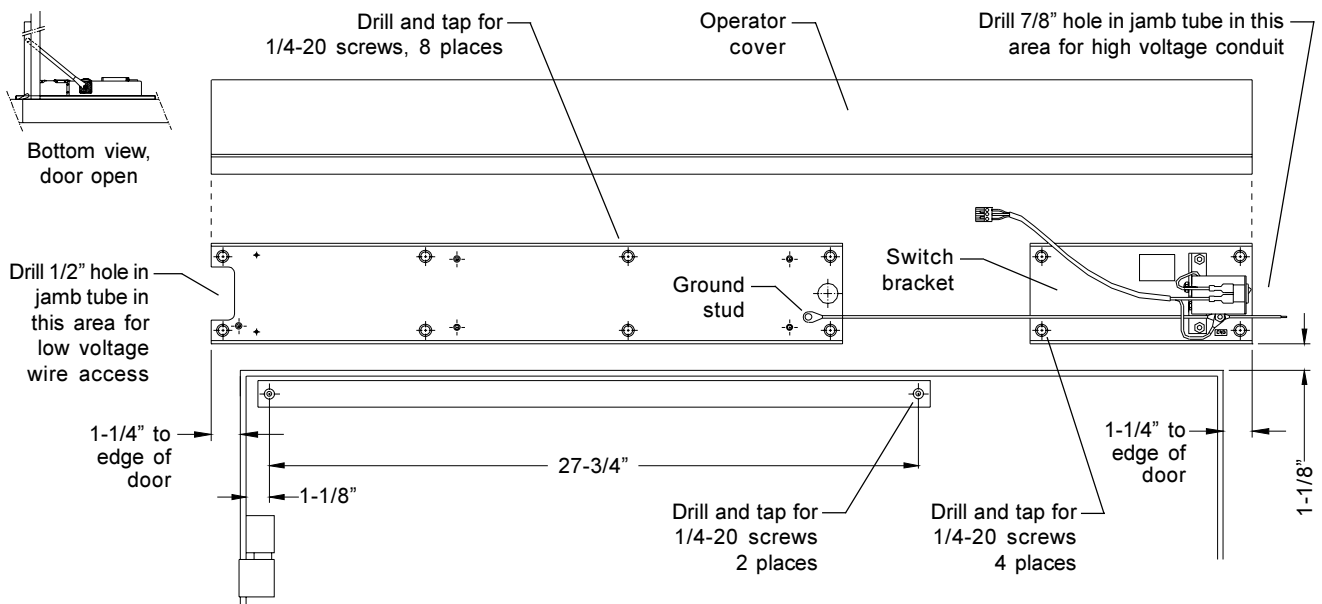
2. OPERATOR INSTALLATION (continued)

27" Pull System Frame/Header and Door Preparation



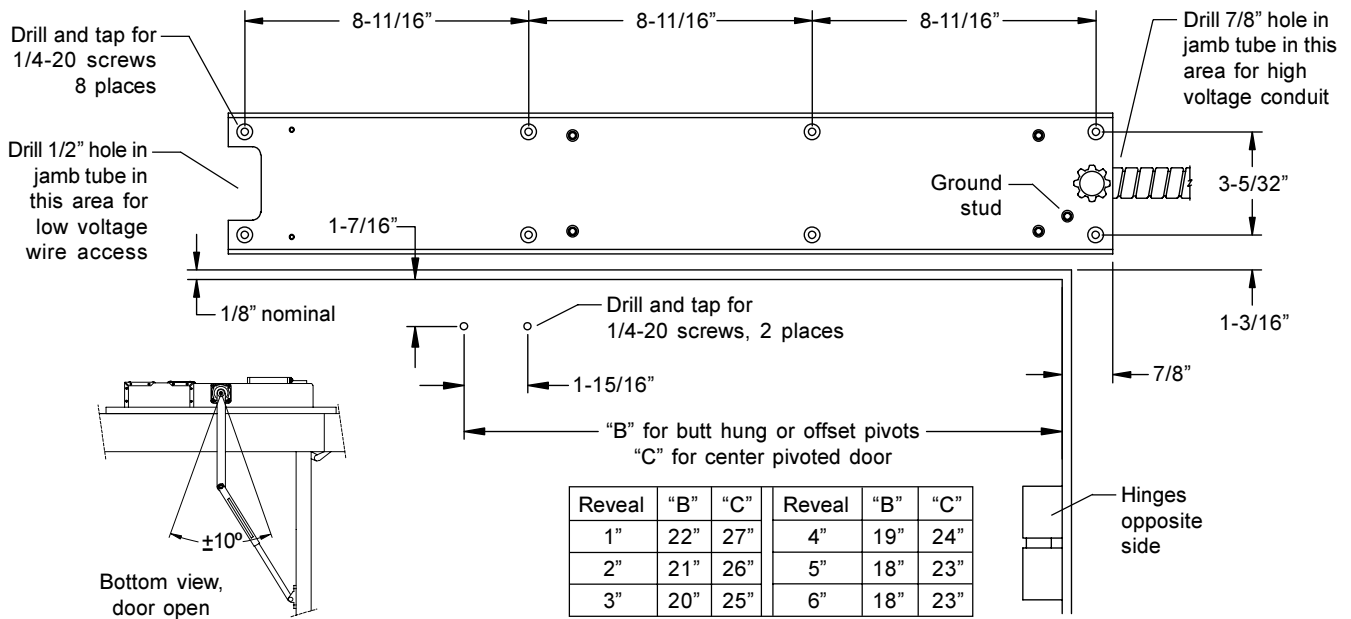
Full Length Pull System Frame/Header and Door Preparation

Center operator cover (with end caps removed) over opening and mark a vertical line at each end. Align ends of operator mounting bracket and switch bracket with vertical lines and adjust vertical position per diagram below. Mark and prepare mounting holes.



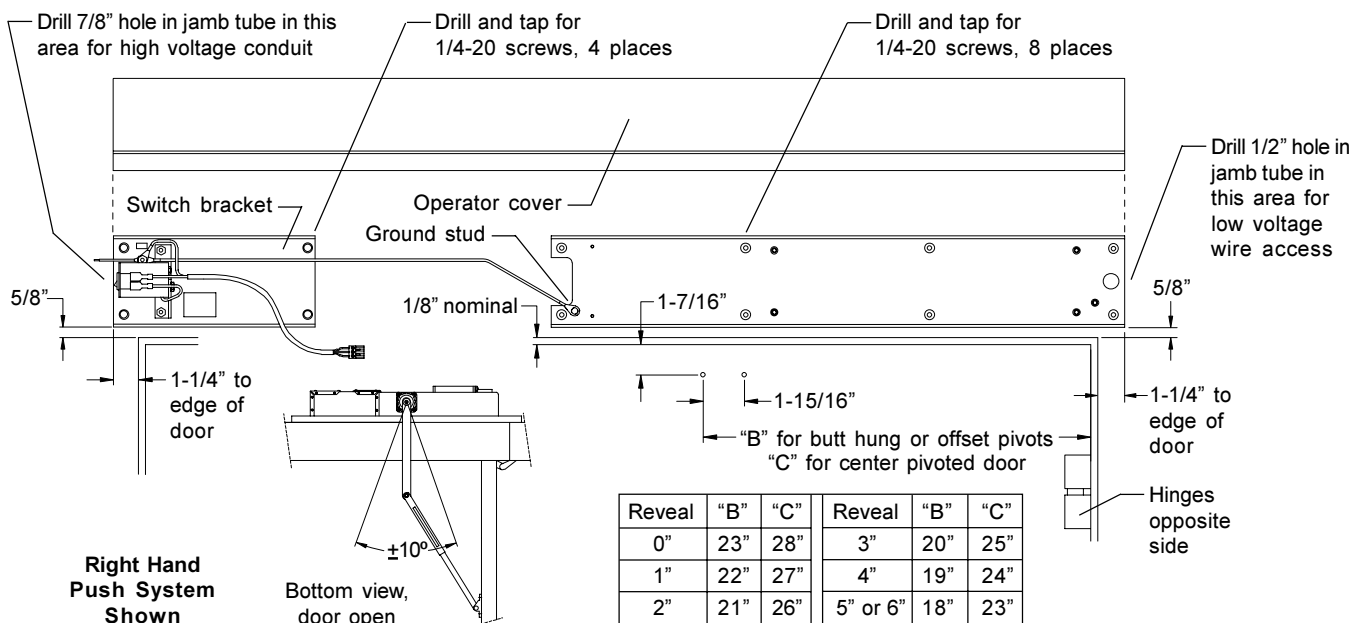
2. OPERATOR INSTALLATION (continued)

27" Push System Frame/Header and Door Preparation



Full Length Push System Frame/Header and Door Preparation

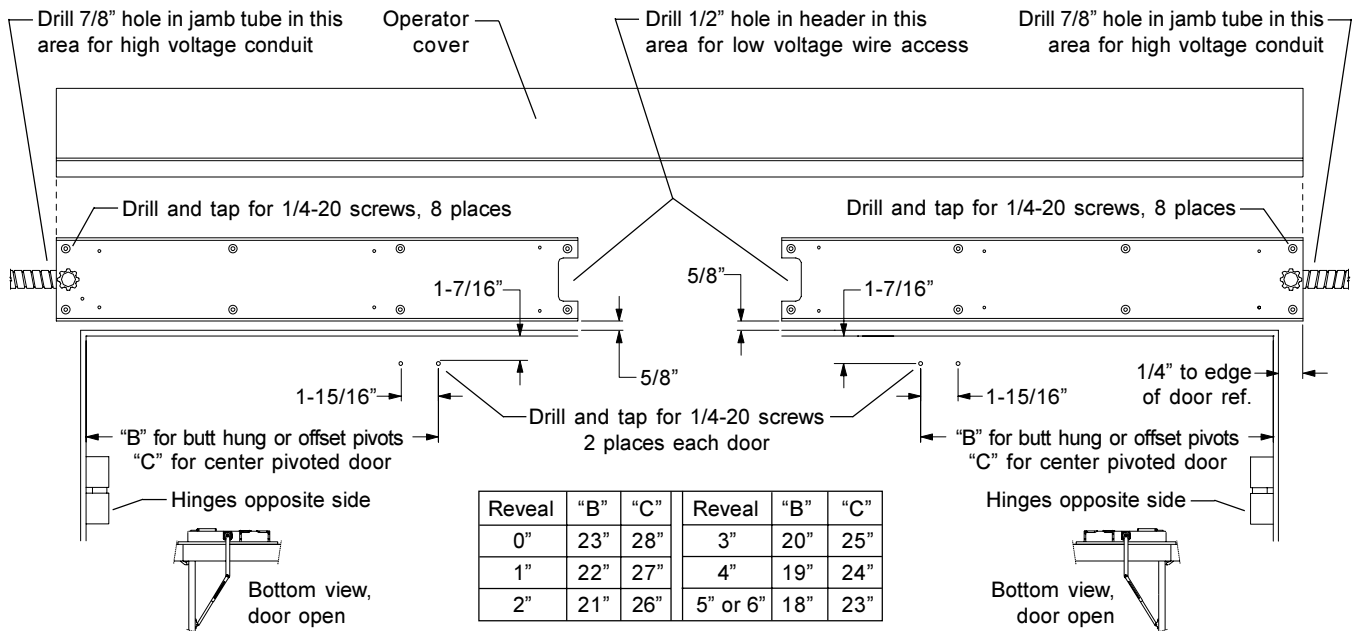
Center operator cover (with end caps removed) over opening and mark a vertical line at each end. Align ends of operator mounting bracket and switch bracket with vertical lines and adjust vertical position per diagram below. Mark and prepare mounting holes.



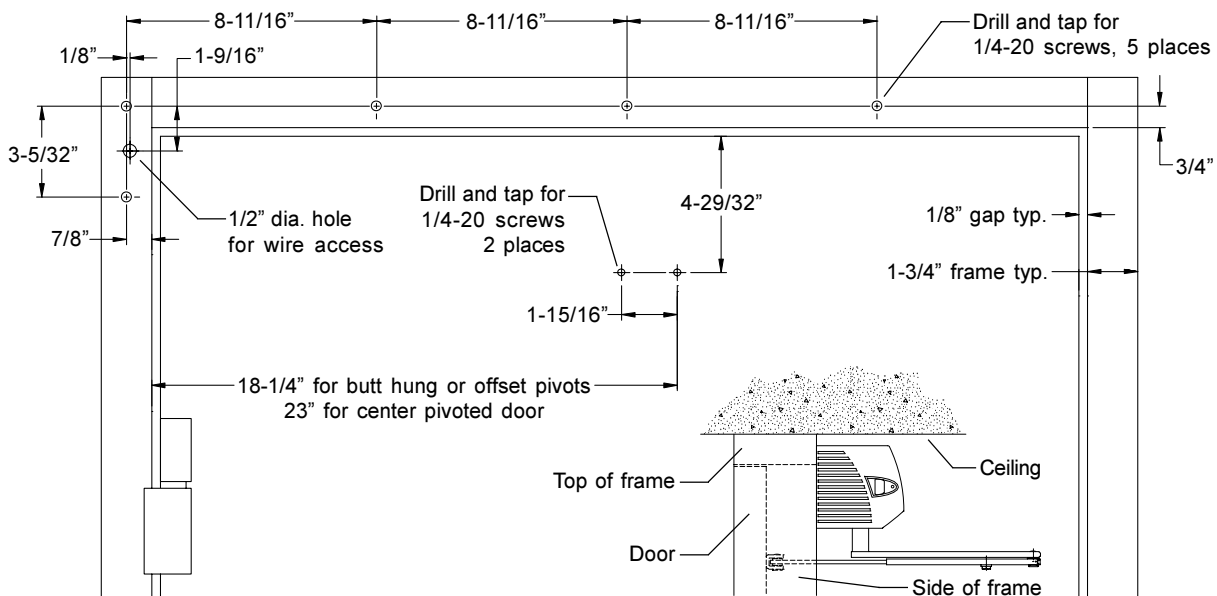
2. OPERATOR INSTALLATION (continued)

Double Push System Frame/Header and Door Preparation

Center operator cover (with end caps removed) over opening and mark a vertical line at each end. Align ends of operator mounting bracket and switch bracket with vertical lines and adjust vertical position per diagram below. Mark and prepare mounting holes.



Low Ceiling Application (27" Push System Only) Frame/Header and Door Preparation



3. WIRING



CAUTION

- Make sure all wires are properly dressed and secured to prevent interference.
- Route all wiring away from moving parts, sharp edges, and heat sources.
- Use copper conductors only.
- Do not modify the factory wiring or connect into existing electrical circuits or devices.

3.1. Refer to the appropriate wiring diagram for the standard control box (page 10) or the premium control box (page 11), and connect the following cables:

- Ground Cable (ground the operator properly with a separate green ground wire)
- Hall Effect Cable (**do not** wrap the Hall Effect cable around the Motor Power cable)
- Motor Power Cable (**do not** wrap the Motor Power cable around the Hall Effect cable)
- Main Power Cable
- Control Box Power Cable

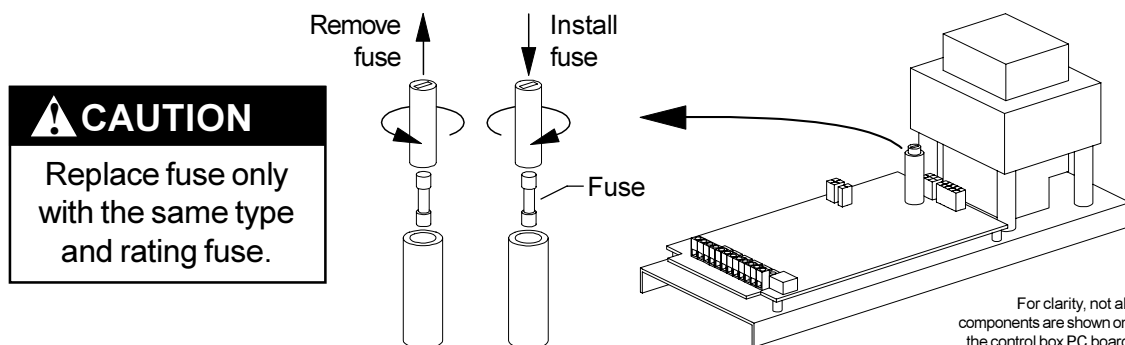
3.2. Connect Activate, Safety, 3-Position Switch, and Lock accessories as needed. Refer to the accessory instructions for any accessories used. Do not connect any remote activating device to the door unless it is located within line of sight of the door. An SO Kit is required if DC powered accessories are powered from the 17 VAC control box terminals.

3.3. When wiring is complete, go to “Arm and Cover Installation” on page 12.

“NO,” “NC,” and “AUX. ACT.” Circuits

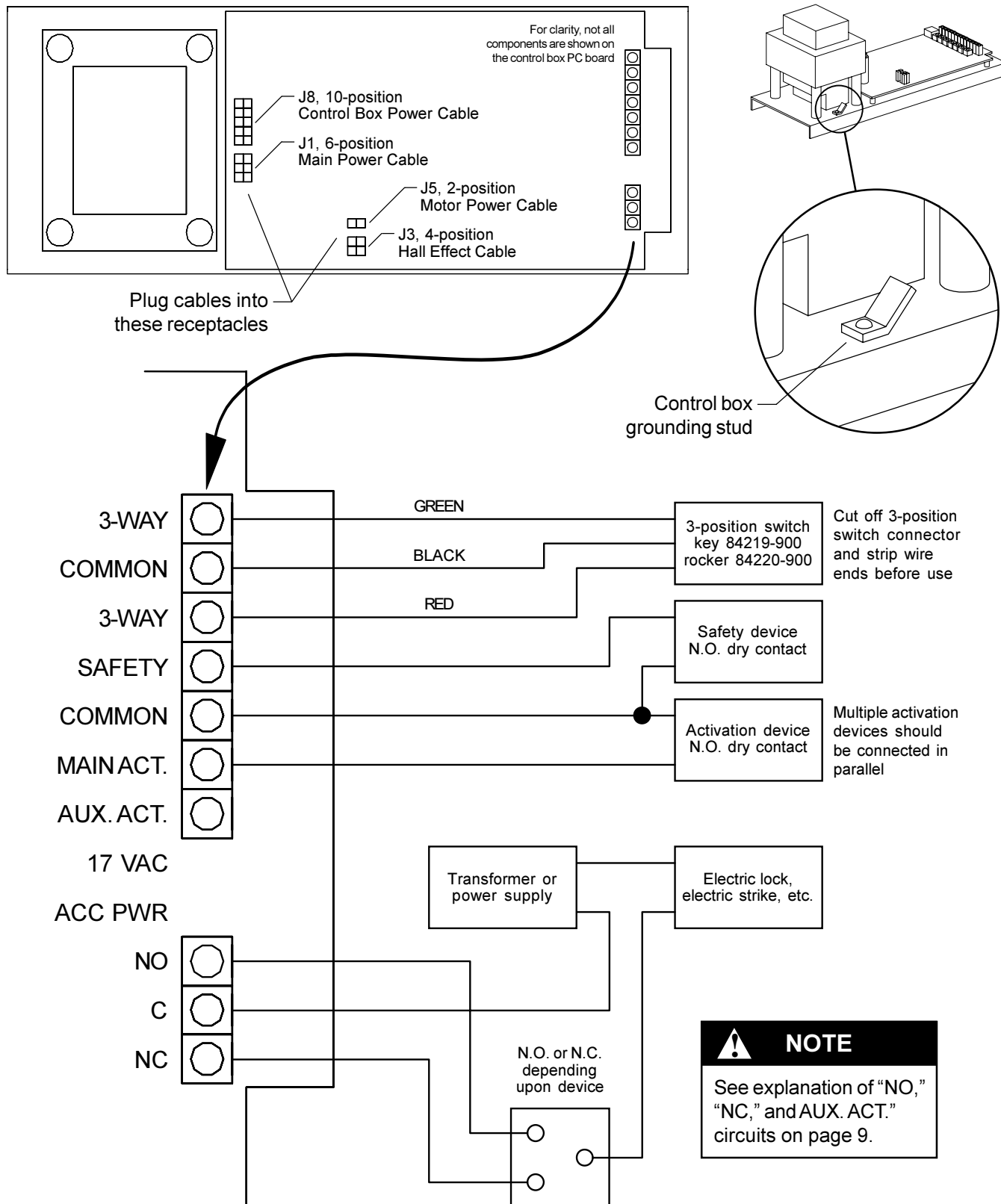
- “NO” and “NC” are for a de-energized relay.
- The relay is not energized when the 3-position switch is OFF and when the door is opening.
- The relay is energized when the 3-position switch is set to AUTO and when the door is closed.
- Connect fail secure locks to “NC.”
- Connect fail safe locks to “NO.”
- The “AUX. ACT.” circuit is used for special applications only.

To Change Fuse



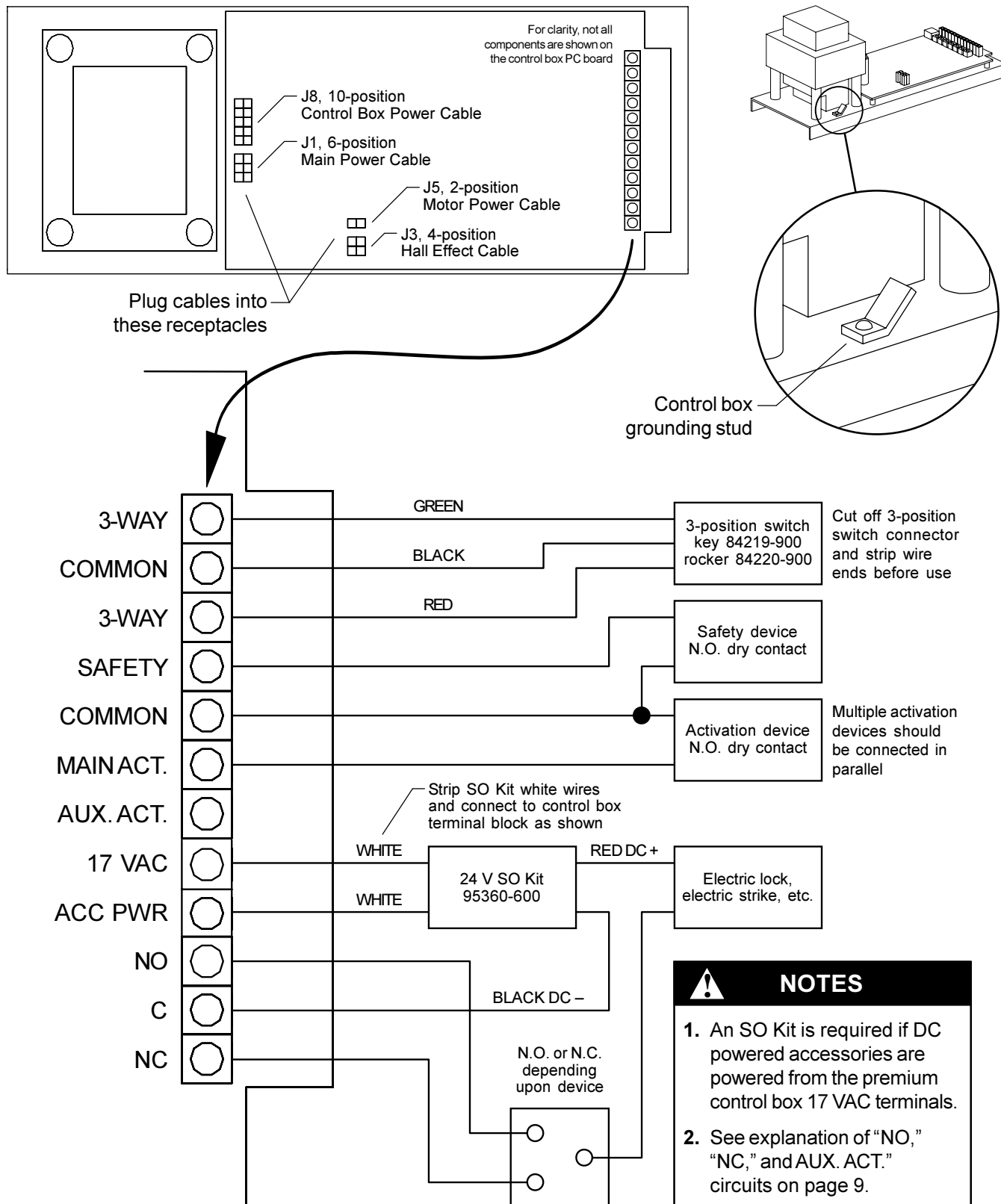
3. WIRING (continued)

Standard Control Box Wiring



3. WIRING (continued)

Premium Control Box Wiring



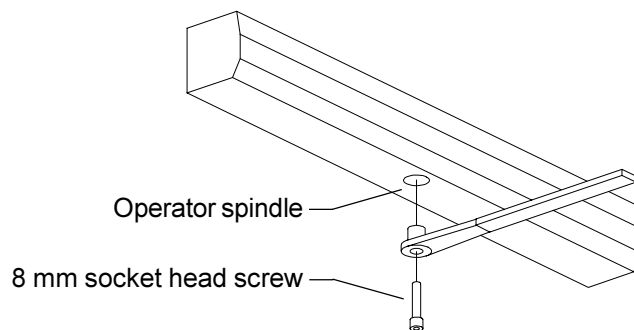
4. ARM AND COVER INSTALLATION



WARNING

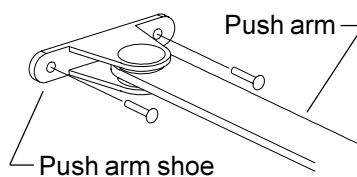
KEEP HANDS, CLOTHING, WIRES, TOOLS, ETC. AWAY FROM THE OPERATOR MOTOR WHEN THE OPERATOR IS TURNED ON.

- 4.1. Make sure the operator power switch is turned off.
- 4.2. Install a jumper across the control box **MAIN ACT.** and **COMMON** terminals.
- 4.3. Turn on the operator power switch. The operator motor will activate to the full open position.
- 4.4. Attach the arm to the operator spindle loosely with the 8 mm socket head screw.

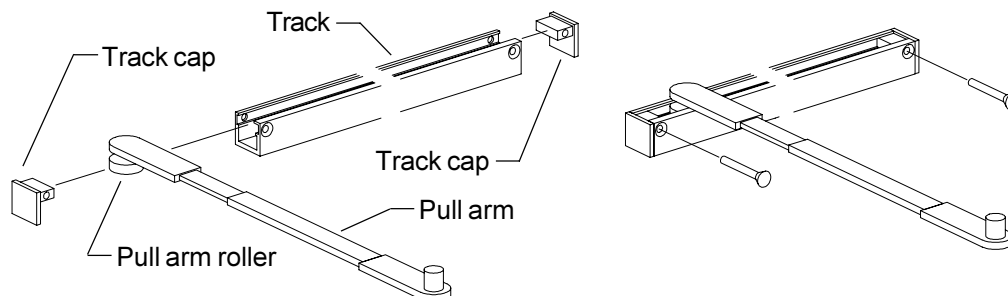


- 4.5. Attach the arm to the door:

- 4.5.1. For push systems, attach the push arm shoe to the door.



- 4.5.2. For pull systems, slide the pull arm roller into the track, insert a track cap on each end of the track, and attach the track to the door.

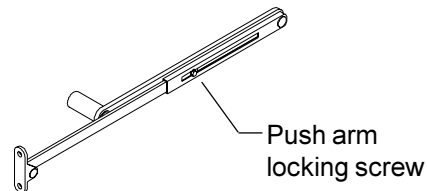
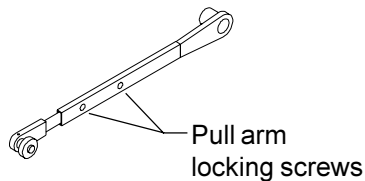


4. ARM AND COVER INSTALLATION (continued)

4.6. Adjust the arm:

4.6.1. For pull systems, remove the locking screws in the arm.

4.6.2. For push systems, remove the locking screws in the arm.



4.6.3. Keep the door in the full open position and adjust arm length as necessary with the door in the full open position. When the arm is adjusted to the proper length, tighten the 8 mm socket head screw that secures the arm to the operator spindle, then tighten/install the locking screw(s) in the arm.

4.7. Turn off the operator power switch. The door closes.

4.8. Remove the jumper from the control box **MAIN ACT.** and **COMMON** terminals.

4.9. Test the operator (see “Operational Check” on page 14) and then continue with step 4.10.

4.10. Adjust the operator as required (see “Operator Adjustment” on page 15) and then continue with step 4.11.

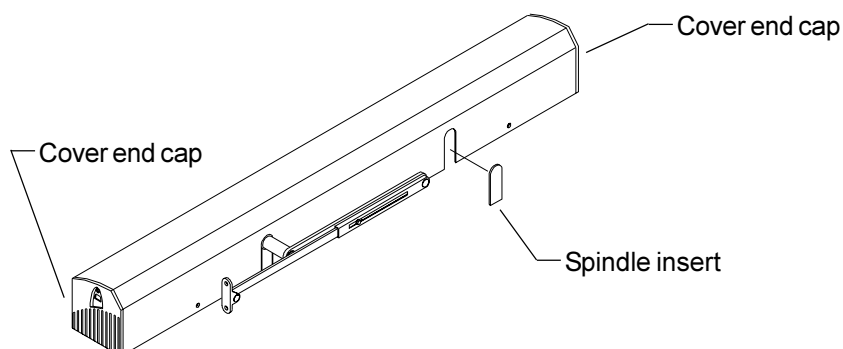
4.11. Snap end caps into the cover and secure with the two 6-32 round head screws provided.

4.12. Snap optional end cap insert (from screw bag) into the end cap opposite the on/off switch.

4.13. For full length systems, snap the insert into the arm slot that is not being used.

4.14. Install the cover assembly and on the operator.

4.15. Release the operator for service (see “Release for Service” on page 16).



5. OPERATIONAL CHECK

- 5.1. Set the 3-position switch to AUTO and turn on the operator power switch.
- 5.2. Activate the operator using an activation device. The operator will perform one sizing cycle.
Sizing Cycle: Occurs when the door is activated for the first time after power has been turned on. During the sizing cycle, the door opens and closes one time.
- 5.3. If the door does not open at all during the sizing cycle:
 - Check door for binds.
 - If an electromechanical lock is being used, check that the lock disengages before the operator opens the door.
 - Check fuse(s), circuit breaker, and connections.
 - Adjust the operator and check door operation (see “Operator Adjustment” on page 15):
 - Opening speed: maximum
 - Back check speed: maximum
 - Hold open time delay: minimum
 - Back check position: 50%
 - Latch position: maximum
 - Closing speed: maximum
 - SW1 #1, #2, #3, #4: off
- 5.4. If the door does not open fully during the sizing cycle:
 - Check door for binds.
 - Increase the back check speed slightly and check door operation. Continue increasing back check speed until the door opens fully.
- 5.5. If the door slams open, decrease the back check speed slightly and check door operation. Continue decreasing back check speed until the door opens without slamming.
- 5.6. After the sizing cycle is complete and the door is closed, apply a maintained activation signal and check that the door remains open while the activation signal is applied.
- 5.7. If a door safety device is being used:
 - 5.7.1. Activate the door and then activate the safety device while the door is open. The door should not close while the safety device is activated. Next, deactivate the safety device. The door should close after the hold open time delay expires.
 - 5.7.2. With the door closed, activate the safety device, then activate the door. The door should not open while the safety device is activated. Next, deactivate the safety device. The door should open.
- 5.8. When the door is operating properly, continue with step 4.10 on page 13.

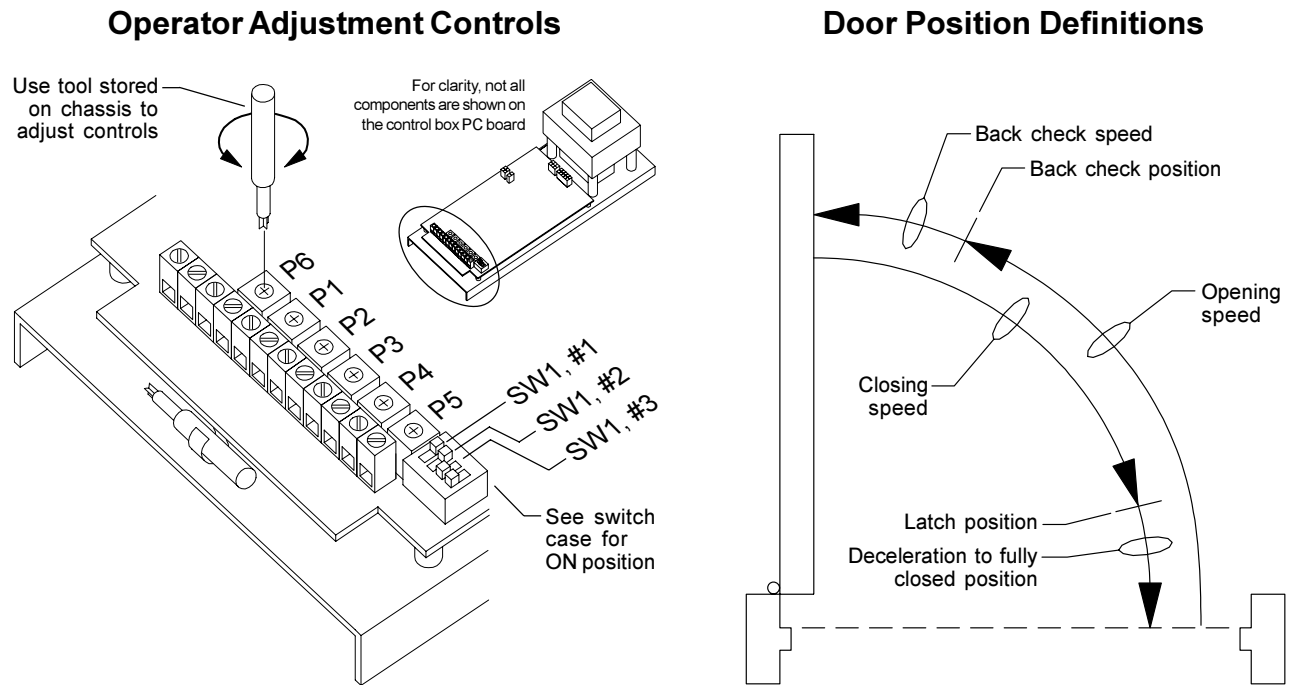
6. OPERATOR ADJUSTMENT

See table below and diagrams on page 16 for operator feature adjustment. After adjusting, cycle the door several times and check for proper operation, then continue with step 4.11 on page 13.

NOTE
<p>Adjust the operator for the slowest operation practical in accordance with the latest revisions of Americans with Disabilities Act, ANSI/BHMA A156.19 Standard for Power Assist and Low Energy Power Operated Doors, and local codes.</p> <ul style="list-style-type: none"> <li style="width: 50%;">• Opening Speed: 3 sec or more <li style="width: 50%;">• Latch Location: 10 degrees or more <li style="width: 50%;">• Closing Speed: 3 sec or more <li style="width: 50%;">• Latch Speed: 1.5 sec or more

Feature	Control	Description	Counterclockwise	Clockwise
Opening speed	P1	Controls opening speed of any normal weight and size door	Slower	Faster
Back check speed	P2	Controls speed of door near full open position to prevent door slamming open	Slower	Faster
Hold open time delay	P3	Controls length of time door remains fully open following an activate signal, 1 to 30 sec	Less time 1 sec minimum	More time 30 sec maximum
Back check position	P4	Determines distance at which door begins to decelerate near the full open position	Less back check	More back check
Latch position	P5	Determines distance at which door begins to decelerate near the full closed position	Less latch	More latch
Closing speed	P6	Controls closing speed of any normal weight and size door	Slower	Faster
Delayed activation	SW1, #1	When switched ON, causes a 1 sec delay between activation signal and door opening; this allows time for most electric locks to disengage before the operator opens the door		
Push-N-Go	SW1, #2	When switched ON, pushing door open 5 degrees causes operator to open door for the remainder of the opening cycle		
Power Boost (Premium Control Box only)	SW1, #3	When switched ON, electronically increases closing force of door from 9 lbs to 18 lbs to close door against high winds or stack pressure; Power Boost turns on for 5 sec after door comes to a stop at least 80 degrees into its closing cycle		

6. OPERATOR ADJUSTMENT (continued)



7. RELEASE FOR SERVICE

- 7.1. Remove all tools, installation equipment, and debris from the vicinity of the door.
- 7.2. Install all safety, traffic control, and instruction decals on the door as required by the latest revision of ANSI/BHMA A156.19. **This is very important! Failure to do this leaves the installer LIABLE for any accident that might occur. This must be done!**
- 7.3. Verbally instruct the owner or person in charge of the proper operation of the door.
- 7.4. Instruct the owner or person in charge to routinely inspect the door for the following:
 - Occasional damage
 - Developing problems
 - Minor preventive maintenance
- 7.5. Instruct the owner or person in charge who and where to call for service when required.



IMPORTANT

Make sure to install all safety, traffic control, and instruction decals on the door as required.



Benchmark[™] Swing Operator

Installation Instructions

DOR - O - MATIC®

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INTRODUCTION

This system is a fully automatic electro-mechanical swinging door operator for residential, commercial, and industrial pedestrian use. It can be used to automate center pivoted doors, as well as hinged or offset pivoted doors.

This operator is a "start on demand", "power-open/spring close" system. The swinging door is driven under power to the full open position, at which time the electrical power is turned off and the door is closed by spring force only.

The opening and closing cycles of the door are under complete control at all times, as individual potentiometers or switches independently control the opening speed, back check speed, hold open time delay, closing speed and latch position. In the event of a power failure, the operator acts as a manual door closer (size 3) without fear of damage to the door or the automatic door components.

The activating circuit will re-open the door from any position in the closing swing, provided the safety circuit is not energized. The surface applied operator may be installed for either push or pull applications on center pivoted, hinged, or offset pivoted doors. The basic components of this system are the Operator & Cover Assembly, the Arm Assembly, and the Screw Bag (**Figures 1, 5, 9, 14 & 19**).

GENERAL

This instruction sheet covers the proper installation of surface applied operators for use on center pivoted, butt hung/hinged, or offset pivoted doors. BEFORE proceeding with any stage of the installation...

- A. Check architectural drawings and final approved shop drawings for position of the frame and structural openings.
- B. Check header & frame dimensions, making sure to allow for the proper clearances (**Figures 2, 6, 10, 15, 20**).
- C. Check the content of the shipping container against the bill of material to see that all necessary parts and materials have been included. Also, be sure that the model is correct for the required application.
- D. Remove the motor/gearbox and control box to install the mounting plate (**Figures 3, 7, 11, 16, 21**).
- E. Refer to proper diagrams in this manual for either *Push Arm* or *Pull Arm* installation.
- F. This operator is for indoor use only.
- G. Do not mount any accessories directly onto this operator.
- H. When additional accessories are used with this operator, refer to the instructions for those devices.
- I. Tools required for installation:
 - a) 10mm socket
 - b) 10mm open end wrench
 - c) 6mm allen wrench
 - d) Phillips screwdriver
 - e) Drill, drill bits & taps
 - f) Flat head electric screwdriver

NOTE: Always disconnect main power to operator prior to servicing or cleaning.

INSTALLATION INSTRUCTIONS

1. Preparation:

A 115 volt, single phase, 60Hz, fused, 15 amp, 3-wire power supply must be brought to the side jamb tube. This work is usually supplied by the electrical contractor. UL approved type flexible conduit is recommended for running the 115 volt power supply into the operator. Determine the location of the wire passage holes through the side jamb (**Figures 4, 8, 12, 18, & 22**). Approximately 12" of wire should be left for hook up.

NOTES:

 - A. Secure all conductors and connections against physical damage.
 - B. Route all wiring away from moving parts, sharp edges and heat sources.
 - C. Use copper conductors only.
2. Pre-Operational Adjustments:
 - A. Using the appropriate wiring diagram (**Figure 25 for Standard or 26 for Premium**) connect power and accessories as needed.
 - B. Select proper function using SW2: (Premium Control Box only)
 - Function 0: General Equipment – Any device not manufactured by Dor-O-Matic.
 - Function 1: 77700-900 No Beam.
 - C. Turn on power at the switch. After the first activation signal, the door should open and close one time, after which it is ready for normal operation. If the door does not size to the full open position, first check for binds, then increase the sizing speed by rotating P7 clockwise on the Standard Control Box or P8 counter-clockwise on the Premium Control Box just enough to overcome the door weight, etc.
3. Operational Check and Adjustments:

NOTE: Refer to the latest revision of ANSI/BHMA A156.19-1997 Standard for Power Assist and Low Energy Power Operated Doors for all settings and adjustments.

Latch Location:	10 degrees or more
Latch Speed:	1.5 seconds or more
Closing Speed:	3 seconds or more
Opening Speed:	3 seconds or more

 - A. Opening Speed Adjustment:
 1. Opening speed is adjusted by rotating P1 (CCW=SLOWER, CW=FASTER) on the Standard Control Box or P2 (CW=SLOWER, CCW=FASTER) on the Premium Control Box. It allows for proper adjustment of any normal weight and size door.
 2. Cycle the door open and closed several times and observe the opening speed.

NOTE: It is recommended that the door be operated as slow as is practical for the traffic conditions.

- B. Back Check Speed Adjustment:
The back check speed is controlled by rotating P2 (CCW=SLOWER, CW= FASTER) on the Standard Control Box or P3 on the Premium Control Box (CW=SLOWER, CCW= FASTER).
- C. Hold Open Time Delay Adjustment:
Adjustment is made by rotating P3 (CCW=LESS HOLD OPEN TIME, CW=MORE HOLD OPEN TIME) on the Standard Control Box or P1 (CW=LESS HOLD OPEN TIME, CCW=MORE HOLD OPEN TIME) on the Premium Control Box. The total adjustment range on the control box is 1 to 30 seconds of time delay.
- D. Back Check Position:
Standard Control Box: The adjustment is made by P4 (CW=MORE BACK CKECK, CCW =LESS BACK CHECK).
Premium Control Box: There is no adjustment available on the back check position, since the microprocessor in the control box sets the proper back check position automatically while the door sizes itself.
- E. Latch Position:
By rotating P5 (CW=MORE LATCH, CCW=LESS LATCH) on the Standard Control Box or P6 on the Premium Control Box, one can vary the position at which latch occurs (CCW=MORE LATCH, CW=LESS LATCH).
- F. Closing Speed Adjustments:
Continue to cycle the door open and closed while making adjustments. Set the closing speed by rotating P6 (CW=SLOWER, CCW=FASTER) on the Standard Control Box or P7 (CW=SLOWER, CCW=FASTER) on the Premium Control Box.
- G. Latch Speed:
Latch speed is factory set and has no adjustment.
- H. Power Boost Close and Power Boost Hold Features (Only available with Premium Control Box):
1. This is a built in feature that can be turned on or off with SW1-3.
 2. When this feature is on, it can be set for 5 second power only.
 3. It is used to electronically increase the closing force of the door from 9 lbs. to 18 lbs. in order to close and hold the door closed against high winds or high stack pressure.
 4. When the power boost close and hold feature is turned on, the automatic increase in power occurs approximately 7 seconds after the door has closed to the latch position. The power boost feature will not turn on during the first 80 degrees of the closing door travel.
- I. Push-N-Go Feature:
With this feature, after three to five degrees of manual door travel, power assist takes over and the door opens under power the rest of the cycle. This is selected with SW1-2.
- J. Delayed Activation Feature:
When delayed activation is selected, there is a 1 second delay between reception of the activation signal and the actual door opening. This allows for most electric strikes, panics, etc. to disengage before the door opens. This is selected with SW1-1.
4. Operational Walk Through Test:
NOTE: It is assumed that during the installation process, any problems would have been found and corrected before this point. However, it is recommended that a complete walk-through test now be performed.
- A. Activate door operator. The door should open smoothly and silently to the back check point, where it should slow down and drift into full 90 degrees open without slamming.
 - B. Maintain the activation signal to ensure that the door does not time out and close while being activated.
 - C. If a door safety device is used, step on through the door opening and into the safety area. Again, remain in the safety area making sure that the door does not close while the safety area is occupied.
 - D. Step out of the safety area. After both the activating and safety areas are clear, the door should time out at the pre-set time delay period. The door should then close quietly and smoothly to the latch point, where it slows down and drifts into the fully closed position without slamming.
 - E. Safety Function with the Door Closed
 - F. Step back into the safety area, and have someone else activate the door. The door must not open.
 1. Step out of the safety area. The door should open fully. Have the other person release the activation signal. The door should stand open until the end of the time delay cycle, and then close as before.
5. Release of the System for Service:
- A. Remove all tools and installation equipment, and clean any debris from the vicinity of the door.
 - B. Install all safety, traffic control, and instruction decals to the door as required by ANSI 156.19-1997. THIS IS VERY IMPORTANT! Failure to do this leaves the installer LIABLE for any accident that might occur. THIS MUST BE DONE!
 - C. Verbally explain the proper operation of the door system to the owner or to the person in charge.

DO'S AND DON'TS

1. Do use this operator on standard pedestrian doors, exterior and interior, weighing up to 200 pounds. For doors greater than 200 pounds, consult factory.
2. Do Not connect any remote activating device to the door unless it is located within the "line of sight" of the door.
3. Do Not use a fuse larger than specified.
4. Do Not modify the factory wiring or connect any wiring into an existing electrical circuit or any other electrical device.
5. Do Not connect the 115 volt power supply line into the building lighting system operating FLUORESCENT LIGHTS.
6. Do Not mount any accessories directly to this operator.
7. Do make certain that the operator is connected to a dedicated 115 volt circuit from the main circuit breaker panel.
8. Do make certain that the operator is properly grounded with a separate green wire.
9. Do make certain that all connections are proper and secure before turning the power on.
10. Do make certain that all wires are properly dressed and secured to prevent any interference.
11. Do make certain that all safety labels and instruction decals relating to door operation are properly applied to the door before leaving the job.
12. Do verbally instruct the owner or person in charge of the proper operation of the door.
13. Do make certain that this operator is only used indoors.
14. Do disconnect main power to the operator prior to servicing and cleaning.
15. Do instruct the owner or person in charge of his responsibility of inspecting the door for the following:
 - A. Occasional damage
 - B. Developing problems
 - C. Minor preventative maintenance
 - D. Who and where to call for service when required

REPLACEMENT PART LIST

Part	27" header	Full Length Header Single	Full Length Double
Standard Control Box	99402-900	99402-900	99402-900
Premium Control Box	99401-900	99401-900	99401-900
Gear Box	99403-900	99404-900	99403-900
Cover	95171-9XXR	99201-9XXR	99201-9XXR
Insert	N/A	99067-9XX	N/A
End Caps	99060-900	99060-900	99060-900

	Standard Push	Extended Reveal Push	Pull
Arm Assembly	95005-9XX	95025-9XX	95085-9XX

Note: 75- US 28
79- DC 13

27" Push Arm

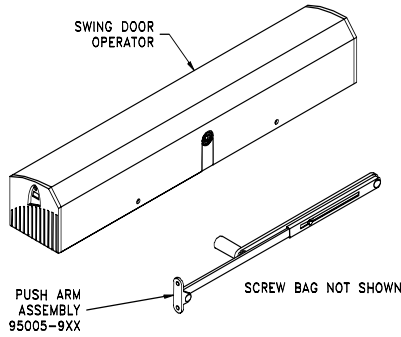


FIGURE 1: SYSTEM COMPONENTS – PUSH ARM

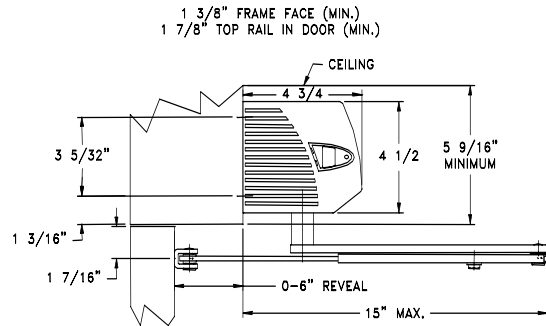


FIGURE 2: OPERATOR CLEARANCES – PUSH ARM

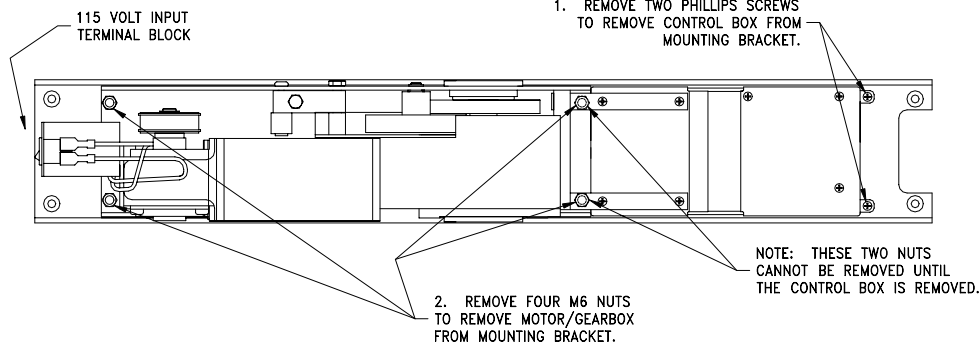


FIGURE 3: MOTOR/GEARBOX & CONTROL BOX REMOVAL

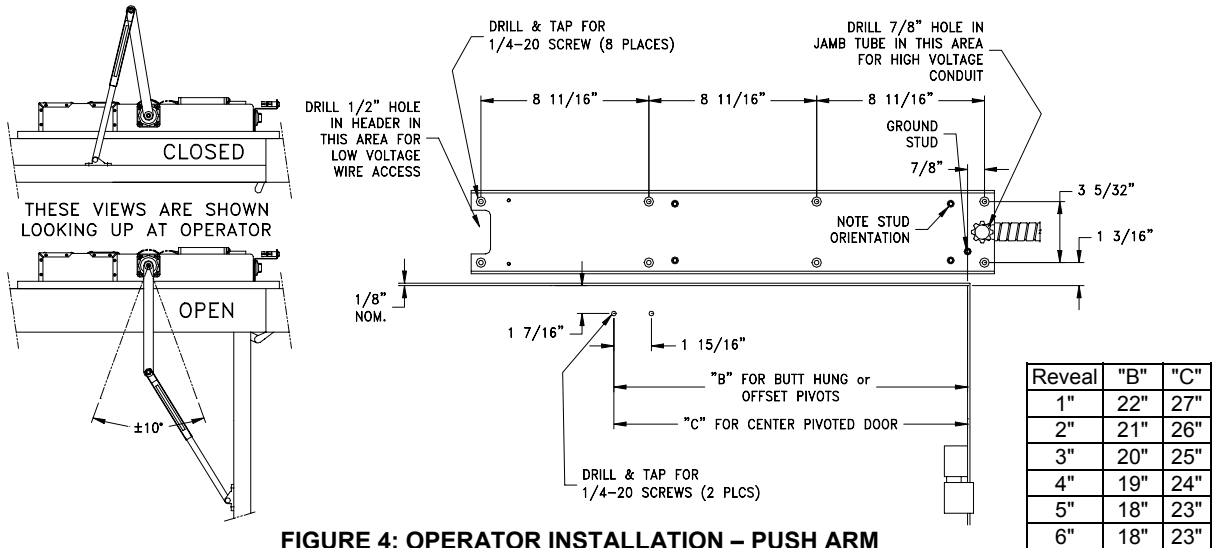


FIGURE 4: OPERATOR INSTALLATION – PUSH ARM

Reveal	"B"	"C"
1"	22"	27"
2"	21"	26"
3"	20"	25"
4"	19"	24"
5"	18"	23"
6"	18"	23"

Installation and Arm Adjustment Notes:

1. Remove the control box and motor/gearbox from the mounting bracket (Figure 3).
2. Mounting bracket must be installed with the thread studs near the hinge to ensure correct operator orientation.
3. After installing the mounting bracket on the header or frame, install the motor/gearbox onto the studs with the 4 nuts provided and then install the control box onto the mounting bracket with the 2 flat head screws provided.
4. Push the 4 prong green plug into the green socket, push the 2 prong green plug into the green socket and the 3 prong green plug into the socket marked "main, ground, neutral".
5. Connect power to the terminal block (Figure 3), matching black to black (live), white to white (neutral), and ground to the grounding stud.
6. Connect all activation devices in parallel to the "Activate" and "Common" terminals (**Figure 25 for Standard, 26 for Premium**).
7. Before attaching the arm to the unit, activate the operator to the full open position by placing a jumper wire across the "Inside Activation" terminals to put the operator in the hold open position. Attach the shoe to the door. Attach the arm to the operator with the 8mm socket head screw (loosely) and adjust the arm to the desired door position together with the shoe. Once the desired position has been chosen, tighten both the 8mm socket head screw and the nut connecting the two parts of the arm. Remove the jumper wire.
8. Snap the end caps into the cover and secure with the (2) 6-32 round head screws provided. Snap in the optional end cap insert (provided in the screw bag) on the end cap opposite the on/off switch.
9. Install the entire cover assembly and the spindle insert with the screws provided.
10. Minimum door width for a push arm is 26 inches.

27" Pull Arm

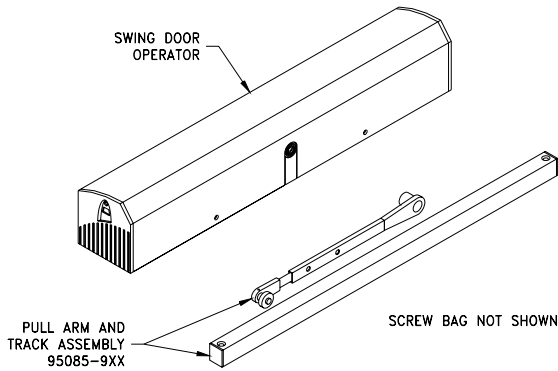


FIGURE 5: SYSTEM COMPONENTS – PULL ARM

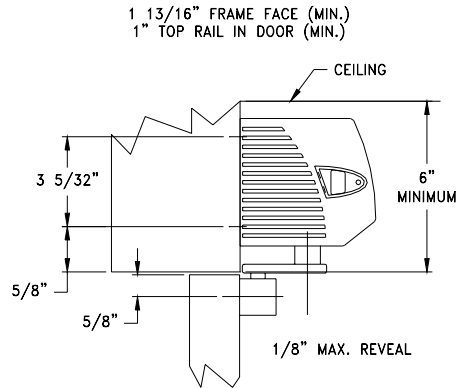


FIGURE 6: OPERATOR CLEARANCES – PULL ARM

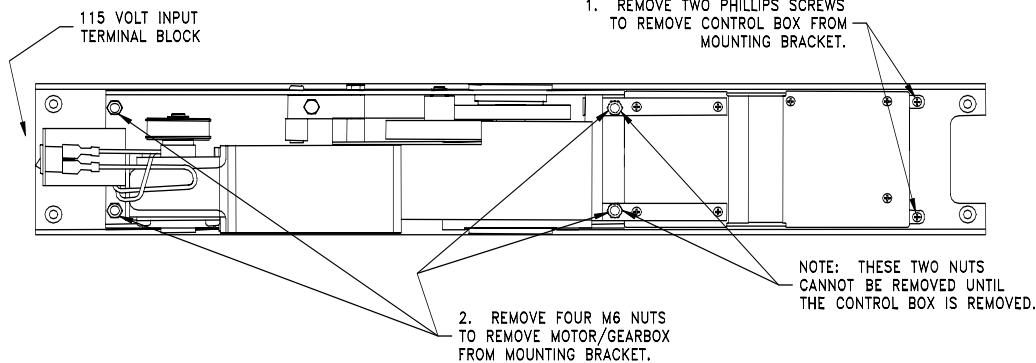


FIGURE 7: MOTOR/GEARBOX & CONTROL BOX REMOVAL

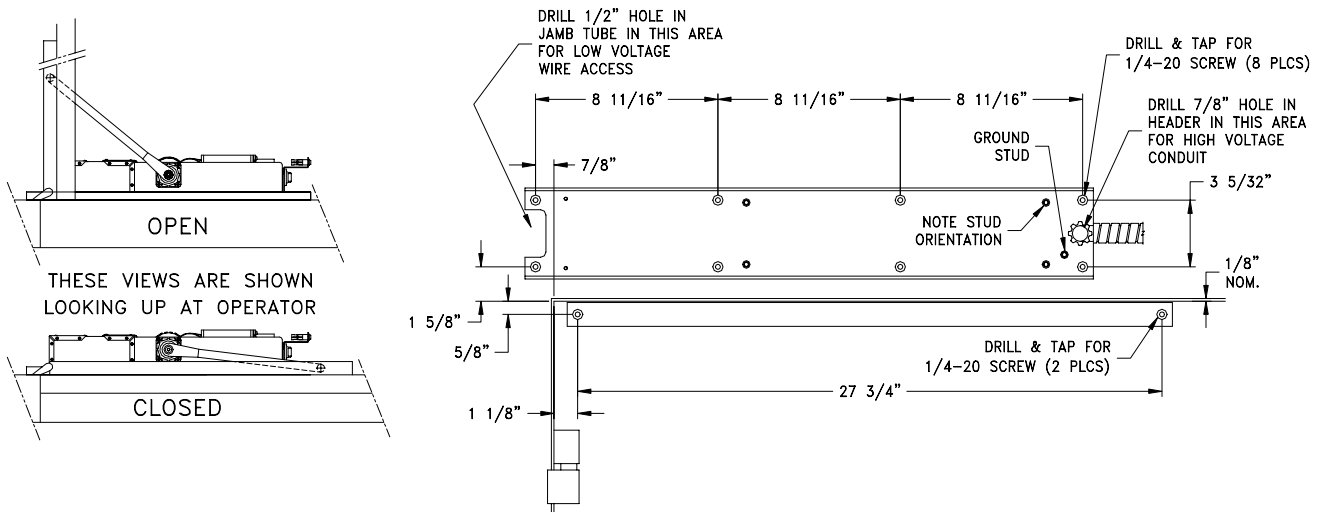


FIGURE 8: OPERATOR INSTALLATION – PULL ARM

Installation and Arm Adjustment Notes:

1. Remove the control box and motor/gearbox from the mounting bracket (Figure 7).
2. Mounting bracket must be installed with the thread studs away from the hinge to ensure correct operator orientation.
3. After installing the mounting bracket on the header or frame, install the motor/gearbox onto the studs with the 4 nuts provided and then install the control box onto the mounting bracket with the 2 flat head screws provided.
4. Push the 4 prong green plug into the green socket, push the 2 prong green plug into the green socket and the 3 prong green plug into the socket marked "main, ground, neutral".
5. Connect power to the terminal block (Figure 7), matching black to black (live), white to white (neutral), and ground to the grounding stud.
6. Connect all activation devices in parallel to the "Activate" and "Common" terminals (Figure 25 for Standard, 26 for Premium).
7. Before attaching the arm to the unit, activate the operator to the full open position by placing a jumper wire across the "Inside Activation" terminals to put the operator in the hold open position. Attach the track to the door. Attach the arm to the operator with the 8mm socket head screw (loosely)

and adjust the arm to the desired door position together with the track. Once the desired position has been chosen, tighten the 8mm socket head screw. Remove the jumper wire.

8. Snap the end caps into the cover and secure with the (2) 6-32 round head screws provided. Snap in the optional end cap insert (provided in the screw bag) on the end cap opposite the on/off switch.
9. Install the entire cover assembly and the spindle insert with the screws provided.
10. Minimum door width for a pull arm is 30 inches.

Full Length Push Arm

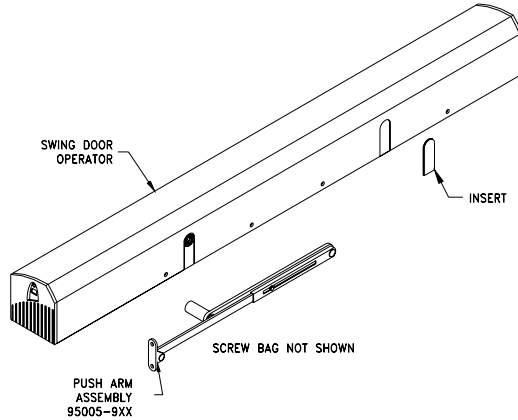


FIGURE 9: SYSTEM COMPONENTS – PUSH ARM

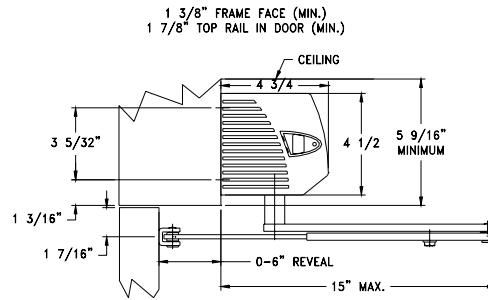


FIGURE 10: OPERATOR CLEARANCES – PUSH ARM

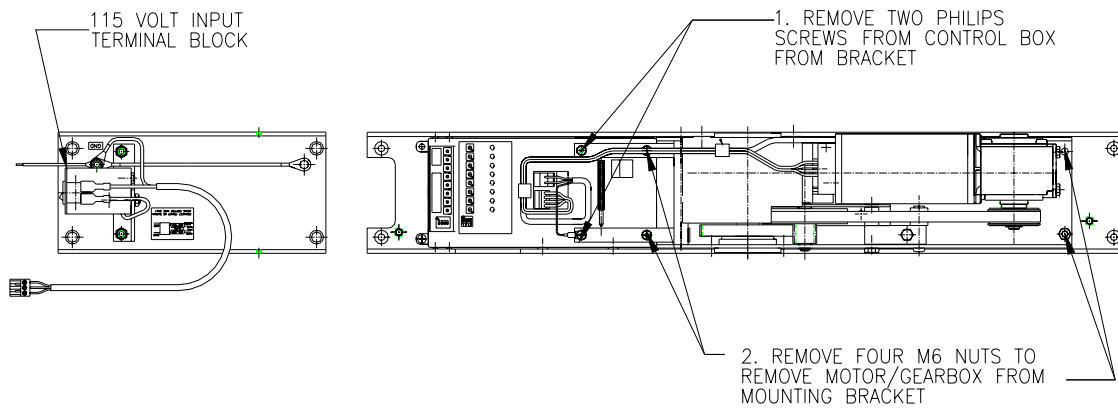


FIGURE 11: MOTOR/GEARBOX & CONTROL BOX REMOVAL

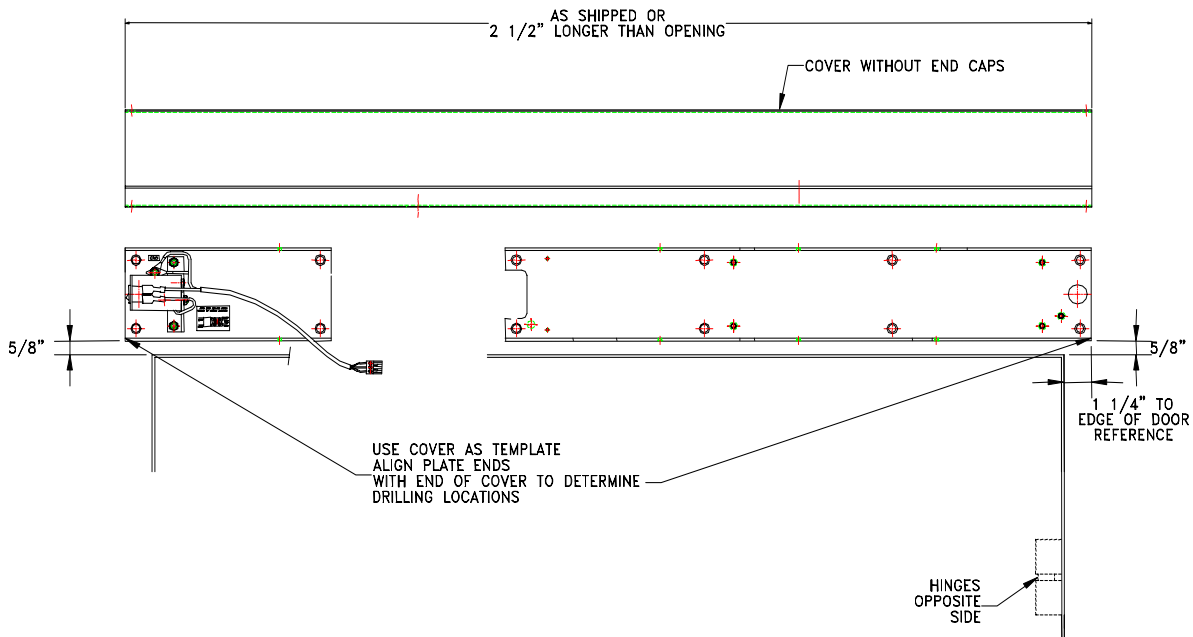


FIGURE 12: CENTERING OPERATOR OVER OPENING

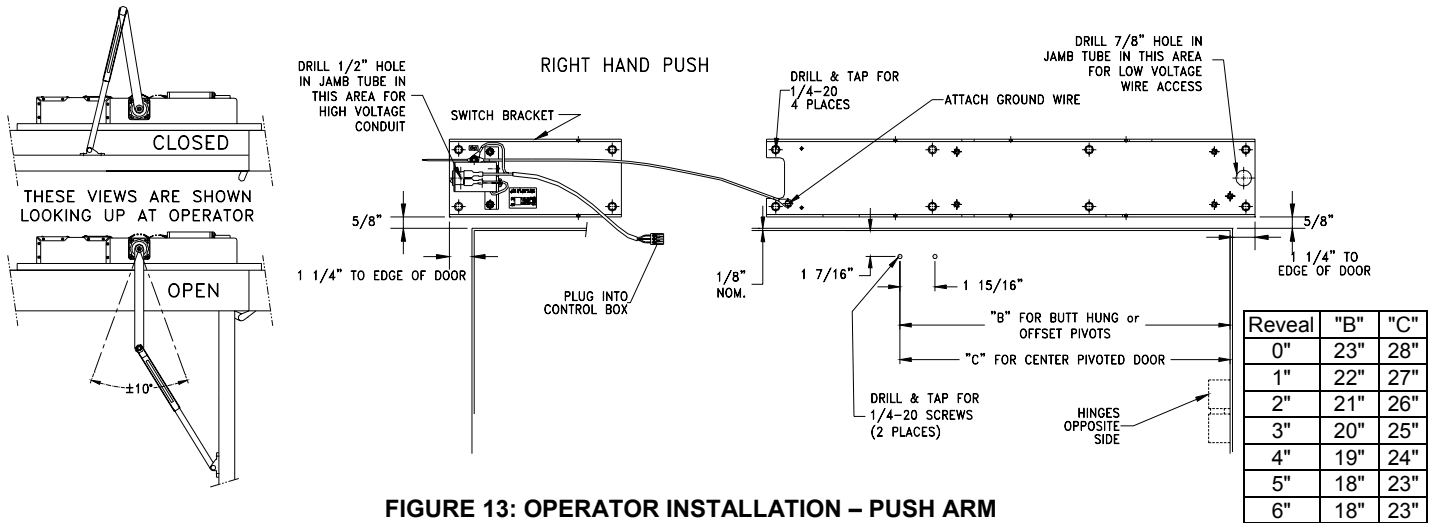


FIGURE 13: OPERATOR INSTALLATION – PUSH ARM

Installation and Arm Adjustment Notes:

1. Remove the control box and motor/gearbox from the mounting bracket (Figure 11).
2. Center operator over opening (Figure 12)
3. Mounting bracket must be installed with the thread studs near the hinge to ensure correct operator orientation. Mount switch bracket as shown (Figure 13).
4. After installing the mounting bracket on the header or frame, install the motor/gearbox onto the studs with the 4 nuts provided and then install the control box onto the mounting bracket with the 2 flat head screws provided.
5. For opposite side door, view will be mirror image of Figure 13.
6. Push the 4 prong green plug into the green corresponding socket, push the 2 prong green plug into the corresponding green socket and the 3 prong green plug into the socket marked "main, ground, neutral" located on the mounting screw side of the control box.
7. Connect power to the terminal block (Figure 3), matching black to black (live), white to white (neutral), and ground to the grounding stud.
8. Connect all activation devices in parallel to the "Inside Activate" terminal (Figure 25 for Standard, 26 for Premium).
9. Before attaching the arm to the unit, activate the operator to the full open position by placing a jumper wire across the "Inside Activation" (loosely) and adjust the arm to the desired door position together with the shoe. Once the desired position has been chosen, tighten both the 8mm terminals to put the operator in the hold open position. Attach the shoe to the door. Attach the arm to the operator with the 8mm socket head screw socket head screw and the nut connecting the two parts of the arm. Remove the jumper wire.
10. Snap the end caps into the cover and secure with the (2) #6 round head screws provided. Snap in the optional end cap insert (provided in the screw bag) on the end cap opposite the on/off switch. Install plastic insert in arm slot not being used.
11. Install the entire cover assembly and the spindle insert with the screws provided.
12. Minimum door width for a push arm is 36 inches.

Full Length Pull Arm

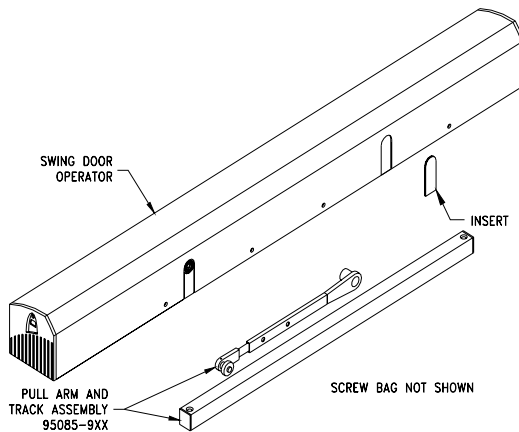


FIGURE 14: SYSTEM COMPONENTS – PULL ARM

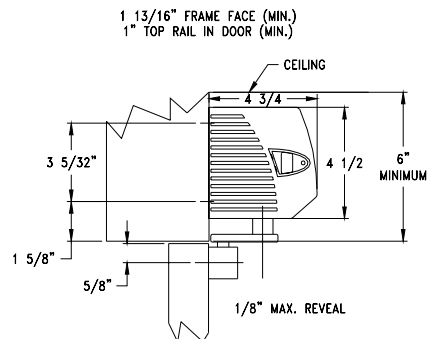


FIGURE 15: OPERATOR CLEARANCES – PULL ARM

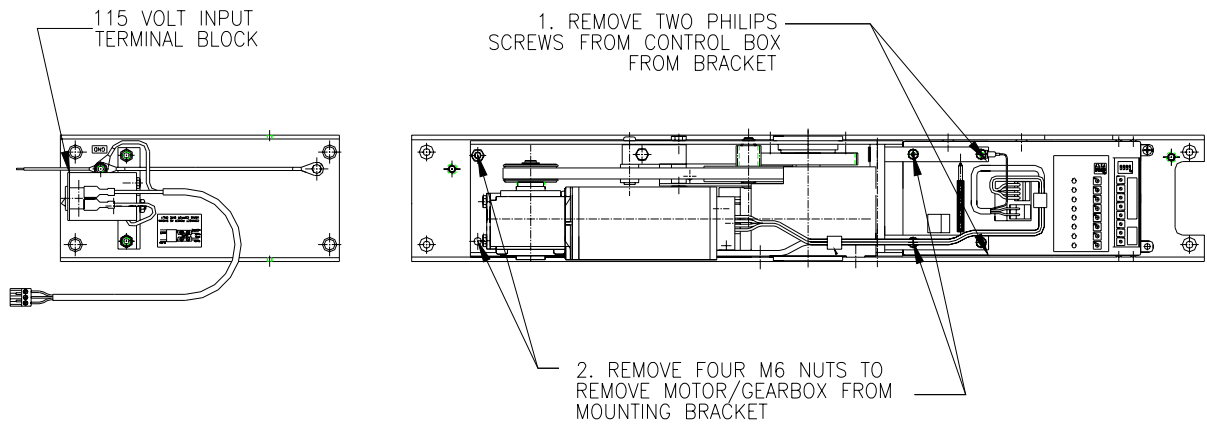


FIGURE 16: MOTOR/GEARBOX & CONTROL BOX REMOVAL

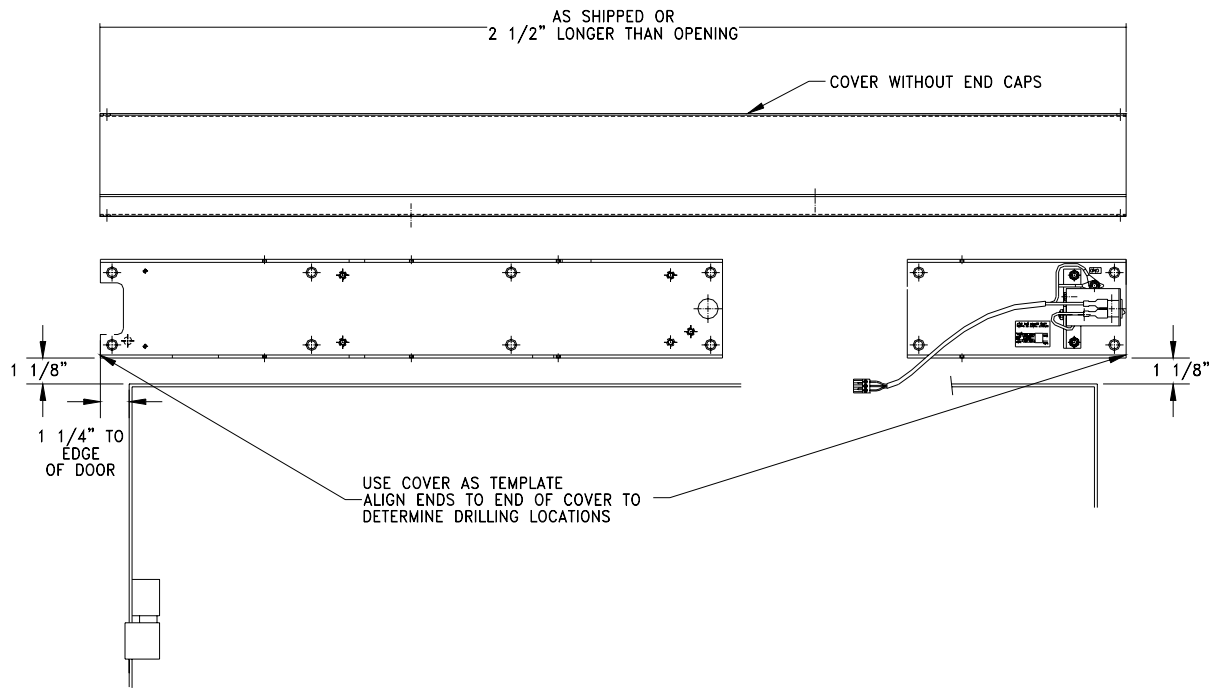


FIGURE 17: CENTERING OPERATOR OVER OPENING

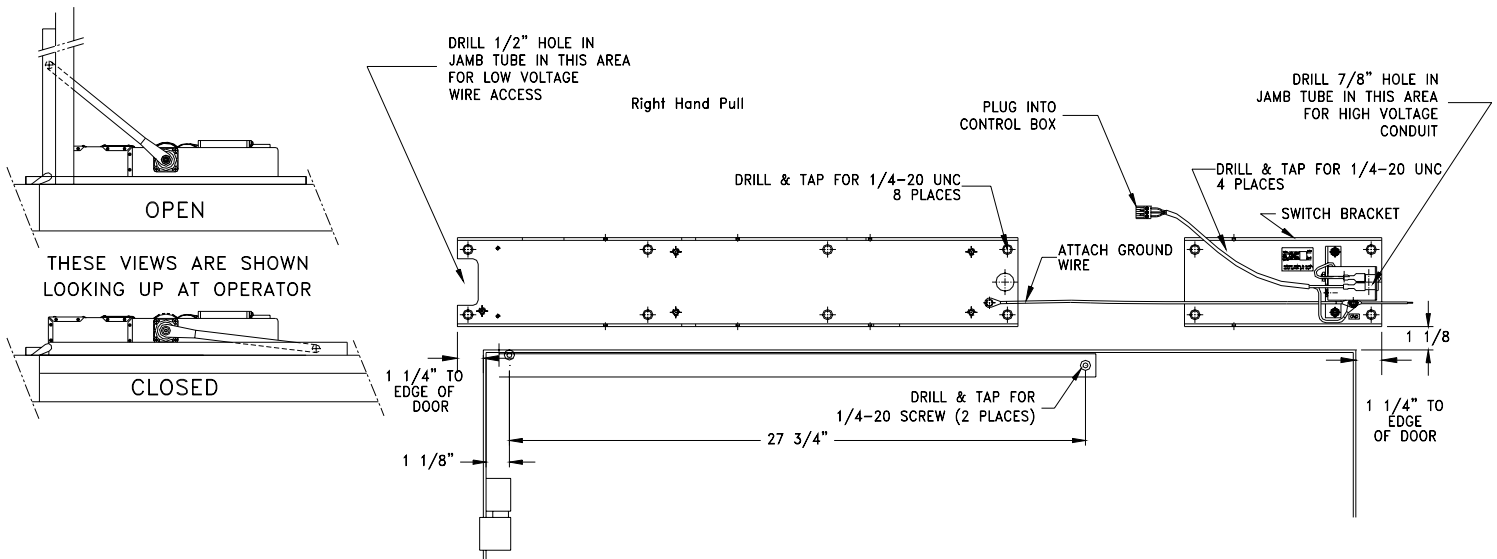


FIGURE 18: OPERATOR INSTALLATION - PULL ARM

Installation and Arm Adjustment Notes:

1. Remove the control box and motor/gearbox from the mounting bracket (**Figure 16**).
2. Center operator over opening (**Figure 17**).
3. Mounting bracket must be installed with the thread studs away from the hinge to ensure correct operator orientation. Mount switch bracket as shown (**Figure 18**).
4. After installing the mounting bracket on the header or frame, install the motor/gearbox onto the studs with the 4 nuts provided and then install the control box onto the mounting bracket with the 2 flat head screws provided.
5. For opposite side door, view will mirror **Figure 18**.
6. Push the 4 prong green plug into the green corresponding socket, push the 2 prong green plug into the corresponding green socket and the 3 prong green plug into the socket marked "main, ground, neutral" located on the mounting screw side of the control box.
7. Connect power to the terminal block (**Figure 16**), matching black to black (live), white to white (neutral), and ground to the grounding stud.
8. Connect all activation devices in parallel to the "Inside Activate" and connect all outside activation devices in parallel to the "Outside Activation" terminal (**Figure 25 for Standard, 26 for Premium**).
9. Before attaching the arm to the unit, activate the operator to the full open position by placing a jumper wire across the "Inside Activation" terminals to put the operator in the hold open position. Attach the track to the door. Attach the arm to the operator with the 8mm socket head screw (loosely) and adjust the arm to the desired door position together with the track. Once the desired position has been chosen, tighten the 8mm socket head screw. Remove the jumper wire.
10. Snap the end caps into the cover and secure with the (2) #6 round head screws provided. Snap in the optional end cap insert (provided in the screw bag) on the end cap opposite the on/off switch. Install plastic insert into arm slot not being used.
11. Install the entire cover assembly and the spindle insert with the screws provided.
12. Minimum door width for a pull arm is 36 inches.

Double Push Arm

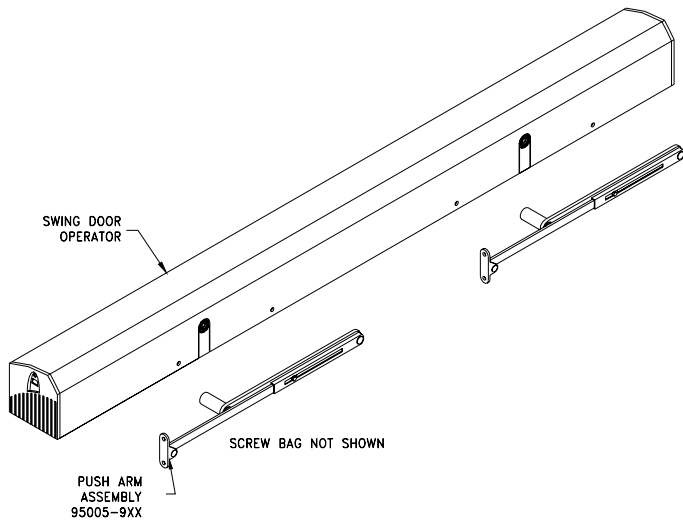


FIGURE 19: SYSTEM COMPONENTS – DOUBLE PUSH ARM

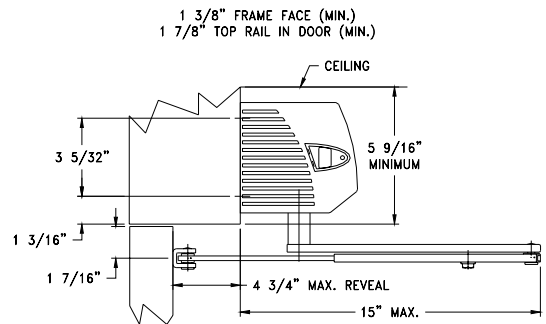


FIGURE 20: OPERATOR CLEARANCES-PUSH ARM

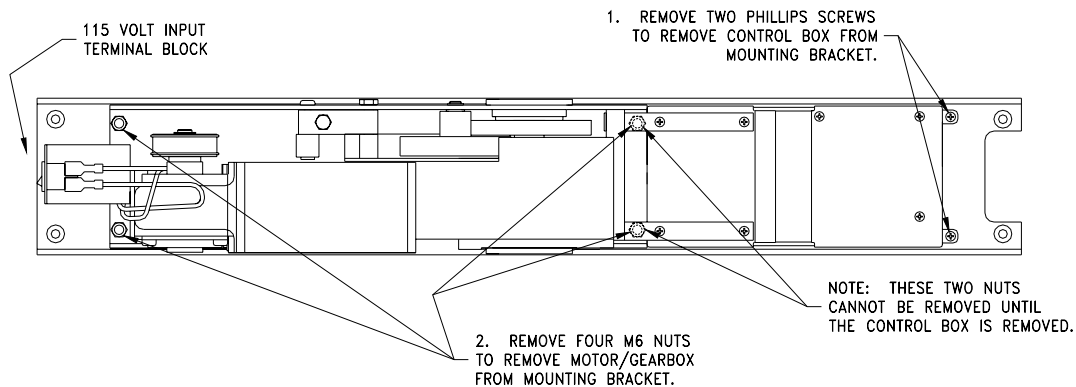
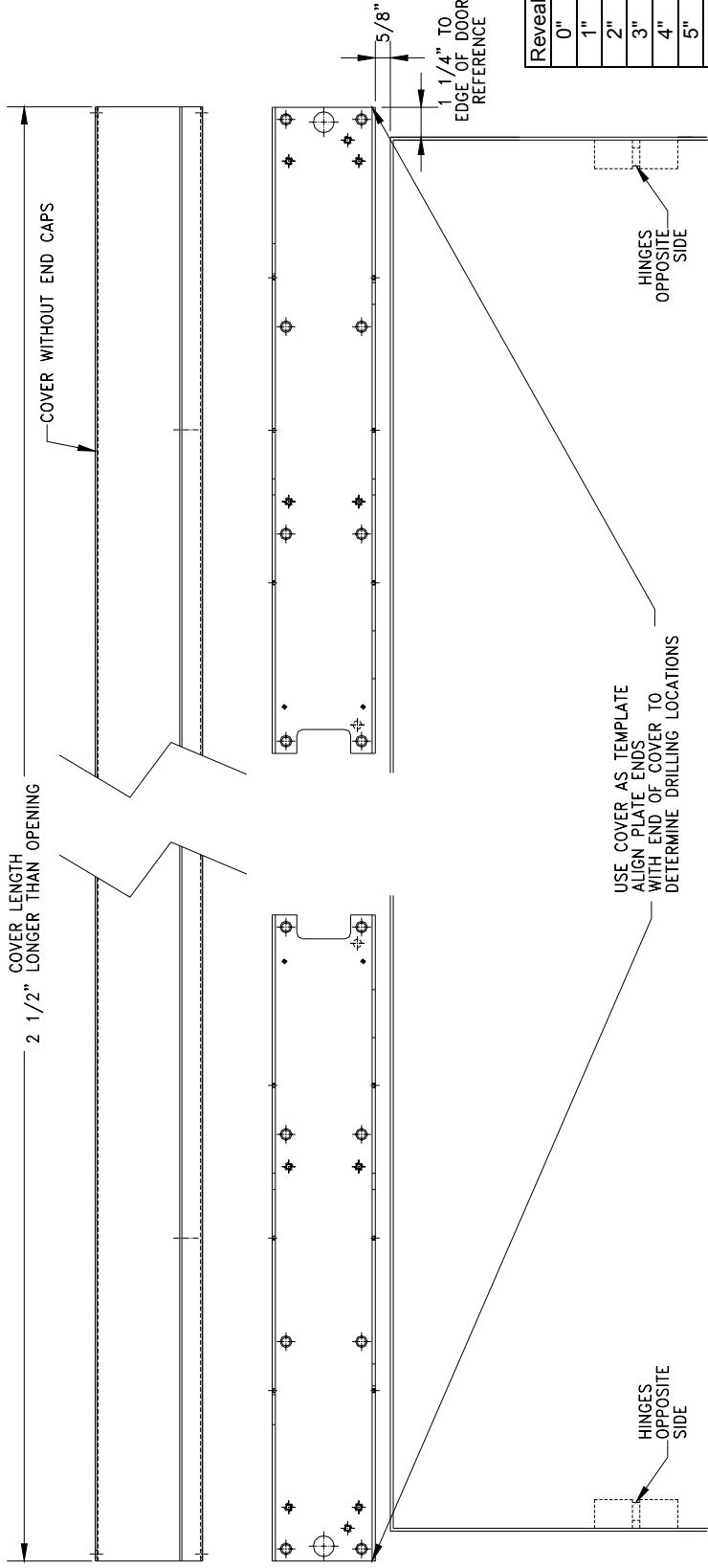


FIGURE 21: MOTOR/GEARBOX & CONTROL BOX REMOVAL



Reveal	"B"	"C"
0"	23"	28"
1"	22"	27"
2"	21"	26"
3"	20"	25"
4"	19"	24"
5"	18"	23"
6"	18"	23"

FIGURE 22: LOCATING OPERATORS OVER OPENING

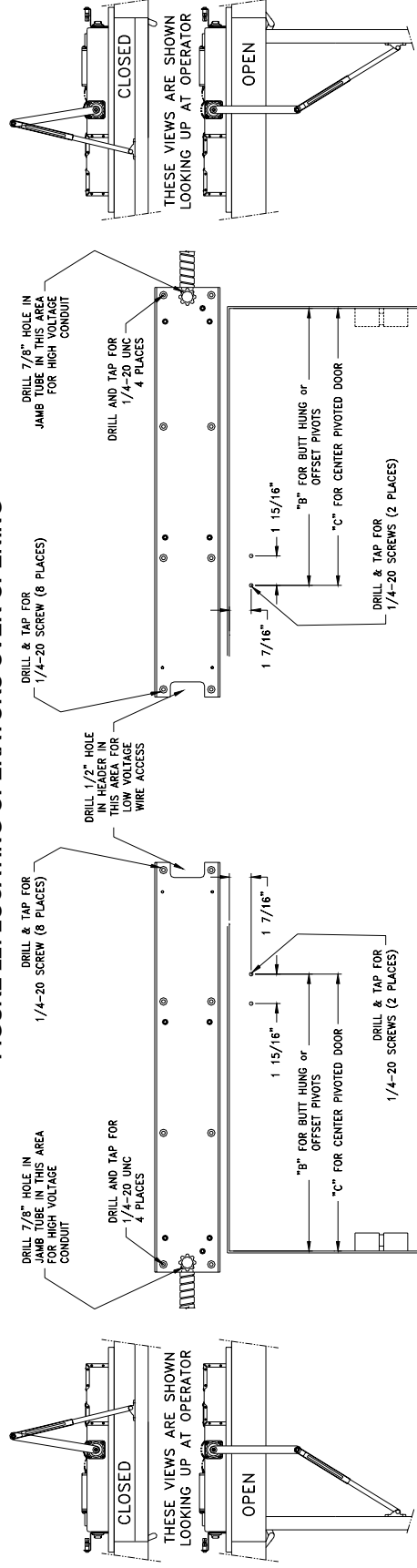


FIGURE 23: OPERATOR INSTALLATION- DOUBLE PUSH ARM

Installation and Arm Adjustment Notes:

1. Remove the control boxes and motor/gearboxes from the mounting brackets (**Figure 21**).
2. Mounting brackets must be installed with the thread studs near the hinges to ensure correct operator orientation.
3. After installing the mounting brackets on the header or frame, install the motor/gearbox onto the studs with the 4 nuts provided and then install the control box onto the mounting bracket with the 2 flat head screws provided.
4. Push the 4 prong green plug into the green socket, push the 2 prong green plug into the corresponding green socket, attach ground wire plug, and the 3 prong green plug into the socket marked "main, ground, neutral" located on the mounting screw side of the control box.
5. Connect power to the terminal block (**Figure 21**), matching black to black (live), white to white (neutral), and ground to the grounding stud.
6. Connect all activation devices in parallel to the "Inside Activate" and connect all outside activation devices in parallel to the "Outside Activation" terminal (**Figure 25 for Standard, 26 for Premium**).
7. Before attaching the arm to the unit, activate the operator to the full open position by placing a jumper wire across the "Inside Activation" terminals to put the operator in the hold open position. Attach the shoe to the door. Attach the arm to the operator with the 8mm socket head screw (loosely) and adjust the arm to the desired door position together with the shoe. Once the desired position has been chosen, tighten both the 8mm socket head screw and the nut connecting the two parts of the arm. Remove the jumper wire.
8. Snap the end caps into the cover and secure with the (2) #6 round head screws provided. Snap in the optional end cap insert (provided in the screw bag) on the end cap opposite the on/off switch. Install the entire cover assembly and the spindle insert with the screws provided.

Low Ceiling Application

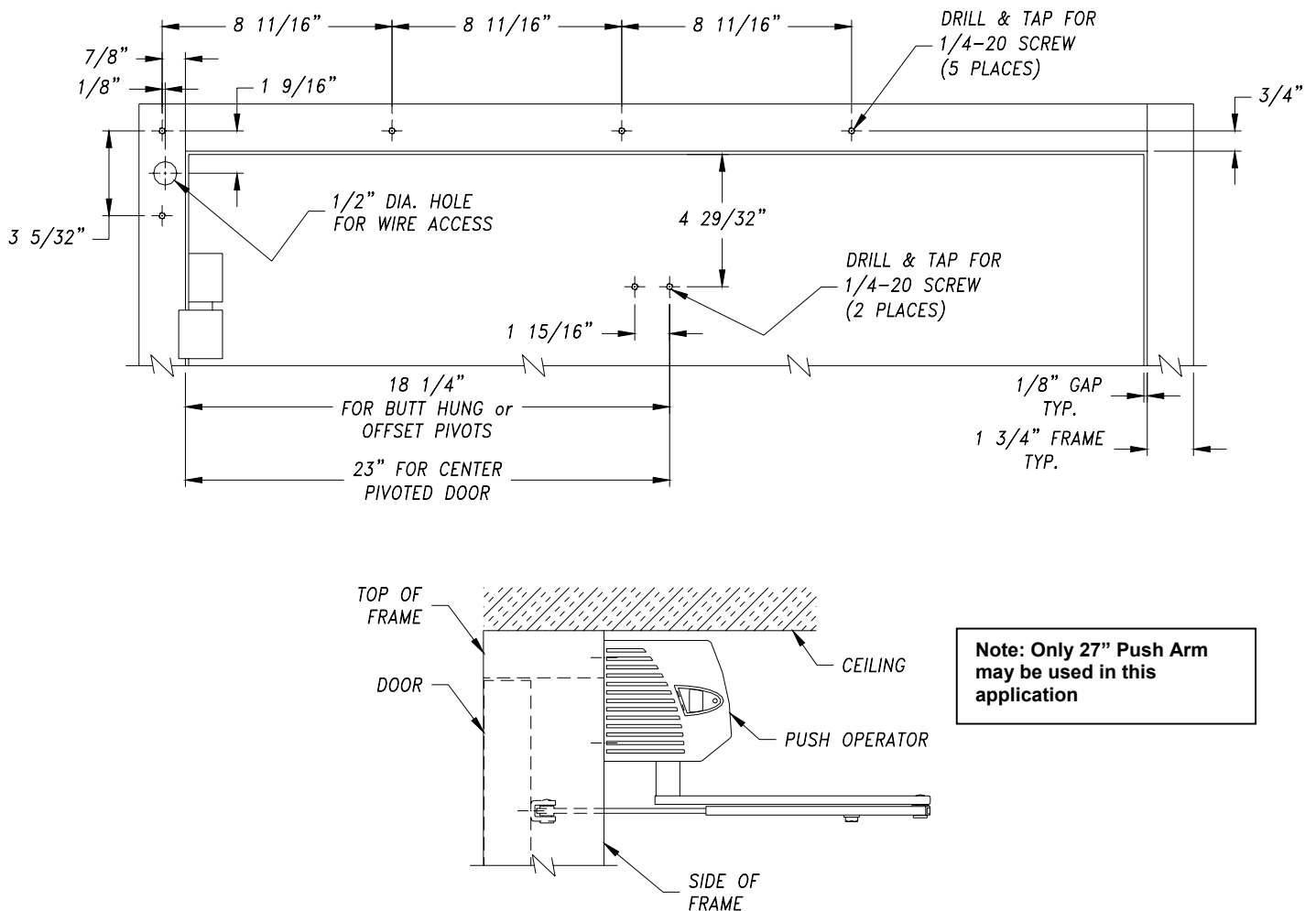


FIGURE 24: INSTALLATION TEMPLATE FOR LOW CEILING APPLICATION – PUSH ARM ONLY

Standard Control Box

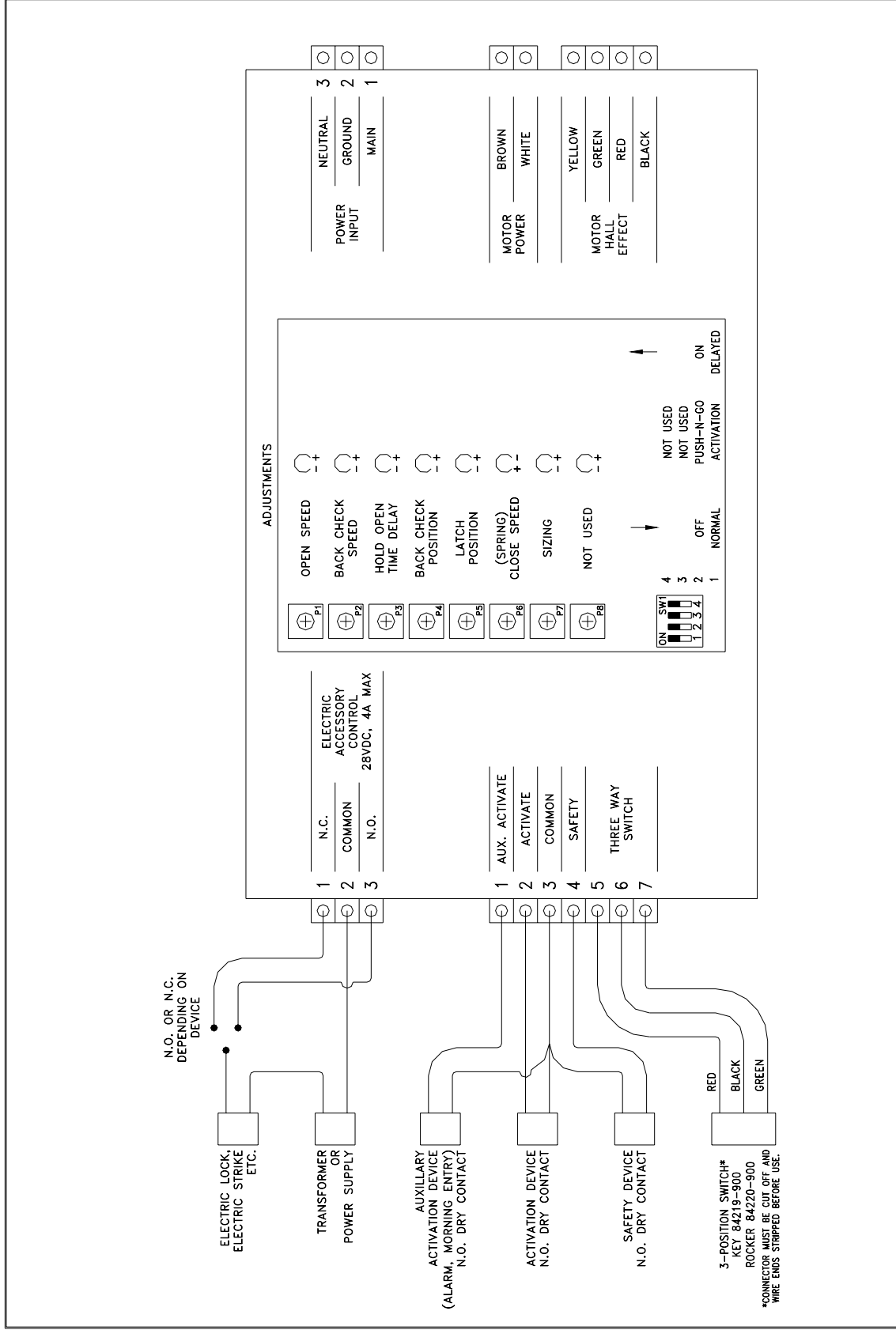
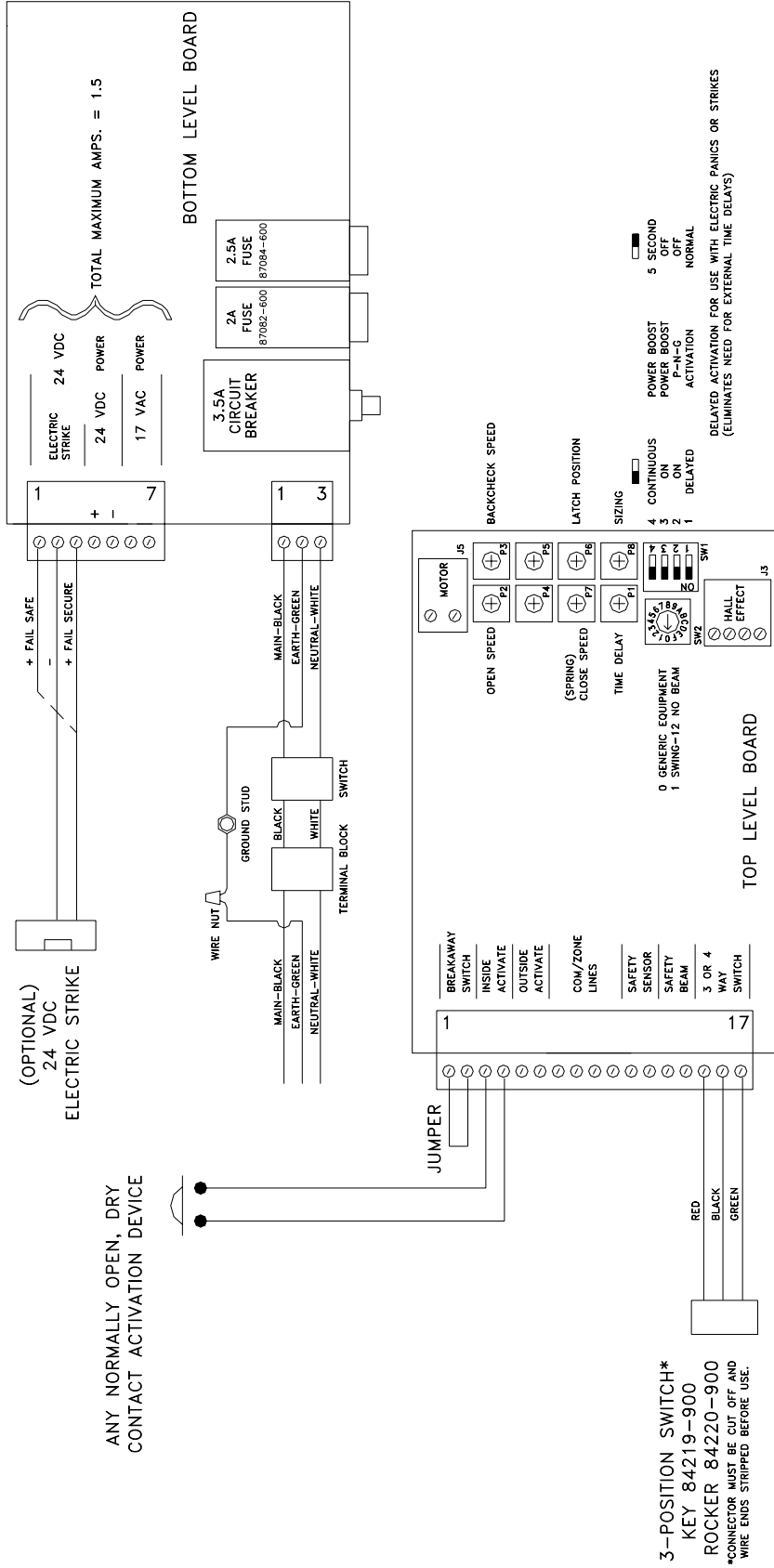


FIGURE 25: STANDARD CONTROL BOX WIRING

Premium Control Box

SWING DOOR OPERATOR CONTROL (LOW ENERGY)



- P2: OPEN SPEED ADJUSTMENT. CW=SLOWER CCW=FASTER
- P3: BACKCHECK SPEED ADJUSTMENT. CW=SLOWER CCW=FASTER
- DO NOT ADJUST THIS TO MAXIMUM SETTING. ADJUST AS NEEDED ONLY TO OVERCOME SPRING TENSION.
- P4: NOT USED IN THIS VERSION.
- P5: NOT USED IN THIS VERSION.
- P7: (SPRING) CLOSE SPEED ADJUSTMENT. CW=SLOWER CCW=FASTER
- P6: LATCH POSITION ADJUSTMENT. CW=LESS LATCH CCW=MORE LATCH
- P1: TIME DELAY ADJUSTMENT. CW=LESS HOLD OPEN TIME CCW=MORE HOLD OPEN TIME
- P8: SIZING ADJUSTMENT. DO NOT ADJUST UNLESS SPRING IS SET TO HIGH TENSION POSITION. ADJUST AS NEEDED ONLY TO OVERCOME SPRING TENSION.
- SW2: FUNCTION SELECTOR SWITCH. 0=GENERIC EQUIPMENT 1=SWING-12 NO BEAM

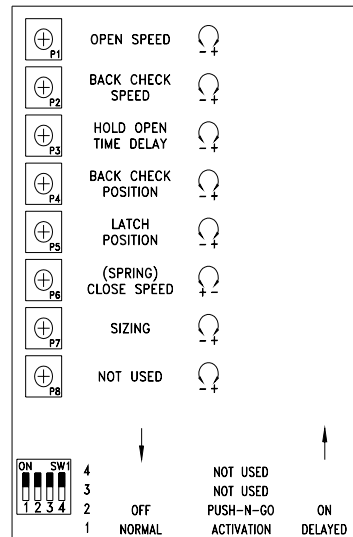
FIGURE 26: PREMIUM CONTROL BOX WIRING

Troubleshooting

If door does not open at all, ensure door is not locked and power is on. If door is unlocked and power switch is on, check fuse(s), circuit breaker, and connections. Use the following procedure.

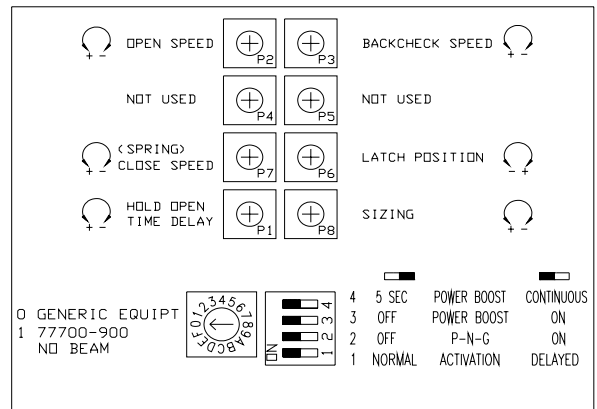
1. Standard Control Box.

- A. Adjust the pots to settings below. These are single turn pots.
 - P1 (Open Speed)= 100% (Clockwise)
 - P2 (Back Check Speed)= 100% (Clockwise)
 - P3 (Hold Open Time Delay)= 0% (Counter-Clockwise)
 - P4 (Back Check Position)= 50%
(Turn Counter-Clockwise until pot stops. Turn Clockwise one half turn.)
 - P5 (Latch Position)= 100% (Clockwise)
 - P6 (Close Speed)= 100% (Clockwise)
 - P7 (Sizing)= 100% (Clockwise)
 - P8= Not Applicable
- B. Activate door to test operation.
- C. Adjust Control Box settings as needed.



2. Premium Control Box

- A. Adjust the pots to settings below. These are single turn pots.
 - P1 (Hold Open Time Delay)= 0% (Clockwise)
 - P2 (Open Speed)= 100% (Counter-Clockwise)
 - P3 (Back Check Speed)= 100% (Counter-Clockwise)
 - P4= Not Applicable
 - P5= Not Applicable
 - P6 (Latch Position)= 50%
(Turn Counter-Clockwise until pot stops. Turn Clockwise one half turn.)
 - P7 (Close Speed)= 100% (**Clockwise**)
 - P8 (Sizing)= 100% (Counter-Clockwise)
- B. Activate door to test operation.
- C. Adjust Control Box settings as needed.



The pots must be adjusted for the specific application to meet the Americans with Disabilities Act, ANSI 156.19-1997, and local codes.

Benchmark Extended Reveal Kit and Extended Reveal Assembly for 10" Reveal (maximum)

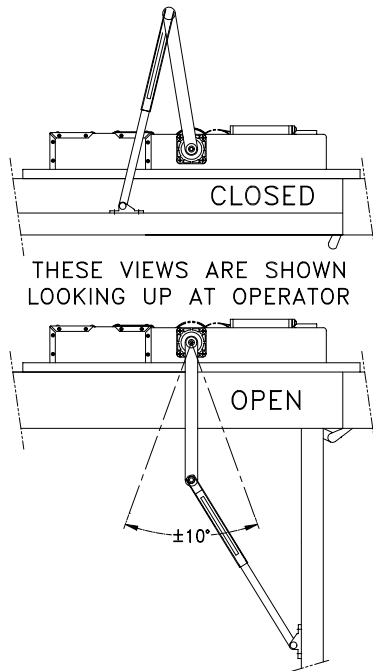


Figure 1

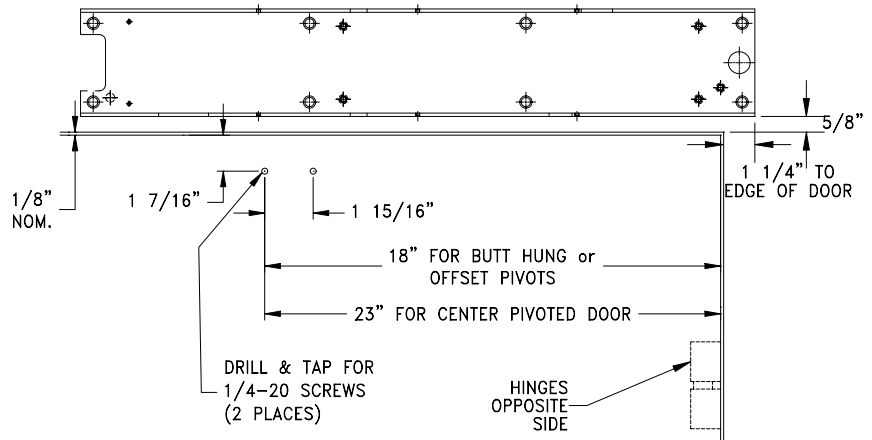
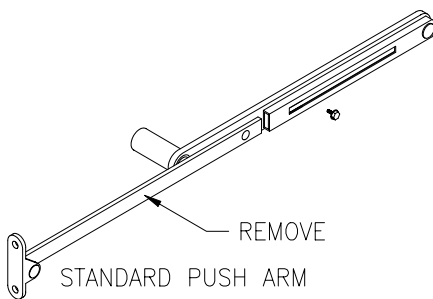
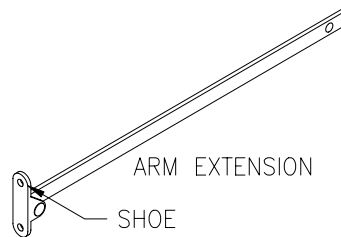


Figure 2



**95005-000 shown with 95025-1XX Arm Extension
Figure 3**



**95025-9XX Extended Arm Assembly
Figure 4**

1. Refer to 99101-084 Benchmark Installation Instructions for installation of operator onto door frame.
2. Before attaching the arm to the unit, apply power and turn the power switch on. Activate the operator to the full open position by placing a jumper wire across the "Inside Activation" terminals to put the operator in the hold open position.
3. 95025-9XX (Figure 4) replaces the 95005-000 assembly that comes standard with the Benchmark. 95025-1XX extended reveal kit requires that the installer remove the standard length push arm from the arm linkage and insert the extended reveal arm (Figure 3).
4. Attach the shoe of the push arm assembly to the door (Figure 2). Slide the push arm into arm linkage and fasten loosely with the socket head cap screw provided.
5. Attach the arm linkage to the operator (Figure 1) with the 8mm socket head screw (loosely) and adjust the arm to the desired door position together with the shoe. Once the desired position has been chosen, tighten both the 8mm socket head screw and the nut connecting the two parts of the arm.
6. Remove the jumper wire.

BENCHMARK TROUBLE-SHOOTING CHART

For Standard Benchmark control boxes mfg after 12/1/03 and Premium control boxes mfg after 1/01/04
See Operators Manual (95299-084) and verify wire connects before trouble-shooting unit.

PROBLEM	TEST	CAUSE	SOLUTION
Door will not open when activated	1) Check 3-way (on-off-hold open switch) and on-off switch.	Switch is in off position.	Place switch in "on" position.
	2) Check circuit breaker and fuse.	Circuit breaker tripped. Fuse blown.	Push circuit breaker into on position and replace fuse.
	3) Set VOM to 120 volts AC scale. Place meter probes across black and white wires of the AC power cable. If meter does not read 117 volts....	Power supply has been interrupted. Circuit breaker at main panel tripped.	Reset main panel breaker.
	4) Place VOM meter leads on normally open contact leads from activation device. If closer is not indicated on meter when device is activated....	Activation device is inoperative or voltage not supplied to device.	Restore voltage or replace device.
	5) Shut power off. Remove fuses from control box and motor leads. If fuse reads infinite OHMS.]...	Fuses open.	Replace fuse.
	6) Place jumper across COMMON, J4B-1 and MAIN ACTIVATE, J4A-2 of control box. If door opens...	Activation device is inoperative.	Replace activation device.
	7) If after performing the above tests and the control box does not open when sensor is activated...	Control box is faulty.	Replace control box.
Door will not fully open	1) Manually push door open and close. If not working freely....	Door binding.	Adjust door to eliminate binding.
	2) Check for loose or bad connections of wires.	Doors has loose or bad connections.	Rework wiring and make sure all connections are good.
Door will not size	1) Manually push door open and close. If door is hard to open and close...	Door binding.	Adjust door to eliminate binding.
	2) Check for loose or bad connections on wires.	Doors with loose or bad connections.	Rework wiring and make sure all connections are good.
	3) Test motor. Disconnect power. Place VOM meter lead to motor wire and test to ground. If meter reads other than infinite OHMS....	Faulty motor.	Replace motor.
Door will not close.	1) Turn off power. Push door to 90 degrees. If door does not close.	Operator spring broken.	Replace motorgear box.
	2) Disconnect all activation and safety devices from control box. If door holds open under power.	Faulty control box.	Replace control box.

BENCHMARK TROUBLE-SHOOTING CHART

See Operators manual (99101-084) and verify wire connects before trouble-shooting unit.

PROBLEM	TEST	CAUSE	SOLUTION
Door will not open when activated	1) Check on-off-hold open switch and on-off switch.	Switch is in off position.	Place switch in "on" position.
	2) Check circuit breaker and fuse.	Circuit breaker tripped. Fuse blown.	Push circuit breaker into on position and replace fuse.
	3) Set VOM to 120 volts AC scale. Place meter probes on transformer panel. If meter does not read 117 volts....	Power supply has been interrupted. Circuit breaker at main panel tripped.	Reset main panel breaker.
	4) Place VOM meter leads on normally open contact leads from activation device. If closer is not indicated on meter when device is activated....	Activation device is inoperative or voltage not supplied to device.	Restore voltage or replace device.
	5) Shut power off. Remove fuses from control box and motor leads. If fuse reads infinite OHMS.]...	Fuses open.	Replace fuse.
	6) Place jumper across blue and gray wires of control box. If door opens...	Activation device is inoperative.	Replace activation device.
	7) If after performing the above tests and the control box does not open when sensor is activated...	Control box is faulty.	Replace control box.
Door will not fully open	1) Manually push door open and close. If not working freely....	Door binding.	Adjust door to eliminate binding.
	2) Check for loose or bad connections of wires.	Doors has loose or bad connections.	Rework wiring and make sure all connections are good.
Door will not size	1) Manually push door open and close. If door is hard to open and close...	Door binding.	Adjust door to eliminate binding.
	2) Check for loose or bad connections on wires.	Doors with loose or bad connections.	Rework wiring and make sure all connections are good.
	3) Test motor. Disconnect power. Place VOM meter lead to motor wire and test to ground. If meter reads other than infinite OHMS....	Faulty motor.	Replace motor.
Door will not close.	1) Turn off power. Push door to 90 degrees. If door does not close.	Operator spring broken.	Replace motorgear box.
	2) Disconnect all activation and safety devices from control box. If door holds open under power.	Faulty control box.	Replace control box.