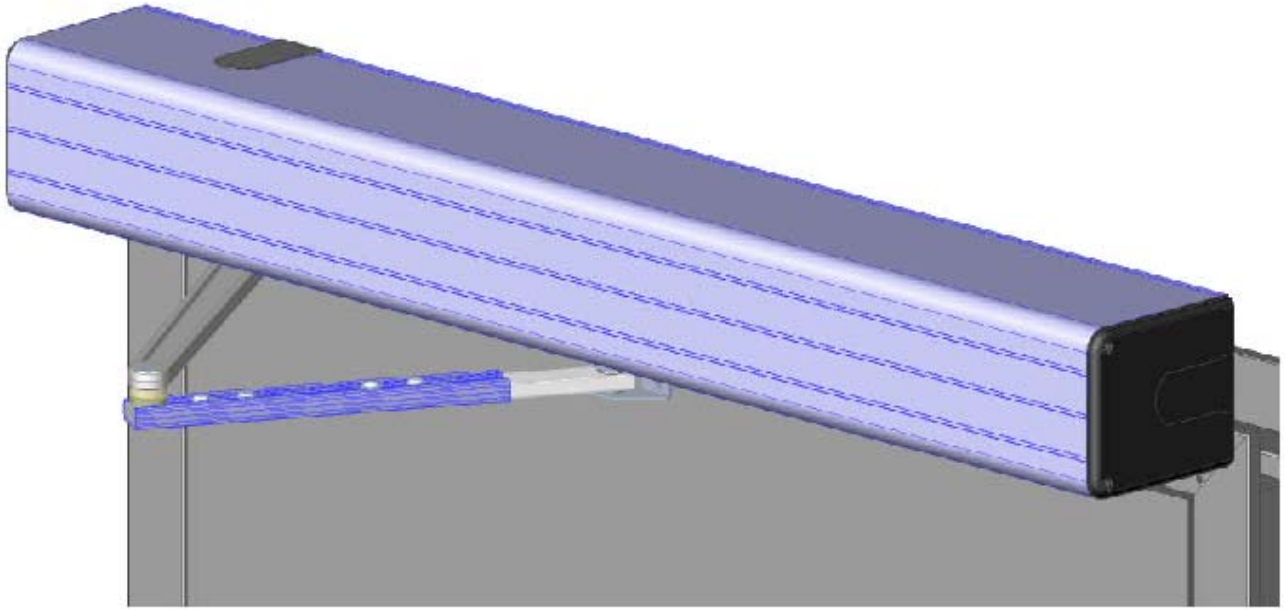
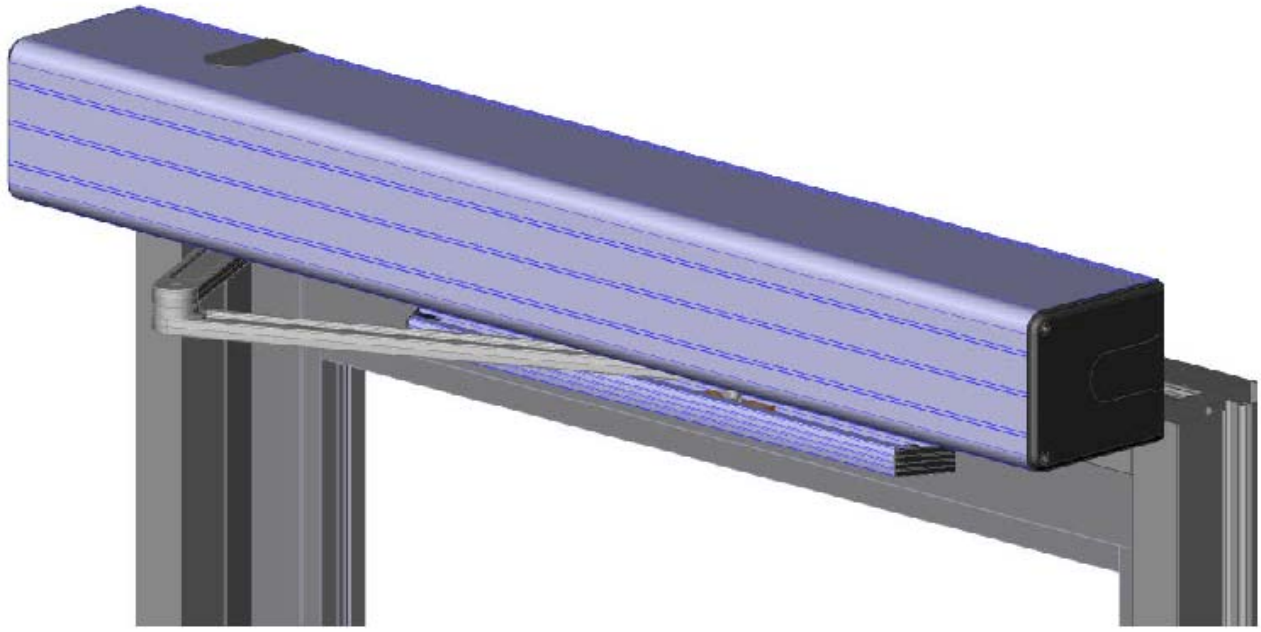
8000/8100 Series Swing Door Operator
Installation Instructions





The manufacturer's specifications for this product require the installation to be approved by an AAADM certified inspector.

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Monroe, NC USA 28110
Http://www.record-usa.com

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704-289-9212
Fax: 704-289-2024

The record-usa 8000/8100 Operator has been carefully designed, built, and tested to provide years of service.

The life of the operator package is directly related to how carefully the installation is accomplished and how accurately the instructions are followed. Installation of this operator package should be done by properly trained and knowledgeable installers with a knowledge of local code requirements and the requirements of ANSI A156.10 Standards for Power Operated Pedestrian Doors and ANSI 156.19 Standards for Low Energy Power Assisted Pedestrian Doors. The authorized service / installation dealer must perform all measurements for forces, speeds, and times to insure proper and safe operation.

record-usa is not responsible for improperly adjusted or maintained automatic doors or activation / safety systems and assumes no responsibility for damages caused by automatic door systems that have not been properly installed, tested, and adjusted.

OWNER INFORMATION TO BE PROVIDED BY THE DISTRIBUTOR / INSTALLER

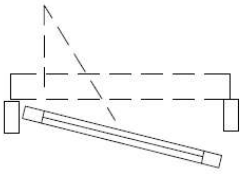
* After the installation instruct the owner on the safe operation of the door.
* Location and proper use of the power switches.
* Location of the main cutoff breaker.
* Necessary warnings not covered in general instructions.
* Owners Manual and Daily Safety Checklist.
* Phone number(s) for the local servicing dealer.
* What to do in the event that a dangerous situation should occur, and how to shut the doors down and call for service.

READ INSTALLATION INSTRUCTIONS BEFORE INSTALLING.
The sequence of installation and adjustment is in order, however some sections will not apply. Review this instruction manual and determine those sections that do apply. Be sure all doors swing freely and clear all objects before attaching arms.
Special attention needs to be given to installations with parallel and slide arms when an adjacent wall is perpendicular to the door frame.

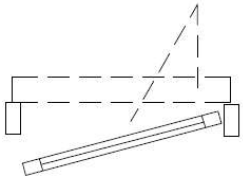
INDEX

OPERATOR HANDING IDENTIFICATION

LHR STD. ARM



RHR STD. ARM

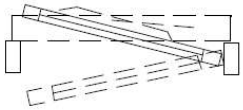


LH TRACK ARM W/PANIC

LH TRACK ARM

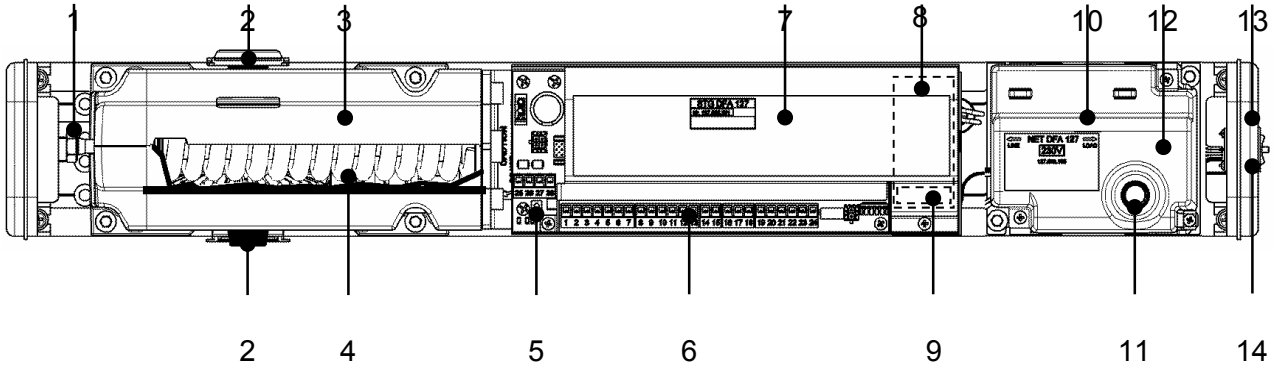
RH TRACK ARM

RH TRACK ARM W/PANIC



Product Description

The record Series 8100 Swing Door Operator is a power-open, spring-close unit providing full functionality conforming to either ANSI 156.10 or ANSI A156.19 requirements. The self-monitoring microprocessor-based control maintains precise regulation throughout the door open / close cycle. Two operators can be connected together in a master/slave configuration providing synchronized operation. Safety is additionally increased by the use of a redundant force limitation.



1 Adjusting screw for spring tension
2 Output Shafts for Arms & Stop
3 Drive Unit
4 Closing Spring
5 Multifunction Pushbutton / Control
6 Terminal Blocks for I/O
7 Microprocessor Control
8 Motor Drive Circuit Board
9 Slide switch S1 (rotating direction)
10 Power Supply
11 Fuse (2.0A, 5X20mm, Slo-Blo)
12 Power Supply Circuit Board
13 On / Off / Open Rocker Switch
14 Status LED and Reset Pushbutton

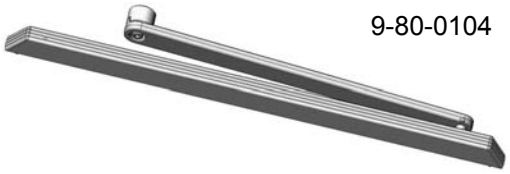
Drive Arms

Three types of drive arms are available:

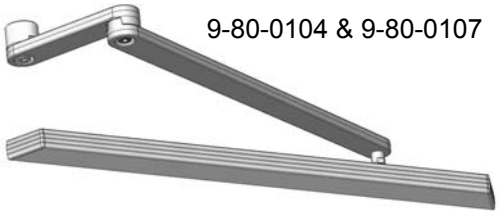
The Standard Arm provides the most flexibility –
Outswing (push) reveals to 12"


9-80-0105

The Slide Track Arm –
Inswing (pull) reveals to 6"


9-80-0104

The Slide Track Arm with Offset Adapter –
Allow double-egress installations
in a common header.


9-80-0104 & 9-80-0107

An extension adapter is included with each arm assembly, connecting the drive arm to the operator output shaft. The Standard Arm is provided with a 20mm adapter which mounts the drive arm approximately 7/8" below the bottom of the header. The Slide Track Arm includes a 20 mm adapter, mounting the drive arm approximately 1/2" below the bottom of the header. Optional adapters are available that will increase the distance below the header to approximately 1-1/8" (35mm - P/N 9-80-0008), or approximately 1-3/4" (50mm - P/N 9-80-0007). For double-egress installations, the Double-Egress Adapter kit, 4-80-0804, includes an offset adapter for the track arm and a 50mm adapter for the standard arm, accommodating a double-rabbet frame.

Layouts for the different arm / installation configurations are attached. Check the arm assemblies prior to unit installation and verify dimensions and clearances.

Instructions to the Installer

This unit is to be installed and commissioned by a trained technician with knowledge of ANSI A156.10 and A156.19 Standards for Power Operated Doors, applicable local codes, and record-USA installation recommendations.

After installation, verify the door can be opened without power applied, and the force required to open the door does not exceed 50 pounds-force (222 N).

Information to provided to the owner

The Owners Manual with training and explanation of the daily safety check.
Location of the operator control panel (On / Off / Hold Open).
Specific information pertinent to the proper operation of the installation.

Electrical preparation

Before preparing jambs, determine the method and requirements for the electrical wiring involved and whether mats or other type of activation is used.
Power requirements — 115 VAC, 60 Hz, 15 Amp Service.

Mechanical Installation

The door panel must move freely throughout its entire opening and closing rotation. The door frame must provide a stable base, structurally sufficient to support automatic operation. Typically the operator baseplate will overlap the door jambs by 1-1/2".

Verify the installation conditions and select the arm configuration that most closely matches the installation. As a general rule, the operator output shaft will mount 4" away from the hinge jamb, measured parallel to the closed door. The door mounted foot on a Standard arm assembly will typically mount 18" from the hinge jamb. For Slide Track arm assemblies, the door mounted track will mount with one end located 4" from the hinge jamb.
Consult the attached layout drawings for additional details.

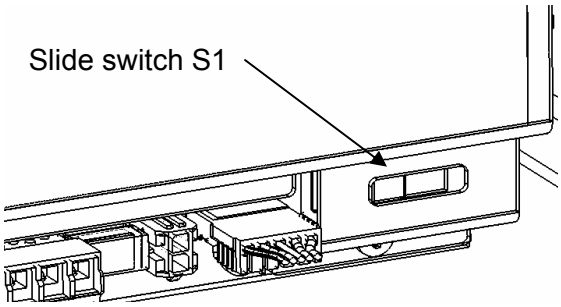
Securely attach the unit baseplate to the door frame; Hex Head Tek Screws are included - #14 X 2” for unit mounting to door frame, and #10 X 1-1/2” for Arm mounting to door.

Typically, the drive arm is attached to the operator with the unit in the closed position. Additionally, the arm is positioned on the splined output shaft with a slight pre-load, pushing the door against the door closed stop. The spline provides incremental adjustment of 6°; typically, one spline index for pre-loading is sufficient.
The drive arm is attached to the lower operator output shaft using the extension adapter supplied with the arm assembly. Consult the appropriate arm configuration for proper arm positioning on the shaft (The most common application – an outswing / push configuration using the Standard arm assembly – has the drive arm mounted to the shaft perpendicular to the closed door.) When securing the arm on the shaft, insure the extension adapter has seated properly on the shaft spline. If not seated correctly, slippage of the arm on the shaft may occur. For Track arms, install the arm with the outer end of the arm against the closed door. Do not tighten the bolt; using the arm, pull the operator open and during the slow, controlled closing, insure the splines seat correctly and tighten the 6mm socket head bolt.
Verify all fasteners are securely tightened.

Operator Swing Direction

If the operator does not close slowly (with either arm), the handing selection switch should be changed. It is located behind a slot in the sheet metal cover for the operator control –

With no power applied, the operator should be capable of being easily pushed open and when released, will close the door at a controlled speed.

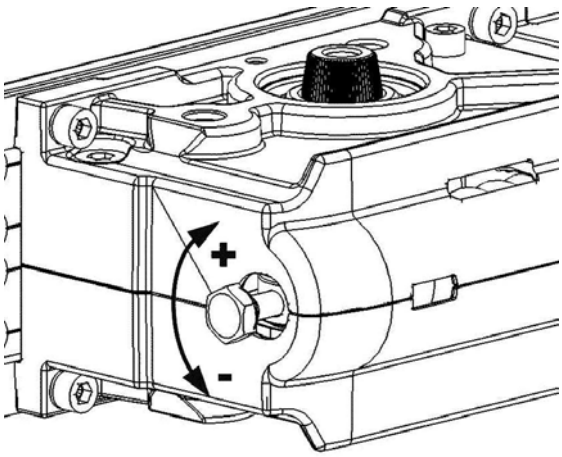


Closing Spring Adjustment

The closing force provided by the spring is adjustable.

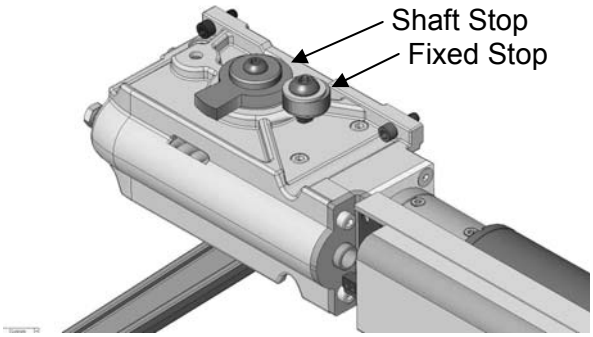
Do not adjust the force so low that the door will not consistently close under spring power.

On a typical 3'-0" door with a standard arm assembly, the spring closing force can be adjusted from less than 5 pounds force to more than 20 pounds force, measured at the leading edge of the door.



Open Stop

The unit is provided with an adjustable full open stop. Rotate the door to the full open position; mount the Shaft Stop onto the upper output shaft and against the Fixed Stop. The spline of the output shaft allows indexing in 6° increments.
For finer adjustment, the Fixed Stop is slightly eccentric; loosen and rotate until the desired stop location is achieved and re-tighten.



For installations where severe physical abuse may occur (such as extreme wind conditions), it is suggested a floor mounted stop be installed at full open. Additionally, the operator full open stop can be set at 100 degrees or more of opening, and program the operator to electronically stop at the 90 degree full open position. This can be accomplished by manually stopping the door at 90 degrees during a calibration run, or by reducing the opening angle under the parameter “Drive / Opening angle” (using an FPC902 Hand Terminal or a Display Control Panel).

Power Supply Connection

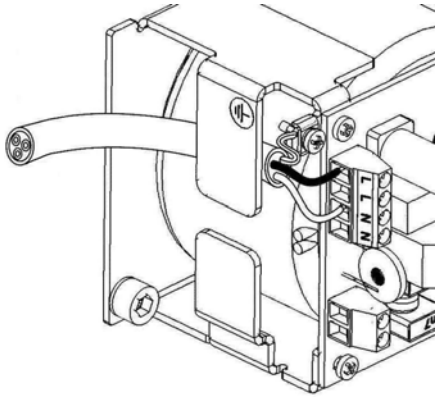
Connect 115VAC, 60 Hz, 10A, to Power Supply terminal strip

115VAC "Hot" (Line) to "L" terminal;
115VAC "Neutral" to "N" terminal

The second "L" and "N" terminals provide a convenient junction for dual operator systems.

Proper grounding must be provided for the unit. A grounding tab and screw are located adjacent to the Power Supply terminal strip.

The power supply cover must be installed after connecting 115VAC primary service.



The **multifunction pushbutton** can be used for the following functions:

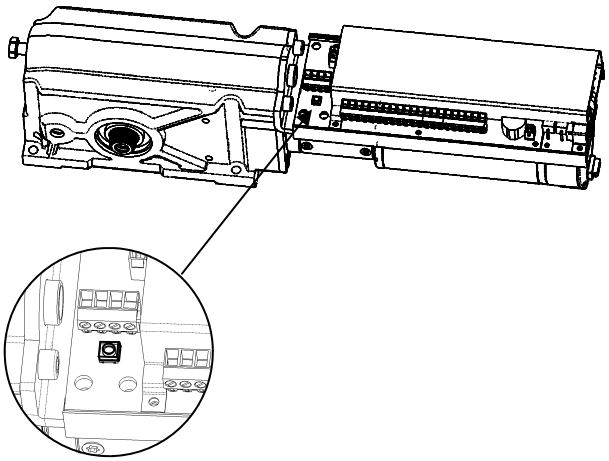
1 flash of the red LED will actuate a standard open cycle (if the rocker switch is on).

3 flashes of the red LED will initiate a calibration run.

4 flashes of the red LED will initiate the parameter adjust mode of a Display Control Panel.

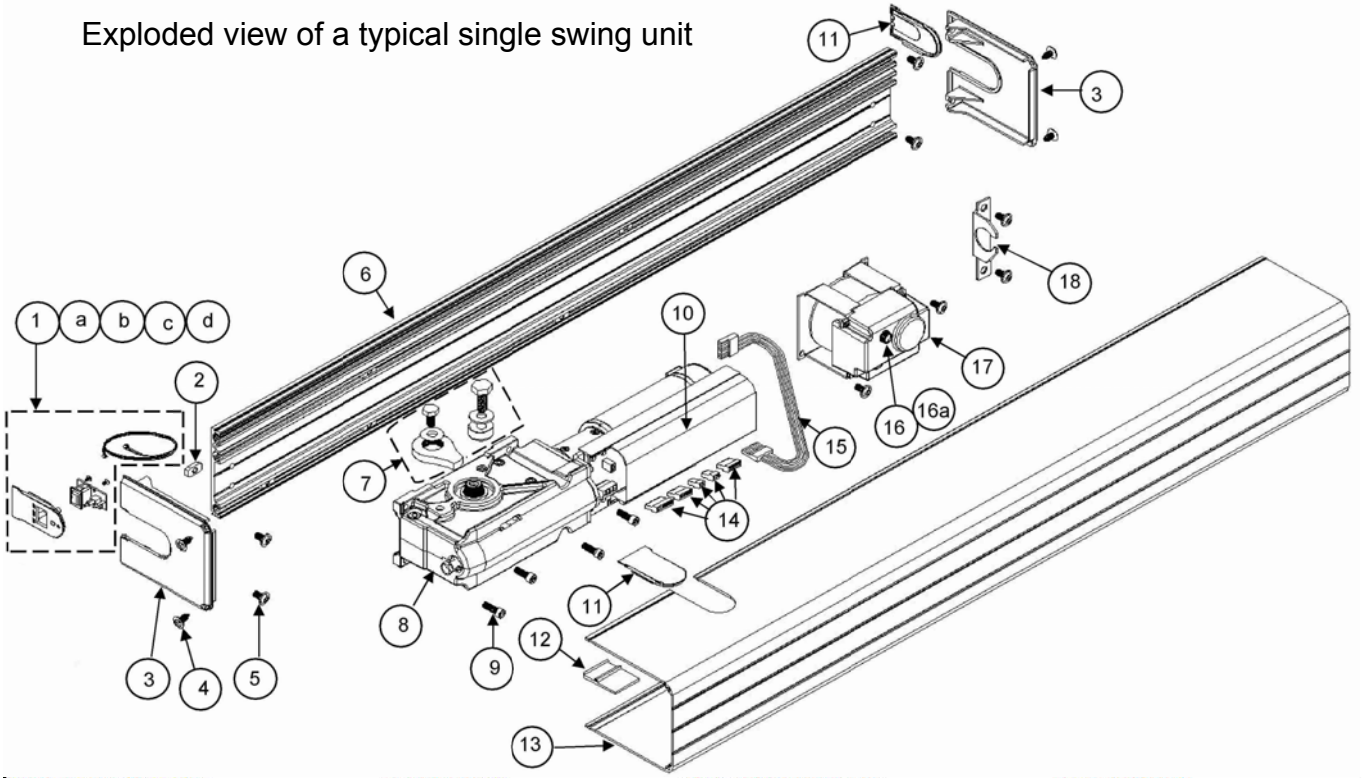
8 flashes of the red LED will reset the unit’s parameters to factory defaults.

15-17 flashes will cause the unit to reset without affecting any of the field set parameters.



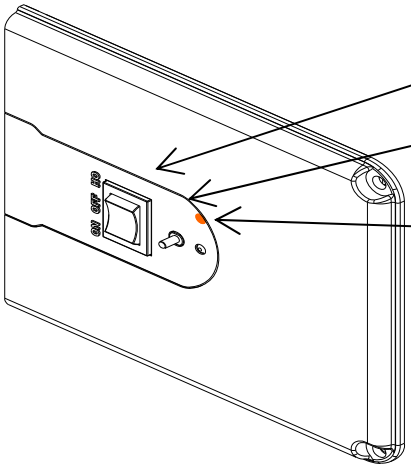
After completion of the mechanical installation and prior to adjusting the parameters, always initiate a calibration run by pressing and holding the pushbutton for 3 flashes of the red LED. This will insure proper door operation by calibrating the unit to the installation conditions.

Exploded view of a typical single swing unit



ITEM	PART NUMBER	DESCRIPTION	ITEM	PART NUMBER	DESCRIPTION
1	4-80-0802	KIT, ROCKER SWITCH, CABLE, INSERT, & SCREWS	11	6-80-9003	INSERT, PLAIN, COVER & END CAP
2	4-51-1036	PLATE, NUT (1/4-20)	12	6-80-9002	INSERT, SHAFT CUTOUT, COVER
3	6-80-9001	END CAP, COVER	13	5-80-4003	COVER, 6100/8100 CL-DB
4	81-3114-0412-DB	SCREW, 8x1/2" Ph. PH SMS BL OXIDE	14	4-80-0801	KIT, ELECTRICAL CONNECTORS, J1 - J6
5	81-0017-2658	SCREW, 1/4-20X3/8" ALLEN BH BL OXIDE	15	9-80-0010	HARNESS, ENCODER
6	5-80-4001-MF	PLATE, OPERATOR MOUNTING, 6100/8100	16	9-99-1902	FUSE CAP
7	9-80-0103	MOUNTING SET, HARD STOP ADAPTOR	16a	9-99-1940	FUSE, 2.5 A, 5mm X 20mm
8	9-80-0101	DRIVE MODULE, SERIES 8000 OPERATOR	17	9-80-0102	POWER SUPPLY, 6100/8100
9	81-0014-2666	SCREW 1/4-20X3/4" ALLEN BH, BLK OXIDE	18	4-80-1001	BRACKET, CONDUIT ANCHOR
10	9-80-0108	CONTROL, SERIES 6100/8100 OPERATOR	19	9-80-0009	HARNESS, POWER SUPPLY TO CONTROL (not shown)

The Series 8000 Standard Rocker Switch Control Panel includes:



3 Position Rocker Switch - ON / OFF / OPEN

Pushbutton - To reset the operator, press and hold for 8 seconds

LED (red) - Normally off; flashing indicates either the unit is performing a calibration run, or an error has been encountered.

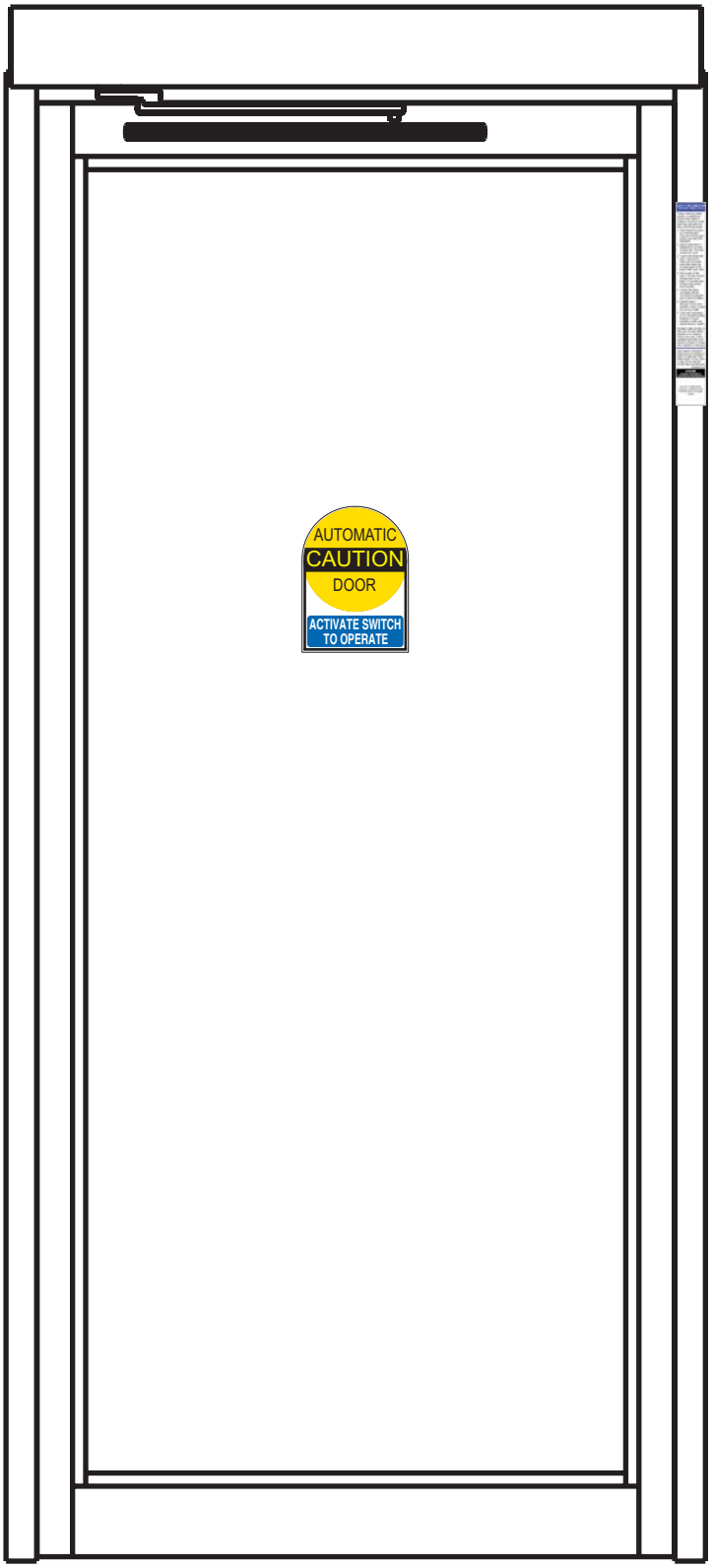
To clear an error, press & hold the pushbutton for approximately 8 seconds, or until the LED turns off.

Full Power & Low Energy
“Knowing Act” doors

Full Power - Swing
Side, 2-Way Traffic;
Low Energy - Sensor
Activation

Full Power
Approach Side

Full Power
Non-Approach Side



Daily Safety
Check locate
below control
panel

58”
±5”

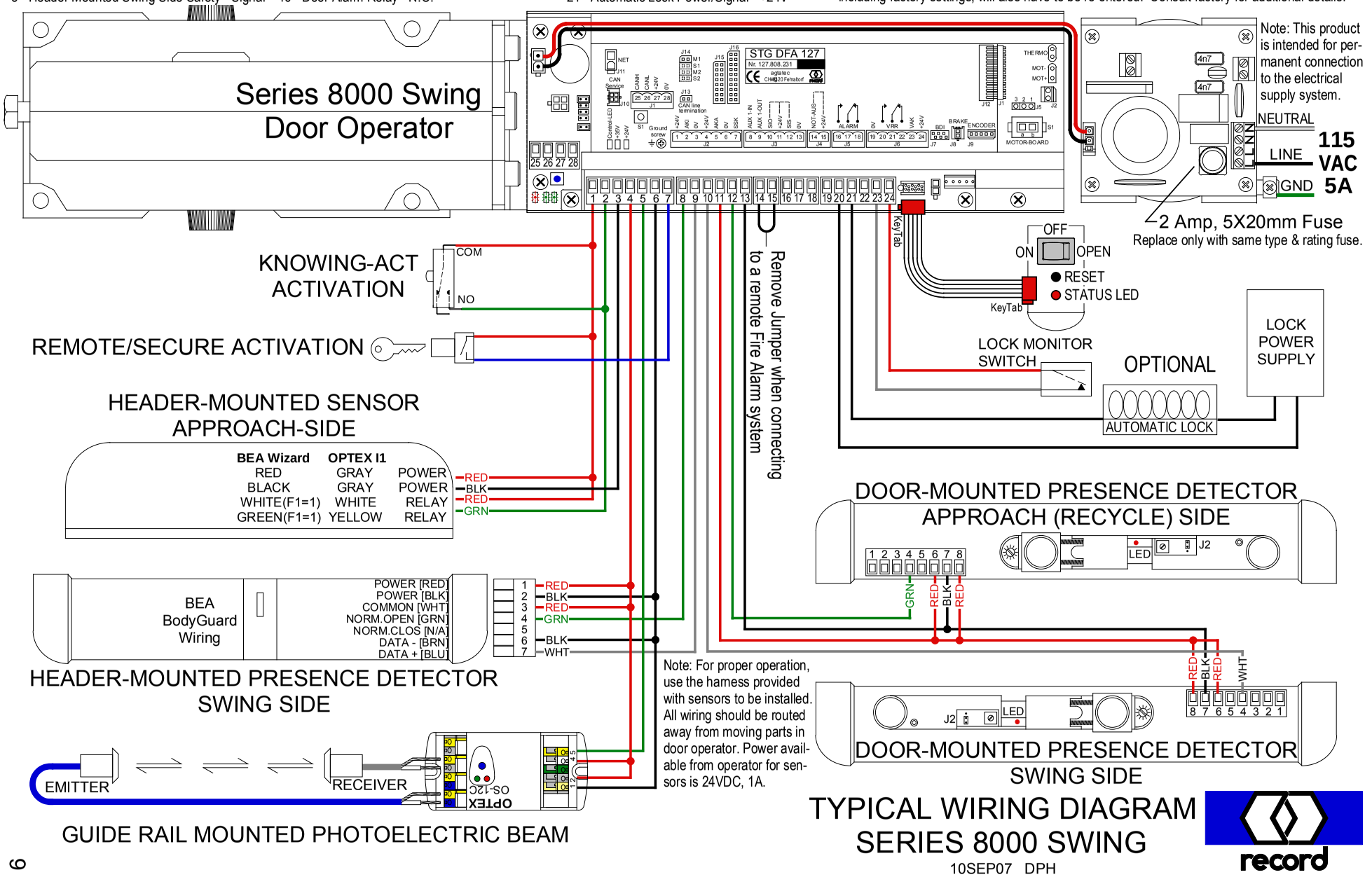
SAFETY DECAL REQUIREMENTS

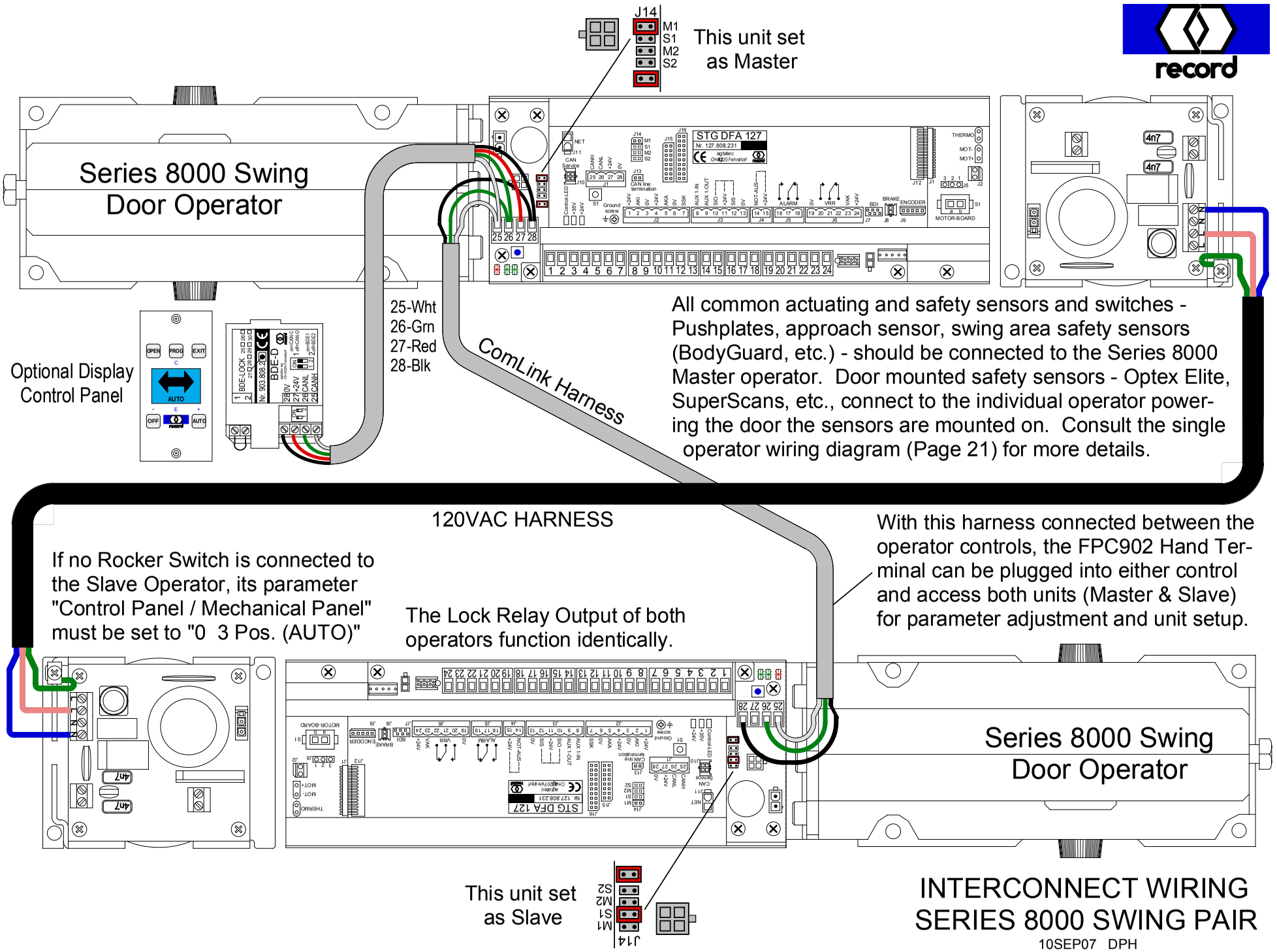
Oct06

CONTROL TERMINAL BLOCK CONNECTIONS

1 - Approach Sensor - Power/Signal - +24V
2 - Approach Sensor - Signal
3 - Approach Sensor - Power - 0V
4 - Guide Rail Beam - Power/Signal - +24V
5 - Guide Rail Beam - Signal
6 - Guide Rail Beam - Power - 0V
7 - Remote Switch - Signal
8 - Header Mounted Swing Side Safety - Signal
9 - BodyGuard Data Line - Data +
10 - Door Mounted Swing Side Safety - Signal
11 - Door Mounted Sensors - Power/Signal - +24V
12 - Door Mounted Approach Side Recycle - Signal
13 - Door Mounted Sensors - Power - 0V
14 - Fire Alarm Signal (Jumper to 15 if not used)
15 - Fire Alarm - +24V
16 - Door Alarm Relay - N.O.
17 - Door Alarm Relay - COM
18 - Door Alarm Relay - N.C.
19 - Automatic Lock Power - 0V (0.5A Max.)
20 - Automatic Lock Control Relay - N.O.
21 - Automatic Lock Control Relay - COM
22 - Automatic Lock Control Relay - N.C.
23 - Automatic Lock Monitor Signal
24 - Automatic Lock Power/Signal - +24V

There are three levels of resetting an operator. To reset without changing any operating parameters, press & hold the black reset button (next to the ON/OFF rocker switch) for 6 seconds, until relay "clicks" occur. To reset and restore typical operating parameters (speed, master/slave, etc.), press & hold the blue button (on the door control) for 8 flashes of the red LED. To fully reset the unit, eliminating all parameter modifications (including Series 6100/8000 setting), press & hold the blue button on the control for 9 flashes of the red LED, then immediately remove the jumper between terminals 14 & 15. After a full reset, the parameter "Entrance System / Door Type" must be changed from "0 Basic Operator" to "25 USA Low Energy". Additional parameters, including factory settings, will also have to be re-entered. Consult factory for additional details.



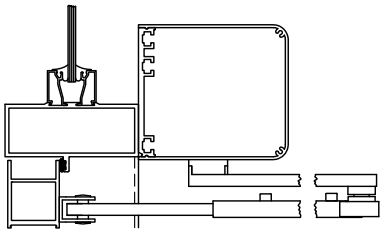

J14
M1
S1
M2
S2
This unit set as Master
Series 8000 Swing Door Operator
STG DFA 127
Optional Display Control Panel
BDE-D
25-Wht
26-Grn
27-Red
28-Blk
ComLink Harness
All common actuating and safety sensors and switches - Pushplates, approach sensor, swing area safety sensors (BodyGuard, etc.) - should be connected to the Series 8000 Master operator. Door mounted safety sensors - Optex Elite, SuperScans, etc., connect to the individual operator powering the door the sensors are mounted on. Consult the single operator wiring diagram (Page 21) for more details.
120VAC HARNESS
If no Rocker Switch is connected to the Slave Operator, its parameter "Control Panel / Mechanical Panel" must be set to "0 3 Pos. (AUTO)"
The Lock Relay Output of both operators function identically.
With this harness connected between the operator controls, the FPC902 Hand Terminal can be plugged into either control and access both units (Master & Slave) for parameter adjustment and unit setup.
Series 8000 Swing Door Operator
This unit set as Slave
INTERCONNECT WIRING
SERIES 8000 SWING PAIR
10SEP07 DPH

Record 8100SP operator Installation instructions

Typical Aluminum entrance applications shown.

See page 12 for additional attachment options.
See pages 13 for double egress layout.
See pages 14 and 15 for fabrication layout information.

Aluminum Storefront Top Jamb



PUSH SIDE MOUNTING

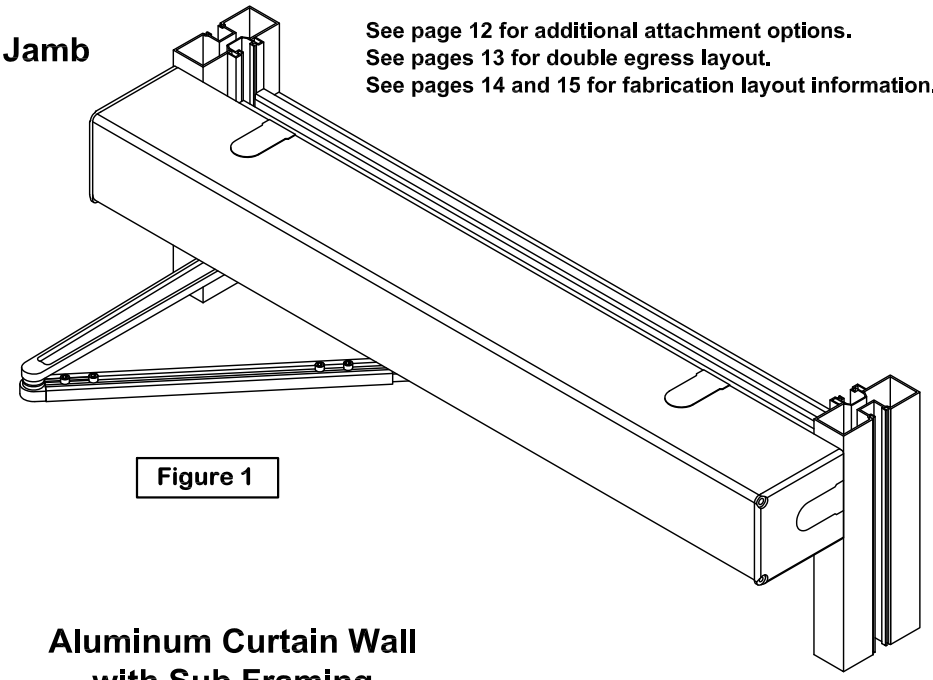


Figure 1

Aluminum Curtain Wall with Sub Framing

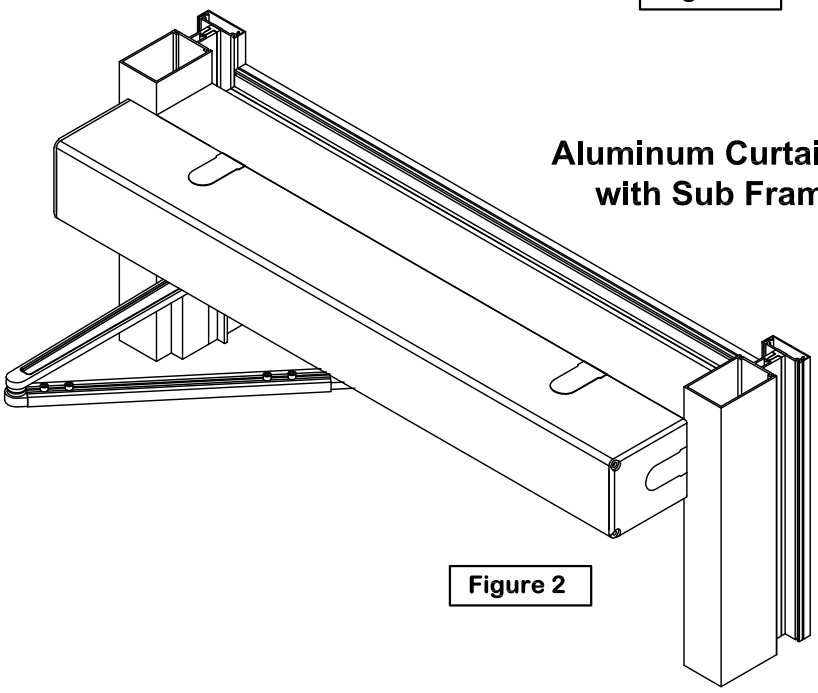
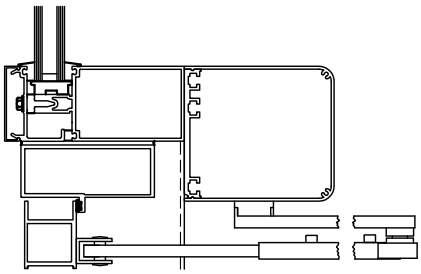
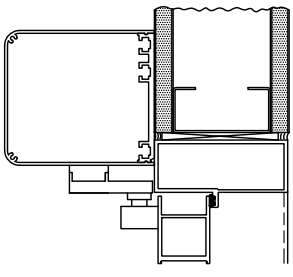


Figure 2



PUSH SIDE MOUNTING

Aluminum Storefront Pull Side



PULL SIDE MOUNTING

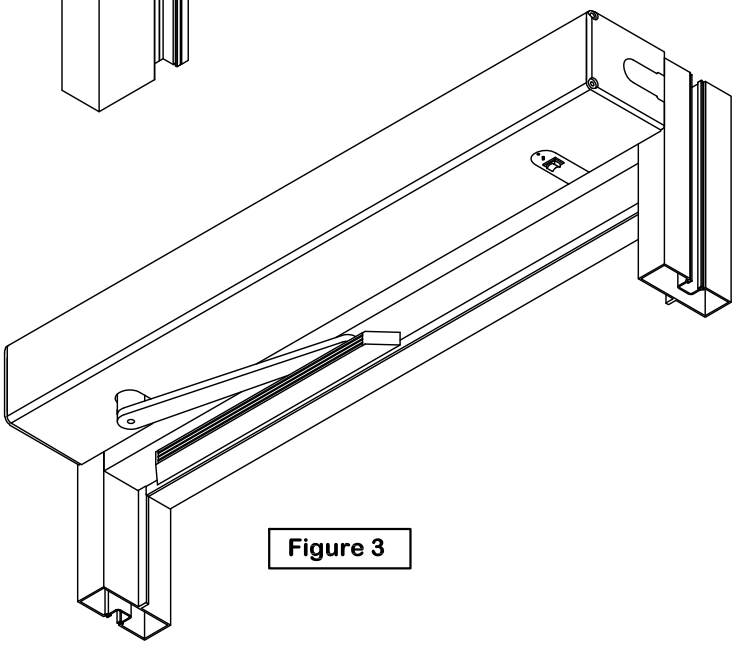
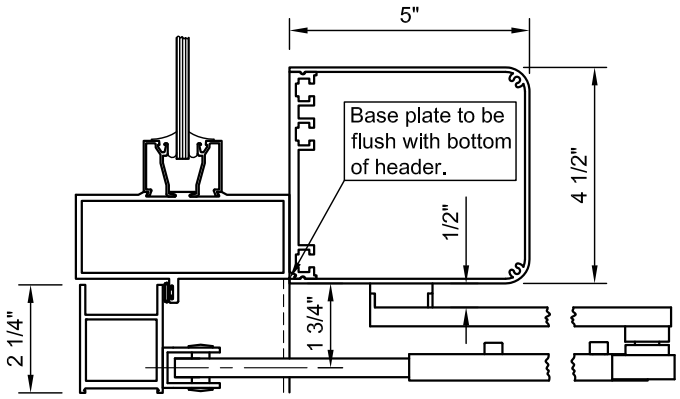
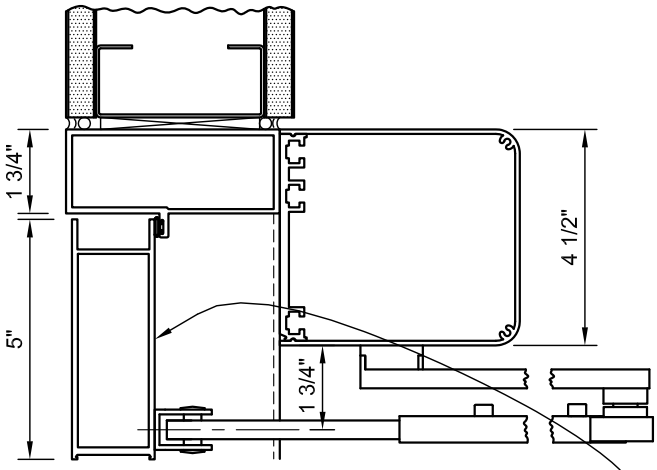


Figure 3

Arm configurations with standard 20mm spindle adaptor

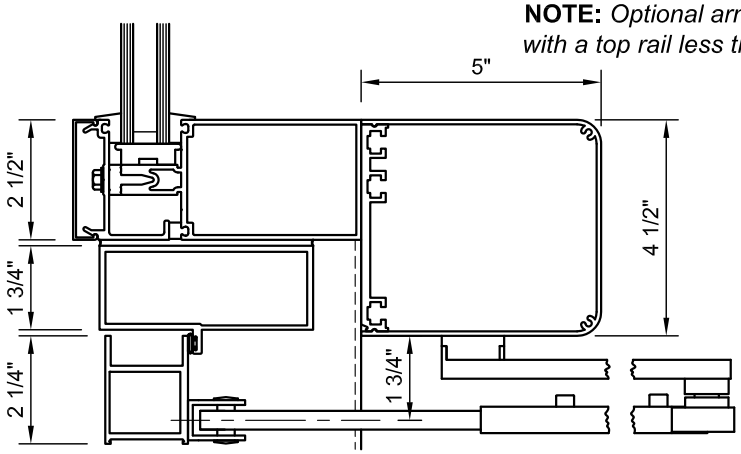


Aluminum Storefront Top Jamb
(see page 14 for additional layout information)

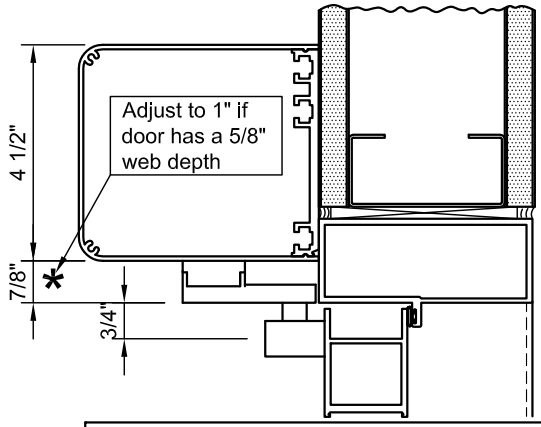


Aluminum Storefront Low Ceiling
(see page 14 for additional layout information)

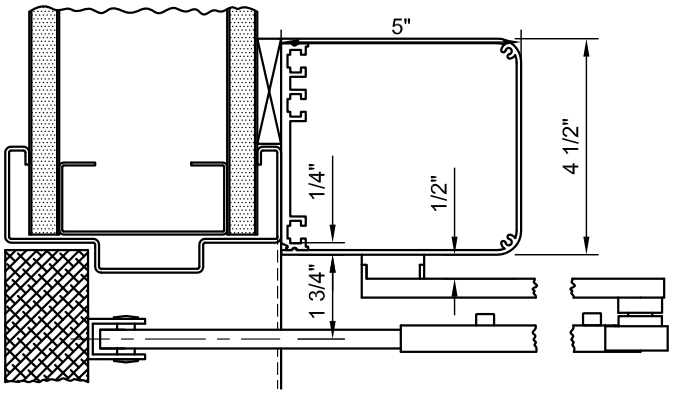
NOTE: *Optional arm shoe drop plate is available for applications with a top rail less than 5". See page 16 for additional information.*



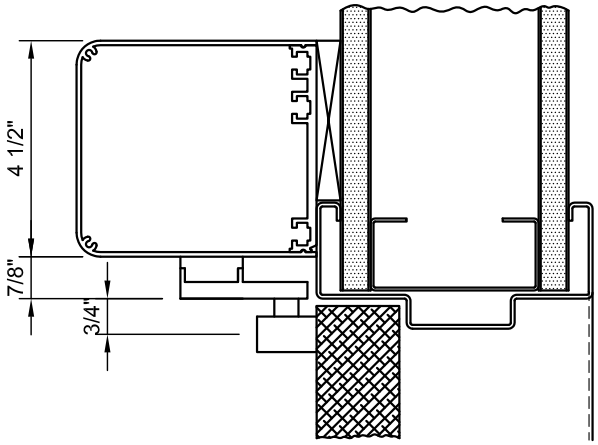
Aluminum Curtain Wall Sub Framing
(see page 14 for additional layout information)



Aluminum Storefront Pull Side
(see page 15 for additional layout information)

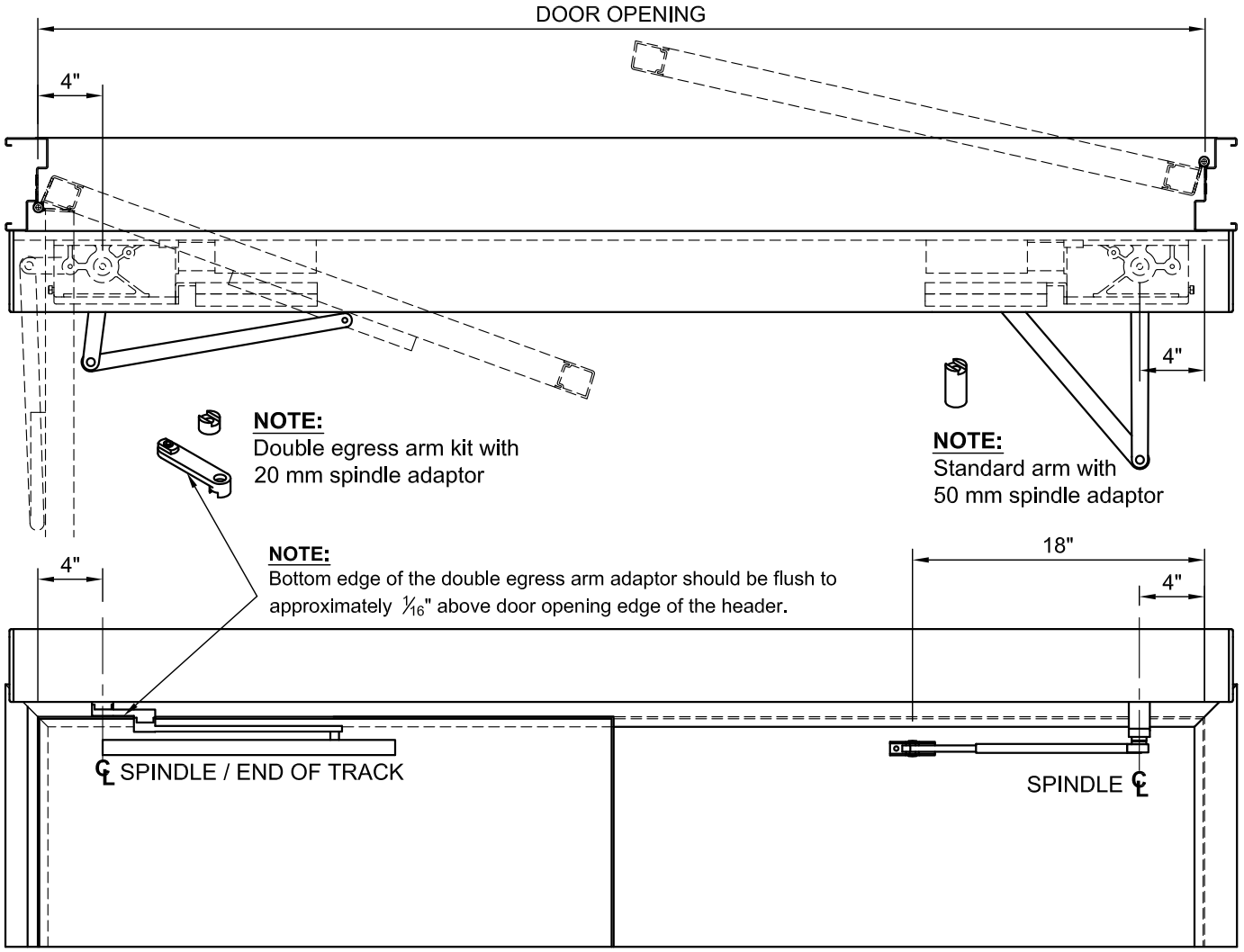


Hollow Metal Top Jamb Push
(see page 15 for additional layout information)

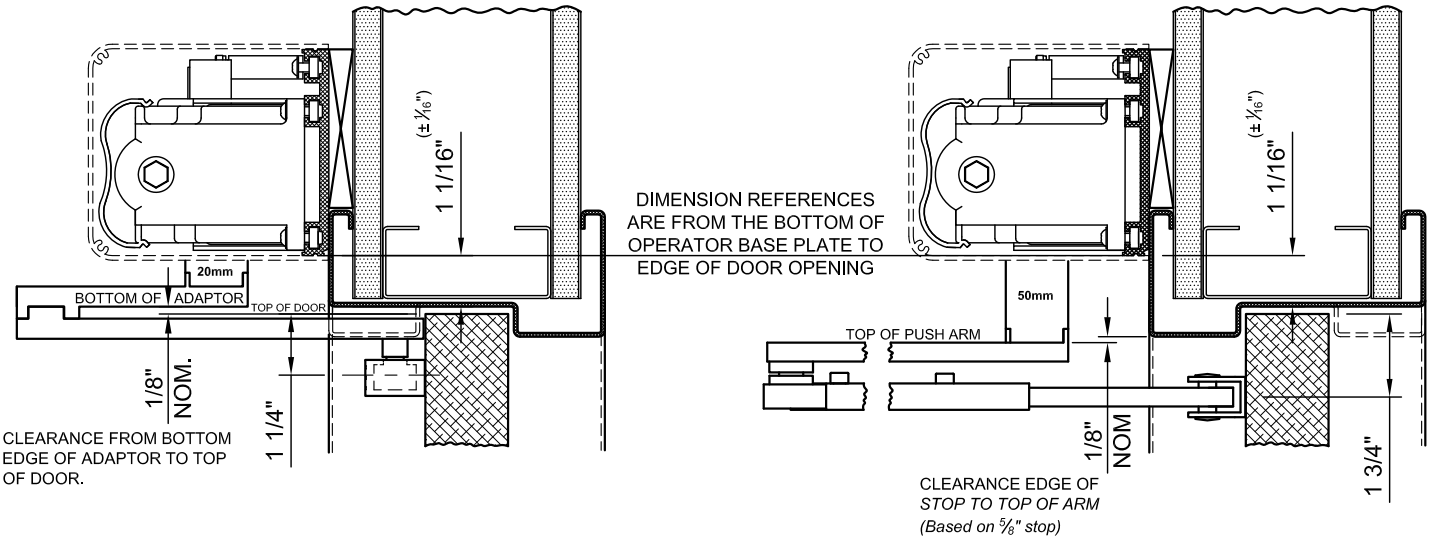


Hollow Metal Pull Side
(see page 15 for additional layout information)

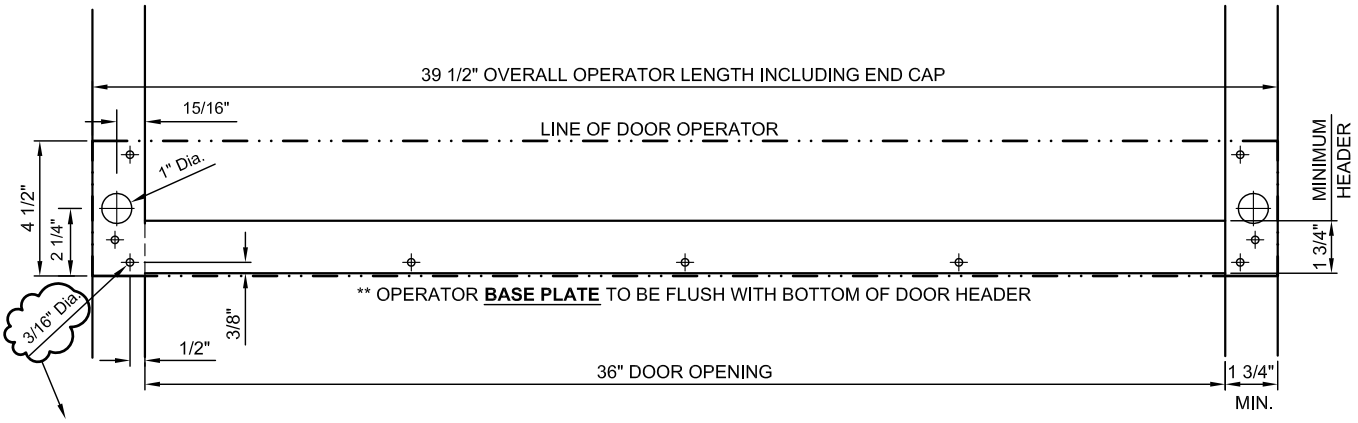
Double Egress Installation Layout



BOTTOM EDGE OF THE OPERATOR BASE PLATE SHOULD BE 1-1/16"
ABOVE UNDERSIDE OF FRAME DOOR OPENING (+/- 1/16")

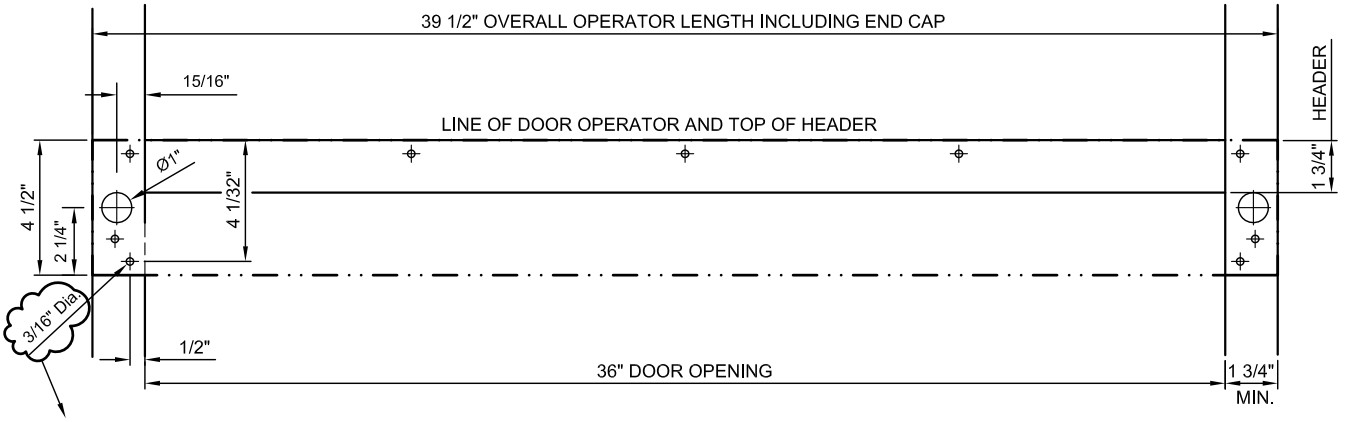


Aluminum Storefront Top Jamb



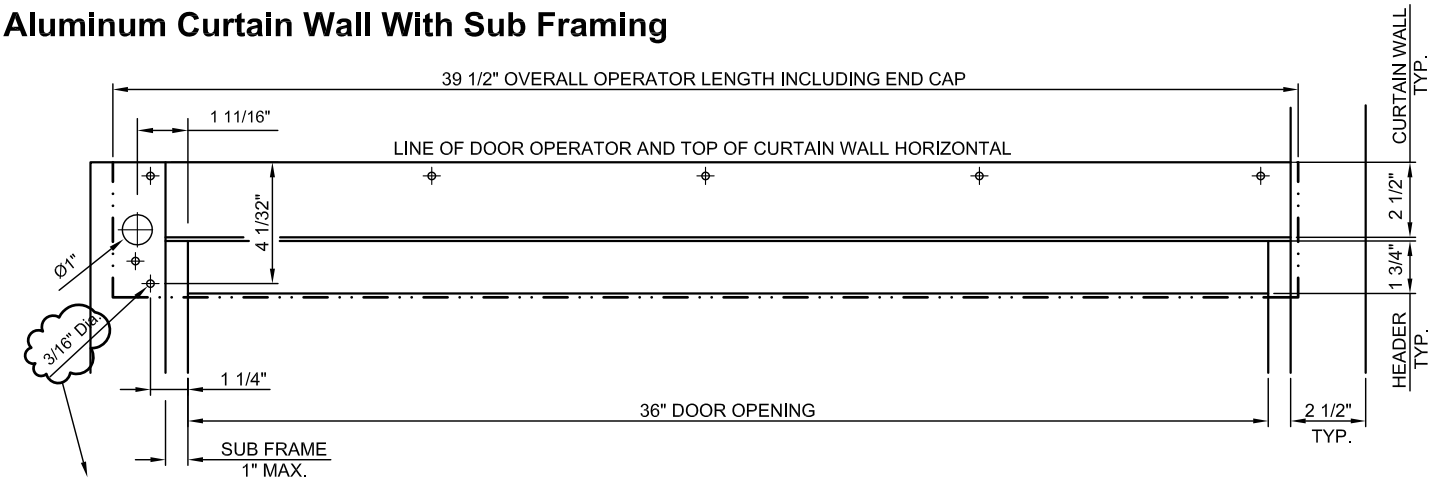
NOTE: Locate pre-installation hole and install fastener as shown on page 17 figure 4.
Once the operator is in place match drill remaining holes.

Aluminum Storefront Low Ceiling



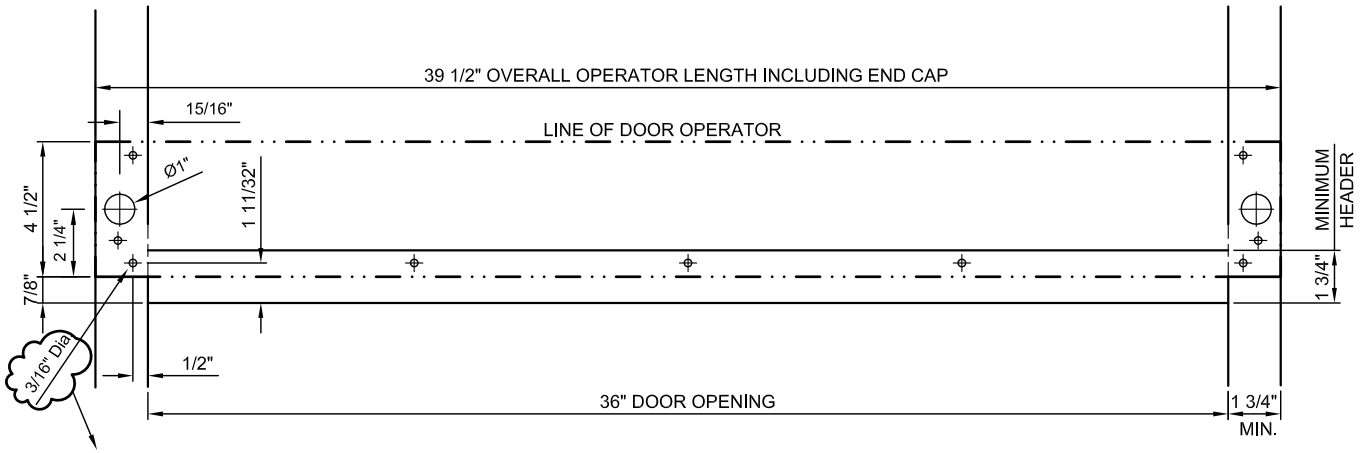
NOTE: Locate pre-installation hole and install fastener as shown on page 17 figure 4.
Once the operator is in place match drill remaining holes.

Aluminum Curtain Wall With Sub Framing



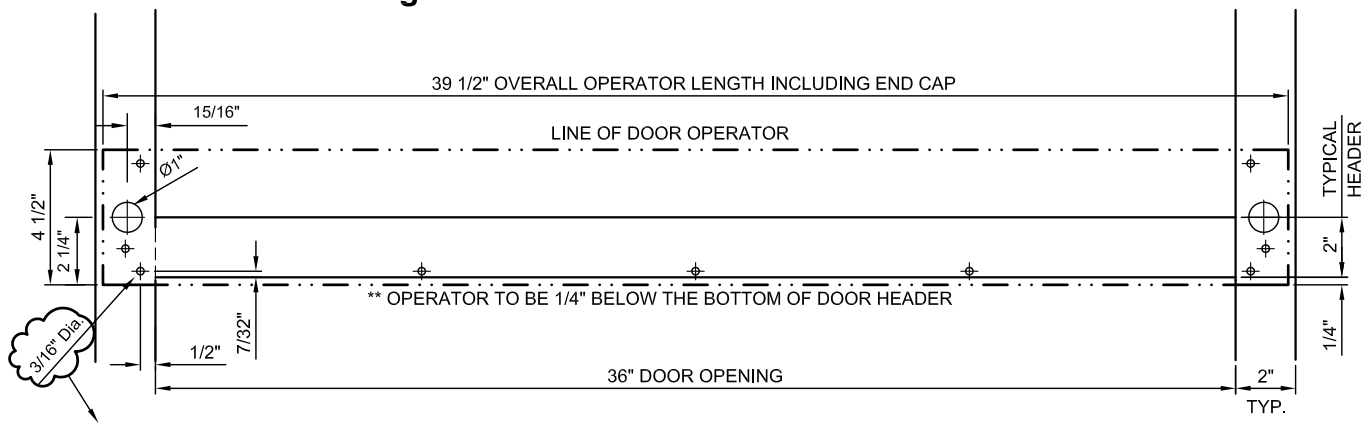
NOTE: Locate pre-installation hole and install fastener as shown on page 17 figure 4.
Once the operator is in place match drill remaining holes.

Aluminum Storefront Pull Mounting



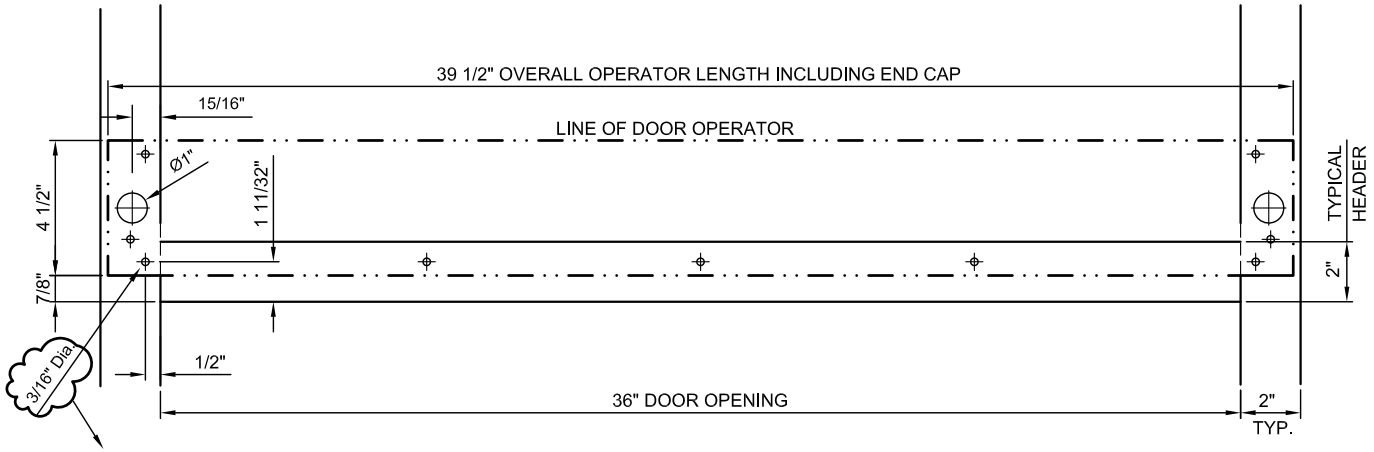
NOTE: Locate pre-installation hole and install fastener as shown on page 17 figure 4.
Once the operator is in place match drill remaining holes.

Hollow Metal Push Mounting



NOTE: Locate pre-installation hole and install fastener as shown on page 17 figure 4.
Once the operator is in place match drill remaining holes.

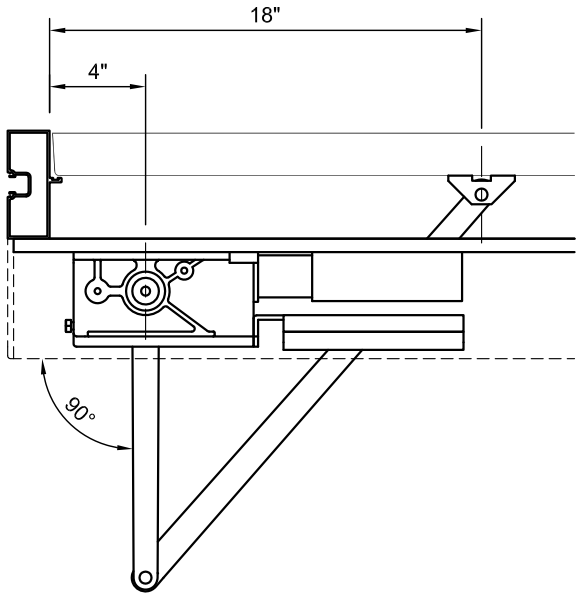
Hollow Metal Pull Mounting



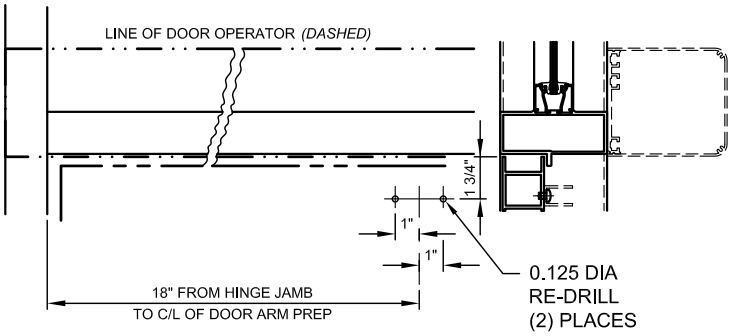
NOTE: Locate pre-installation hole and install fastener as shown on page 17 figure 4.
Once the operator is in place match drill remaining holes.

Record 8100SP operator Installation instructions

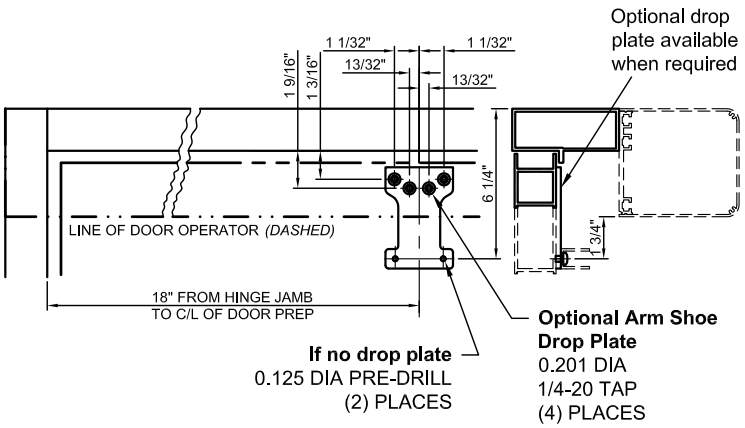
Typical Push Arm



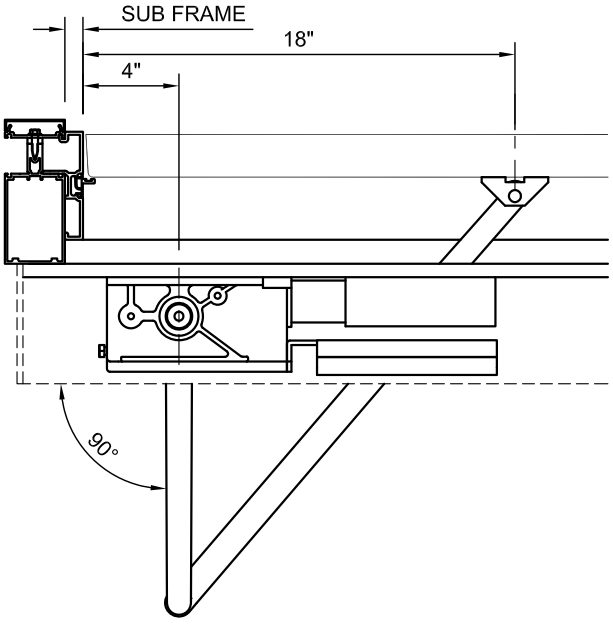
Top Jamb Door Fabrication



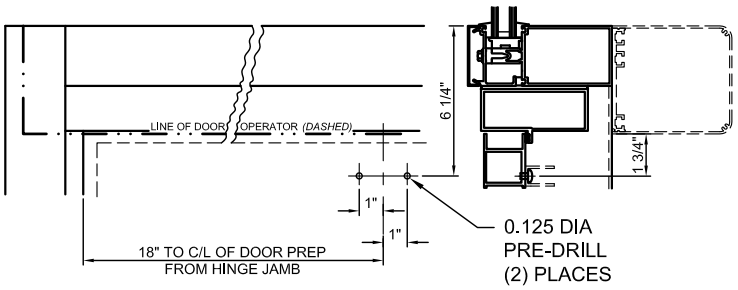
Low Ceiling Door Fabrication



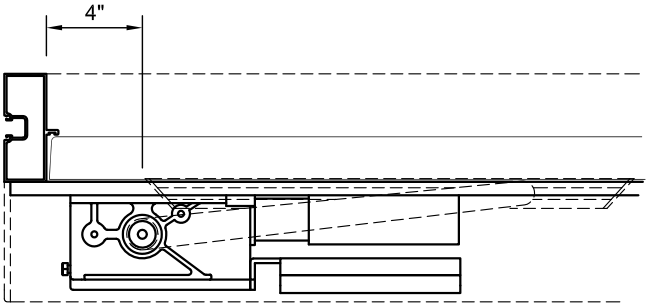
Push Arm with Sub Framing



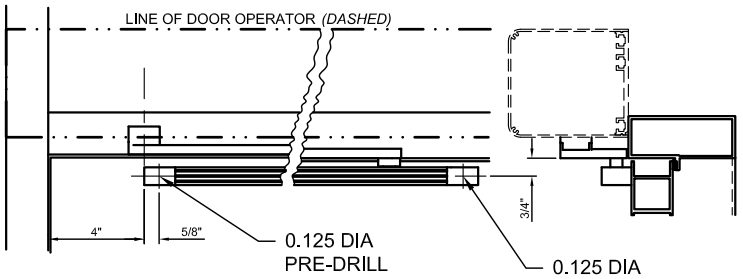
Sub Framing Door Fabrication



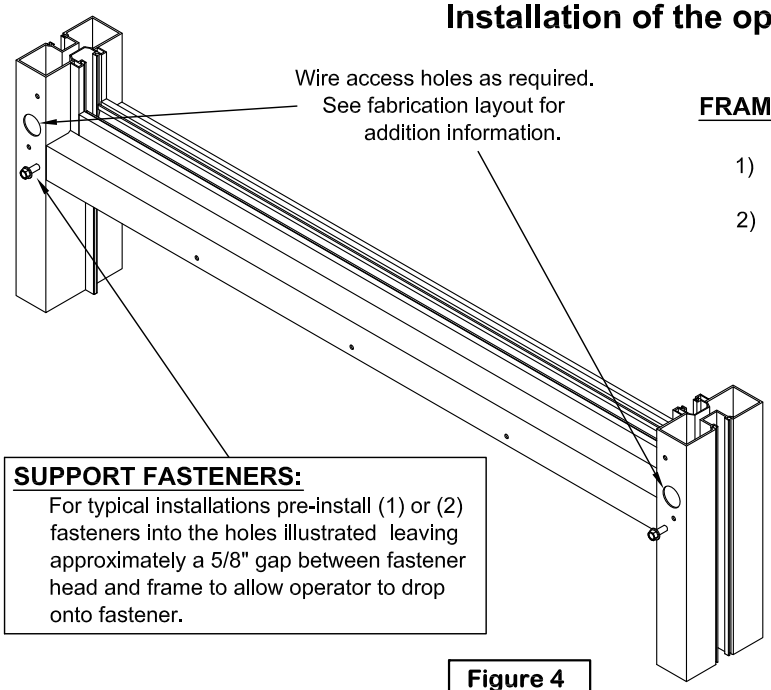
Optional Pull Arm



Pull Arm Track Fabrication



Installation of the operator



SUPPORT FASTENERS:

For typical installations pre-install (1) or (2) fasteners into the holes illustrated leaving approximately a 5/8" gap between fastener head and frame to allow operator to drop onto fastener.

FRAME FABRICATION:

1) Refer to fabrication layouts on page 4 or 5 for additional layout dimensions.
2) Coordinate conduit and wire pulls with electrical contractor.

Slotted attachment holes are provided at both ends of the base plate to assist with the initial installation.

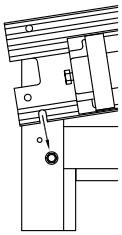
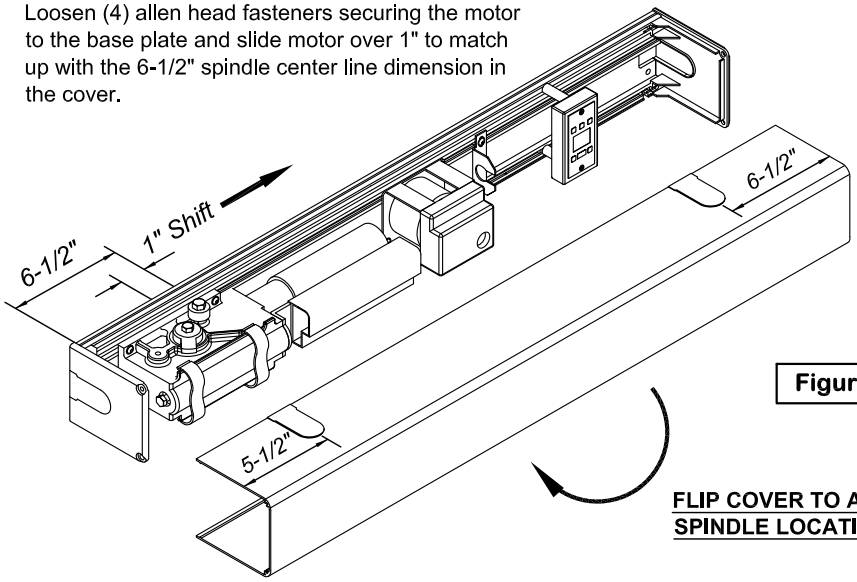


Figure 4

MOTOR RE-LOCATION FOR SUB FRAMING:

Loosen (4) allen head fasteners securing the motor to the base plate and slide motor over 1" to match up with the 6-1/2" spindle center line dimension in the cover.



FOR SUB FRAMING APPLICATIONS INSTALLER MAY NEED TO SHIFT MOTOR LOCATION BY 1" TO MAINTAIN 4" SPINDLE LOCATION

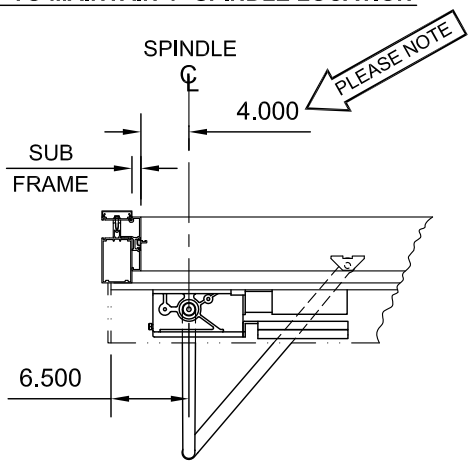
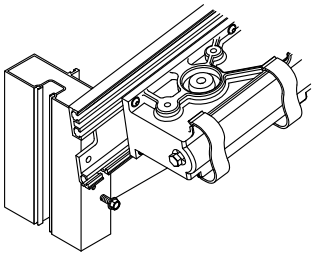


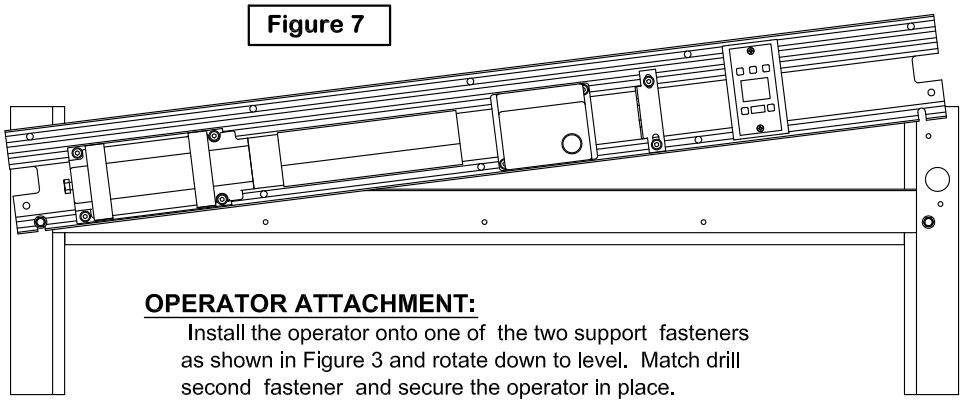
Figure 5

FLIP COVER TO ALIGN WITH THE 6-1/2" SPINDLE LOCATION FOR SUB FRAMING.

Figure 7

Figure 6





OPERATOR ATTACHMENT:

Install the operator onto one of the two support fasteners as shown in Figure 3 and rotate down to level. Match drill second fastener and secure the operator in place.

SPECIAL PROJECTS GROUP, INC.

Record 8100SP operator Installation Instructions

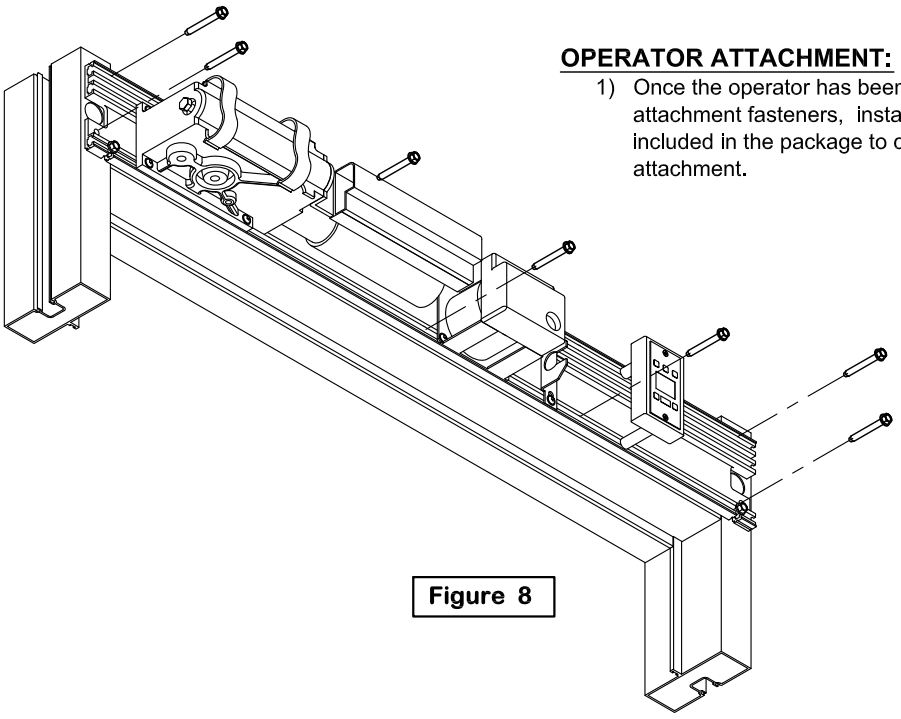


Figure 8

OPERATOR ATTACHMENT:

1) Once the operator has been located with the two quick attachment fasteners, install remaining fasteners included in the package to complete the operator attachment.

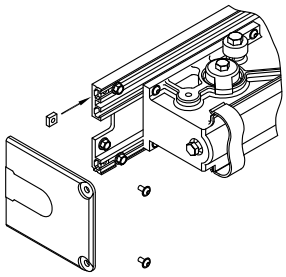


Figure 9

END CAP INSTALLATION:

1) Install square nuts into back channel recess.
2) Secure end cap with fasteners included.

ELECTRICAL CONNECTION:

1) Coordinate the conduit and wire pulls with **electrical contractor**.
2) Attach the conduit connector to anchor bracket on operator (Figure 10).
3) Connect the 120 VAC per the **Record** instructions page 6.

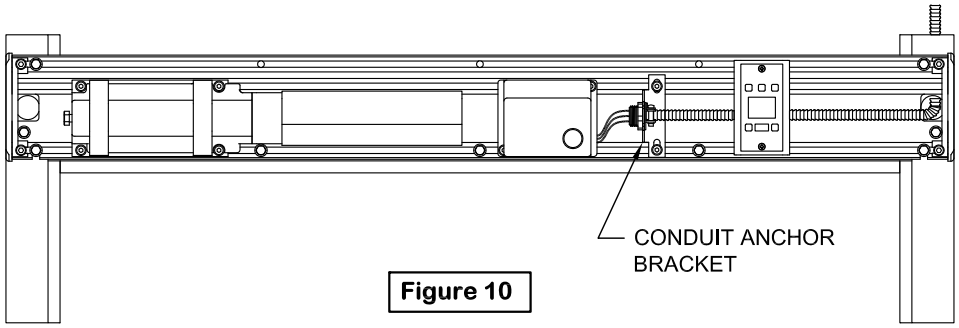


Figure 10

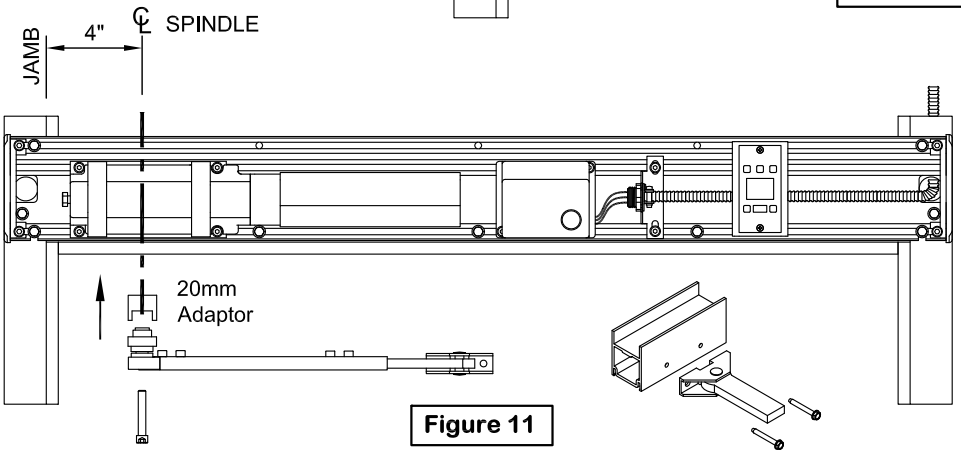
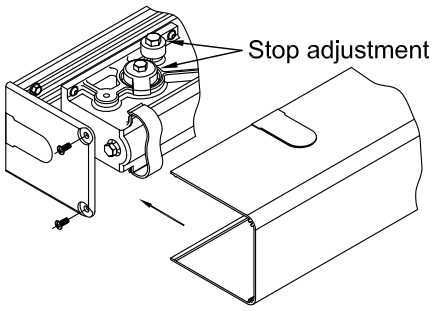


Figure 11

Figure 12



ARM INSTALLATION:

1) The arm is to be attached to the operator with the door in the closed position.
2) The arm is to be positioned on the motor shaft allowing for approximately 6 ° of pre-load. The power should be off when pre-loading arm.
3) With 6° of pre-load, the arm should be approximately 90° to the door as shown on page 6.
4) Cut arm channel to length as required. Attach arm to door as shown.
5) Set operator stop to allow for 90° opening (figure 12). Turn on power to the operator.
6) Initiate the calibration run per **Record** instructions page 6.
7) Adjust the opening, closing, and swing per the **Record** instructions page 6.

COVER INSTALLATION:

1) Snap cover onto base plate.
2) Secure cover to end cap with fasteners include.

OPTIONAL BRACKET PACKAGE:

(2) BRACKETS
(2) ATTACHMENT FASTENERS

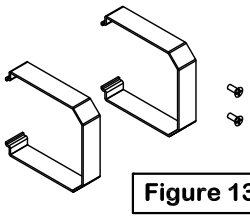


Figure 13

GENERAL NOTES:

These instructions are for applications where there is no access to use the standard cover attachment fasteners that attach through the end cap. When unable to attach by normal practices use the optional bracket package shown in Figure 13.

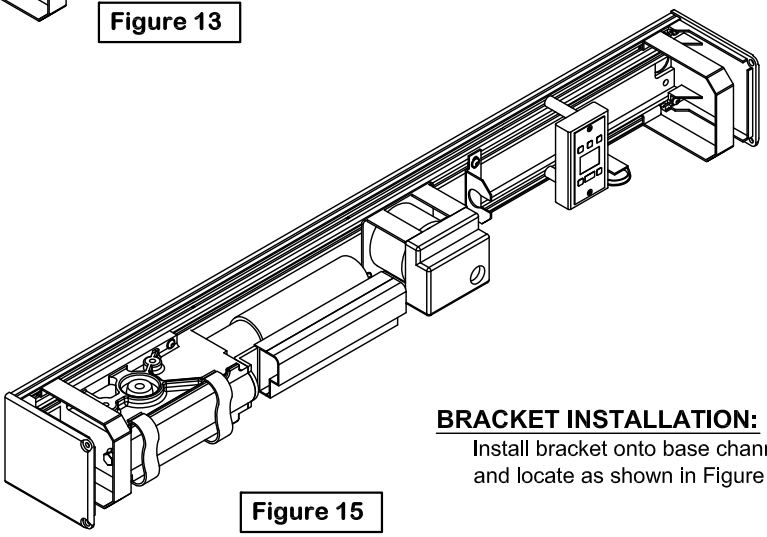


Figure 15

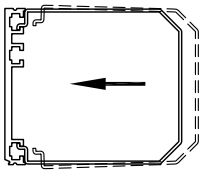


Figure 14

BRACKET INSTALLATION:

Install bracket onto base channel as illustrated in Figure 14 and locate as shown in Figure 16.

COVER FABRICATION:

Drill and countersink (2) faster attachment holes as shown in Figure 16.

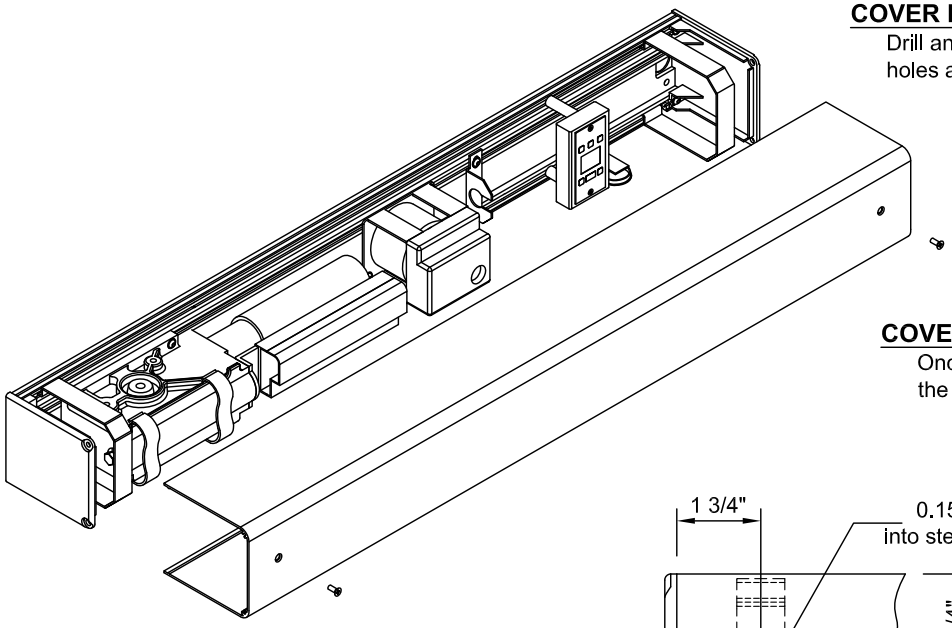


Figure 16

COVER INSTALLATION:

Once cover is fabricated slide cover over the brackets and snap into position.

BRACKET FABRICATION:

With cover in place match drill the holes into the bracket as shown in Figure 5 and install (2) thread cutting fasteners supplied in the package.

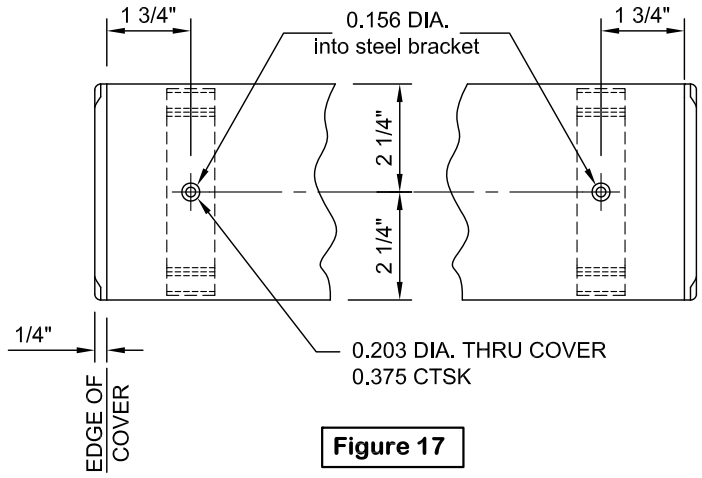


Figure 17

Record 8100SP operator Installation Instructions

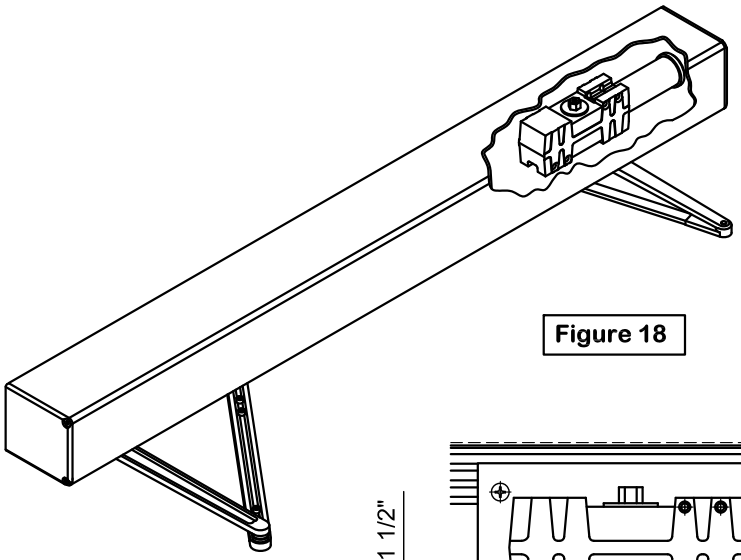


Figure 18

Record 8100SP X EHMC:

1) Record low energy operator on active leaf and heavy duty hydraulic mechanical closer on inactive leaf.
2) Mechanical closer shipped installed to operator base plate.

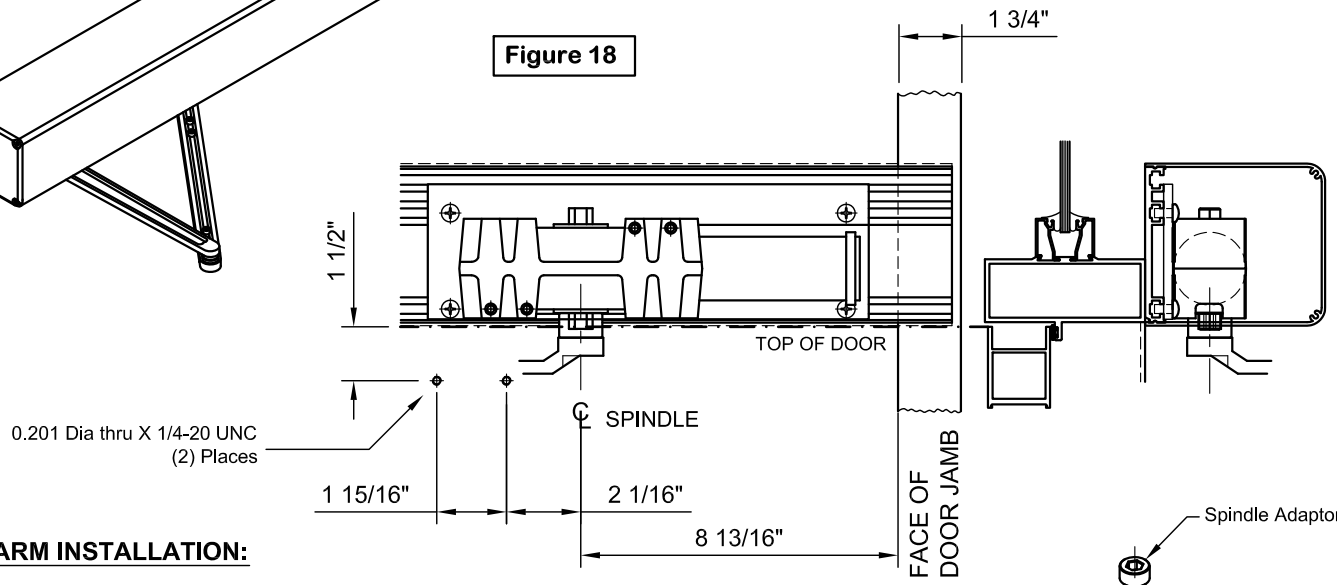


Figure 19

DOOR ARM INSTALLATION:

1) Drill and tap door rail per figure 18.
2) Attach arm to closer body using adaptor and fastener supplied with operator.
3) Secure arm shoe to door with 1/4-20 fasteners include.

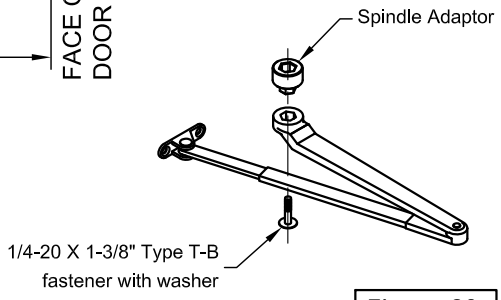


Figure 20

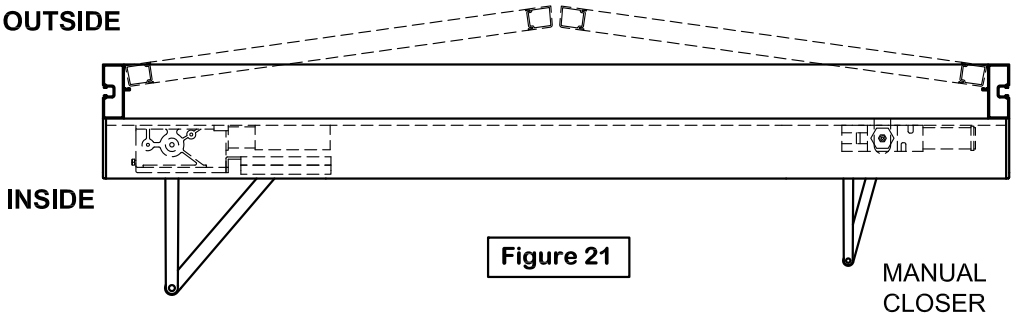
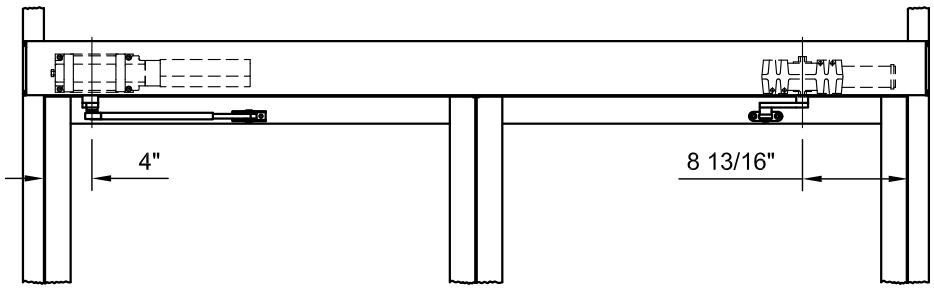


Figure 21

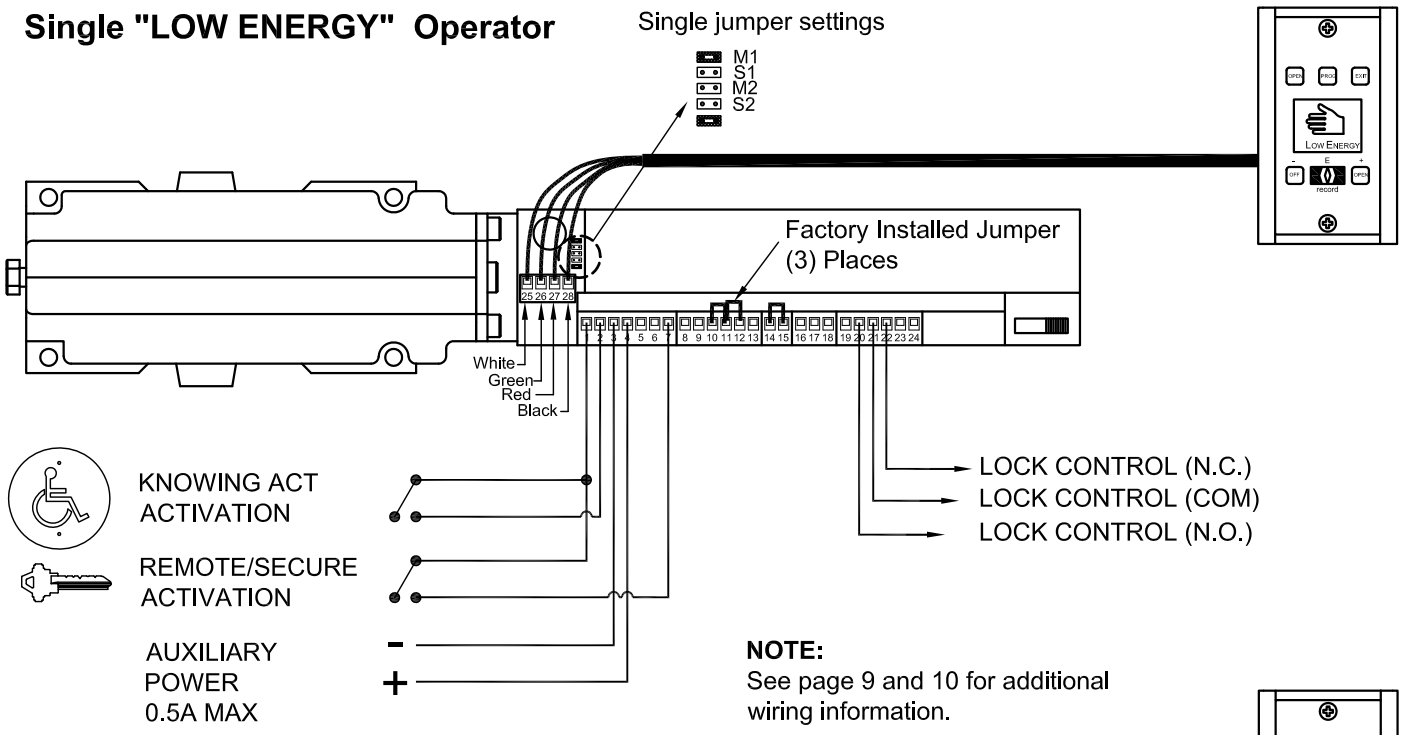


VIEW FROM INSIDE OF DOORS

Figure 22

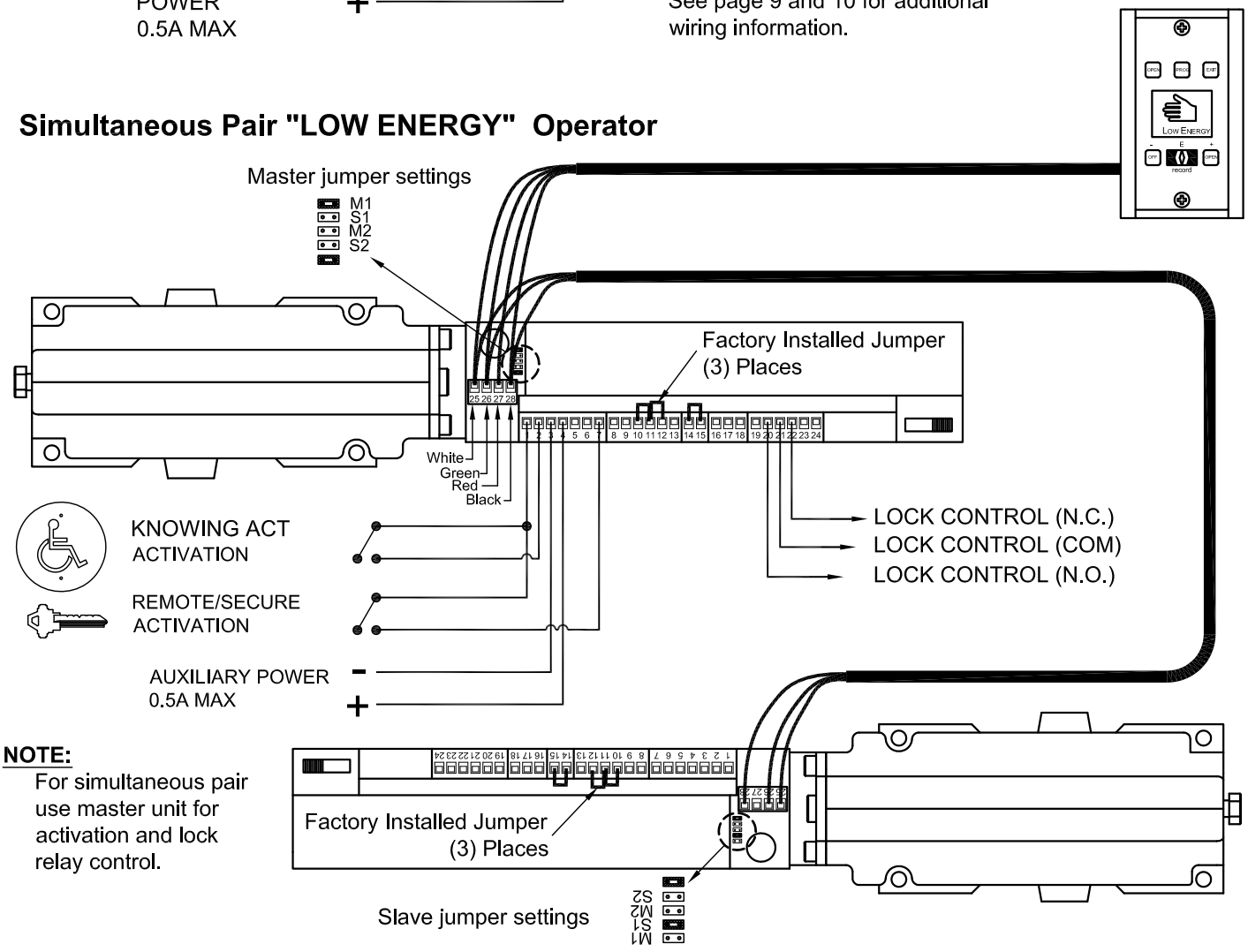
Record 8100SP operator Installation Instructions

Single "LOW ENERGY" Operator



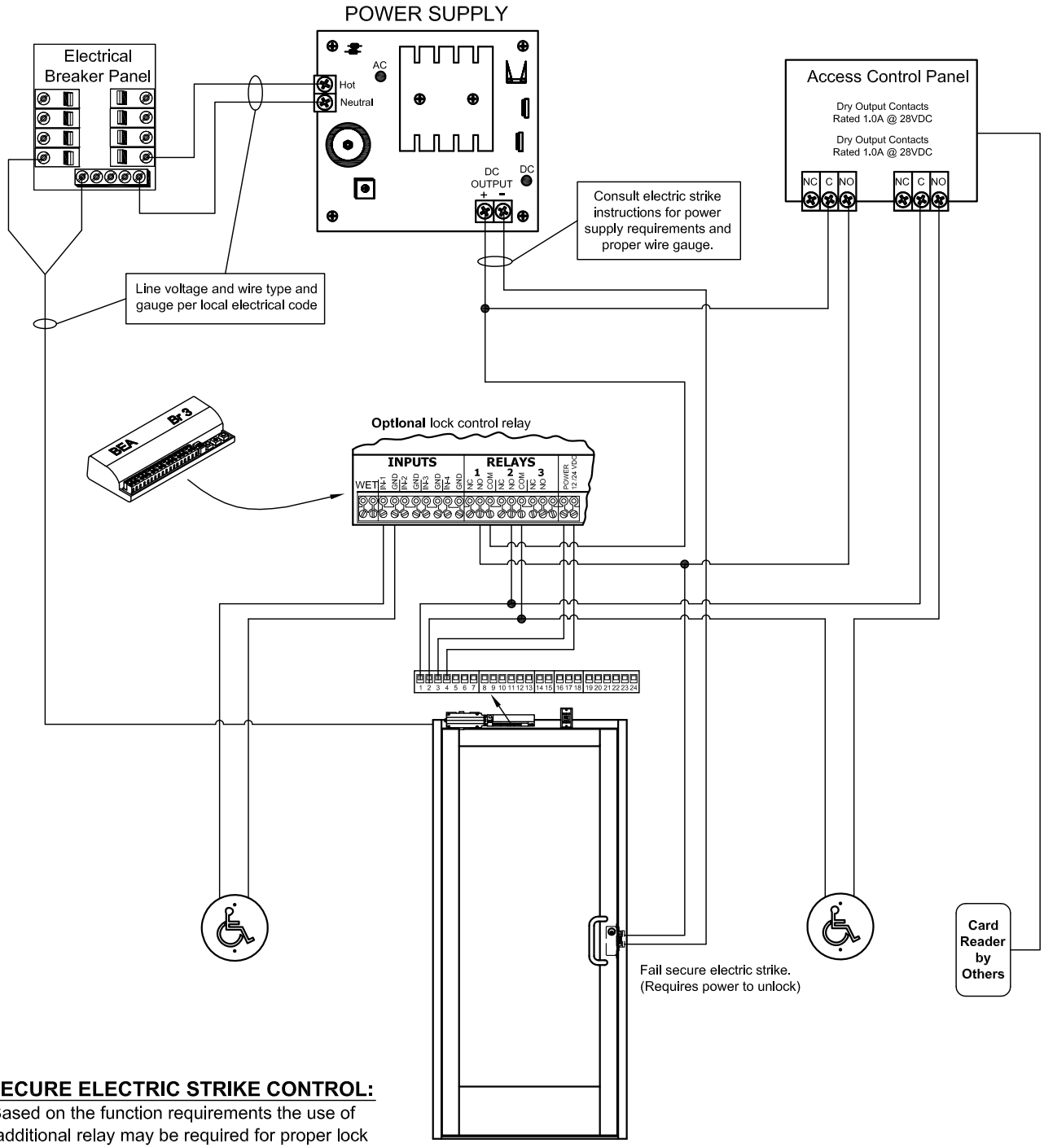
NOTE:
See page 9 and 10 for additional wiring information.

Simultaneous Pair "LOW ENERGY" Operator



NOTE:
For simultaneous pair use master unit for activation and lock relay control.

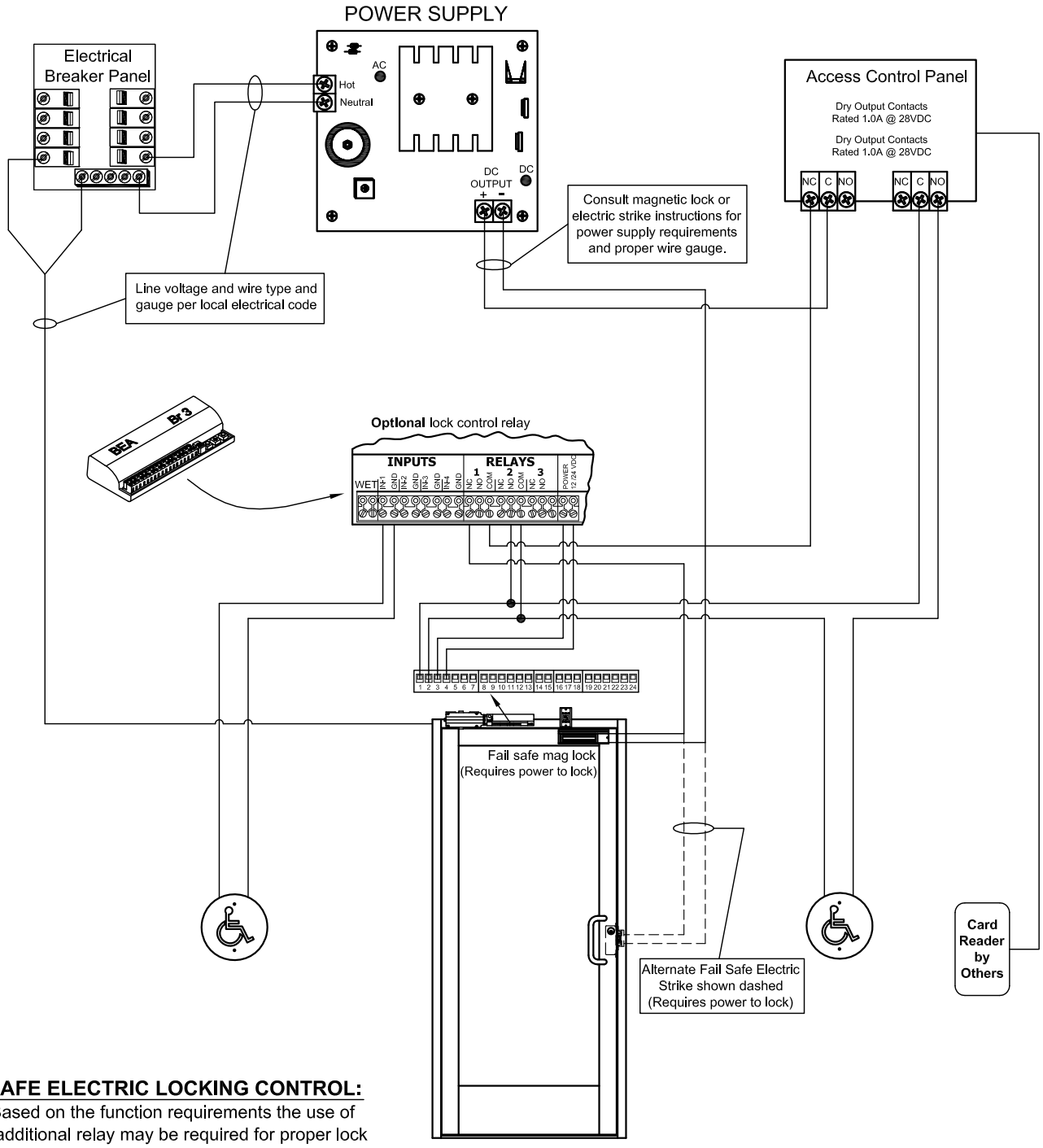
Sample wiring diagram for fail secure electric strike



FAIL SECURE ELECTRIC STRIKE CONTROL:

1) Based on the function requirements the use of additional relay may be required for proper lock control.
2) To accommodate the need to unlock and swing doors after hours the BEA Br3 has been illustrated.
3) If means of egress additional components may be required.

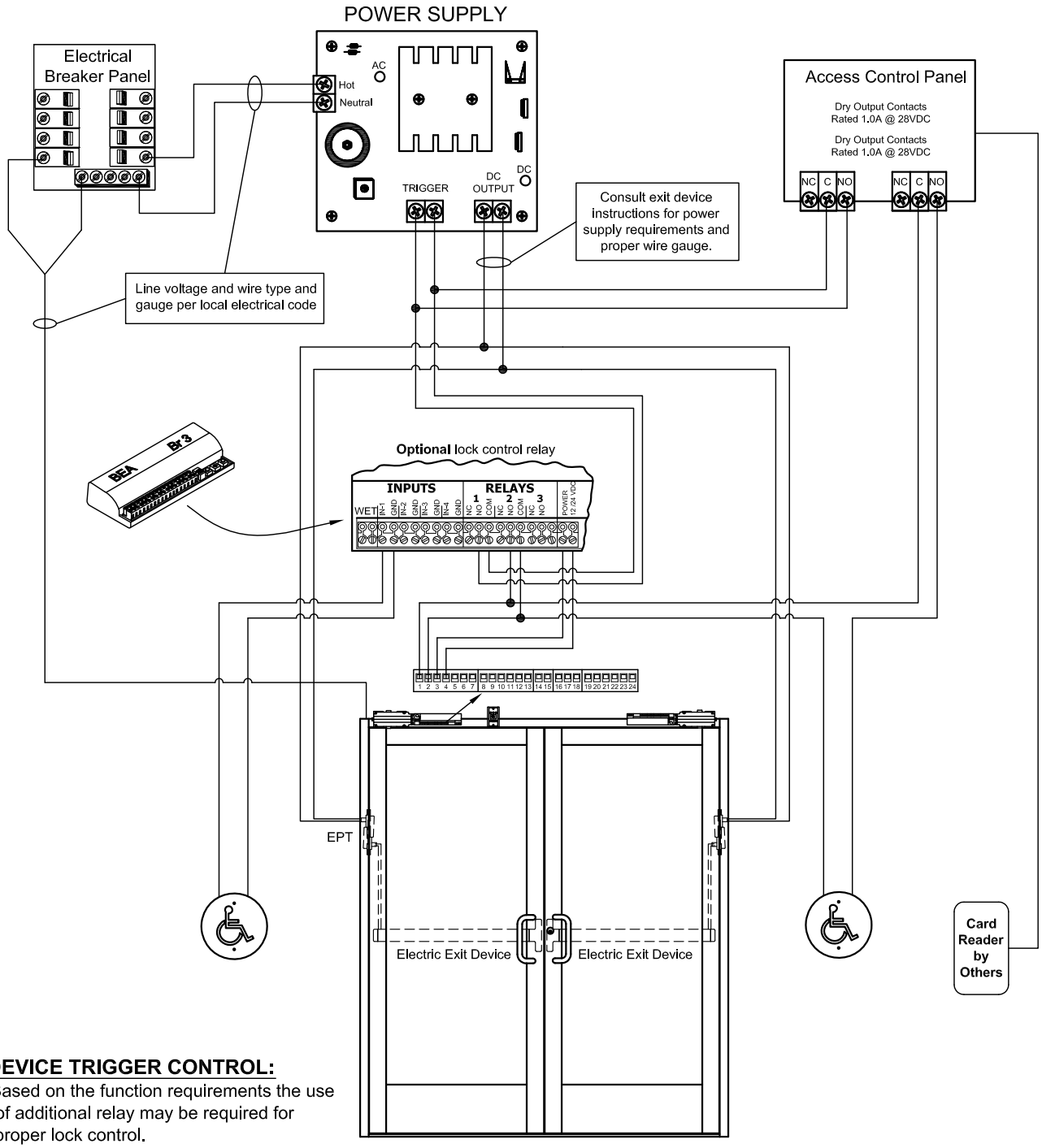
Sample wiring diagram for fail safe electric locking



FAIL SAFE ELECTRIC LOCKING CONTROL:

1) Based on the function requirements the use of additional relay may be required for proper lock control.
2) To accommodate the need to unlock and swing doors with magnetic lock or electric strike after hours the BEA Br3 has been illustrated above.
3) If door is means of egress additional components may be required.

Sample wiring diagram for exit device



EXIT DEVICE TRIGGER CONTROL:

1) Based on the function requirements the use of additional relay may be required for proper lock control.
2) To accommodate the need to unlock and swing doors with exit devices after hours the BEA Br3 has been illustrated above.