



Record HA8-LP
Low Energy Swing Operator
Installation & Instruction Manual



**READ AND FOLLOW ALL INSTALLATION INSTRUCTIONS CAREFULLY!
FAILURE TO DO SO MAY RESULT IN PERSONAL INJURY OR PROPERTY DAMAGE!**

- Install only on a properly operating and balanced door. A door that is operating improperly could cause severe injury. Before installing the operator, have qualified service personnel make repairs to cables, and other hardware.
- Before installing the operator, remove or make inoperative, all locks (unless mechanically and/or electrically interlocked to the power unit), all activation units and accessories that may be connected to the door.
- A commercial/industrial door operator that has exposed moving parts capable of causing injury to persons or employs a motor deemed indirectly accessible by virtue of its location above the floor shall include:
 - Install the door operator at least 2.4 m (8ft) or more above the floor, and/or
 - If the operator must be installed less than 2.4 m (8ft) above the floor, then exposed moving parts must be protected by covers or guarding provided by the operator manufacturer.
- The control unit **MUST** be located: (1) within the sight of the door, and (2) at a minimum height of 1.5 m (5ft) above the floors, landings, steps, or any other adjacent walking surface and (3) away from all moving parts of the door.
- Install the Entrapment Warning Placard next to the control station in a prominent location if applicable.
- To reduce the risk of injury to persons - Use this system only with pedestrian doors.
- Do not connect the operator to a power supply until instructed to do so. Connection of the high voltage supply should be done by a qualified professional and within the guidelines of the enforced local electrical codes.
- **HIGH VOLTAGE (INCOMING 115 VAC) WIRES AND LOW VOLTAGE WIRES CANNOT SHARE THE SAME ACCESS HOLE. HIGH VOLTAGE WIRES MUST BE ROUTED AND SECURED AWAY FROM ALL LOW VOLTAGE WIRES.**

Complies with applicable sections of NFPA 101 and the IBC Life Safety Codes for Manually Operated Pedestrian Doors.

Copyright 2022 ©ASSA ABLOY, Part of ASSA ABLOY. All rights reserved. Reproduction in whole or in part without the express written permission of Record is prohibited.

Revisions

The following pages have been revised:

Page	Revision
ALL	Arm hardware changed from imperial to metric
ALL	Record rebranding

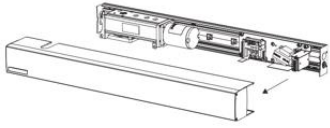
Table of Contents

1.0 BEFORE INSTALLATION	3	7.0 CONTROL BOARD SETTING	38
1.1 Replacement Parts		7.1 Digital Board Diagram	
1.2 General Information		7.2 Digital Board Wiring Diagram	
1.3 Technical Specifications & Required Tools		7.3 Digital Board Specification	
1.4 Door Handings			
1.5 Consideration of Surroundings			
1.6 Electrical			
2.0 OPERATOR INSTALLATION	10	8.0 CONTROL BOARD PROGRAMMING	41
2.1 Pre-Mounting Header Box Instructions		8.1 Programming Specification (Digital Board)	
2.2 Operator Layout and Handing - Push and Pull		8.2 Safety Monitoring	
2.3 Handing Modification - Left to Right (and vice versa)		8.3 Safety Sensor Connection - BEA Bodyguard	
2.4 Double Egress Header		8.4 Safety Sensor Connection - BEA Superscan	
2.5 Control Board and Gearbox Installation		8.5 Safety Sensor Connection - Optex OA-FLEX	
2.6 Connect Motor Wire Leads			
3.0 ARM INSTALLATION	21	9.0 DUAL BOARD & PROGRAMMING	49
3.1 Arm Components and Configurations		9.1 Dual Door Digital Board Specification (Fully Automatic only)	
3.2 Push Arm Installation		9.2 Wiring Diagram	
3.3 Pull Arm (Z-arm) Installation		9.3 Programming Specification	
3.4 Universal Arm Installation			
4.0 OPERATOR TUNING	32	10.0 TROUBLESHOOTING	54
4.1 Back Check and Latch Adjustment			
4.2 Spring Tension Adjustment			
5.0 TESTING WITH OBSTRUCTION	36	11.0 ADA ADJUSTMENTS	55
6.0 DOOR OPERATING MODE	37	12.0 INSTALLATION WRAP UP	56
6.1 Basic Operation		12.1 Additional Components: Sensor(s) / Knowing Act Devices	
6.2 Operation Switch		12.2 Header Cover Installation	
		12.3 Safety Decals	
		13.0 MANUFACTURER INFORMATION	59

1.0 BEFORE INSTALLATION

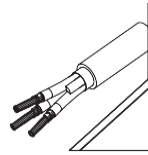
Step 1: Remove Header Cover

(Section 2.1)



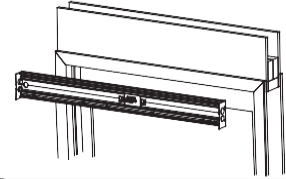
Step 2: Locate & Drill Power

(Section 2.1)



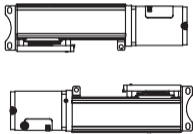
Step 3: Mount Header

(Section 2.1 - 2.2)



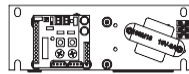
Step 4: Install Operator

(Section 2.2 - 2.3)



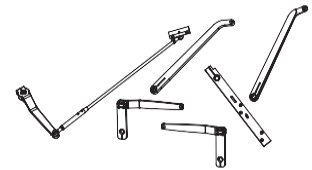
Step 5: Place Control Board

(Section 2.4)



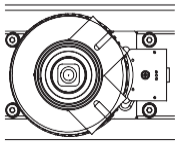
Step 6: Install Arm

(Section 3.0)



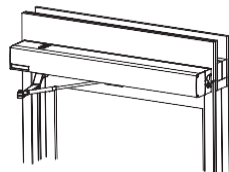
Step 7: Electronics Tuning

(Section 4.0 - 8.0)



Step 8: Clean/close Header

(Section 11.0)



Step 9: Place ANSI Stickers

(Section 11.2)



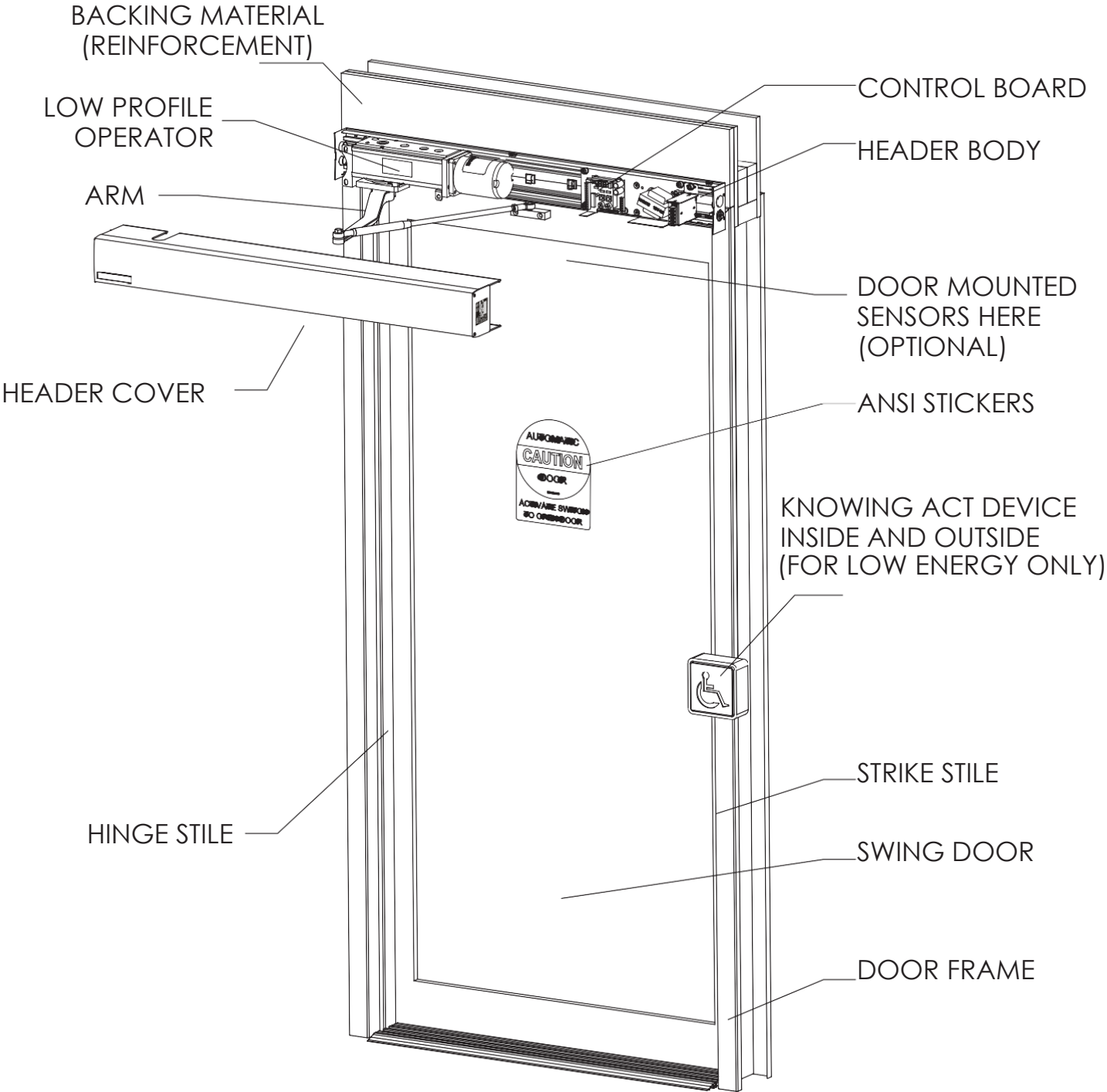
Step 10: Install Sensor(s) / Knowing Act Devices

(Section 11.1)



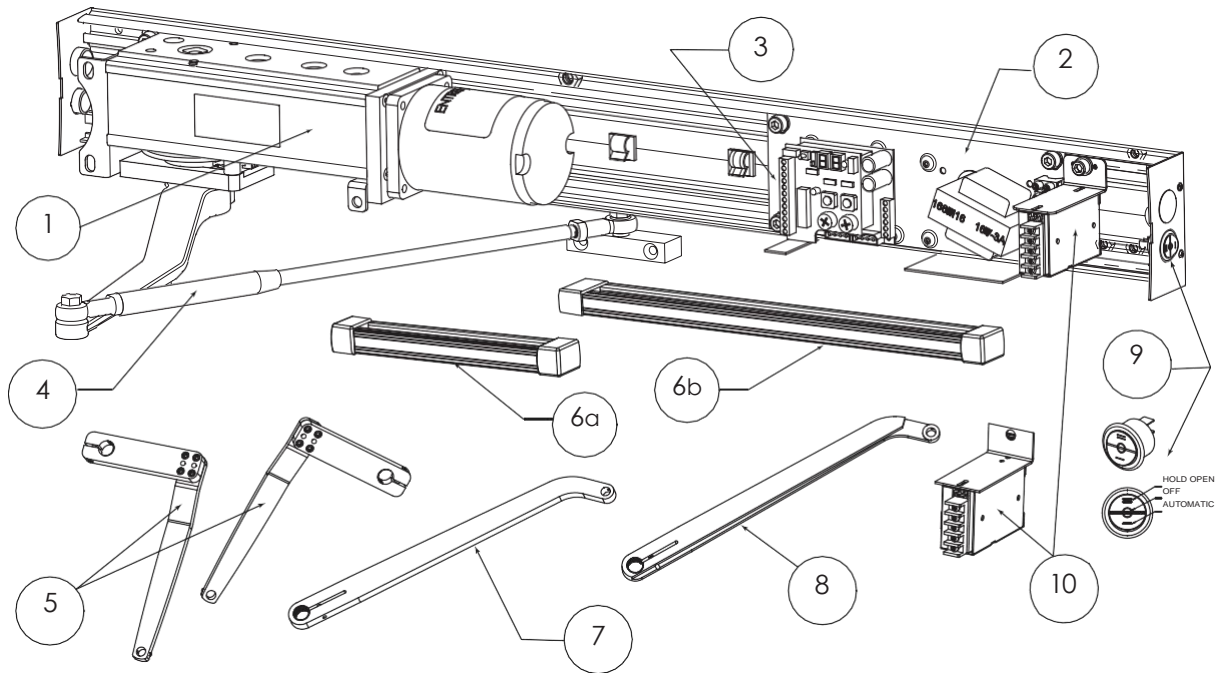
1.0 BEFORE INSTALLATION

Completed/Typical Automatic Door Installation



1.0 BEFORE INSTALLATION

1.1 Replacement Parts



Replacement Parts			
Item	Category	Part No.	Description
1	Operator	WL-PA03	LP Operator (Non-Handed)
2	Control Board	W7-150	Analog Control Board
		W7-130-1	HA Digital Control Board
3	Fuse	W5-421	Fuse 3AMP Analog Board
		W5-422	Fuse 3AMP Digital Board
4	Push Arm	W7-200	Complete Push Arm-Clear (with 17.5" rod)
		W7-205	Complete Push Arm-Bronze (with 17.5" rod)
		W5-502C	Cast portion - Clear
		w5-502B	Cast portion - Bronze
		W5-500C	Extended Rod 22" - Clear
		W5-500B	Extended Rod 22" - Clear
5	Z-Arm (Pull)	W5-506C	Z-Arm RH - Clear
		W5-505C	Z-Arm LH - Clear
		W5-506B	Z-Arm RH - Bronze
		W5-505B	Z-Arm LH - Bronze
		W5-508C	Extended Z-Arm RH - Clear
		W5-507C	Extended Z-Arm LH - Clear
		W5-508B	Extended Z-Arm RH - Black
		W5-507B	Extended Z-Arm LH - Black

Replacement Parts			
Item	Category	Part No.	Description
6a	Pull Arm Track - Short (for Z-arm)	W5-550	Pull Track Assembly - Clear
		W5-555	Pull Track Assembly - Bronze
6b	Pull Arm Track - Long (for Universal Arm/ Center Spindle)	W5-551	Pull Track Assembly Long - Clear
		W5-556	Pull Track Assembly Long - Bronze
7	Universal Arm	W5-512C	Universal Arm - Clear
		W5-512B	Universal Arm - Bronze
8	Centre Spindle Arm	W5-510C	Center Spindle RH - Clear
		W5-511C	Center Spindle LH - Clear
		W5-510B	Center Spindle RH - Bronze
		W5-511B	Center Spindle LH - Bronze
9	Rocker Switch	WL- Rocker Switch	ON/ OFF/ HOLD OPEN 3 position switch
10	Power Supply Kit	WL- PWRKIT	RS-25-24 Power Supply Kit

1.2 General Information

The HA8-LP Operator is a complete swinging door solution for push, pull, surface applied installations. The header contains the Driving system (Motor), Torque production (Gearbox), and a Control system to interlink the two.

The HA8-LP Operator ensures all-around safety. It can be combined with the full range of safety units, such as presence and motion sensors. It is easy to install for both new construction and retrofit applications.



- All wiring must conform to standard wiring practice in accordance with national and local wiring codes.
- Door must swing freely through the entire opening and closing cycle before beginning of installation. Typically, doors are hung on hinges 5" (127mm) maximum width or 3/4" (19mm) offset pivots.



- An incorrectly installed or improperly adjusted door operator can cause property damage or personal injury. These instructions should be followed to avoid the possibility of misapplication or maladjustment.
- All dimensions are given in inches (millimeters), unless otherwise noted.

Door/Frame Preparation

- Before installation, verify door frame is properly reinforced and is well anchored in the wall.
- Concealed electrical conduit, and concealed switch or sensor wires should be pulled to the frame before proceeding.

Suggested Fasteners for Frame

- #14 x 2-3/4" (70mm) long sheet metal screws.

Suggested Fasteners for Door

- #12, #14, Wood screws, Sheet Metal screws, Self-tapping screws of varying lengths depending on applications.



The fastener components listed above are merely suggestions. A technician should use their best discretion to determine what components they'll need to complete the job.

Do Not use Drywall Screws or Hollow Wall Anchors to mount the Back Plate / Header.

Shipping inspection

Verify that the order was shipped complete and correct, including model number, door handing, color, and header width.



- If any of the above items are not correct, do not attempt to install until all conditions are correct
- Report any incorrect items to the general contractor immediately.



NO CLAIMS FOR SHORTAGES WILL BE ALLOWED UNLESS REPORTED WITHIN 24 HOURS OF RECEIPT OF SHIPMENT.

Safety Precautions

- Do not climb or put weight on any door or header parts
- Do not let children play with the operator or the electrical board
- Keep remote controls away from children
- Keep all power off to the unit, when performing any work or maintenance

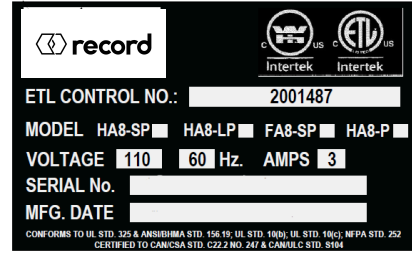
To avoid bodily injury, material damage and malfunction of the product, the instructions contained in this manual must be strictly observed during installation, adjustment, repairs and service etc. Training is needed to carry out these tasks safely. Only Entrematic-trained technicians should be allowed to carry out these operations.

1.0 BEFORE INSTALLATION

Compliance Codes and Standards

The operator complies with the following codes and standards:

- UL STD.325 & ANSI/BHMA STD. A156.19; Fire rated UL STD. 10 (b); UL STD. 10(c); NFPA STD. 252
- CAN/CSA STD. C22.2 NO. 247 & CAN/ULC STD. S104



- Under No Circumstances shall the Certification Label of the HA8 operator be tampered, modified or removed!
- It is the responsibility of the final installer and/or installation company, to certify that the final completed operator is installed in accordance with local building codes and applicable laws.

1.3 Technical Specifications & Required Tools

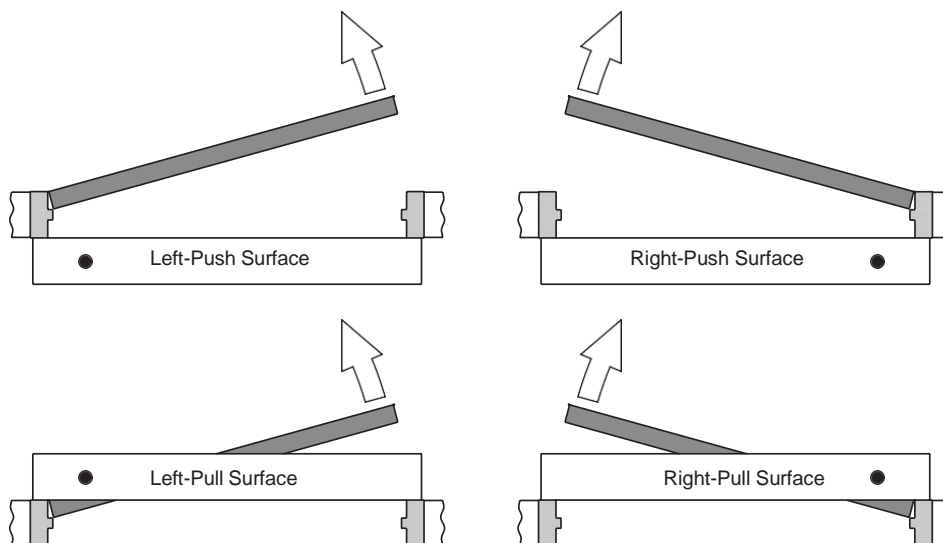
Model	Record HA8 LP
Dimensions	4.125" W x 5.125"H
Weight	Approx. 45 lbs
Power Supply	115 ± 5VAC, 60Hz, 3A
Consumption	DC16V/ 3 AMP
Motor	1/8 hp, 16VDC, 3A (Standard)
Rated Operation	Continuous opening and closing cycles
Manual Opening/Closing Force - <i>during power failure</i>	Opening Force: 15 lbs; Closing Force: 25lbs
Door Opening/Closing Speed & Force	Adjustable, see section 10.0 ADA ADJUSTMENTS
Operation - <i>during power failure</i>	Low resistance when opened by hand. Door closes by spring.
Hold Open	Pulsed Energy to Motor. No overheating. Continuous hold open
Operating Environment	Ambient temperature -4F to +120F (-20C to +50C) <i>No condensation or icing</i>
	Ambient humidity 30% to 85% RH <i>(No hazardous materials must be present in the atmosphere)</i>

Required Tools for installation:

- | | |
|------------------------------|--|
| • Allen Wrench Set | • Screwdrivers: Flat, Philip, 5/16" Hex. Nut |
| • Power Drill and Drill Bits | • Additional Fasteners Depending Surface |
| • Level | • Shims |
| • Tape Measure | • Hand Saw/ Power Saw |
| • Wire Stripper | |

1.4 Door Handings

The handing and types of each operator are shown in the figure below; the black dot indicates the spindle location. The HA8-LP Operator can be used for pull side and push side installation, on the top door jamb and in header applications.



1.5 Consideration of Surroundings

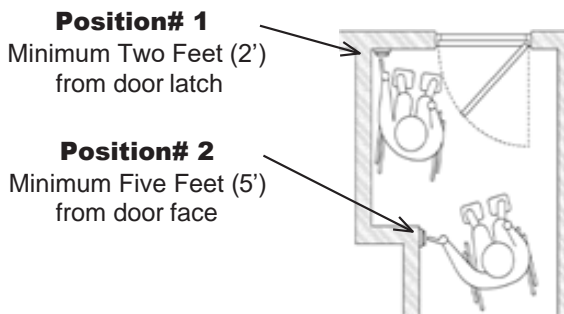
Floor Space Requirements for Wheel Chair Maneuvering - Americans with Disabilities Act (ADA)

The owner may request the activation device location; however, the press switch must be in view of the door and not directly on the door or frame. Please refer to ANSI 117.1 Safety Code for further guidelines on switch requirements.



Activation switches shall be at minimum height of 36" and maximum height of 48" from finished floors or as specified by a local Authority Having Jurisdiction.

Individual who uses wheelchair needs a minimum of 48" clearance to the door swing for doors in sequence application.



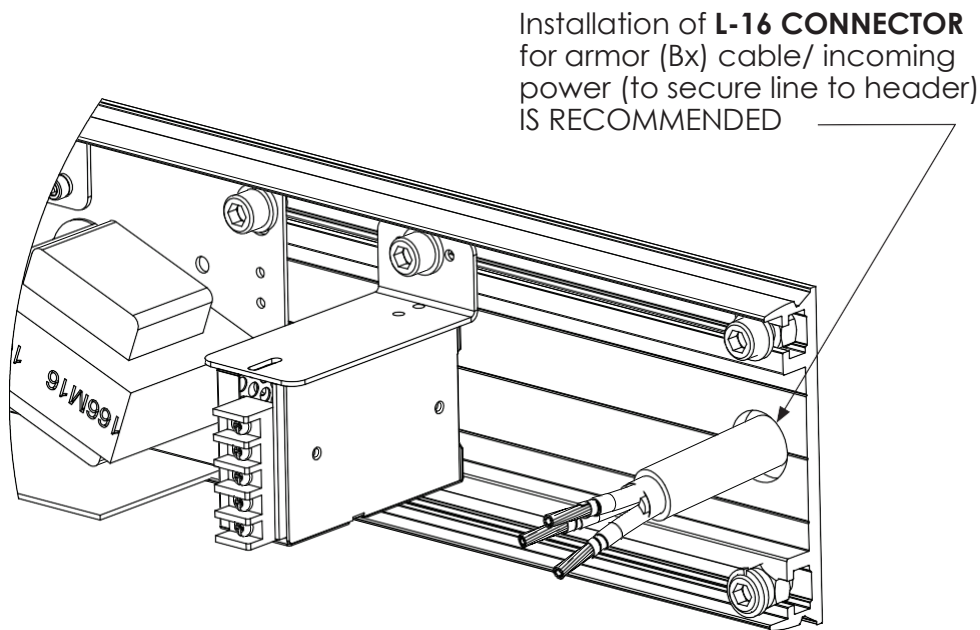
External and Internal Factors

Door Condition	Door must move easily open and close (latch) without excessive force; weather stripping and threshold must not interfere with door movement.
Reveal	For out swing (Push) doors, the reveal must be within the range of 0" to 14". For in swing (Pull) doors, 0" to 4" for special reveals is allowed – for all others consult factory.
Wind	When installing on a door in a strong wind condition area, special adjustments should be made to the arm and doorstop position, to increase the spring tension.
Power/Control Wires	Check that the electrical feed, all conduits, and electrical junction boxes (for push plates or other activation devices, if required) are correctly located in accordance with final approved shop drawings and within the guidelines of the enforced local electrical codes.

1.6 Electrical

The 115±5VAC supply lines are connected to the **black primary wires coming from the transformer** and the ground wire is attached to the operator header box. Mount the ON/OFF/HOLD OPEN switch in the header end plates to the latch side of the unit (or closest to the controlboard).

The control board settings have been pre-set prior to shipment. It will be necessary for the door operator to be functional while adjustments and settings are made. A black push actuator is mounted on the upper left corner of the circuit board to ease in the adjustment process. Power up the unit, push an activating device and check to make sure that the spline pinion drive rotates in the correct direction. Keep all wires away from moving parts and sharp edges that may cut into the outer casing of the wires.



THE GROUND WIRE FOR THE INCOMING 115 ±5VAC POWER AND THE SYSTEM GROUND WIRE CANNOT SHARE THE SAME GROUNDING STUD. GROUND THE INCOMING 115±5VAC ACCORDINGLY.

- Installation of any extra wiring for controls or accessories into the header unit shall be secured and away from any moving parts.
- If the motor is not plugged into the circuit board, there is no resistance against the spring when manually opening the door. The door or arm will close very quickly if opened.
- If an electrical access hole is added or knocked-out of the end plates, code approved electrical transfers must be used. Hole cannot be knocked out and unfilled.

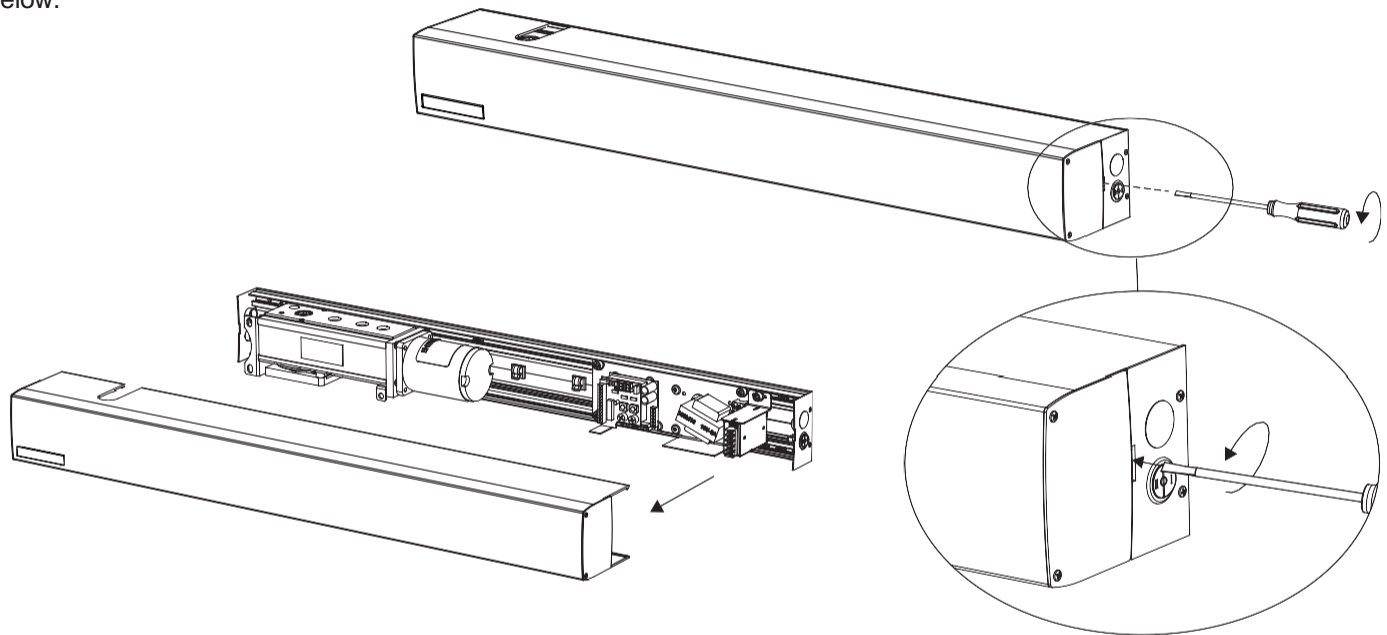
2.1 Pre-Mounting Header Box Instructions

Disassemble parts for installation

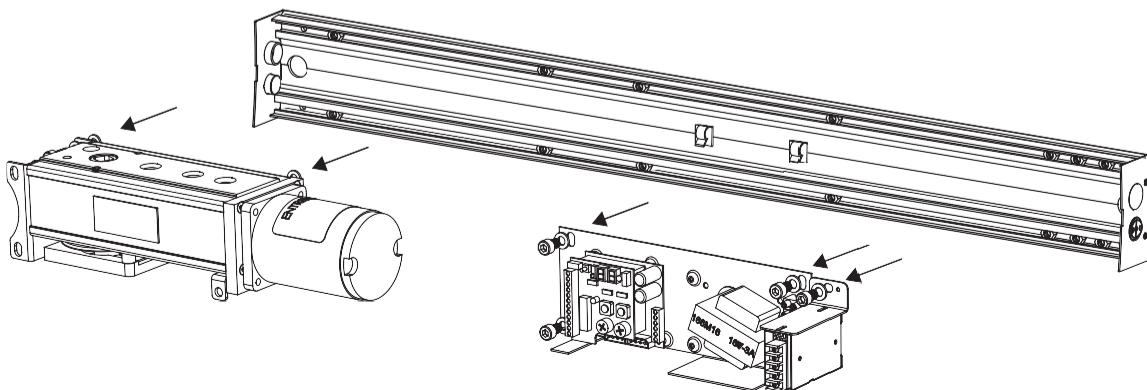
Remove the cover from the assembly by gently prying with a screwdriver. Once the snaps are clear, pull the cover outwards with minimal effort. Carefully set the cover in a location where it will not be damaged.

Power supply may be pulled into the header at the same time the header assembly is positioned. Make sure all power is turned off before handling the supply wires. This should be done by a certified electrician and within the guidelines of the enforced local electrical codes.

Be sure there is proper support in the wall to secure the header at the vertical jambs, and behind the header at intervals between the vertical jambs. Secure the header box to the top of the door frame with the appropriate fasteners as indicated below.



Remove the motor/gearbox and control board from the back plate. Make through holes on the back plate for mounting header where appropriate.



2.0 OPERATOR INSTALLATION

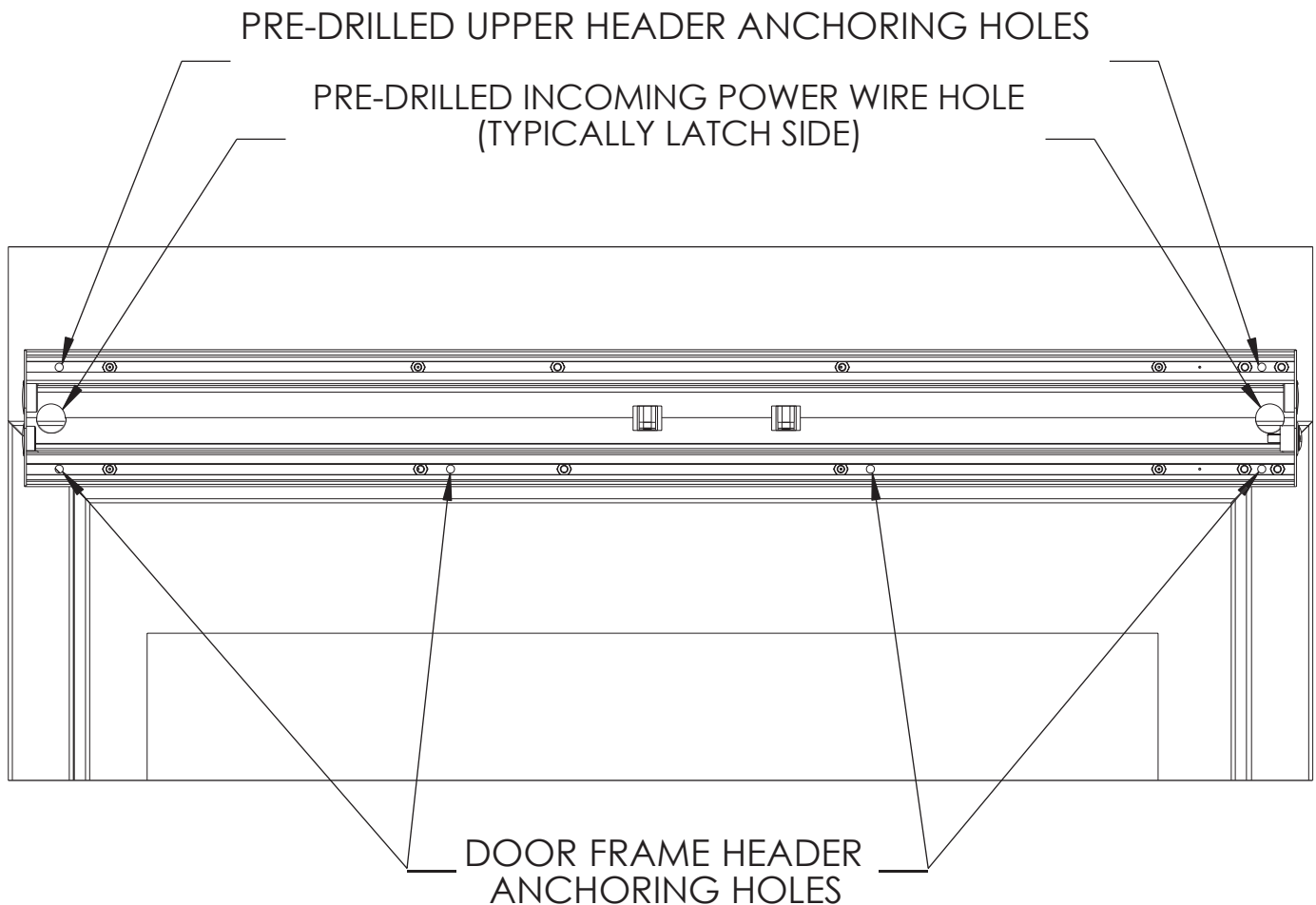
STEPS

- 1 Verify that the operator is the correct orientation. **Left Push, Right Push, Left Pull or Right Pull**
- 2 Holes are provided for the high voltage wires. Hold the back plate in position and mark the wall. If the hole is not at a convenient location, you can drill the backer plate to suit.
- 3 Anchor the back plate to the wall with minimum of six (6) - #14 x 1" Pan Quad Type A screws (provided). You may need to provide other screws if your installation requires it.
- 4 Use two (2) screws to fasten the back plate directly to the doors vertical jambs on the hinge side.



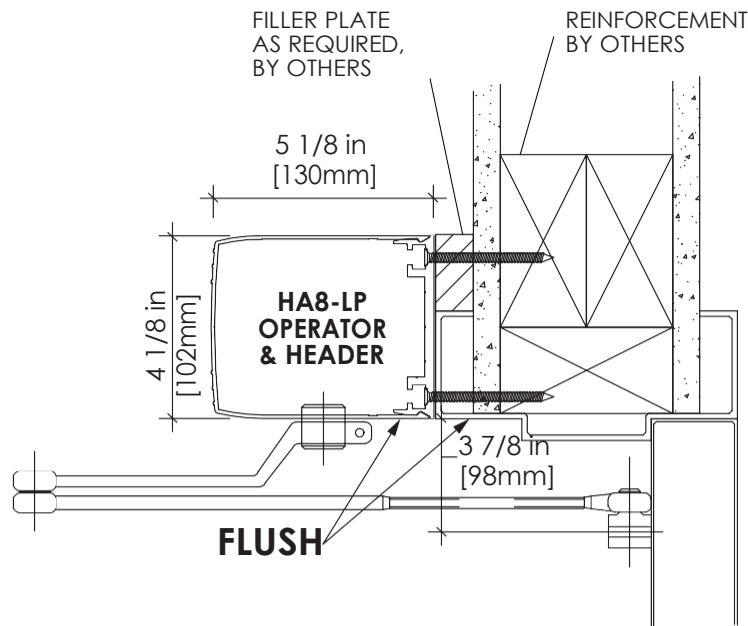
Holes can be made anywhere in header to secure. All holes **MUST** be drilled into substantial support (studs, blocks, framing, etc.). This diagram may not reflect your installation. **Do Not** use Drywall Screws or Hollow Wall Anchors to mount the Back Plate / Header.

TYPICAL THROUGH-HOLE INSTALLATION

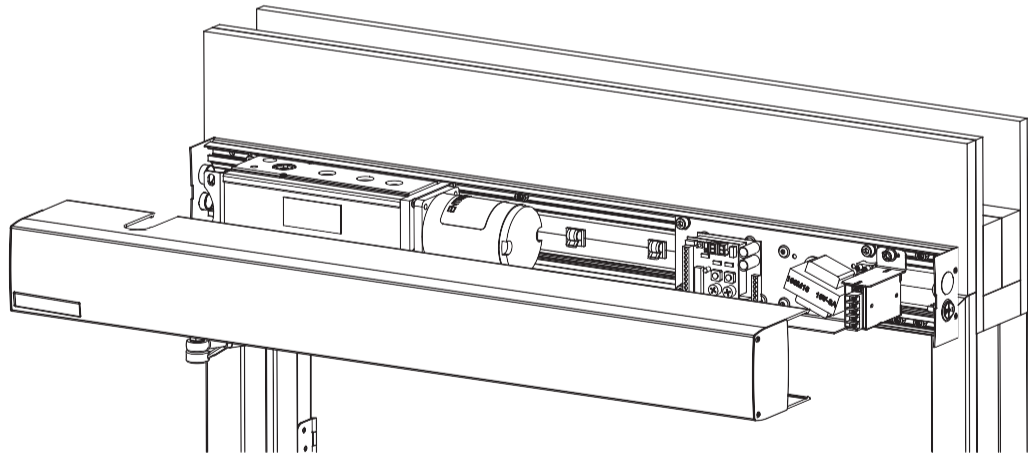


2.0 OPERATOR INSTALLATION

VERTICAL SECTION



- 5** Add additional screws to fasten the header back plate to the door frame approximately 12" to 16" apart. **The header must support 200 lbs.**

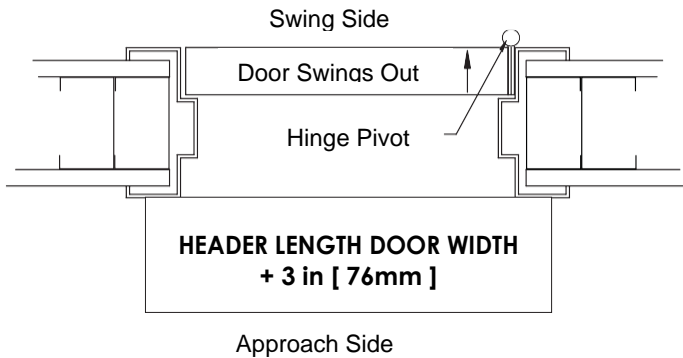


- 6** When installing a support plate for the full width of the door frame, fasten an additional two (2) screws to the vertical jambs on the strike side of the door.
- 7** Install the Spindle into the motor/gearbox.
- 8**
- Once the header back plate is in place, install the motor/gearbox and control board to the header back plate (see Section 3.0).
 - Slide the nuts (supplied with the operator) to hold the motor/gear box and control board along the 2 parallel tracks on the back plate.
 - Fasten the bolt to hold the motor/gear box and control board. The motor/gearbox needs to be installed so that the center of the spindle is 5" (127mm) from the end plate

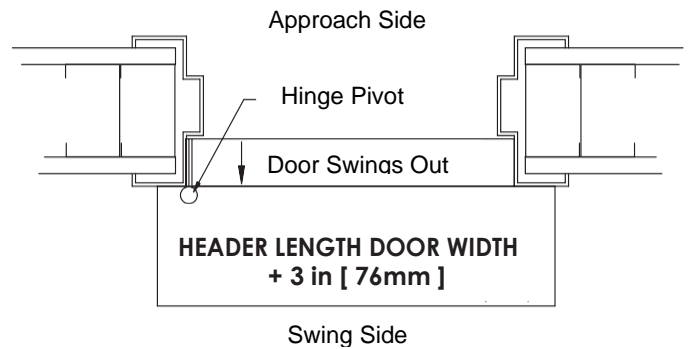
2.2 Operator Layout and Handing

HORIZONTAL SECTION

PUSH HEADER

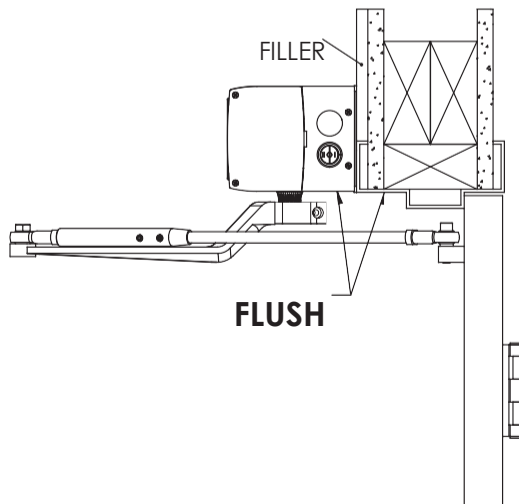


PULL HEADER

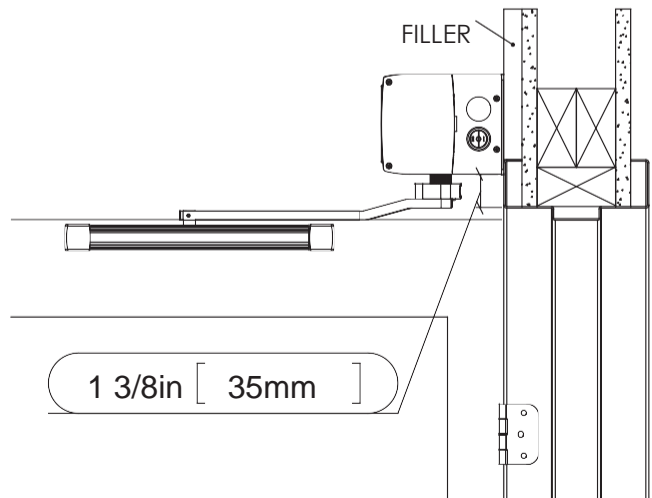


VERTICAL SECTION

PUSH HEADER



PULL HEADER



For Universal Arm application, please see section 3.3

2.0 OPERATOR INSTALLATION

Push Header

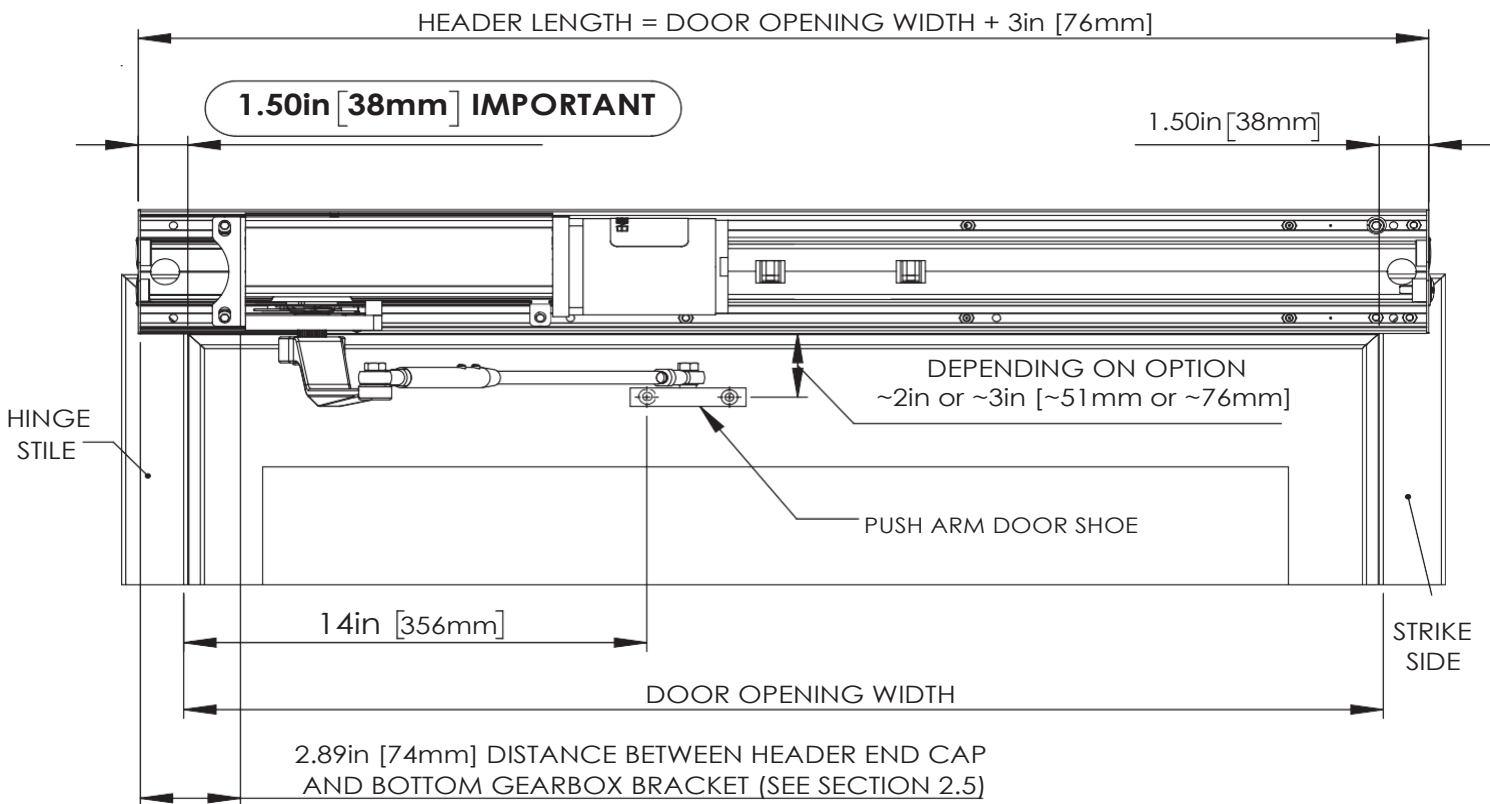
The Header Box on push installations is mounted flush to the bottom of the doorjamb header. It may require solid backing material to compensate for the thickness of the door frame. Before fastening header box to the door frame, ensure that your access holes for high and low voltage wires match. Header box should be mounted to the hinge side of the door. For most applications, the header is equal to door opening plus 3". This allows for a 1½" space on either side of the Header Box to anchor the header box properly to the frame. The header box should be anchored with a minimum of (6) Six, #14 x 1" Pan Quad Type A screws (provided.)



- The locations of the screws on the header will be application dependent.
- Fasten the header body as application requires. **The header must support 200lbs.**
- **Do Not use Drywall Screws or Hollow Wall Anchors to mount the Back Plate / Header.**



- Header **MUST** be installed 1.5 inches from hinge side for all Push/ Pull installation, regardless of whether header is sized appropriately to door opening.
- For Push application with standard arm, the reveal is up to 14". For greater reveal, extended arm is needed.



2.0 OPERATOR INSTALLATION

Pull Header

Ensure before fastening Header box to the door frame that your holes for high and low voltage wires match. Header box should be referenced to the hinge side of the door and 1 3/8" above the bottom of the door frame (see figure below). For most applications, the header is equal to the door opening plus 3".

This allows for a 1.5" space on either side of the Header Box to anchor the Header box properly to the frame.

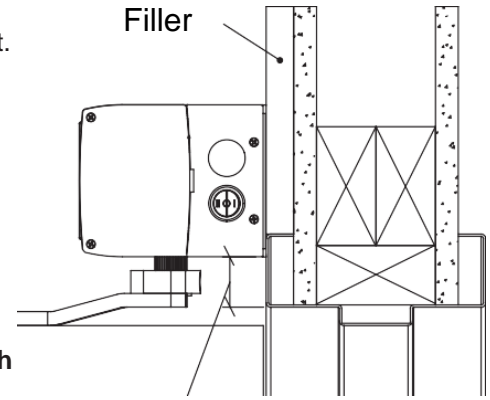
For correct sized header, the header box should be anchored with a minimum of (6) six #14 x 1" Pan Quad Type A screws (provided), but will also depends on what is being screwed into.



- The locations of the screws on the header will be application dependent.
- **Fasten the header body as application requires. The header must support 200lbs.**
- **Do Not use Drywall Screws or Hollow Wall Anchors to mount the back plate / header.**



- Header on pull applications must be mounted so the main drive pinion safety washer and machine screw are above the top of the door. This is to ensure the spindle does not obstruct the swing path of the door.
- For application with Universal arm, header will be installed differently. See section 3.4.



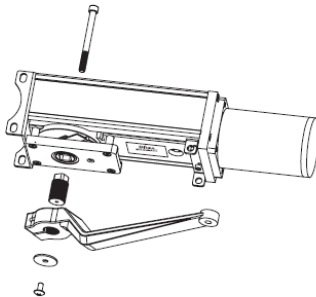
1 3/8in [34.23mm]

2.3 Handing Modification - Left to Right (and vice versa)

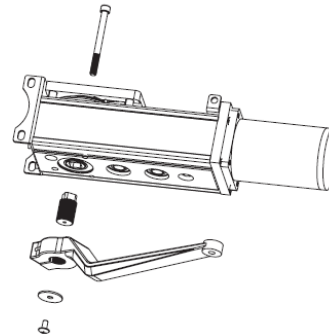
Prepare the Operator, Arm and Spindle

- 1 Invert the entire operator assembly 180 degrees
- 2 Remove drive shaft (spindle) from motor gear box assembly (See changing position of drive shaft)
- 3 Re-attach drive shaft (spindle) to opposite side of motor gearbox assembly
- 4 Detach wire connections from operator to control board
- 5 Remove control assembly from the base and rotate 180 degrees
- 6 Replace control and socket screws
- 7 Connect wire harness (see wiring)
- 8 Fully tighten all bolts
- 9 Insert spline shaft on the operator (depended on push or pull application and spindle rotation)

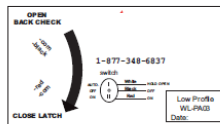
Left Hand Installation
("Spindle Opening Rotation Label"
is down, facing the floor)



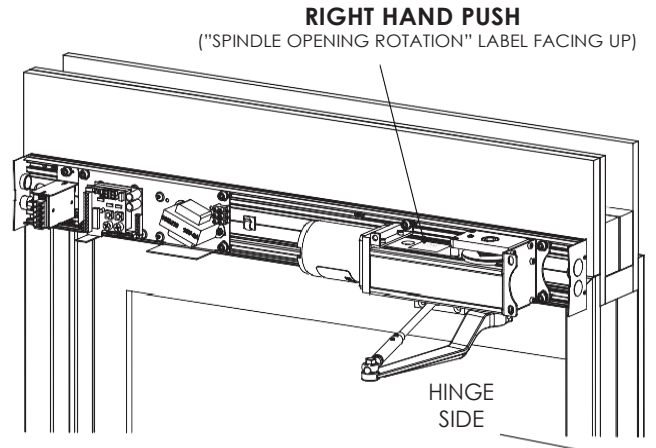
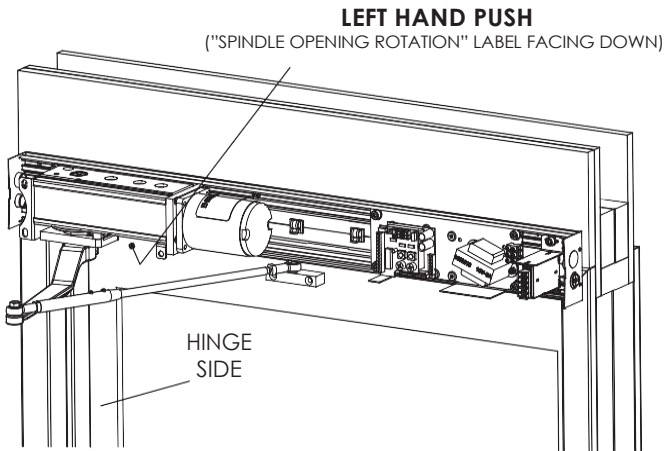
Right Hand Installation
("Spindle Opening Rotation Label"
is up, facing the ceiling)



Spindle Opening
Rotation Label

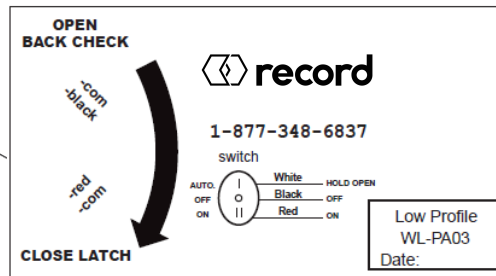


Operator placement



Before you begin, note that direction of the Open/Back Check arrow will indicate the direction the unit will open when activated. As mentioned earlier, if the operator label is facing down to the floor, then the handing is Left hand Push/Pull. If the operator label is facing up to the ceiling, the handing is Right hand Push/Pull.

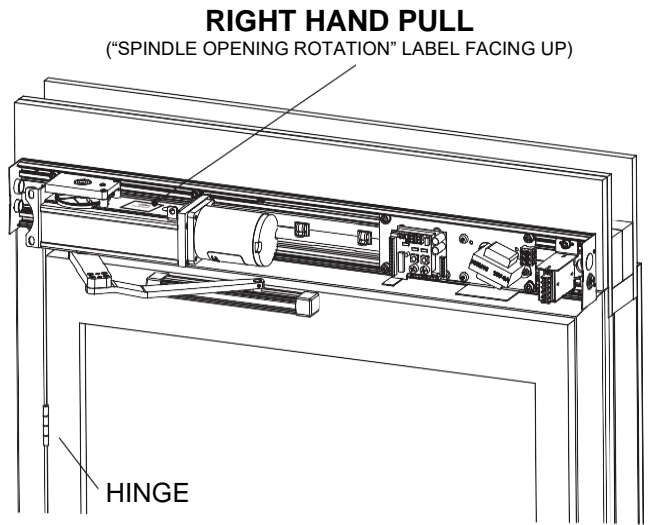
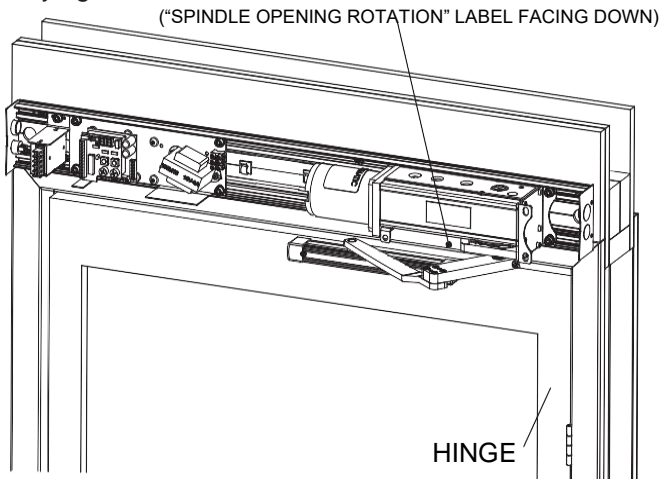
Spindle Opening Rotation Label



 **Must have arm to complete transition**

Handing Modification Steps

- 1 Remove gear box assembly from mounting plate.
- 2 Disconnect wire harnesses and switch wiring from control (see wiring).
- 3 Re-attach gear box to opposite side of mounting plate and rotate mounting plate. The arrow should be pointing upward. This indicates the handing is Left Hand Pull.
- 4 Connect wire harness and switch wiring (see wiring).
- 5 Fully tighten all bolts. **LEFT HAND PULL**

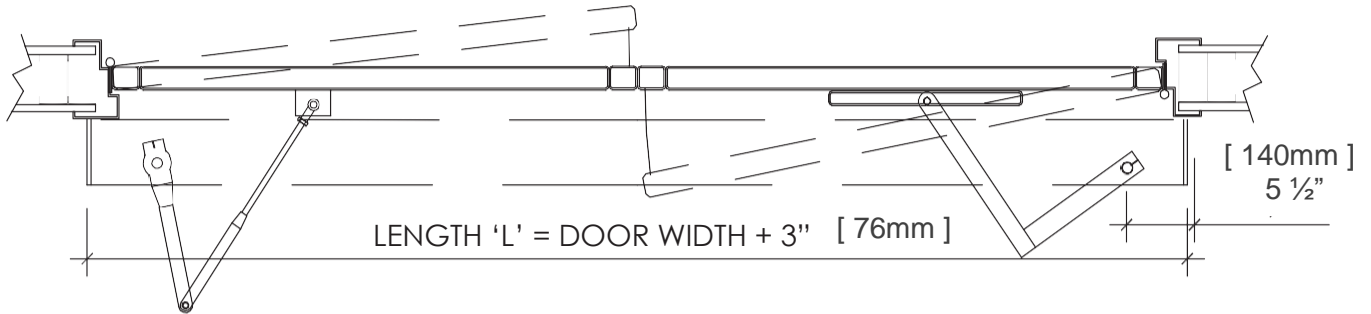


2.0 OPERATOR INSTALLATION

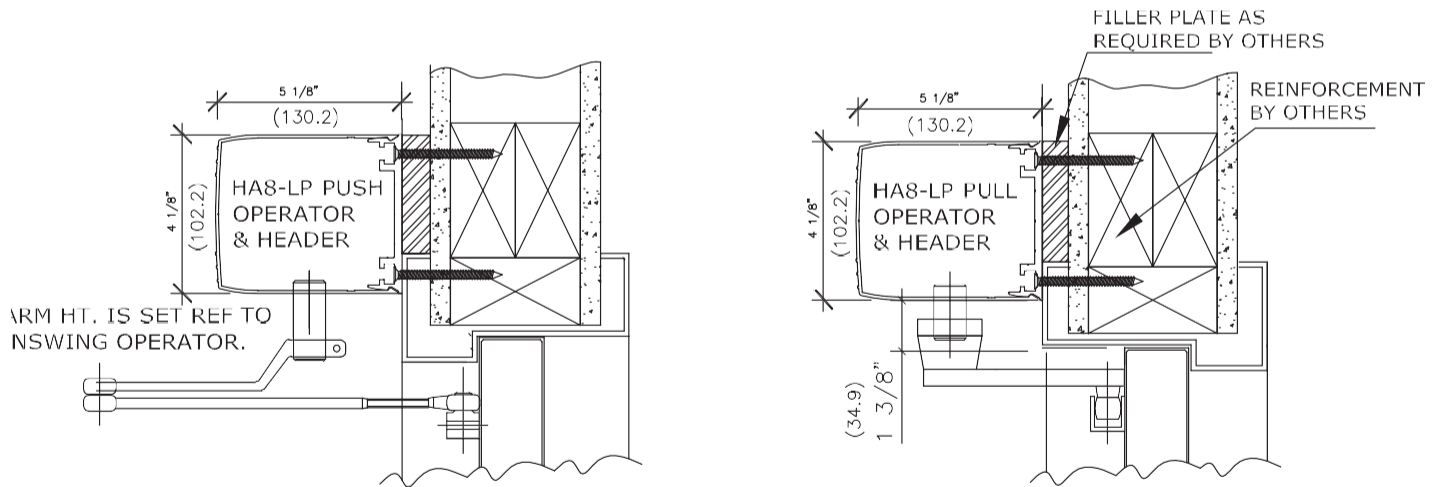
2.4 Double Egress Header

Double Egress Operators have a PULL type and PUSH type operator in the same housing, the header must be mounted $1 \frac{3}{8}$ " above the door frame. For PUSH type operator, arm clearance issues may arise. To ensure the arm clears any existing doorstops, mount the arm according to the diagram below marked Push Configuration.

See Section 3.1 to change the Push arm configuration.



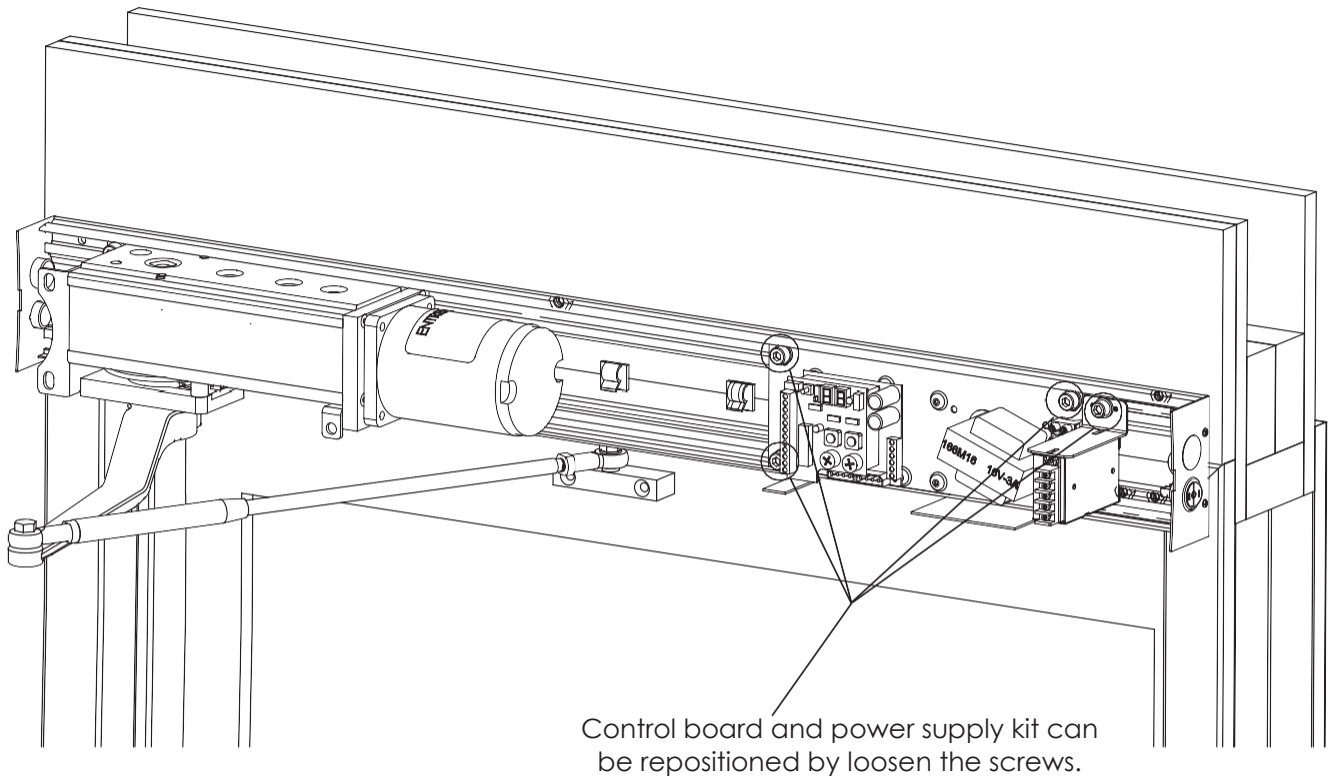
HORIZONTAL SECTION



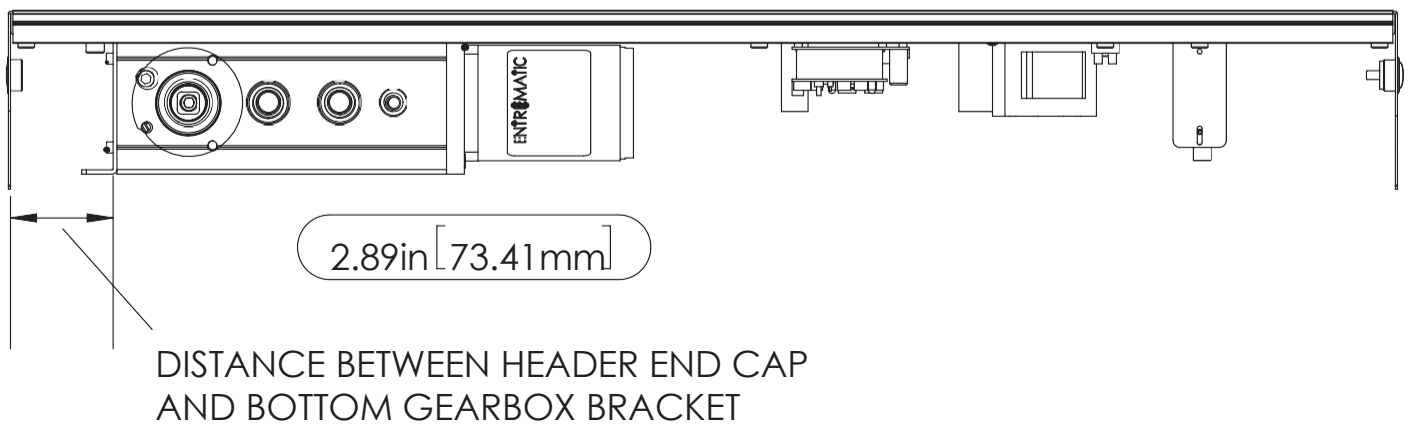
VERTICAL SECTION

2.5 Control board and Gearbox Installation

The control board will be on the opposite side of the gearbox motor. For example, in a **Left Hand Push operator**, the control board is right of the gearbox motor (as diagram below).



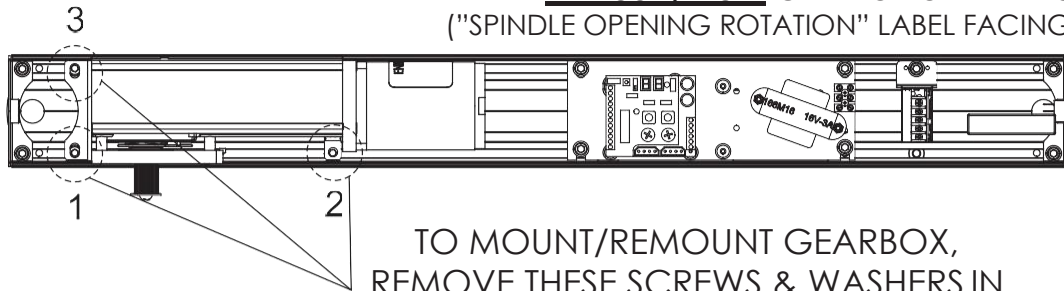
LP GEARBOX MOUNTING DISTANCE



2.0 OPERATOR INSTALLATION

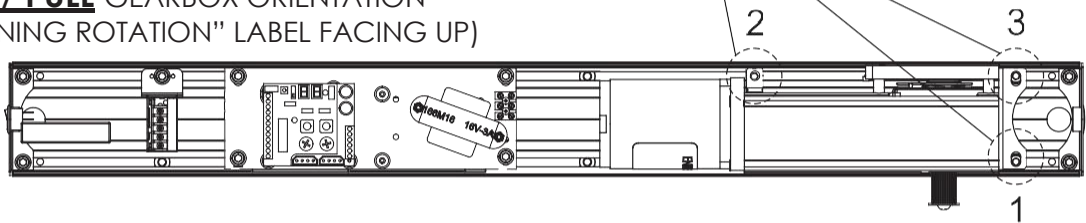
LP GEARBOX INSTALLATION/REMOVAL

LH PUSH/ PULL GEARBOX ORIENTATION
("SPINDLE OPENING ROTATION" LABEL FACING DOWN)



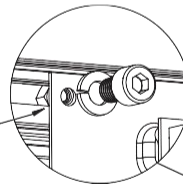
TO MOUNT/REMOUNT GEARBOX,
REMOVE THESE SCREWS & WASHERS IN
NUMERICAL ORDER.

RH PUSH/ PULL GEARBOX ORIENTATION
("SPINDLE OPENING ROTATION" LABEL FACING UP)

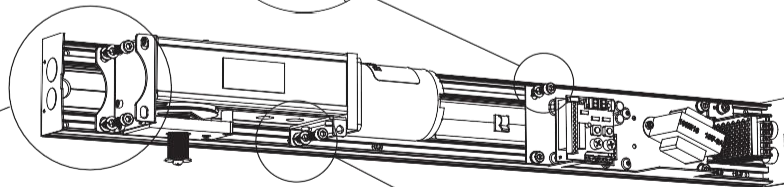


LP GEARBOX FASTENER DETAILS

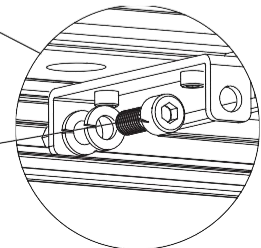
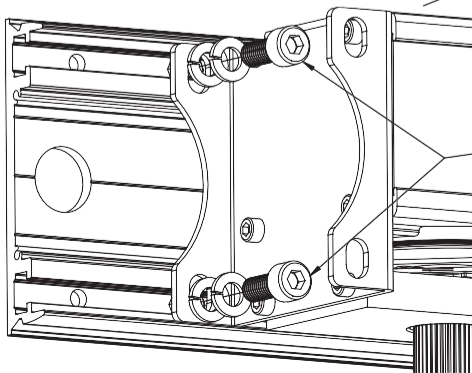
ALL COMPONENTS ANCHORED TO
HEADER VIA **M8 X 1** OR **5/16"-18**
HEX NUT IN CHANNELS



M8X1 OR **5/16"-18 X 1/2"**
SOCKET CAP SCREW HOLDS ALL
OTHER COMPONENTS TO HEADER
WITH **ONE (1) 5/16"** LOCK WASHER

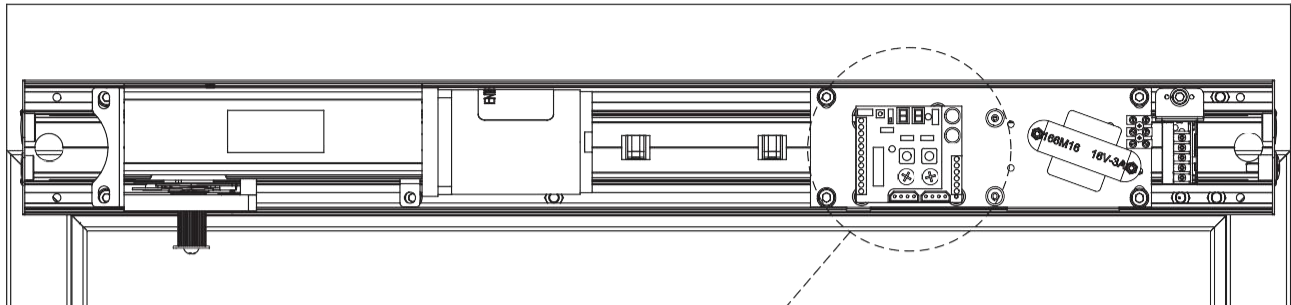


M8X1 OR **5/16"-18 X 5/8"**
SOCKET CAP SCREW HOLDS
GEARBOX TO HEADER (1, 2 & 3).
MUST HAVE **TWO (2) 5/16"**
LOCK WASHER BEFORE
BRACKETS OF GEARBOX.

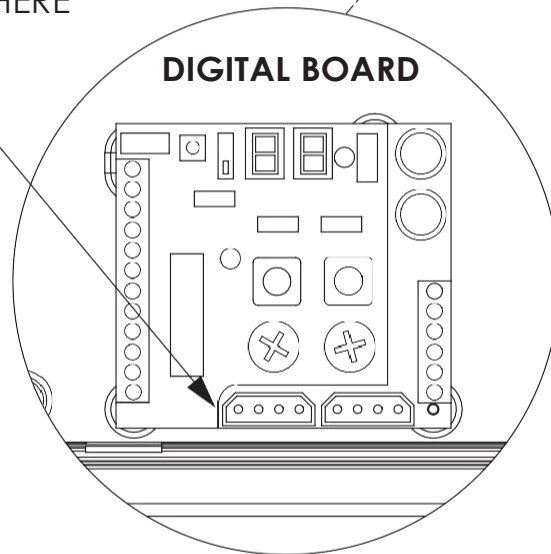


2.6 Connect Motor Wire Leads

Connect the Motor wire leads (large four pin), the Back Check and Latch wire lead (small three pin) to the top of the board. For a Digital or Analog board, please connect the Motor harness to the appropriate terminal as below.



LOW PROFILE OPERATOR
ALWAYS PLUG IN HERE



DIGITAL BOARD

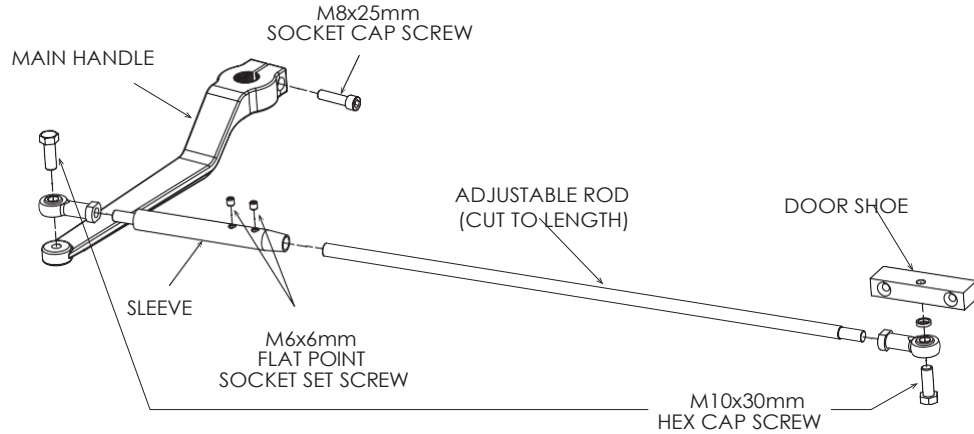


WARNING!

If the motor is not plugged into the circuit board there is no motor resistance against the spring when manually opening the door. The door or arm will close very quickly if opened, which could cause harm to pedestrians!

3.1 Arm Components & Configurations

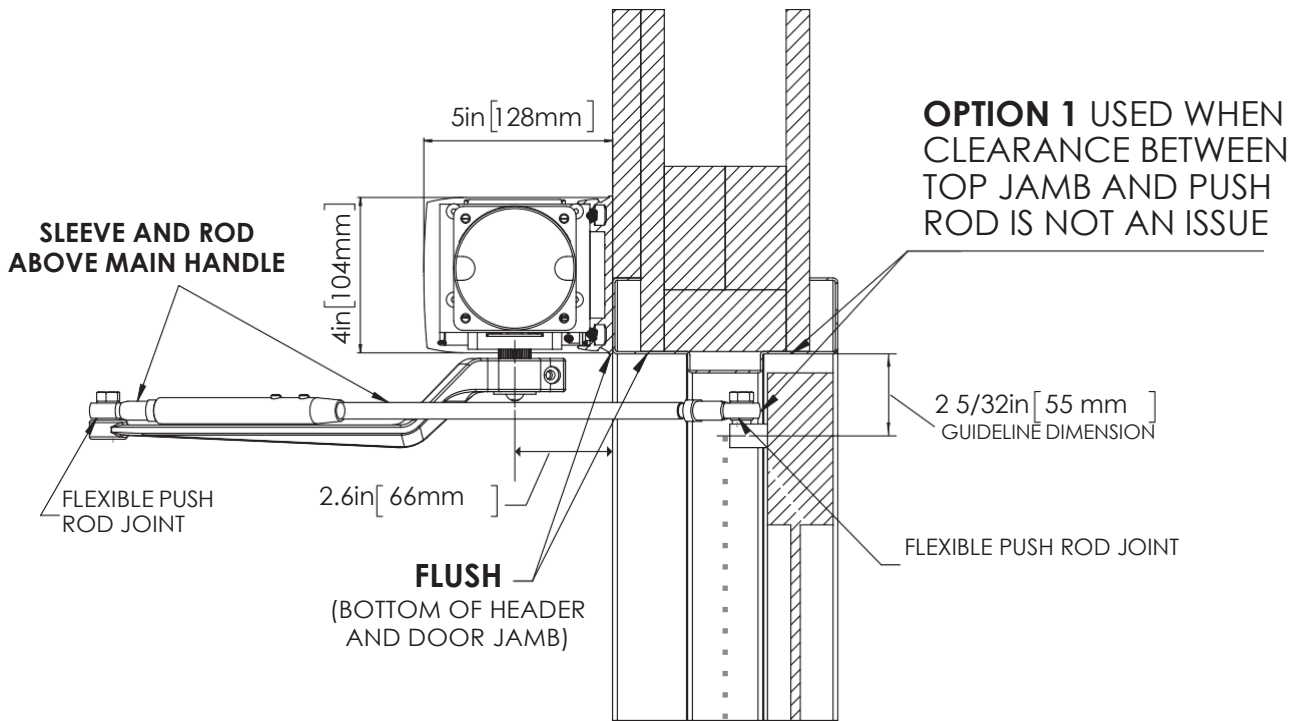
The main arm components will consist of the **Main Handle, Sleeve, Adjustable Rod (cut to length), and Door Shoe**, as shown below.



There are two (2) configurations available depends on situation and/or applications

Option 1- Standard Configuration

This is the standard configuration for the push arm, the Sleeve and Rod are above the Main Handle. Use this configuration when there is no issue with clearance between the Rod/Door Shoe and top jamb of the door frame. The Rod and Sleeve are flexible at the ends where they are bolted (semi-ball joint) which will provide additional flexibility during install.



WARNING!

Please ensure Shoe Bolts at these joints are tightened after installation of arm is complete.

3.0 ARM INSTALLATION

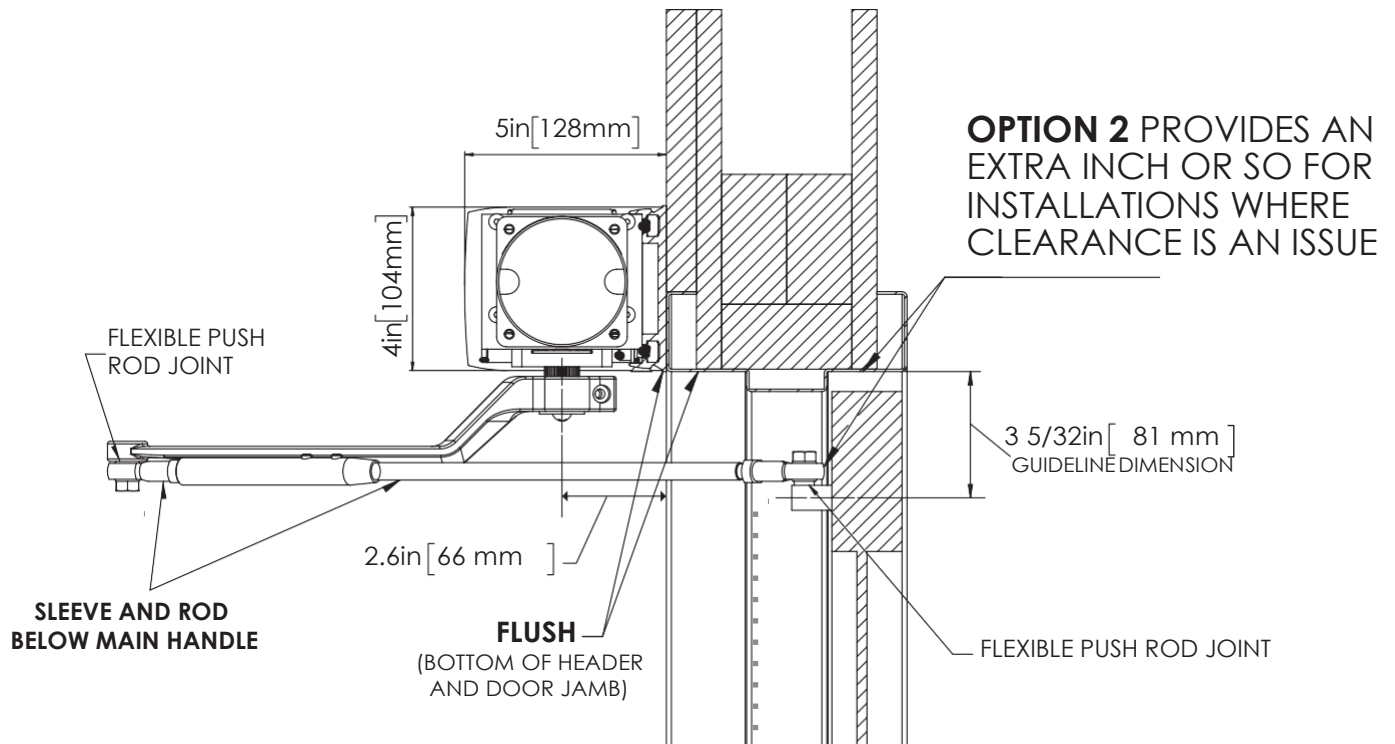
Option 2 - Alternate Configuration

For this option, Sleeve and Rod are below the Main Handle. Use this configuration when the clearance between the Rod/Door Shoe and the top jamb (or any other obstruction in the swing path) prevents **Option 1** from being properly installed. With this option, an approximate 1 inch in vertical space is gained. This configuration also uses on Double Egress Headers, where there is a pull arm and a push arm installed. The Rod and Sleeve are flexible at the ends where they are bolted (semi-ball joint) which will provide additional flexibility during install.



Note that the Rod is above the door shoe when installed, so that if the bolt ever loosens it will not fall down via gravity. Should the door rail you are attaching to have a thinner horizontal top rail, the door shoe can be reversed to be above the rod end if space permits.

Used when clearance is an issue, an extra inch or more is added for installation.



WARNING!

Please ensure Shoe Bolts at these joints are tightened after installation of arm is complete.

3.2 Push Arm Installation

STEP 1

Keep the door in close position,

Install Door Shoe 14 inches to first hole from hinge side and 2 ¼ inches from top of door.

Attached Rod to door block. Fit Main Handle and Sleeve on drive shaft (spindle) at 80 degrees to the door latch.

STEP 2

Line up Rod with Sleeve and mark 1 inch past 2nd set screw and cut

Remove Main Handle from drive shaft (spindle), and insert Rod fully into Sleeve. Tighten set screws.

STEP 3

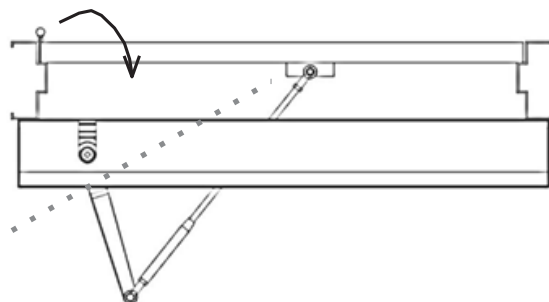
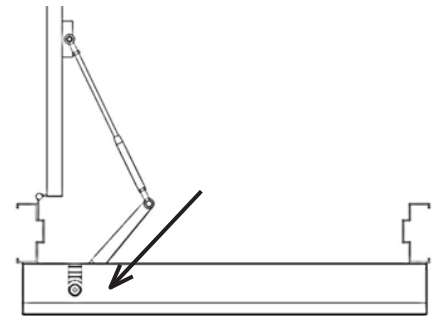
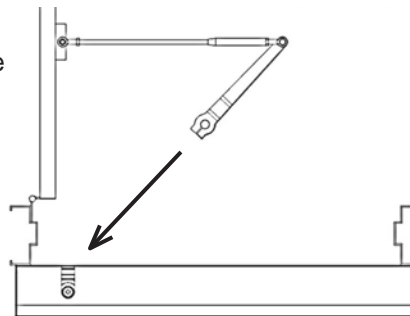
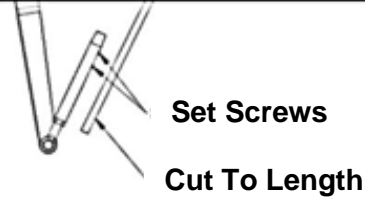
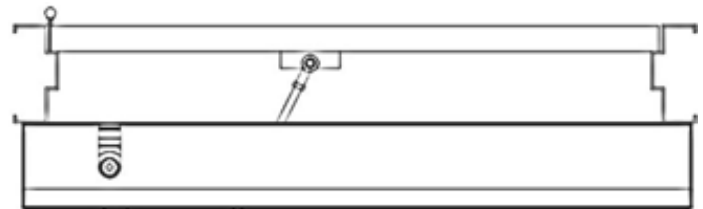
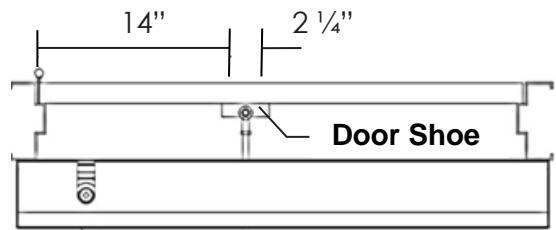
Arm is now fully assembled and fixed to the Door Shoe on door panel.

Set Operator Switch to Hold Open. Allow the drive shaft to turn the door fully until hitting the built-in spline stop.

Assemble Main Handle to the drive shaft and tighten. If needed, loosen set screws for minor adjustment of door position.

STEP 4

Set Operator Switch to Automatic and allow door to close under spring pressure. Test and adjust if necessary.

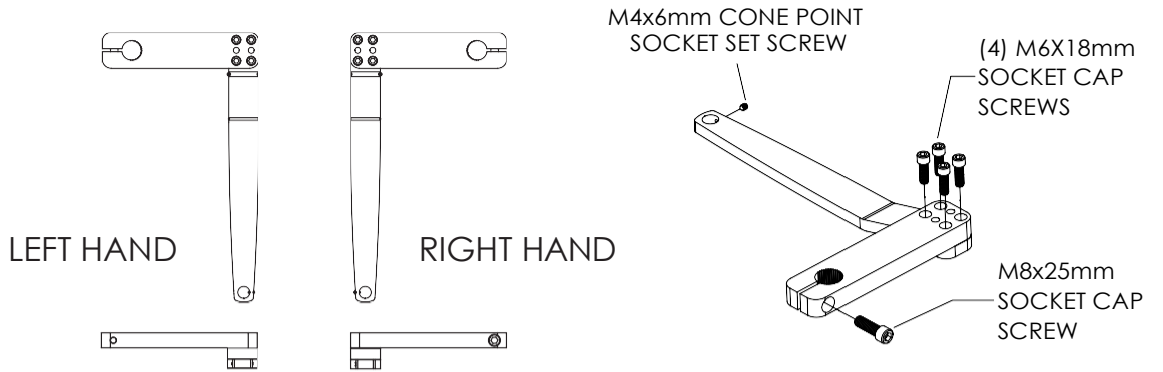


WARNING!

Please ensure Shoe Bolts at these joints are tightened after installation of arm is complete.

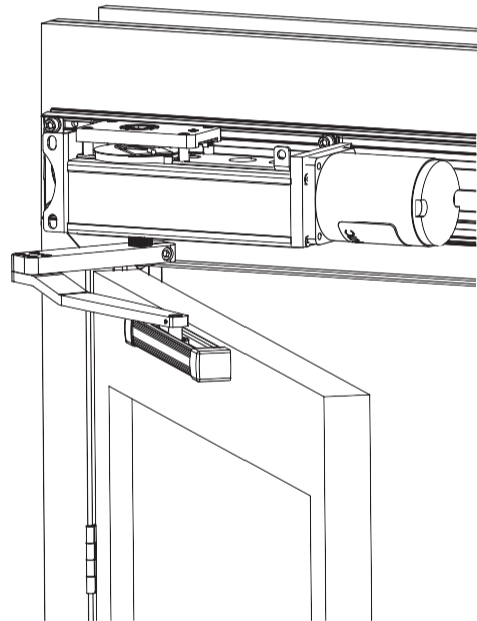
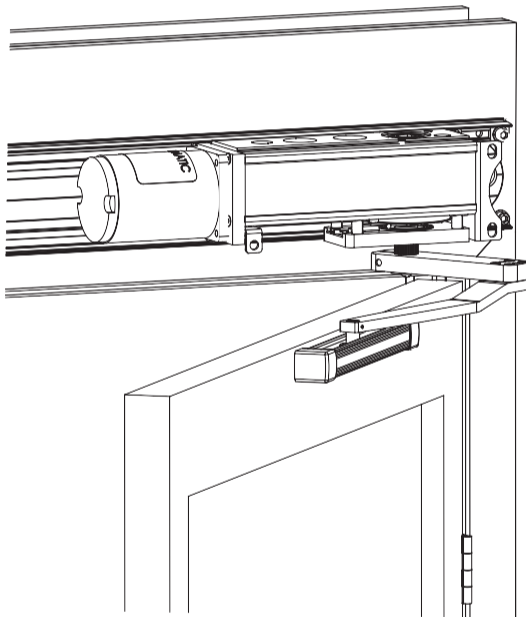
3.0 ARM INSTALLATION

3.3 Pull Arm (Z-arm) Installation



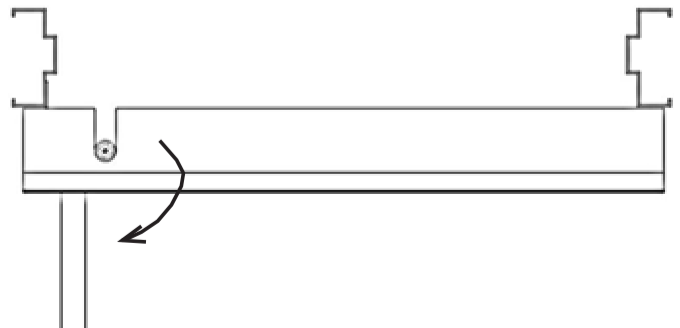
LEFT HAND PULL

RIGHT HAND PULL



STEP 1

Set Operator Switch to Hold Open (II). The drive shaft (spindle) will turn until hitting the internal doorstop.

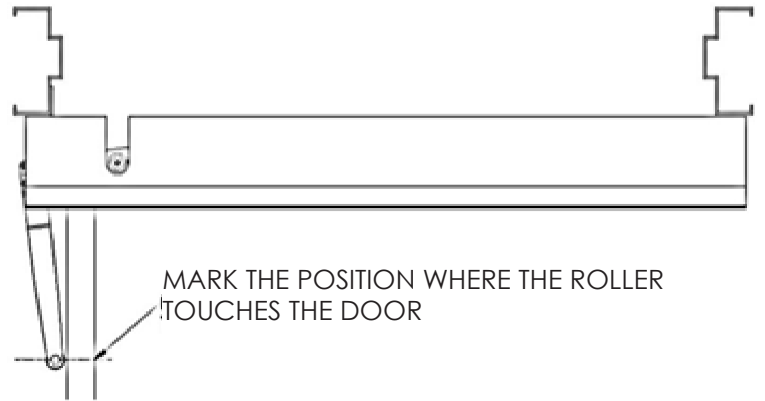


3.0 ARM INSTALLATION

STEP 2

Keep the door in full open position

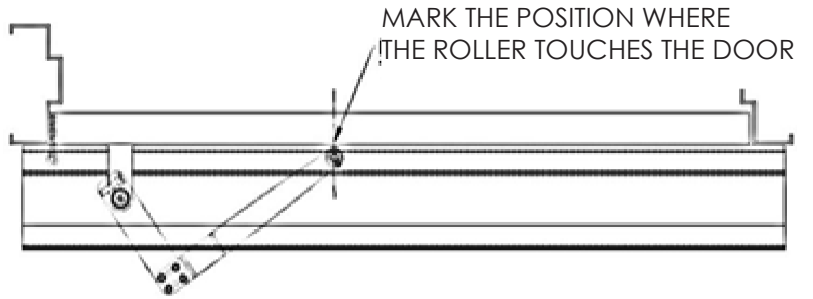
Fit Z-Arm to the drive shaft (spindle) at the full open position and tighten. Mark open position where roller touches door.



STEP 3

Set Operator Switch to OFF (0) and allow door to close under spring pressure.

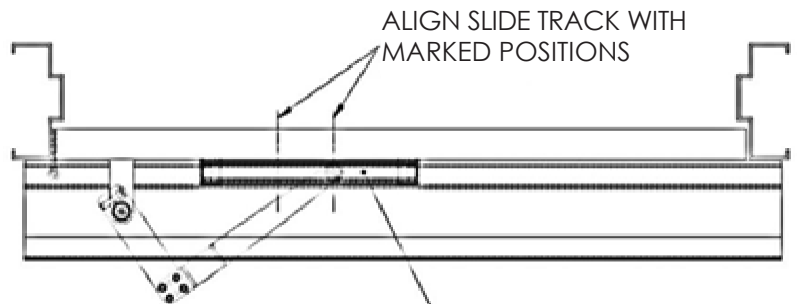
In closed position, place mark where roller touches door



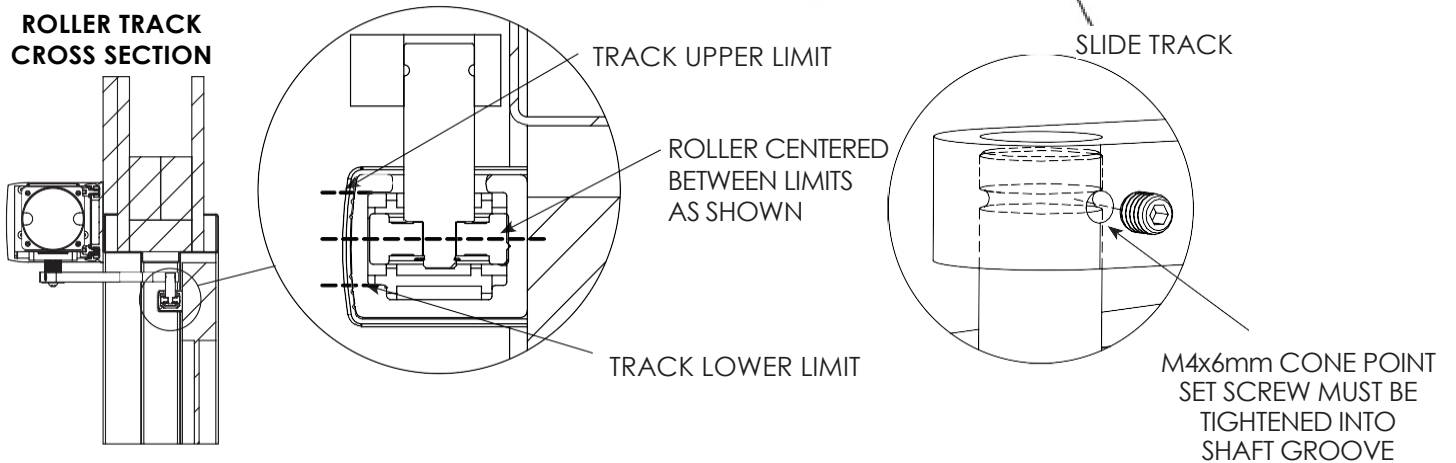
STEP 4

Fit slide track in line with 1st and 2nd mark and fix to the door. Turn three-position switch to Automatic (I).

Test and adjust if necessary.



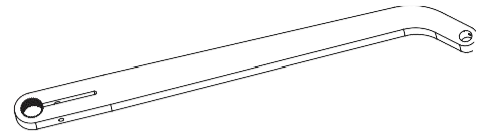
ROLLER TRACK CROSS SECTION



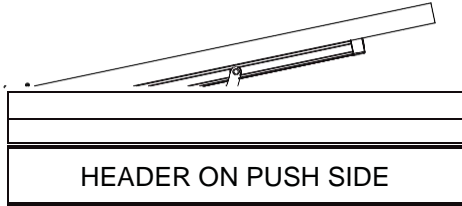
Make sure Pull Track is installed level with the header. This is to ensure the roller stays inside the track during opening and closing, prolonging the life of the roller.

3.4 Universal Arm

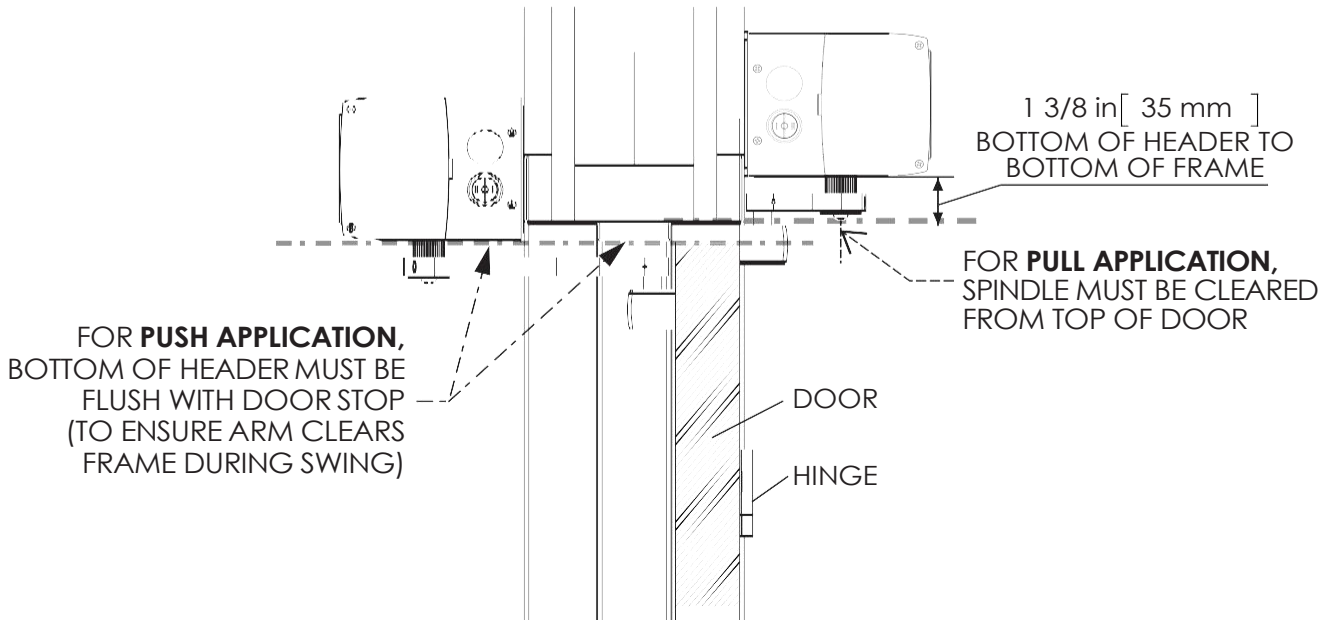
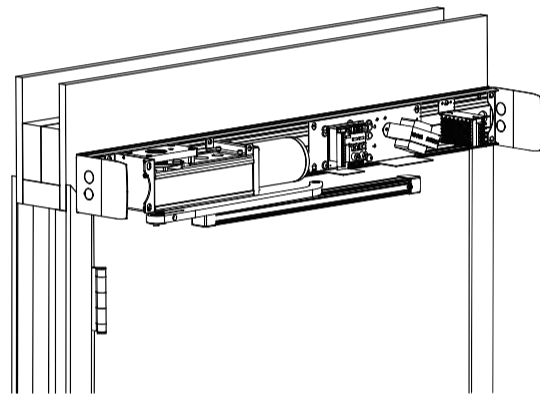
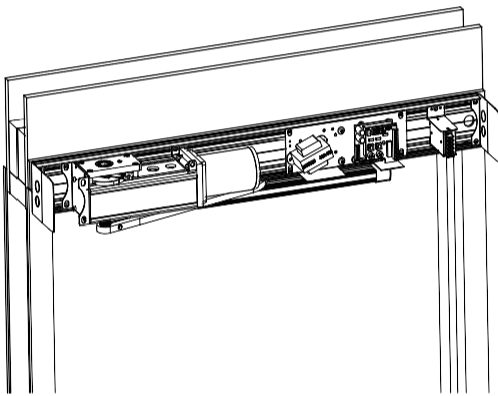
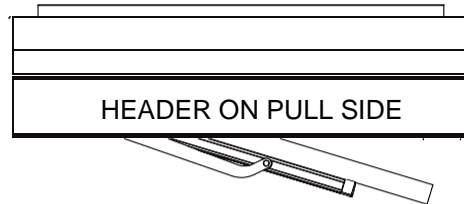
Universal Arm can be used as both Push and Pull arm, allowing flexibility to mount the HA-8 on either side of the door opening.



PUSH APPLICATION



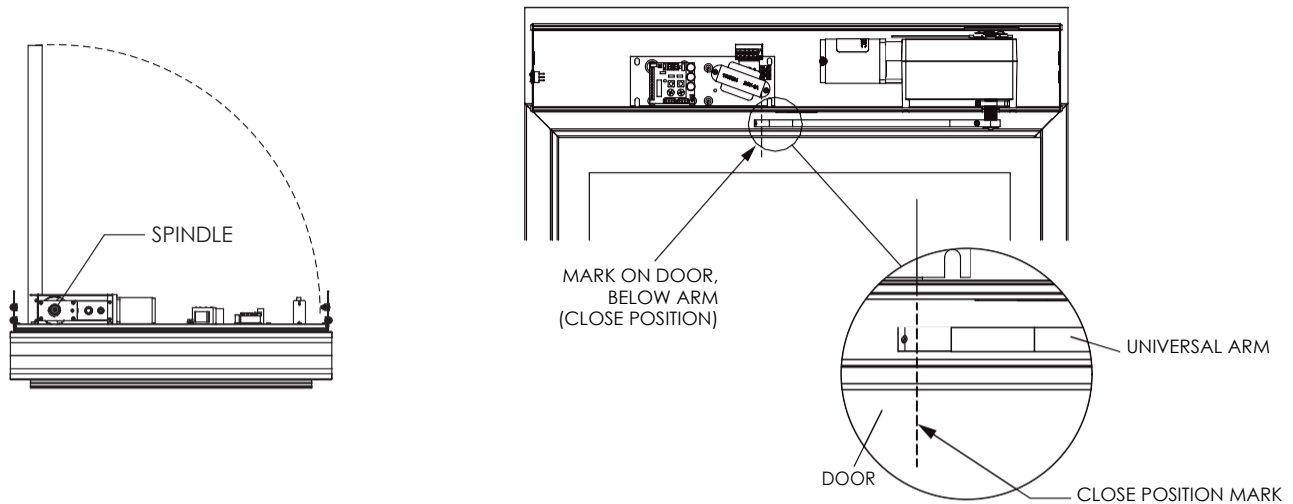
PULL APPLICATION



Universal Arm as Pull Application

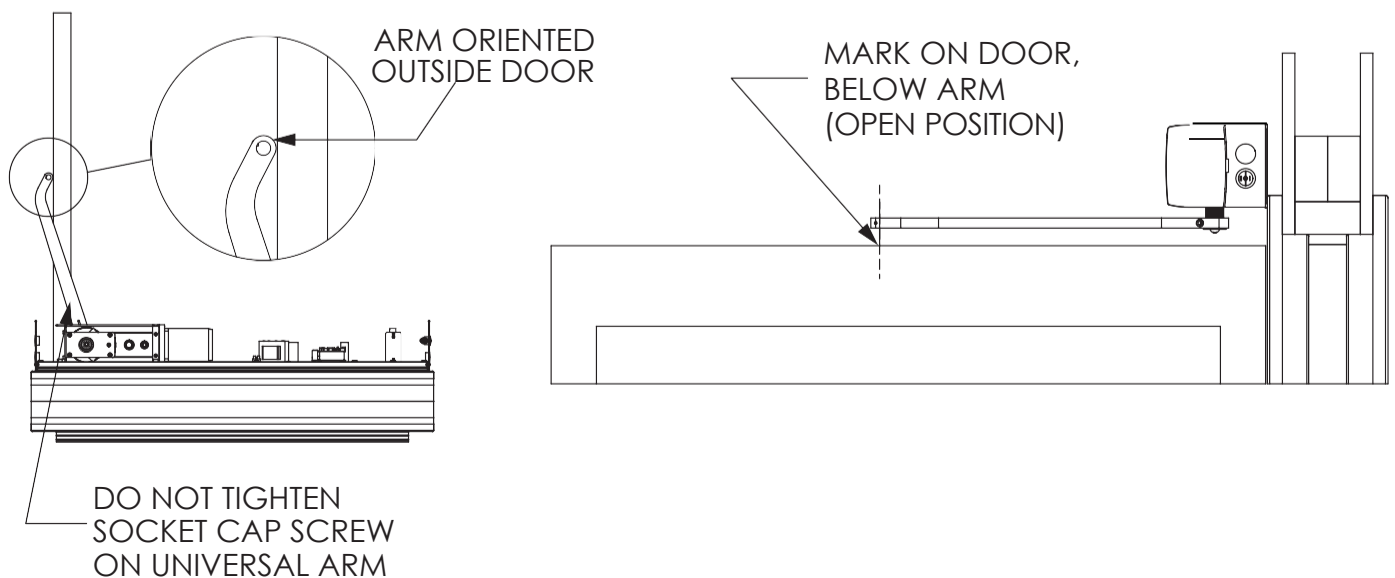
STEP 1 - Mark closed position

- Close the door fully and fit the Universal arm to the drive shaft (spindle), so that the arm is parallel with the door.
- In this closed position, mark the spot where roller would touch door (directly below where the arm meets the door).



STEP 2 - Mark open position

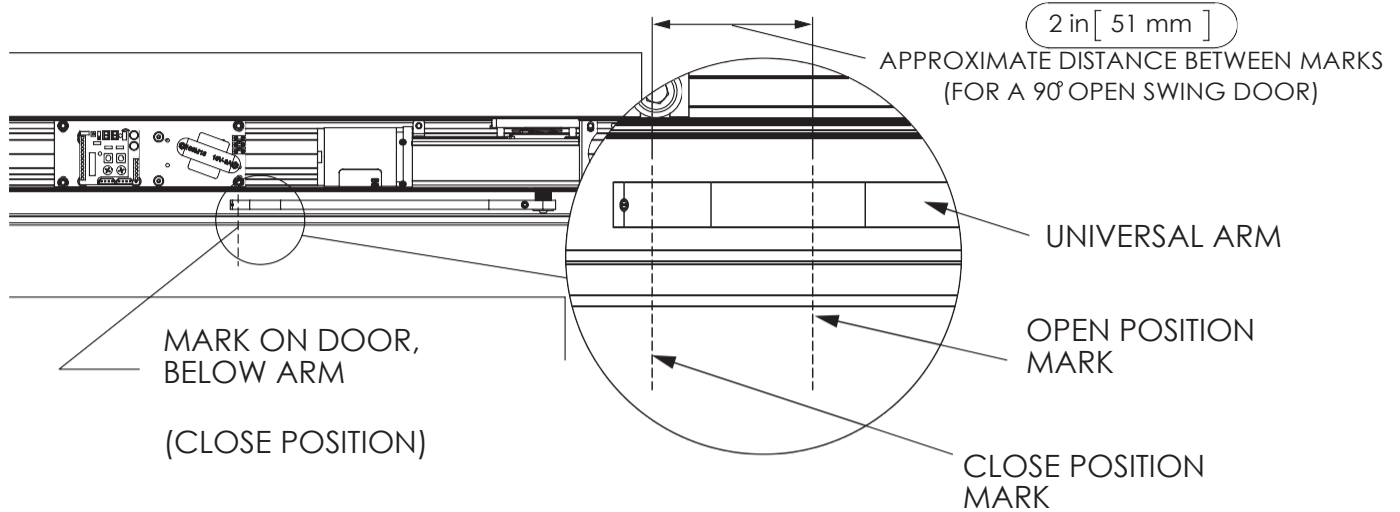
- Fit the universal arm to the drive shaft (spindle) at full open position (switch to Hold Open (II)), but do not tighten the M6X20mm socket cap screw all the way. This is to allow the arm some freedom/flexibility. The universal arm must be positioned such that it is just in front of the door as shown.
- Mark the spot where the roller would touch the door (directly below where the arm meets the door) in open position.



3.0 ARM INSTALLATION

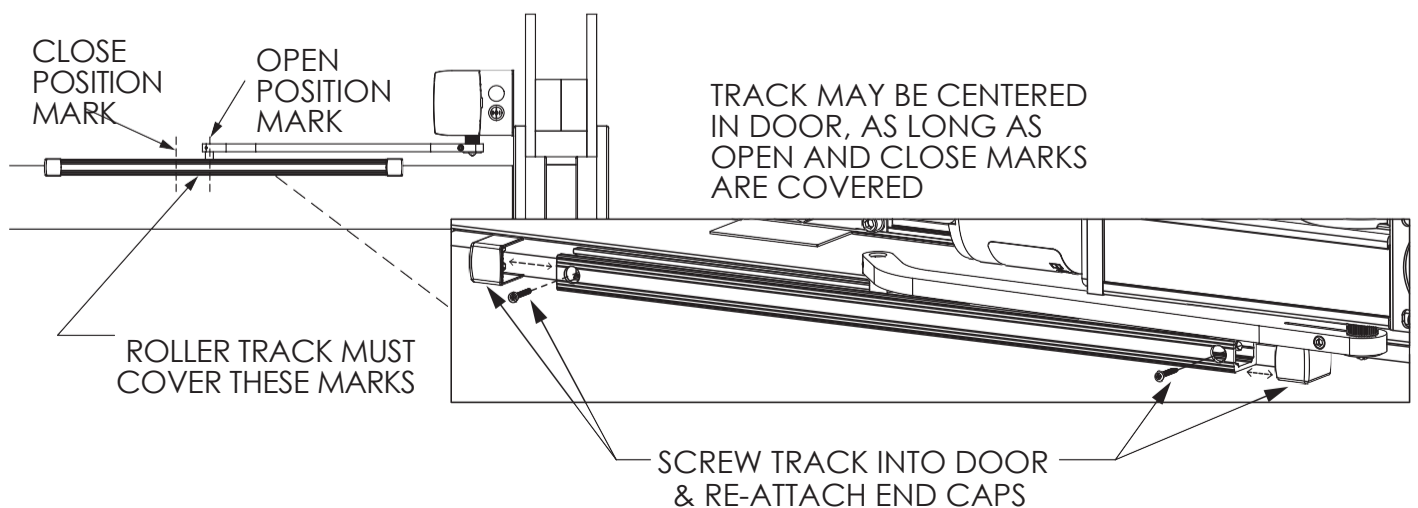
STEP 3 - Determine pull track position

- These two marks (open and close) illustrate the travel of the roller during the door swing, and thus must be within the universal track after mounting. For a pull (with door opening 90 degrees), these two marks should not be more than a couple inches apart. For door openings larger than 90 degrees, this distance will increase.



STEP 4 - Fitting Pull Track

- Remove the two ends caps and fit the extended pull track to cover the 1st and 2nd mark.
- Fix to the door, using the #14-10x1" Phillips/Square Pan Self-Tapping Screws provided in the screw pack (or the fastener of your choice). You may center the roller track in the door for visual aesthetics if the door width allows, but ensure the track covers the open and close marks for correct operation.
- Re-attach the two end caps to hide the screws.



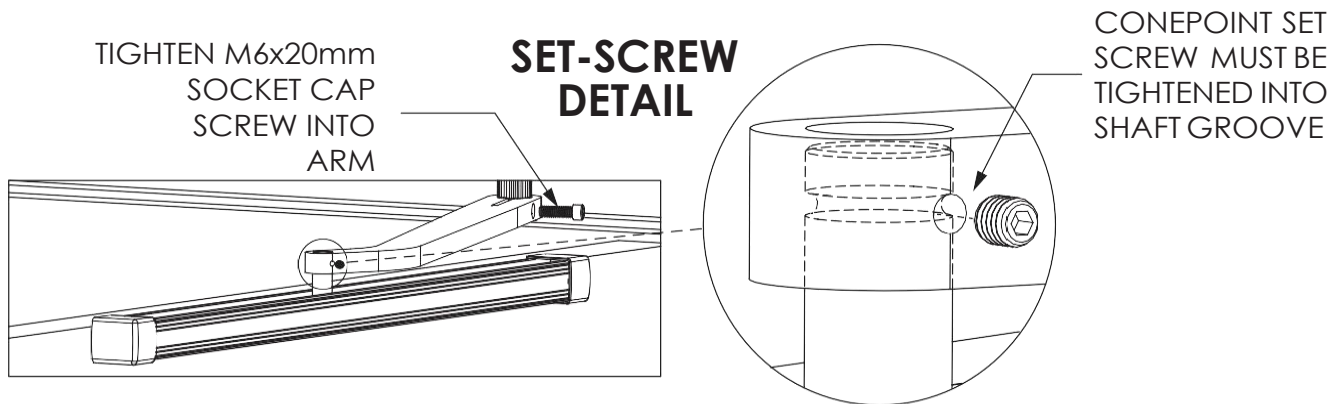
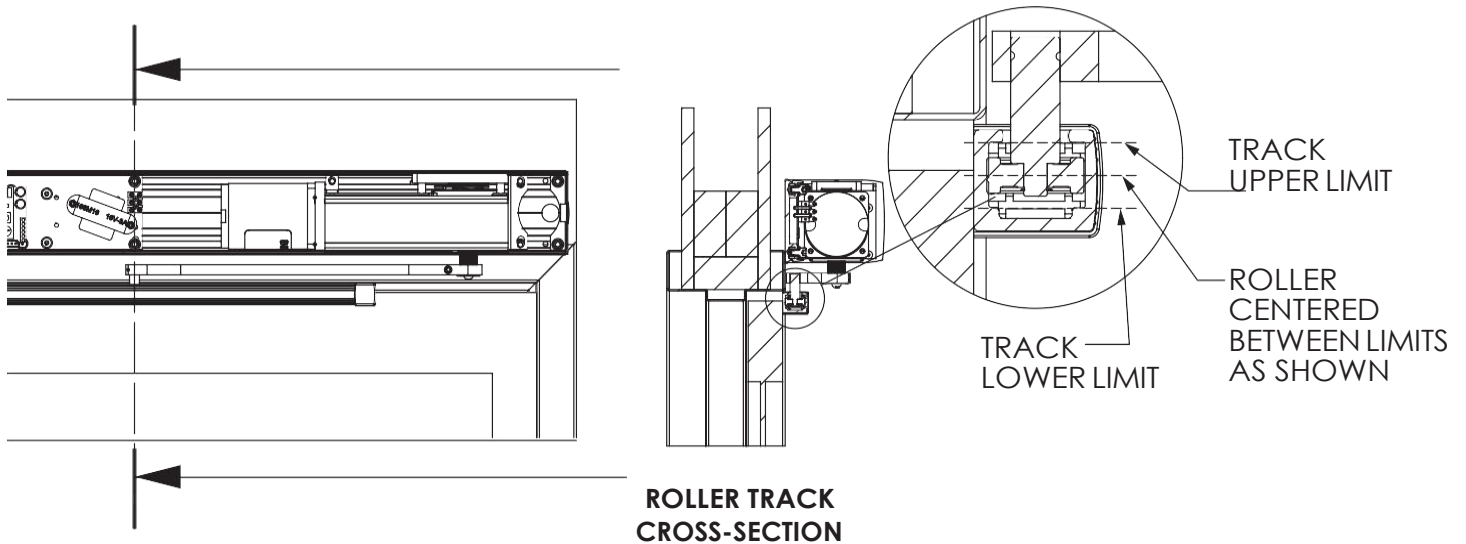
3.0 ARM INSTALLATION

STEP 5 - Attaching Universal Arm

- Attach the roller shaft to the arm as shown, making sure the set screw is tightened into the groove on the roller shaft. This will ensure that the arm and shaft do not dislocate during operation. For optimal performance, the roller should be in-between the track limits as indicated.
- Tighten the M6 x 20mm socket cap screw for the male and female splines to grip correctly.
- Turn switch to Automatic or ON.
- Test and adjust if necessary.

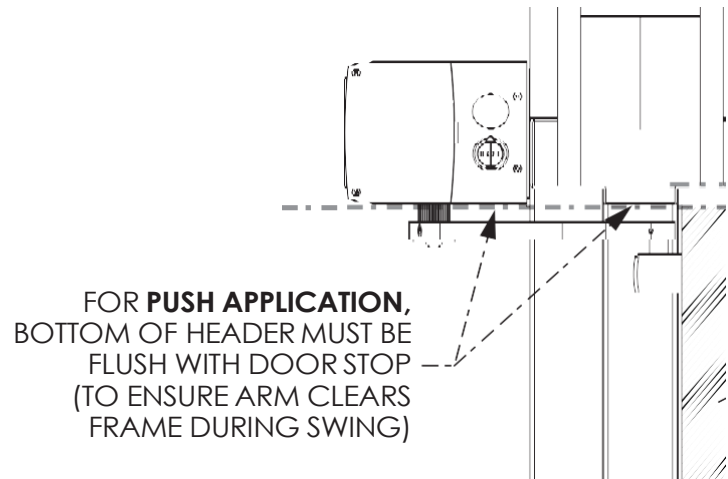


Make sure Pull Track is installed level with the header. This is to ensure the roller stays inside the track during opening and closing, prolonging the life of the roller.



Universal Arm as Push application

For installing Universal arm as Push application, what is critical is that the bottom of the header be mounted in line with the bottom of the top jamb door stop. This is to ensure that the arm has enough clearance when swinging through the upper jambs.



Repeat Steps in Pull Application:

STEP 1 - Mark closed position

- Close the door fully and fit the Universal arm to the drive shaft (spindle), so that the arm is parallel with the door.
- In this closed position, mark the spot where roller would touch door (directly below where the arm meets the door).

STEP 2 - Mark Open position

- Fit the universal arm to the drive shaft (spindle) at the full open position, but do not tighten the M6 x 20mm socket cap screw all the way. This is to allow the arm some freedom/flexibility.
- Mark the spot where the roller would touch the door (directly below where the arm meets the door in open position).

STEP 3 - Fitting Pull Track

- **For a push (with door opening 90 degrees), these two marks will be around 10-12 inches apart.**
Remove two ends caps and fit the extended pull track to cover the 1st and 2nd mark.
- Fix to the door, using the #14-10x1" Phillips/Square Pan Self-Tapping Screws provided in the screw pack (or the fastener of your choice). You may center the roller track in the door for visual aesthetics if the door width allows, but ensure the track covers the open and close marks for correct operation.
- Re-attach the two end caps to hide the screws.

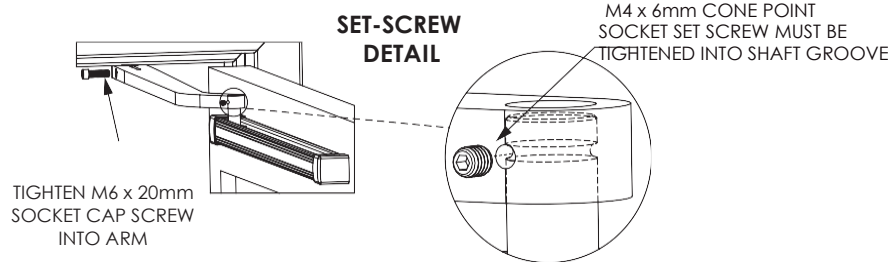
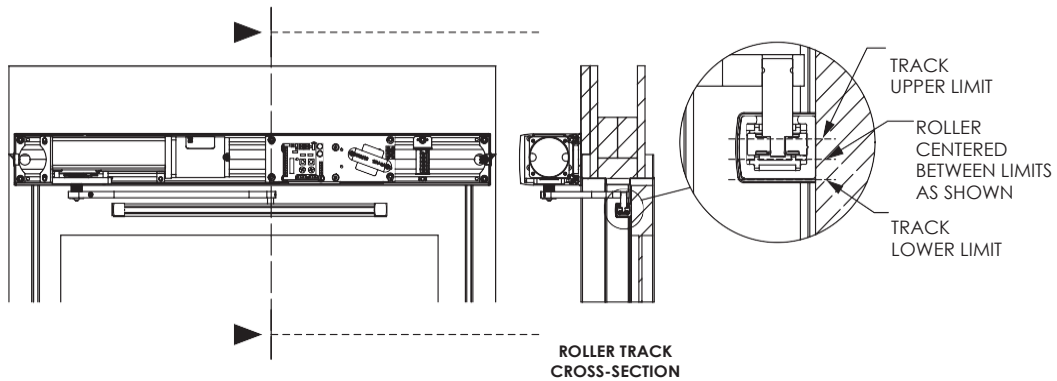
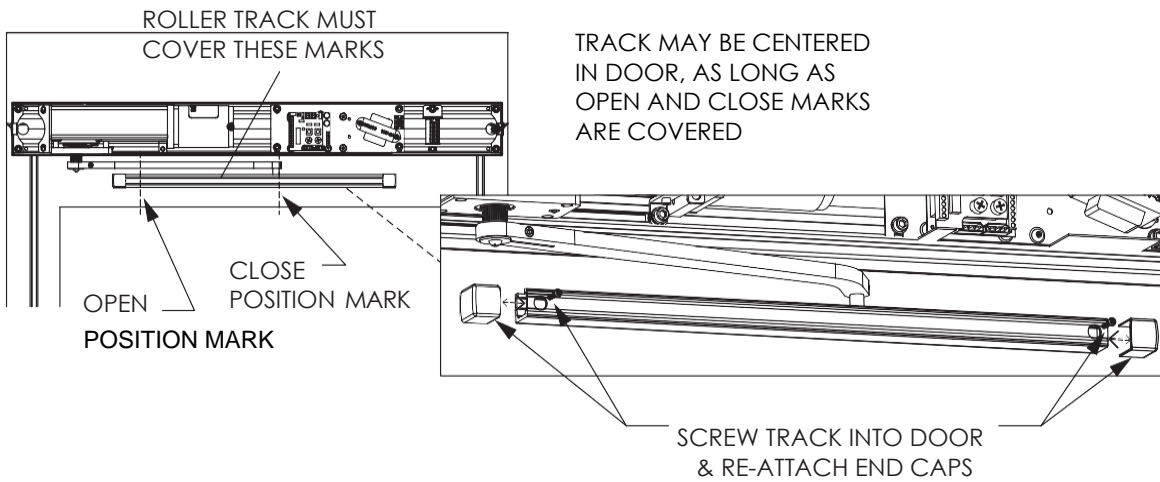
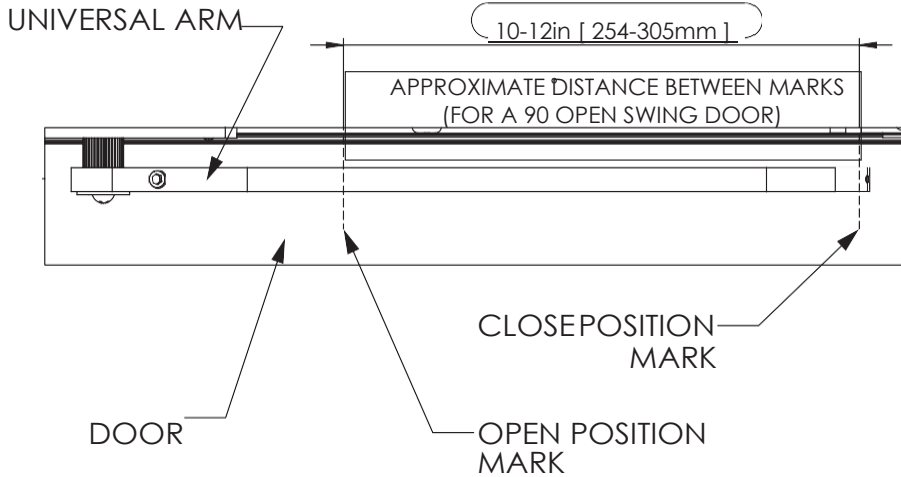
STEP 4 - Attaching Universal Arm

- Attach the roller shaft to the arm as shown, making sure the set screw is tightened into the groove on the roller shaft. This will ensure that the arm and shaft do not dislocate during operation.
- Tighten the M6 x 20mm socket cap screw for the male and female splines to grip correctly.
- Turn switch to automatic or on to test and adjust if necessary.



- **Note that for door openings larger than 90 degrees, the universal arm MUST be used as Pull application.**
- **Make sure Pull Track is installed level with the header. This is to ensure the roller stays inside the track during opening and closing, prolonging the life of the roller.**

3.0 ARM INSTALLATION



4.1 Back Check and Latch Adjustment

Setting Latch and Back Check position can be achieved using a small flat head screwdriver:

- 1 Set latch check Upper Magnet over the reed switch at full CLOSED.
- 2 Open door to full OPEN (90 degrees).
- 3 Set Back Check Lower Magnet, while holding Latch magnet in place.

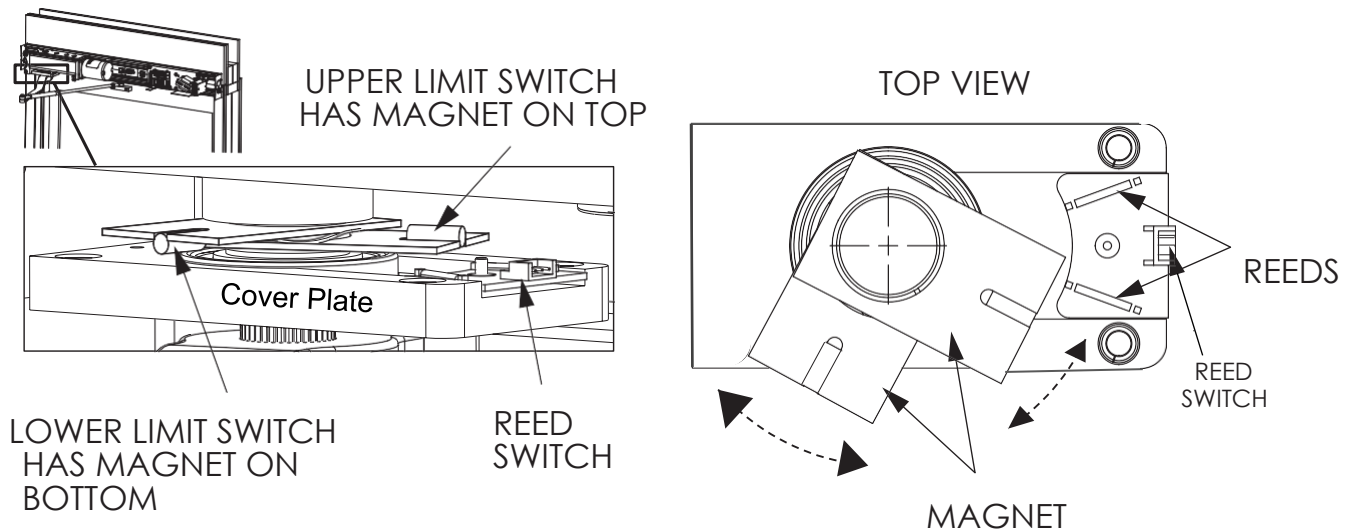
Latch and Back Check Proximity Switches are clearly indicated as shown by the sticker attached to the motor gearbox below.

Latch Position

With door at closed position, set Proximity Magnet to activate LATCH. This will begin Closing Low Speed or Latch for 10 degrees of travel, prior to door reaching full closed position.

Back Check Position

With door at full open position, set Proximity Magnet to activate BACK CHECK. This will begin Open Low Speed or Back Check for 10 degrees of travel, prior to door reaching full open position.



At Latch and Back Check – Door should slow for the final 10 degrees of open or close movement. Back Check and Latch speed adjustment may be necessary via control panel. (LED 1/2 – 0~5 in 6 steps)

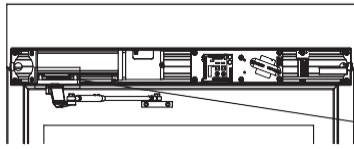


WARNING!

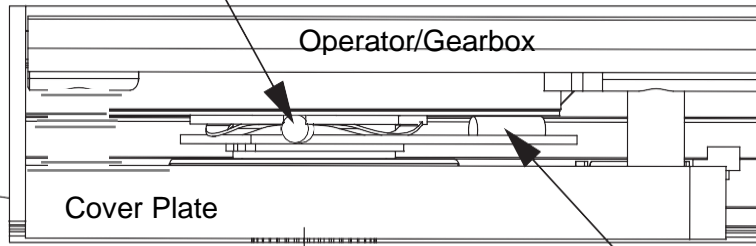
Proximity Switch **MUST** engage at open or close, otherwise door will not operate correctly and power fuse may be blown (overload).

STEP 1: SETTING LATCH CHECK

DOOR STARTS
IN FULLY CLOSE POSITION



LOWER LIMIT SWITCH

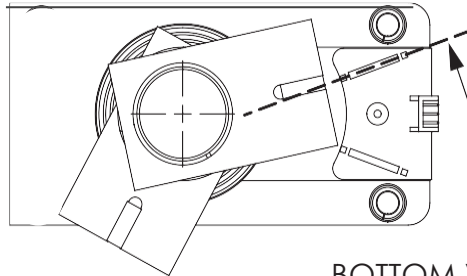


Operator/Gearbox

Cover Plate

UPPER LIMIT SWITCH

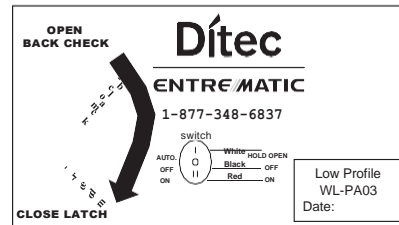
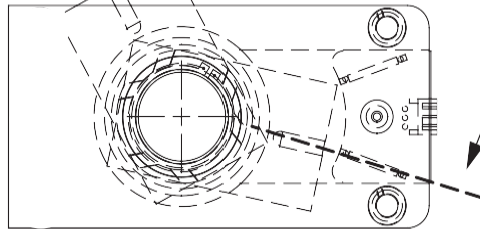
TOP VIEW



SET UPPER LIMIT SWITCH IN
LINE WITH REED SWITCH
TERMINAL THAT ALIGNS TO
'CLOSE LATCH' ON THE LABEL

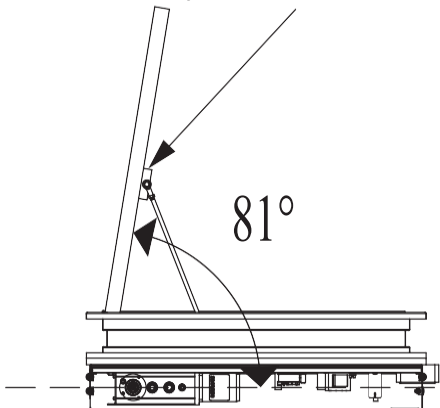
BOTTOM VIEW

WITH "SPINDLE OPENING ROTATION" LABEL

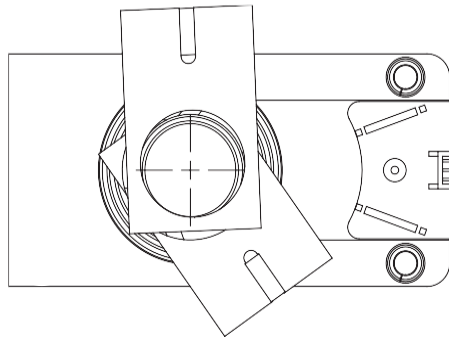


STEP 2: OPEN DOOR TO BEFORE BACK CHECK

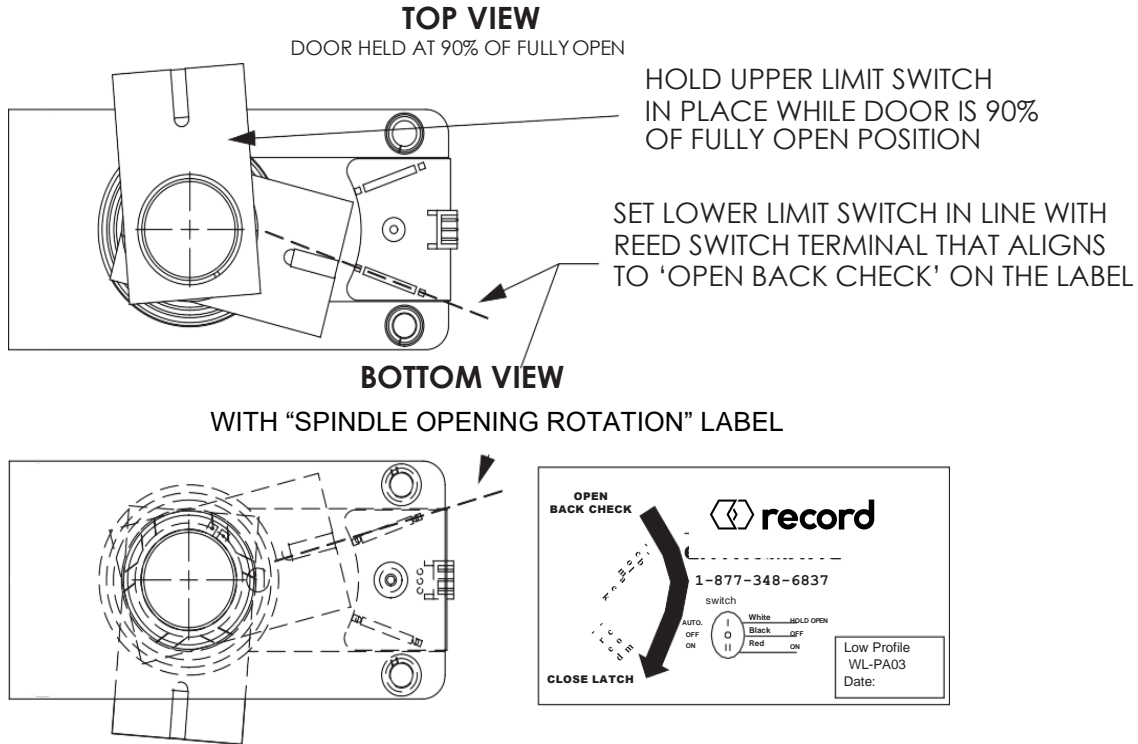
DOOR 90% OF FULLY OPEN POSITION
(81° FOR A 90° OPEN DOOR)



TOP VIEW
DOOR HELD AT 90% OF FULLY OPEN

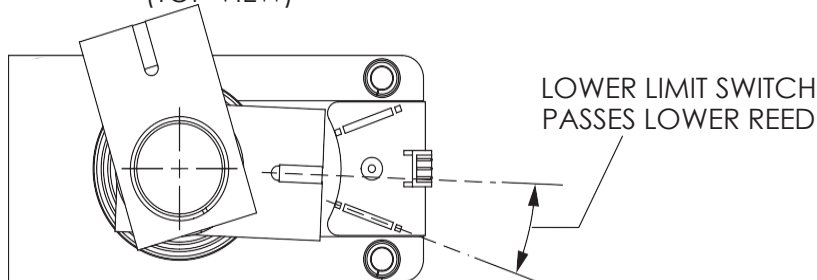


STEP 3: SETTING BACK CHECK

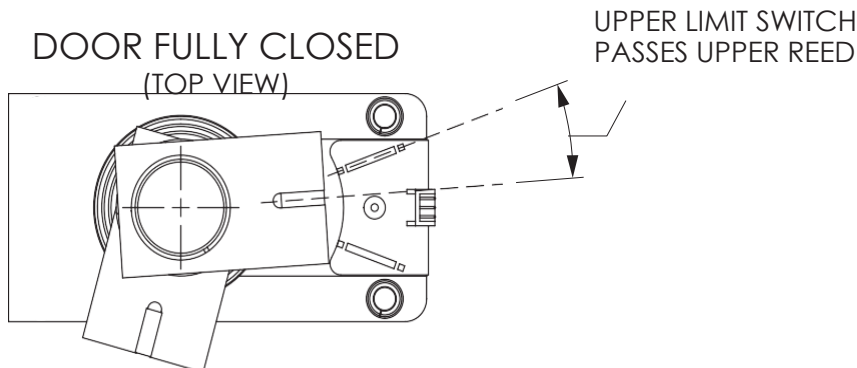


FINAL POSITIONS

DOOR FULLY OPEN
(TOP VIEW)



DOOR FULLY CLOSED
(TOP VIEW)



These switch positions will vary depending on your install and/or site conditions. Door openings smaller or larger than 90 degrees will also have different positions for each switch.

IMPORTANT: Back Check and Latch Check occurs at 10 degrees before fully open and fully close position, respectively.

4.2 Spring Tension Adjustment

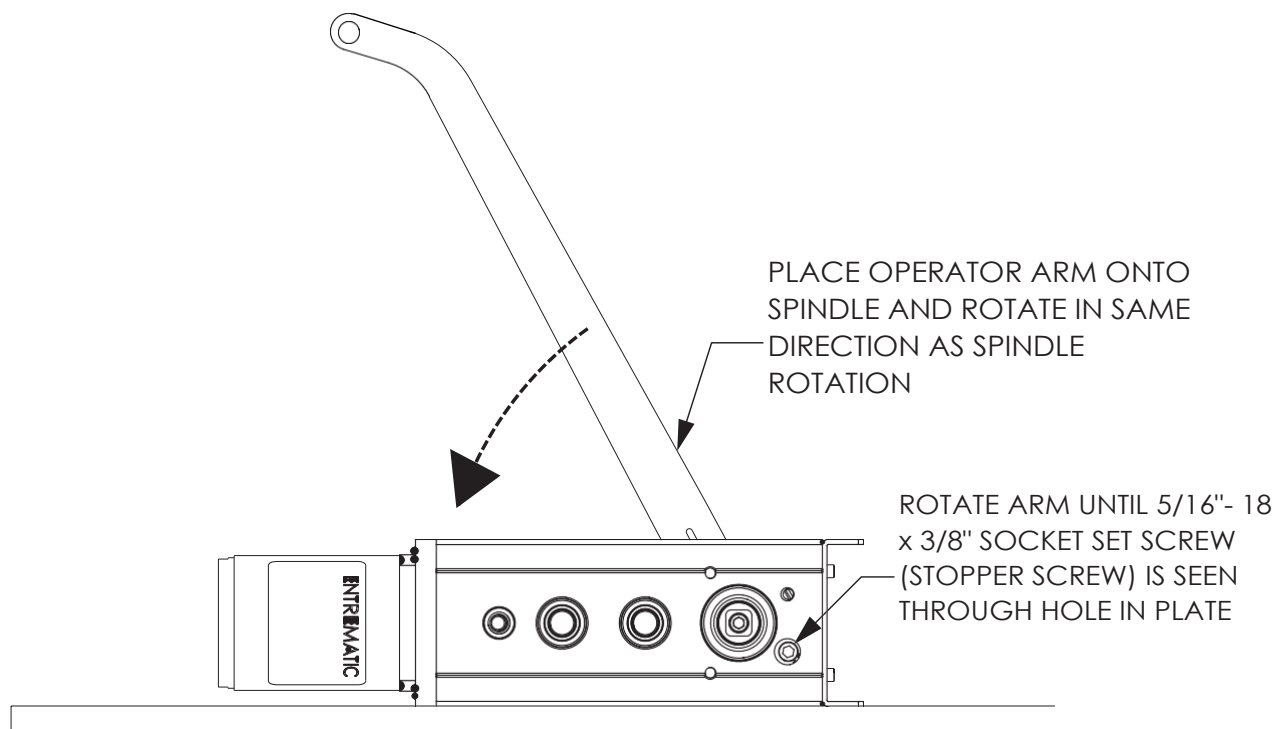
You can increase or decrease the spring tension for windy conditions to provide increased latch pressure. This is accomplished by using the arm to move the stop one to two set holes in main gear.

To begin,

- Remove the operator from the header.
- Remove the fender washer and machine screw at the end of the spindle.
- Detach the operator arm and remove the operator as described in section 2.5.
- Place the operator on a secure flat surface on its side.

STEPS

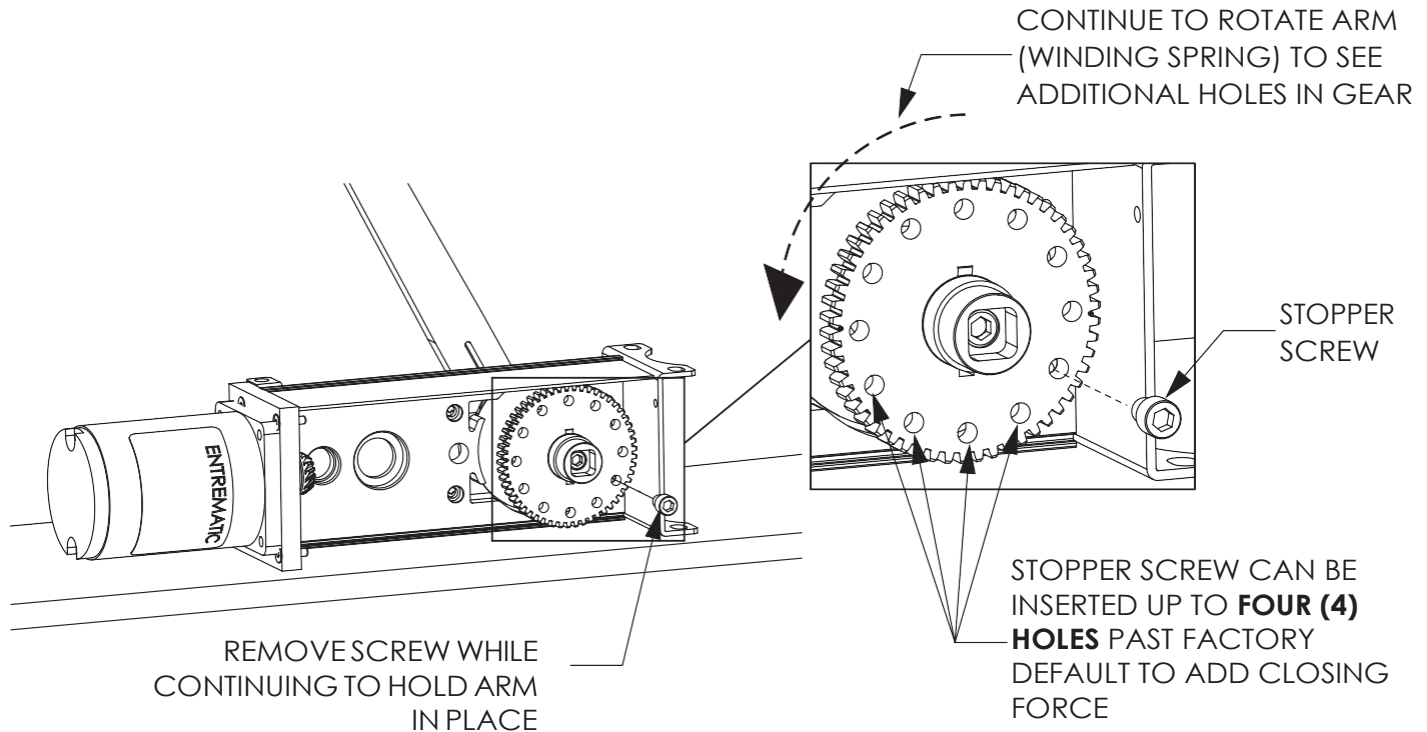
- 1** The door stop can be removed from an access point in the gearbox housing, as shown in drawing.
- 2** Once the set hole has been established, the door stop can be replaced in the gearbox housing and tightened in place.
- 3** Additionally, re-adjustment must also be made to settings of magnets for the BACK or LATCH CHECK.



To Increase spring tension, rotate arm in the direction of spindle rotation.

To Decrease spring tension, allow arm to unwind opposite to spindle rotation.

5.0 TESTING WITH OBSTRUCTION



- The drive unit must be removed from the header to make this adjustment and this will also change the manual opening and closing force (Check your local codes).
- It is **NOT** recommended to go past four (4) holes (a third turn of the arm, from factory default) for adding closing force.
- Once spring tension has been adjusted to a suitable level, please note that the Back and Latch Check will need to be readjusted through the same process in Section 4.1.

5.1 TESTING WITH OBSTRUCTION

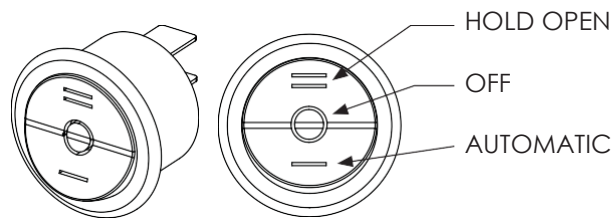
For Optimum performance, door will open and push against obstruction for 2 sec then close. Adjust Overload according to door weight, size and site condition.

- For heavier doors – overload can be increased against weight resistance
- For lighter doors – avoid over setting of overload
- For external factors (door condition, wind, stack pressure) – Adjust overload according to each site condition.

6.1 Basic Operation

Basic Operation

- When the door receives activation, the door opens and brakes before the fully open position and opens slowly to the full doorstop position, following the programmed data.
- Once pre-set open period is complete, the door will close at the pre-set closing speed, braking to low speed a little before the fully closed position and closes slowly.
- When an activation signal activates while the door is closing, the door will stop and reverse to open.



6.2 Operation Switch



The Operation Switch must be set to Automatic (I) positions to allow changes to be made in programming.

Operation Switch

- Operation (3 position) Switch is located on the end plate.
- With the door in the closed position. Check that the door is unlocked and the main power switch is on. (A main power isolator switch should be positioned to the side of the header).
- Check the status of the Operation switch:

Automatic Mode (I)

- This mode sets to activate the operator
- Activate the push button or knowing act device. The door opens to about 80 degree position at full speed, and then will slow for the final 10 degree of opening until full open is complete. (There is no need for a learning cycle as the open position is already pre-set during installation).
- After the pre-set open time is complete, the door will begin to close at the set closing speed, until the final 10 degree of closing, when the door will slow for the final 10 degree of closing until the full latch position.

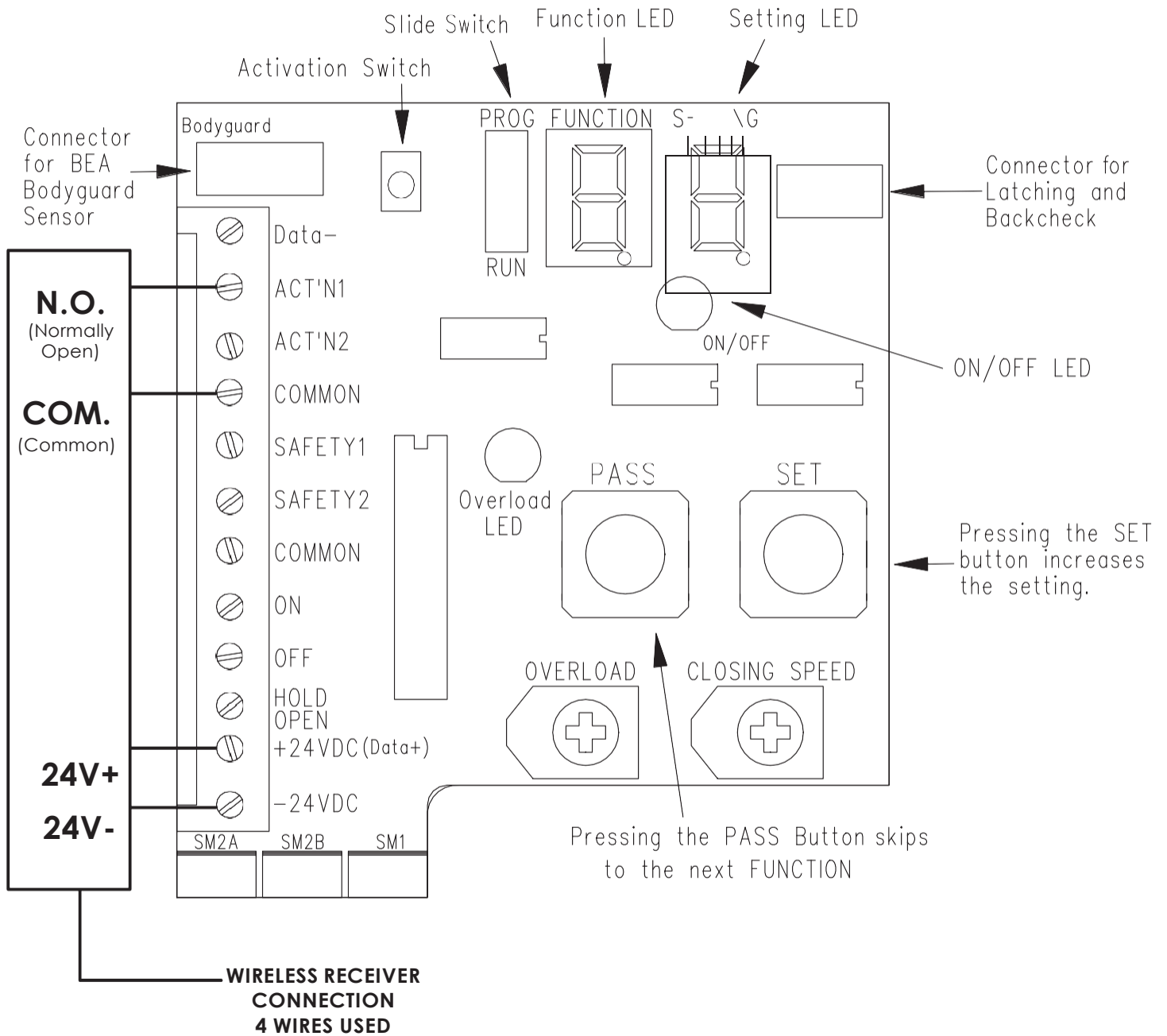
Hold Open Mode (II)

- This mode sets to hold the door open automatically for an extended length of time.
- No activation or safety sensor signals will be active in this mode as the door is stationary in the open position. The door will remain held open continually by a pulsed signal to the motor without overheating.
- To close the door, move the switch to either Automatic (I) or OFF (O) position, and the door will close smoothly and gently to the full closed position.

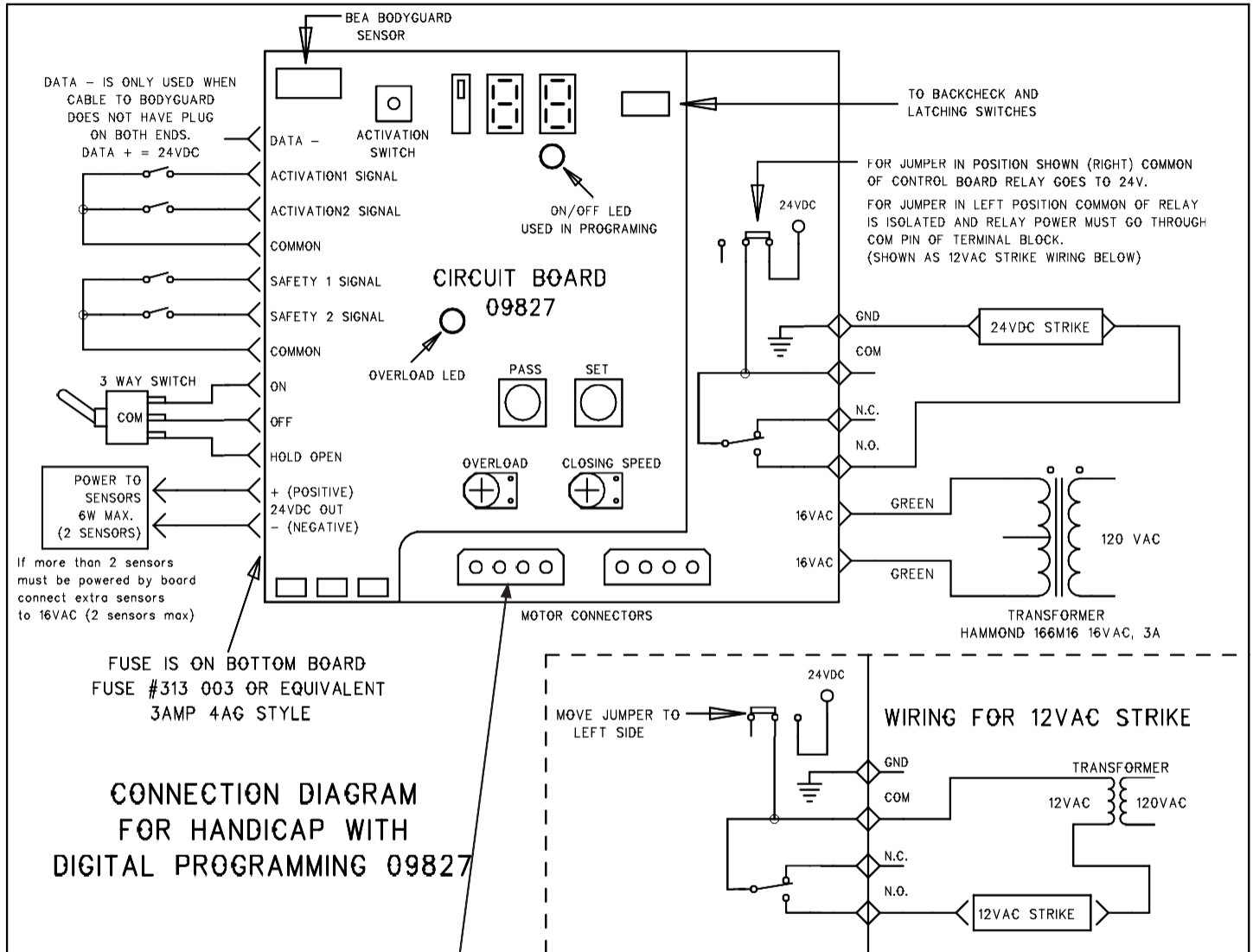
OFF (Manual) Mode (O)

- This mode sets to deactivate all opening signals, and the door is opening and closing manually.
- No activation signals or safety sensor signals (if equipped) will be active in this mode as the door is stationary in the closed position.
- Power will remain ON and supplied to the unit, however all signals will be ignored. The door can be opened easily with minimum force.

7.1 Digital Board Diagram



7.2 Digital Board Wiring



Low Profile motor
Always plugs in here



A Switch or Jumper must be wired from the ON terminal to the OFF terminal for Programming to work! This is only needed if there is no switch on the board.

7.3 Digital Board Specification

INPUTS

	LINE VOLTAGE		TRANSFORMER (Hammond)
AC VOLTAGE	120VAC 60Hz	Low Energy	#166N24 – 24VAC – 4AMP
			#166M16 – 16VAC – 3AMP
	240VAC 50Hz	Low Energy	#266N24 – 24VAC – 4AMP
			#266M16 - 16VAC – 3AMP

ACTIVATION 1 (ACT'N1)	<ul style="list-style-type: none"> - First input to open the door. Instant Activation (i.e. pushbuttons) - ON = Closed contact to ground/common. - See Function A", Setting A1" for description of alternate operation
ACTIVATION 2 (ACT'N2)	<ul style="list-style-type: none"> - Second input to open the door. Delayed activation. - ON = Closed contact to ground/common. - See Function A", Setting A1" for description of alternate operation.
SAFETY 1	<ul style="list-style-type: none"> - For Safety1 ON door will not open if presently fully closed and door will not close if presently fully opened - ON = Closed contact to ground/common. (i.e. overhead presence sensors [bodyguard])
SAFETY 2	<ul style="list-style-type: none"> - For Safety2 ON and ACT'N1 input ON door will drive at hold speed. If ACT'N1 input OFF, door closes. If Safety2 OFF, door will open. - ON = Closed contact to ground/common. (i.e. Door mounted sensor on swing side [Superscan])

OUTPUTS

MOTOR	- 2 motor connectors to drive door in either clockwise or counter clockwise direction.
DATA- and DATA+	- Interface with BEA Bodyguard sensor. (replaces LO-21K lockoutrelay)

8.1 Programming Specification (Digital Board)



- To make changes to the program setting, set 3-position switch to Automatic (I).
- Product will not operate when Slide Switch is set to Program mode.

There are two 7 SEGMENT LED DISPLAYS used for programming:

Function LED = Programmed Function

Setting LED = Value of the Function indicate on First digit

There are 3 switches that relate to programming:

Slide switch	RUN	Function settings can be viewed but Not modified.
	PROG (Program)	Function settings can be modified. As a safety feature, THE DOOR WILL NOT OPEN WHEN THE SLIDE SWITCH IS SET TO PROG.

PASS push button To select the next function

SET push button To change the present function value (when the Slide switch is in PROGRAM mode).

Adjusting Settings – Slide Program/Run Switch to:

- 1 PROGRAM MODE- Functions can be modified.
- 2 RUN MODE- Function settings can be viewed but not modified.

Programming:

- 1 Move PROG/RUN Switch to 'PROGRAM'
- 2 Press PASS Button to scroll through Functions
- 3 Press SET Button to change present function value
- 4 Move PROG/RUN Switch to 'RUN' when adjustment is complete
- 5 Press Activation to test.



OVERLOAD (Opening Torque Adjustment)

Overload is the Torque Adjustment setting for the amount of pressure with which the door pushes against an obstruction, before cutting OFF for safety.

Overload POT - Basic Setting Position for a Standard Door.

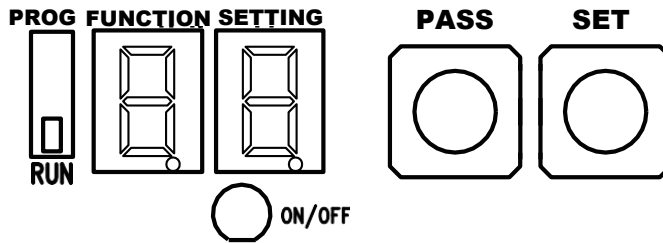
- 1 Turn Overload pot fully counter-clockwise – followed by ¼ turn clockwise.
- 2 Red Overload LED should not go 'on' when opening.
- 3 Test with obstruction – door will cut power after about 2 sec and close by spring pressure.

8.0 CONTROL BOARD PROGRAMMING

FUNCTION LED	SETTING LED	FUNCTION DESCRIPTION	F.A. & H.C. DEFAULT SETTING
0	0 to F 0 = slowest F = fastest	OPENING SPEED	A
1	0 to 5 0 = slowest 5 = fastest	BACK CHECK SPEED	1
2	0 to 5 0 = slowest 5 = fastest	LATCH SPEED	5
3	0 to 9 0 = slowest 9 = fastest	HOLD SPEED	2
4	1 = 2 sec 6 = 12 sec b = 22 sec 2 = 4 sec 7 = 14 sec C = 24 sec 3 = 6 sec 8 = 16 sec d = 26 sec 4 = 8 sec 9 = 18 sec E = 28 sec 5 = 10 sec A = 20 sec F = 30 sec	ACTIVATION TIME The time that the door remains open, starting when the activation trigger goes OFF. 2 to 30 sec	4
5	0 = 2 sec 4 = 10 sec 1 = 4 sec 5 = 12 sec 2 = 6 sec 6 = 14 sec 3 = 8 sec 7 = 16 sec	DELAY ON OPERATE The time delay before operating the door, starting when ACT'N2 trigger goes ON. 2 to 16 sec This is valid when Setting A1 has the LED OFF.	1
6	0 = Instant trigger - extremely sensitive 1 = 1/8 sec - very sensitive 2 = 1/4 sec 3 = 3/8 sec - mid range sensitivity 4 = 1/2 sec 5 = 5/8 sec - not sensitive	PUSH AND GO SENSITIVITY The amount of time that a Push and Go trigger must be sensed before the door is triggered. A longer time makes the door less sensitive to a Push and Go.	3
7	1 = 1 sec 6 = 6 sec b = 12 sec 2 = 2 sec 7 = 7 sec C = 14 sec 3 = 3 sec 8 = 8 sec d = 15 sec 4 = 4 sec 9 = 9 sec E = 25 sec 5 = 5 sec A = 10 sec F = 30 sec	PUSH AND GO ACTIVATION TIME The time that the door remains open starting when the Push and Go input is triggered.	5
8	0 = 0sec 1 = .50sec 2 = 1.00sec 3 = 1.50sec 4 = 2.00sec	SAFETY 1 INHIBIT The time that a Safety1 input is ignored (inhibited), starting when the door goes into Latch.	0
9	0 = 0.125sec 1 = 0.25sec 2 = 0.50sec 3 = 1.00sec 4 = 1.50sec 5 = 2.00sec	STRIKE DELAY The time between Strike ON and door starting to open. HA board ONLY	0

8.0 CONTROL BOARD PROGRAMMING

CODE INDICATION		ON/OFF LED = ON	ON/OFF = OFF	DEFAULT SETTING
FUNCTION LED	SETTING LED			
A	0	Safety 2 OFF at Back Check	Safety 2 always active	LED OFF
A	1	ACT'N1 is connected to push button and always opens the door. ACT'N2 is connected to the door and is only active after ACT'N1 is pressed and before the door closes and gets to the Latch point.	ACT'N1 Instant activation ACT'N2 A delayed activation (<i>delay time programmed through Function A5</i>)	LED OFF ACT'N1 instant ACT'N2 = delayed activation
A	2	Lockout ON – during closing Safety1 is active, if door stops moving (i.e. from hitting an obstruction). Safety1 is NOT active, if door is moving	Lockout OFF Safety1 is always active	LED ON Lockout ON
A	3	Push and Go is active. It will only work with a door that DOES NOT have a clutch	Push and Go disabled	LED OFF Push and Go Disabled
A	4	Reading out numbers of door opening cycles	No readout	LED OFF No readout
		To obtain the number of opening cycles that the door has gone through, Press SET button while FUNCTION=A, SETTING= 4. Example: Readout of 3 2 (pause) 7 0 = 3,270 door cycles		
A	5	Safety1 sensor mounted on closing side of door	Safety1 sensor mounted overhead	LED OFF Safety1 mounted Overhead
A5 - LED OFF (Overhead Sensor)	Door Opening Door Fully Open Door Closing Door Fully Closed	- Safety1 sensor has no effect - Safety1 sensor ON = door will not close - A2 setting ON. Door moving = Safety1 has no effect (door will open) - A2 setting ON. Door stopped, Safety1 ON = door will not open - A2 setting OFF. Safety1 ON = door will not open - Safety1 sensor ON = door will not open		
A5 - LED ON (Door mounted Sensor)	Door Opening Door Fully Open Door Closing Door Fully Closed	- Safety1 sensor has no effect - Safety1 sensor ON = door will not close - Safety1 sensor ON = door drives at HOLD speed - Safety1 sensor has no effect		



8.0 CONTROL BOARD PROGRAMMING

CODE INDICATION		ON/OFF LED = ON	ON/OFF = OFF	DEFAULT SETTING
FUNCTION LED	SETTING LED			
A	6	Safety1 sensor is a Normally Closed input (N.C.)	Safety1 sensor is Normally Open input (N.O.)	LED OFF – Safety1 is Normally Open
A	7	Safety2 independent of Act'n1 Safety2 is ON = door holds Safety2 is OFF = door opens	Safety2 works with Act'n1 Safety2 & Act'n1 both ON = door holds If Safety2 is OFF = door opens If Act'n1 is OFF = door closes.	LED OFF Safety2 works with Act'n1.
A	8	Only for Fire door mode in California. Manually pulling the door closed while it is fully open will close the door ignoring all activation triggers including Hold Open. Turning to OFF will reset this mode.	Door will not shut when manually pulled closed	LED OFF
A	9	Safety monitoring ON for SM1. This monitors SAFETY1 input. See safety monitoring wiring and notes	Safety Monitoring OFF for SM1	LED OFF – No safety monitoring
A	A	Safety monitoring ON for SM2A. This monitors SAFETY2 input. See safety monitoring wiring and notes	Safety Monitoring OFF for SM2A	LED OFF – No safety monitoring



When setting up A8, it is important to follow the steps below:

1. Turn the overload all the way down (counter clock wise for Analog Potentiometer)
2. Make sure Back Check speed is slow enough that it will not trigger the overload while the door is fully open.

RESET TO DEFAULT SETTING - Pressing both SET and PASS buttons for 5 seconds

8.0 CONTROL BOARD PROGRAMMING

8.2 Safety Monitoring

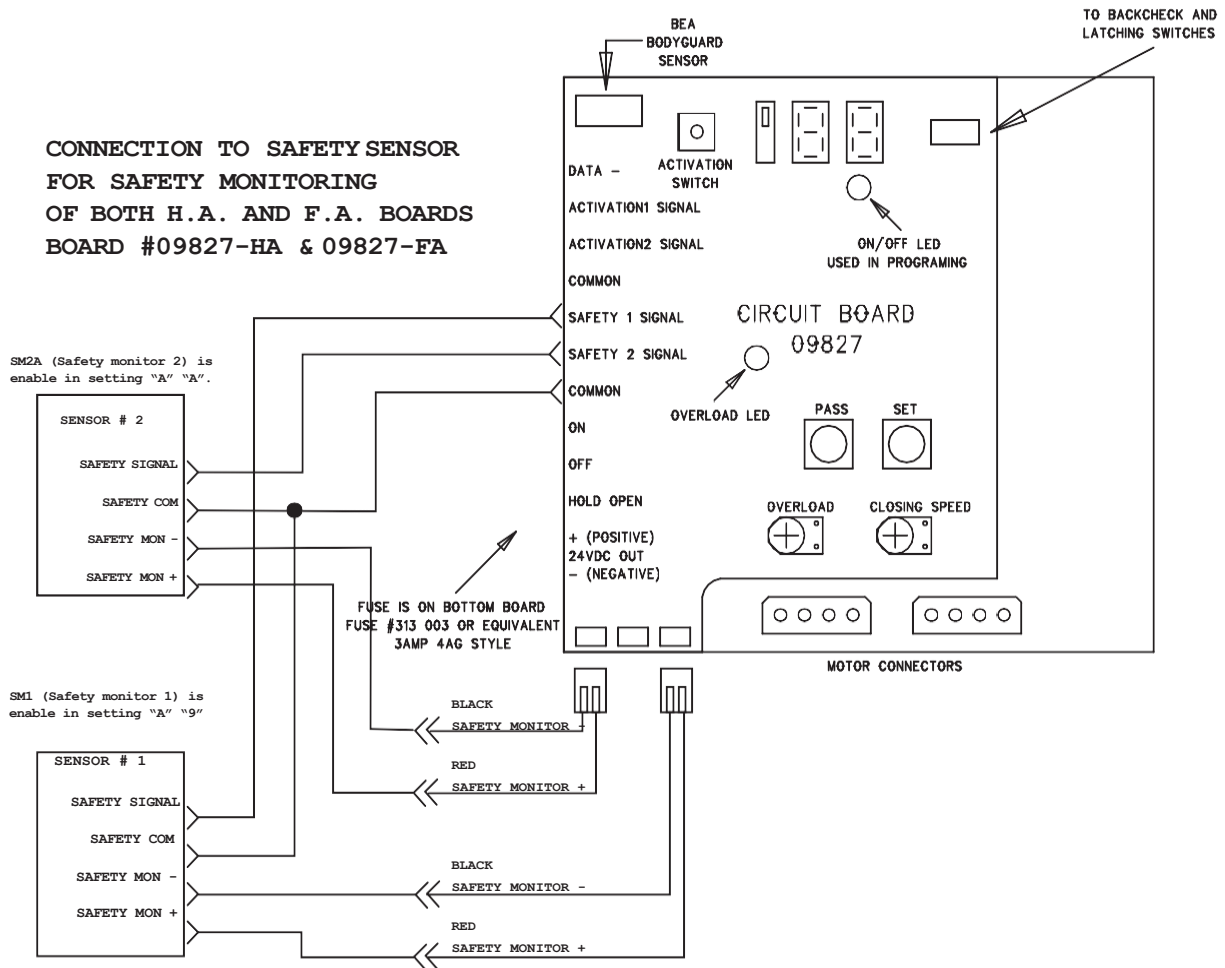
When Safety Monitoring is enabled the 09827 control board communicates with the safety sensor before every dangerous movement of the door to ensure that the Safety inputs are functioning correctly and all wires are in place. That is, before the door is opened and before the door is closed there is communication between the 09827 and safety sensor.



- A failed communication before opening will prevent the door from opening.
- A failed communication before closing will prevent the door from closing.
- For any failed communication the Overload LED will flash.

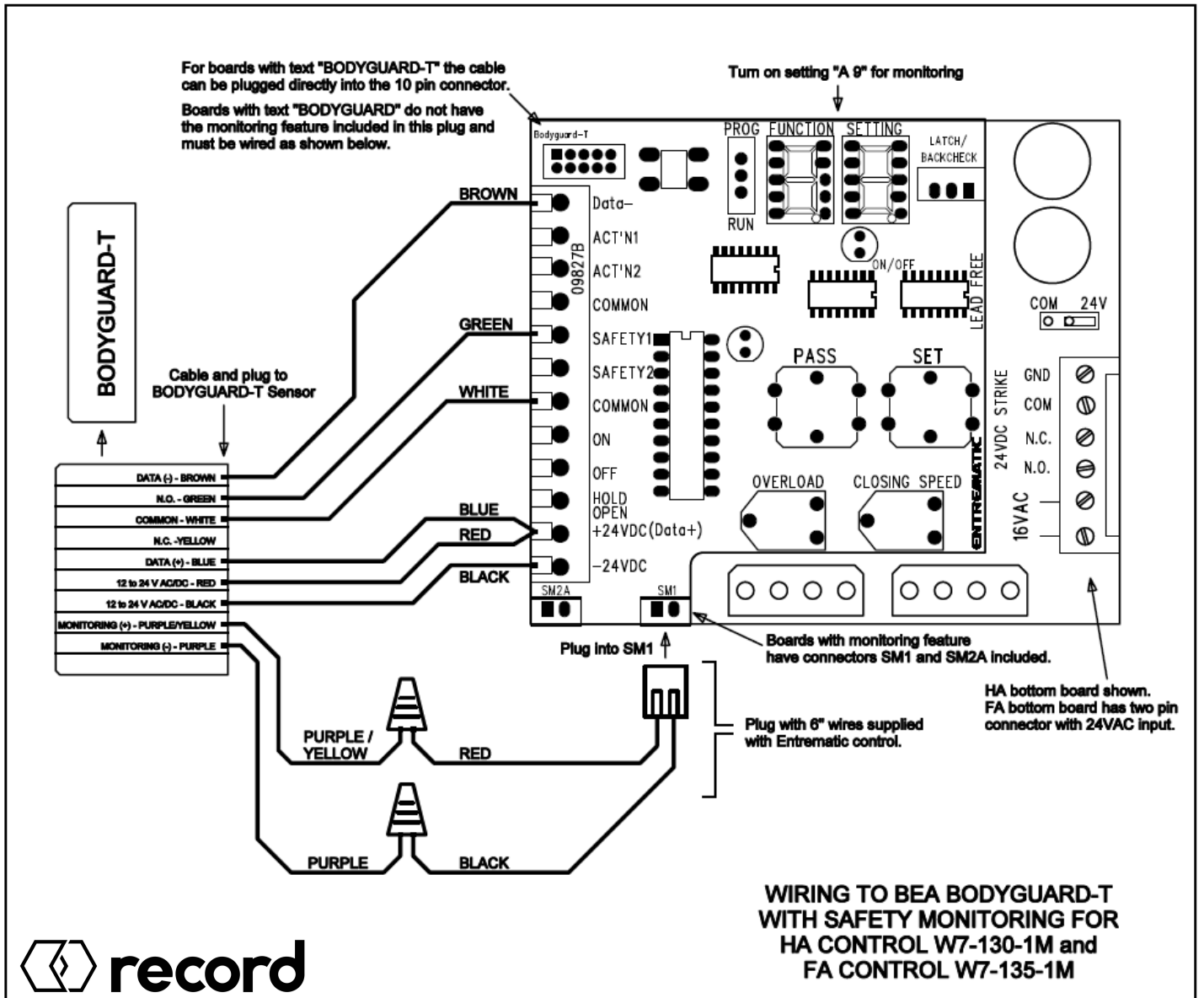
SETUP

- 1 Wire safety sensor to board as per wiring diagram below.
- 2 If not already done, enable for safety monitoring. For BEA sensors this must be done with the remote control.
- 3 Check to see that door opens.
- 4 In order to ensure that the safety monitoring setup has been done properly unplug the SM1 and/or SM2A connectors separately to see that the door does not open when triggered. (Overload LED will flash 1/3sec). Plug these connectors back into the board once this test is complete.



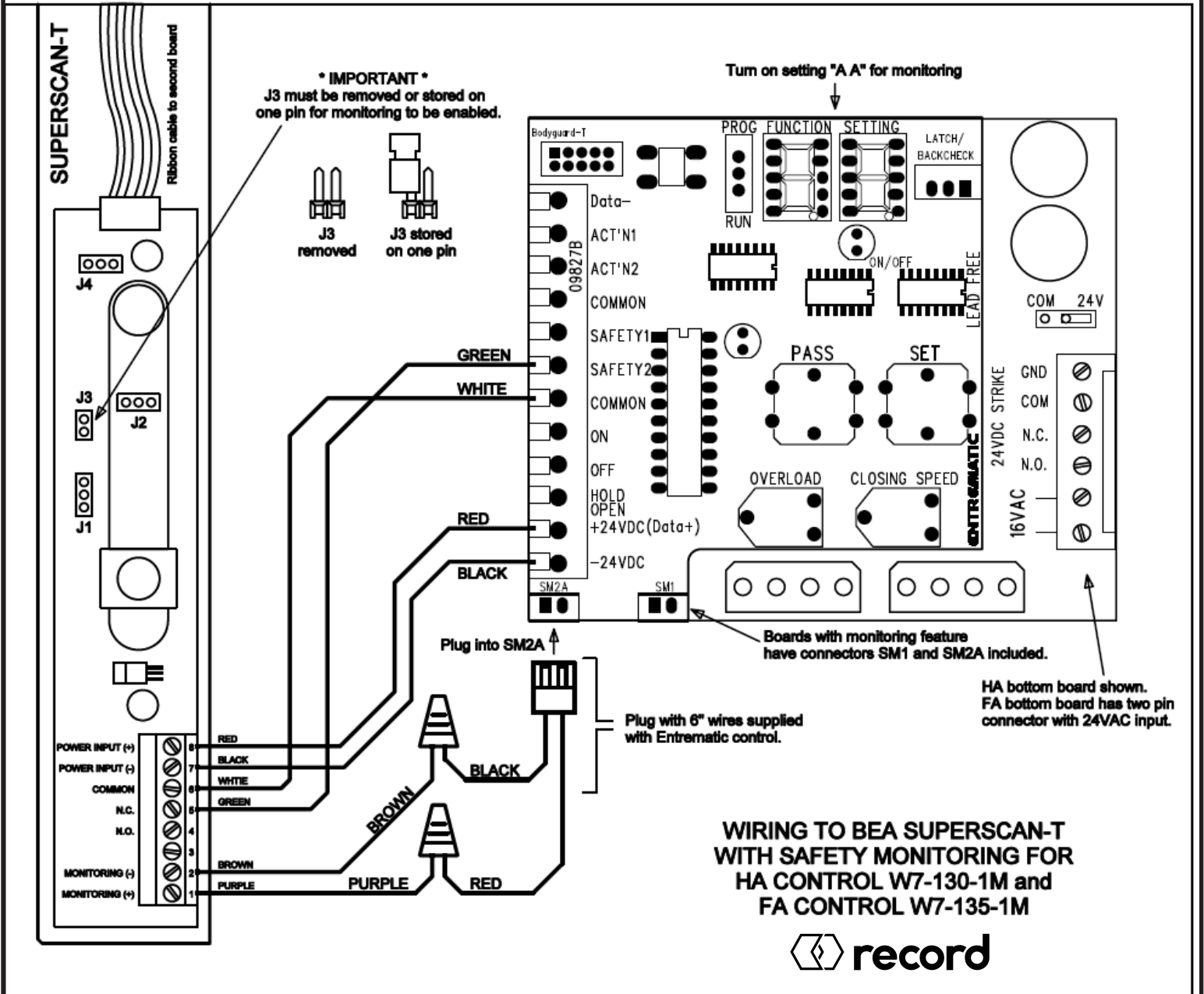
8.0 CONTROL BOARD PROGRAMMING

8.3 Safety Sensor Connection - BEA Bodyguard



8.0 CONTROL BOARD PROGRAMMING

8.4 Safety Sensor Connection - BEA Superscan



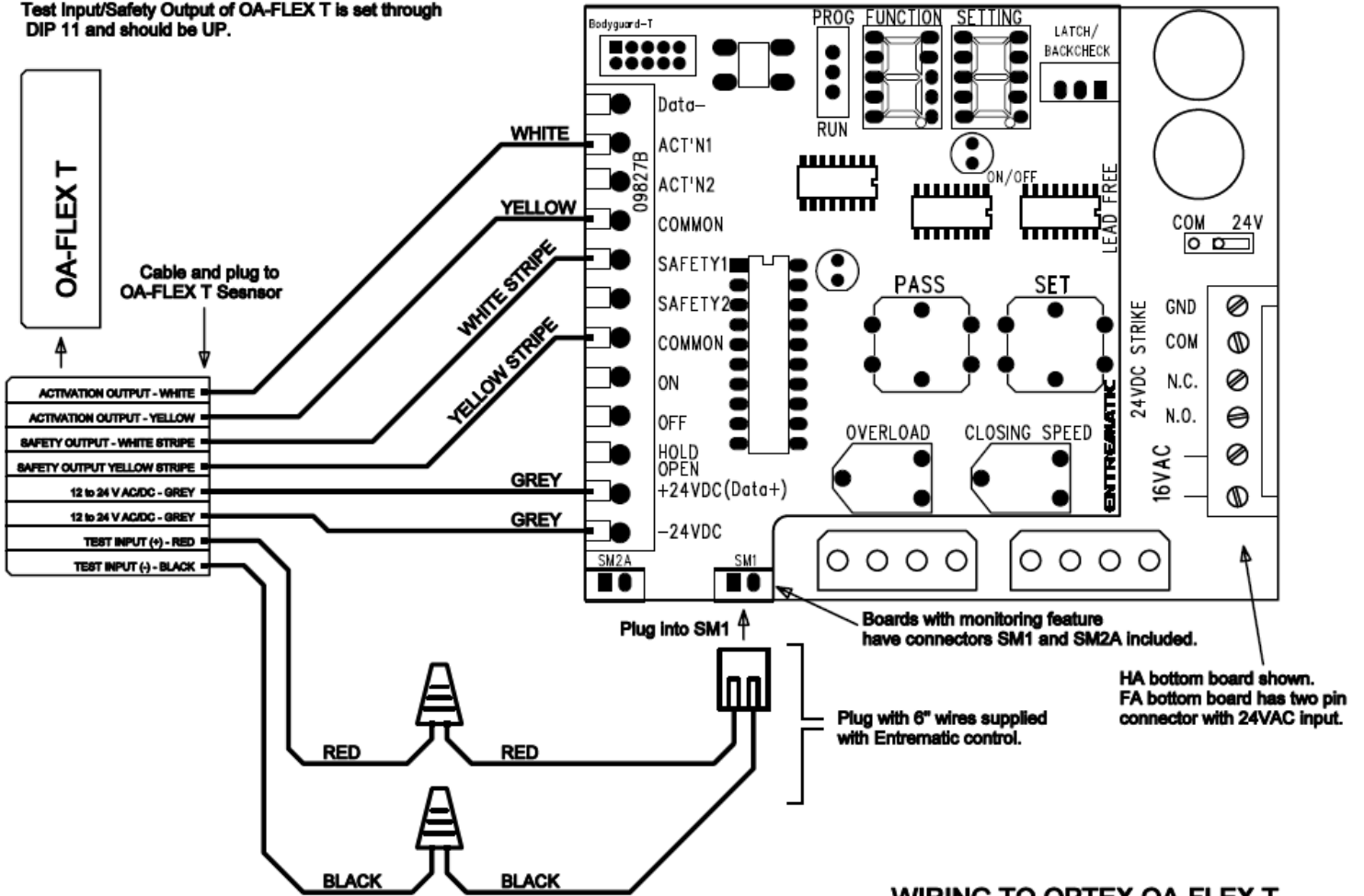
8.0 CONTROL BOARD PROGRAMMING

8.5 Safety Sensor Connection - Optex OA-FLEX

IMPORTANT NOTE:

For safety monitoring Test Input/Safety Output of OA-FLEX T must be set to Low. Test Input/Safety Output of OA-FLEX T is set through DIP 11 and should be UP.

Turn on setting "A 9" for monitoring



WIRING TO OPTEX OA-FLEX T WITH SAFETY MONITORING FOR HA CONTROL W7-130-1M and FA CONTROL W7-135-1M



9.1 Dual Door Digital Board Specification (Fully Automatic only)

INPUTS

AC VOLTAGE	LINE VOLTAGE	TRANSFORMER (Hammond)
	120VAC 60Hz	#166N24 – 24VAC – 4AMP
	240VAC 50Hz	#266N24 – 24VAC – 4AMP

- ACTIVATION 1 (ACT=N1) - Single input for both doors. ON = Closed contact to ground/common.
- See setting C1 for operation description.
- ACTIVATION 2 (ACT=N2) - Single input for both doors. ON = Closed contact to ground/common.
- See setting C1 for operation description.
- SAFETY 1 - Single input for both doors. Closed contact to ground/common.
- For Safety1 ON (closed to ground) door will not open if presently fully closed and door will not close if presently fully opened.
- SAFETY 2 - Single input for both doors. Closed contact to ground/common.
- For Safety2 ON (closed to ground) and activation input ON (closed to ground) door will drive at hold speed. If activation input goes off door closes. If Safety2 goes off door will open.

OUTPUTS

- MOTOR - 2 motor connectors for each door (4 total).
- Doors can drive in clockwise or counter clockwise direction.
- DATA- and DATA+ - Interface with BEA Bodyguard sensor. (replaces LO-21K lockout relay)

OTHER FEATURES

- SAFETY MONITORING Safety Monitoring is turned OFF as a default. To turn Safety monitoring ON see programming settings C8, C9, CA, and CB. Connection diagram on next page shows sensors wired in safety monitoring configuration.
- CLOSING SPEED Adjustable by potentiometer. 1 potentiometer for each door
Power off does not affect closing speed
- BACK CHECK SWITCH 1 switch for each door (Magnet and Reed switch)
- LATCH SWITCH 1 switch for each door (Magnet and Reed switch)
- LOCKOUT Each door has separate lockout which is selectable via Setting C2
- OVERLOAD Each door has a non-adjustable overload.
- HOLD OPEN SWITCH A switch wired one side to the HOLD OPEN quick disconnect tab and the other side to the OFF quick disconnect tab will open both doors and keep them open until the switch is turned off. *
- ON SWITCH A switch wired one side to the ON quick disconnect tab and the other side to the OFF quick disconnect tab provides the door ON function. This switch, when open, disables the motors and all inputs but does NOT turn the board power off. *

* The Hold Open Switch and the ON Switch come wired to a single 3 position switch where the middle position gives Door OFF, one side provides Hold Open, and the last side provides Door ON or Automatic.

9.0 DUAL BOARD & PROGRAMMING

9.3 Programming Specification

FUNCTION LED	SETTING LED	FUNCTION DESCRIPTION	DEFAULT SETTING
0	0 to F 0 = slowest F = fastest	OPENING SPEED DOOR 1	A
1	0 to F 0 = slowest 5 = fastest	OPENING SPEED DOOR 2	A
2	0 to 5 0 = slowest 5 = fastest	BACK CHECK SPEED DOOR 1	2
3	0 to 5 0 = slowest 5 = fastest	BACK CHECK SPEED DOOR 2	2
4	0 to 5 0 = slowest 5 = fastest	LATCH SPEED DOOR 1	5
5	0 to 5 0 = slowest 5 = fastest	LATCH SPEED DOOR 2	5
6	0 to 5 0 = slowest 5 = fastest	HOLD SPEED DOOR 1	2
7	0 to 5 0 = slowest 5 = fastest	HOLD SPEED DOOR 2	2
8	1 = 1 sec 2 = 2 sec 3 = 3 sec 4 = 4 sec 5 = 5 sec 6 = 6 sec 7 = 7 sec 8 = 8 sec 9 = 9 sec A = 10 sec b = 12 sec C = 14 sec d = 15 sec E = 25 sec F = 30 sec	ACTIVATION TIME The time that the door remains open, starting when the activation trigger goes OFF. 1 to 30 sec	5
9	0 = 0.00 sec 1 = 0.50 sec 2 = 1.00 sec 3 = 1.50 sec 4 = 2.00 sec	SAFETY 1 INHIBIT The time that a Safety1 input is ignored (inhibited), starting when one of the doors go into Latch. 0 to 2 sec	0
A	0 = 0.00sec 1 = 0.25sec 2 = 0.50sec 3 = .075sec 4 = 1 sec 5 = 2 sec 6 = 3 sec 7 = 4 sec 8 = 5 sec	DELAY ON OPERATE DOOR 1 The time delay before operating door #1, starting when the activation # 2 trigger goes ON. 0 to 5sec Note that ACT=N1 input always provides an instant trigger while ACT=N2 input provides a delayed trigger.	0
b	0 = 0.00sec 1 = 0.25sec 2 = 0.50sec 3 = 0.75sec 4 = 1 sec 5 = 2 sec 6 = 3 sec 7 = 4 sec 8 = 5 sec	DELAY ON OPERATE DOOR 2 The time delay before operating door #2, starting when the activation # 2 trigger goes ON. 0 to 5sec. Note that ACT=N1 input always provides an instant trigger while ACT=N2 input provides a delayed trigger.	0
C	<i>Special Function selection - see next chart</i>		
D	0 = 0.00 sec 1 = 0.50 sec 2 = 1.00 sec 3 = 1.50 sec 4 = 2.00 sec	Delay on Closing One of the doors delays before closing for the chosen time. 0 to 2sec. Application Code AC4" states which door delays.	0

9.0 DUAL BOARD & PROGRAMMING

CODE INDICATION		LED 1 = ON	LED 1 = OFF	DEFAULT SETTING
FUNCTION LED	SETTING LED			
C	0	Safety 2 OFF at back check	Safety2 always active	LED OFF (Safety 2 always active)
C	1	ACT=N1 is connected to a push button switch and always opens the door. ACT=N2 is connected to the door and is only active after ACT=N1 is pressed and before the door closes and gets to the Latch point.	Activation input 1 (ACT=N1) works as an instant activation. Activation input 2 (ACT=N2) works as a delayed activation (delay time programmed through Function A5@.)	LED OFF ACT=N1 is instant; ACT=N2 is delayed activation
C	2	Lockout ON – during closing Safety1 is active if the door stops moving (from hitting an obstruction for example). If door is moving then Safety1 is NOT active.	Lockout OFF Safety1 is always active	LED ON (Lockout ON)
C	3	To obtain the number of opening cycles that the door has gone through press the set button while in the Function C, Setting 3 mode. Example: Readout of 3 2 (pause) 7 0 = 3,270 door cycles. The display will read - - at the end of readout		
C	4	Door 1 delays before closing for the amount of time setup in Function AD@	Door 2 delays before closing for the amount of time setup in Function AD@	LED ON (Door 1 delays)
C	5	Safety1 sensor mounted on closing side of door	Safety1 sensor mounted overhead	LED OFF – Safety1 mounted overhead
C5 - LED OFF (Overhead Sensor)		Door Opening - Safety1 sensor has no effect Door Fully Open - Safety1 sensor ON = door will not close Door Closing - C2 setting ON. Door moving = Safety1 has no effect (door will open) - C2 setting ON. Door stopped, Safety1 ON = door will not open - C2 setting OFF. Safety1 ON = door will not open Door fully closed - Safety1 sensor ON = door will not open		
C5 - LED ON (Door mounted Sensor)		Door Opening - Safety1 sensor has no effect Door Fully Open - Safety1 sensor ON = door will not close Door Closing - Safety1 sensor ON = door drives at HOLD speed Door fully closed - Safety1 sensor has no effect		

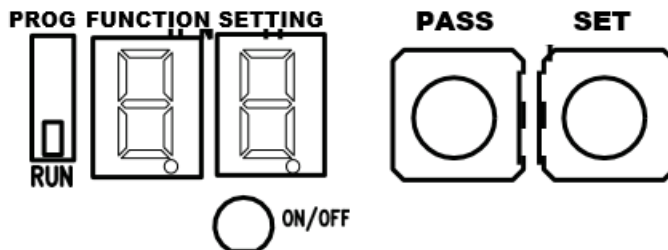
9.0 DUAL BOARD & PROGRAMMING

C	6	Safety1 sensor is a Normally Closed input (N.C.)	Safety1 sensor is a Normally Open input (N.O.)	LED OFF – Safety1 is Normally Open
C	7	Safety2 independent of Act'N1. Safety2 is ON = door holds Safety2 is OFF = door opens	Safety2 works with Act'N1. For Safety2 & Act'N1 both ON = door holds. If Safety2 goes OFF = door opens If Act'n1 goes OFF = door closes	LED OFF Safety2 works with Act'N1
C	8	SAFETY MONITOR 1 (MON 1) is ON Monitors SAFETY1 input	Safety Monitoring OFF for SM1	LED OFF – no safety monitoring
C	9	SAFETY MONITOR 2 (MON 2) is ON Monitors SAFETY1 input	Safety Monitoring OFF for SM2	LED OFF – no safety monitoring
C	A	SAFETY MONITOR 3 (MON 3) is ON Monitors SAFETY2 input	Safety Monitoring OFF for SM3	LED OFF – no safety monitoring
C	B	SAFETY MONITOR 4 (MON 4) is ON Monitors SAFETY2 input	Safety Monitoring OFF for SM4	LED OFF – no safety monitoring



A Switch or Jumper must be wired from the ON terminal to the OFF terminal for Programming to work!

RESET TO DEFAULT SETTING - Pressing both SET and PASS buttons for 5 seconds



10.0 TROUBLESHOOTING

PROBLEM	POSSIBLE
Programming function does not work	<ol style="list-style-type: none"> 1. Make sure ON/OFF switch is connected. A switch must be connected from ON terminal pin to OFF terminal pin for programming to work 2. Slide switch must be set to PROG for programming options to be modified
Door does not open after triggered	<ol style="list-style-type: none"> 1. Check power supply and is ON (7 segment LEDs will light up) 2. Slide switch should be set to RUN 3. Check which activation situation is selected. See setting A1 - If LED is ON for setting A1, ACT'N2 will only activate the door while it is closing and has not reached Latch 4. Check if ON/OFF switch is connected. A switch must be connected from ON terminal pin to the OFF terminal pin for the doors to open
Door does not open if triggered immediately after going into Latch	Increase the Safety1 inhibit time. See setting 8
Push and Go function does not work	<ol style="list-style-type: none"> 1. Only an operator WITHOUT a clutch will work for Push and Go Operators with a clutch cannot provide Push and Go 2. Check if Push and Go function enabled, See setting A3 3. Reduce Push and Go sensitivity, See setting 6
Door does not delay when triggered even when a delayed time has been set up	<ol style="list-style-type: none"> 1. See setting A1 - If LED is ON for program setting A1 this is a special activation situation and there is no delay 2. Only ACT'N 2 (Activation Trigger 2 input) will provide a delay on opening. ACT'N1 (Activation Trigger 1 input) and the push button on the board will ALWAYS give an instant trigger regardless of how the time delay has been set up
Door opens slowly	<ol style="list-style-type: none"> 1. Check to see if Back Check and Latching magnets are adjusted properly 2. Increase opening speed - Function 0
Door will not Open	<ol style="list-style-type: none"> 1. Make sure the door is unlocked and main power is on 2. Remove obstacle that could be causing the door not to open 3. Make sure 3 position switch is sets to Automatic
Door will not Close	<ol style="list-style-type: none"> 1. Remove any obstacle from in front of the door, which is activating the sensor (if equipped), thus keeping the door open 2. Make sure the 3 position switch is set to Automatic



If the problem persists, contact your authorized Record representative for service!

Low Energy Operator Adjustment to ANSI A156.19 standard

The following specifications are based on neutral air pressure conditions.

Opening Speed

Minimum opening time to back check or 80 degrees is 3 seconds or longer. Total opening time shall be 4 seconds or longer.

Closing speed

The minimum closing time to latch check depends on the size and weight of the door as follows:

Door Leaf Width - Inch(mm)	Up to 100 lbs (45kg)	Up to 140 lbs (64kg)
39 (914) & Less	2.0 sec	2.3 sec
Door Leaf Width - Inch(mm)	Up to 110 lbs (50kg)	Up to 150 lbs (68kg)
42 (1067)	2.3 sec	2.7 sec
Door Leaf Width - Inch(mm)	Up to 120 lbs (55 kg)	Up to 160 lbs (73kg)
48 (2119)	2.8 sec	3.2 sec

For doors of other weights and widths, use the formula below:

$$T = \frac{D \cdot \sqrt{W}}{188}$$

W = Weight of door (lbs)

D = Width of door (Inch)

T = Closing time to Latch Check (sec)

Latch check

The door must not close through the final 10 degrees in less than 1.5 seconds.

Adjustments for ADA (Americans with Disabilities Act)

Adjustments are provided for Opening speed, Back Check speed, Activation Time (Hold Open), Activation Delay, and Overload current with LED indicator.

Detection of an Overload

Current is persisting for longer than 2 seconds will cause the door to close. See below recommended procedure for adjustment of the control:

1. Turn the Overload (current) control fully clockwise to increase the current limit to maximum and prevent any detection entirely. This setting can be used to inhibit the overload detection / shutdown feature.
2. Adjust Opening speed as desired. Note that the control has a built in time reference of 4.0 seconds. Operation of the door will not be affected. However, if the door moves from close to Back Check in less than 4.0 seconds, the LED will flash as the door closes to indicate that the Opening speed may be a little fast.
3. Lock or obstruct the door and apply an Activation Trigger. Turn the Overload control counter clockwise until the LED becomes steadily illuminated, to indicate detection of excessive current. The control may be turned counter clockwise a little more to ensure positive detection. After 2 seconds the door will close.
4. Adjust the Activation Time (hold open) as desired, Minimum of 5 seconds.
5. Adjust the Activation Delay time as desired. This will depend on the distance of the activation devices to the door.

12.1 Additional Components: Sensor(s) / Knowing Act Devices

Safety Sensors

The control board can accommodate overhead and door mounted safety sensors. To permit safe passage through, the closing door will reverse (if equipped with door mounted safety sensor) to full open position, if an obstruction is encountered during the closing phase. If equipped with door monitor sensor, the operator will then resume its standard closing cycle and repeat when the obstruction remains.

- If equipped, the safety sensor on the closing side of the door will activate while the door is closing. The door will reverse to open.
- If equipped, the safety sensor on the opening side of the door is activated by another pedestrian while the door is opening, the door will stall until that pedestrian has left the opening area.
- If the door is equipped with an overhead safety sensor, the door will not open when there is an obstruction or pedestrian in the swing path.
- If the door is equipped with an overhead presence sensor in the closed position, the door will not open when there is an obstruction or pedestrian in the swing path.

Activation Devices

The HA8-LP Operator is compatible with all devices using a dry contact switch, usually hardwired or radio controlled. All activation signals should be wired to Activation 1 and Common. When a door is used in a vestibule the built-in sequence can be used to allow both doors to operate in sequence. This is achieved by wiring Activation 2 and common on both boards together. The delay at which the second door opens after the first door opens is set using Function 5 on the programming schedule, up to 5 sec delay is achievable.

Jamb mounted switches

It can be used but are not practical for individuals using a wheelchair because of their range of motion (positioning their wheelchair to clear the door opening). (See Section 1.5) In a vestibule entrance a switch must be installed in the vestibule space to prevent entrapment and the doors can be sequenced to ease the traffic flow and limit the time of both doors being open to outside weather conditions.

Push Plate or Knowing Act Devices

- Test the knowing act device. The door should swing smoothly to the open position and stop without impact. After a time delay (normally 1s to 5s) the door should close smoothly.
- Repeat on the other side of the opening if the door has two-way operation.
- If there is more than one push plate or Knowing Act Device on each side of the door, each should be tested.

Electric Strike

The HA8-LP Operator control board is capable of supplying power (24VDC, 6W or 250 mA) to the electric strike. The power is supplied from the board on an ADA unit. When the door is triggered a contact closure occurs across Ground and N.O. or N.C. to energize the strike. The contact closure is applied 200 msec. Before door activates and continues for 2 seconds after the door begins to open, the electric strike operation is achieved by connecting 24 VDC to strike in (terminal 4 to terminal 5 of the terminal block) and connecting the strike power wires to strike out (terminal 6) and ground (terminal 3). The strike has a delay function from 0.125 seconds - 2 seconds.

Analog board connection – strike out +ground, jumper between strike in + 24DC

Digital Board connection – N.O. + GND



Fully automatic boards do not support electric strike.

12.2 Header Cover Installation

After all adjustments have been finished, the face cover must be installed to the header box. There are 8 counter sunk screw locations on the underside of the face cover, the outside pairs, mount to the header box. The inside pairs thread into the drive unit mounts, take care starting the ¼ X 20 NC machine screws as the mounting brackets are mounted, allowing them to sometimes be slightly off-centre to the face cover holes.

12.3 Safety Decals

Install all safety, traffic control, and instruction decals to the door as required. This is very important. Failure to do this leaves the installer **LIABLE** for any accident that might occur. This must be done!

A summary of the ANSI standard A156.19 requirements for safety decals is as follows:

Each decal shall be mounted on the door at a height of 50 ± 12 " (1270 ± 305 mm) from the floor to the center line of the sign. The sign chosen will depend on the classification of the door operator.

Clean the area well before applying the decal. Remove the upper portion of the backing and roll the decal onto the door in a slow motion. Check to confirm the decal is straight. Use a flat edged soft spreader to smooth out the decal. Remove the lower backing from the decal and smooth out any airpockets.

After all adjustments have been finished, the face cover must be installed to the back plate by snapping cover into position.



WARNING!

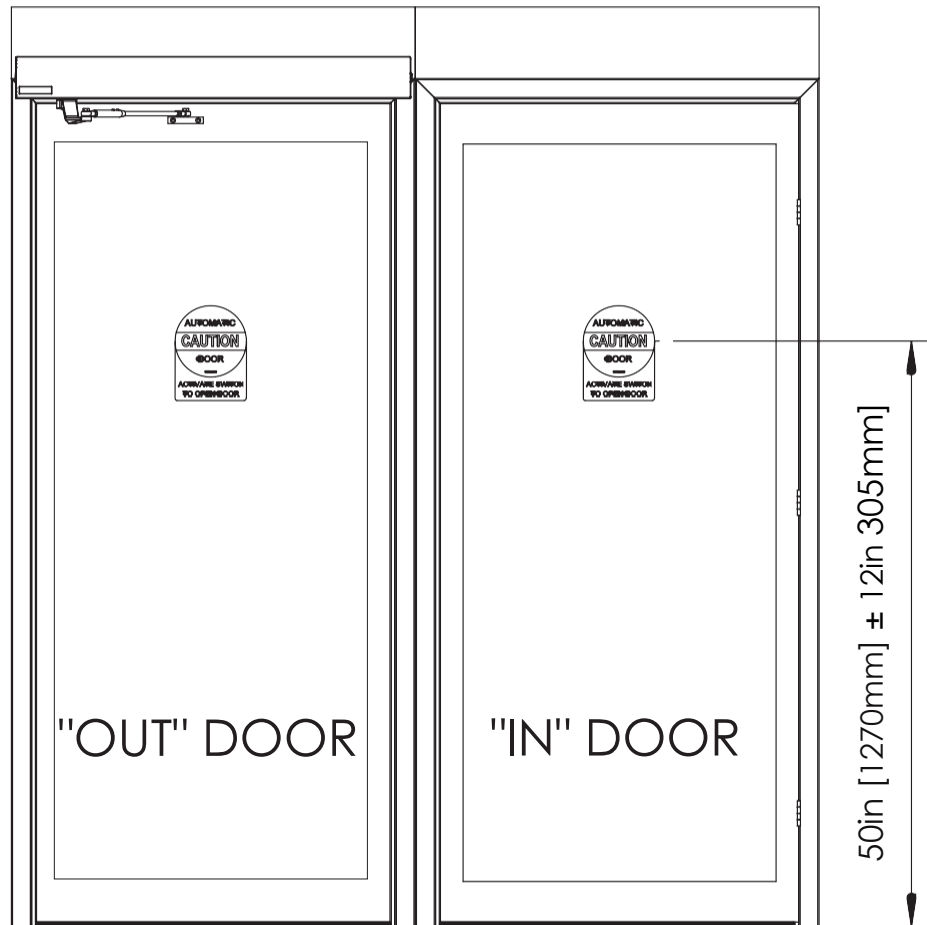
Before leaving the job site,

- **Clean up the work area**
- **Make sure all bolts are tight**
- **Clean glass**
- **Install safety decals**

Safety Sticker Placement Example

The center of the sticker height should be between 38" [965 mm] and 62" [1574 mm], above the finished floor.
See ANSI standard A156.19 requirements for additional safety decal information.

LOW ENERGY STICKERS
(ON BOTH INGRESS
& EGRESS SIDES)



Manufacturer and Shipping Address

Record Canada Inc.

221A Racco Parkway
Vaughan, ON
L4J8X9

Toll Free: 1-877-348-6837

Local: 905-886-8160

Fax: 905-886-7656

Email: info.ditec.ca@recorddoors.com

(formerly Entrematic)

Record USA Inc.

4324 Phil Hargett Ct
Monroe, NC 28110 USA
Toll Free: 1-866-901-4284

Local: 704-290-0980

Fax: 704-919-5014

Email: info.ditec.us@recorddoors.com

(formerly Entrematic)

Record Technical Service Department

Toll Free: 1-833-921-1337

Series Model: HA8-LP

HA8-LP Installation Manual Part# W5-640

Code & Standard

The operator complies with the following codes and standards:

- UL STD.325 & ANSI/BHMA STD. A156.19; Fire rated UL STD. 10 (b); UL STD. 10(c); NFPA STD. 252
- CAN/CSA STD. C22.2 NO. 247 & CAN/ULC STD. S104

All the rights concerning this material are the exclusive property of Record.

Although the contents of this publication have been drawn up with the greatest care, Record cannot be held responsible in any way for any damage caused by mistakes or omissions. We reserve the right to make changes without prior notice.

Copying, scanning or changing in any way is expressly forbidden unless authorized in writing by Record.



Record Canada Inc.
Toll Free: 1-877-348-6837
info.ditec.ca@recorddoors.com
www.recorddoors.ca

Record USA Inc.
Toll Free: 1-866-901-4284
info.ditec.us@recorddoors.com
www.recorddoors.com