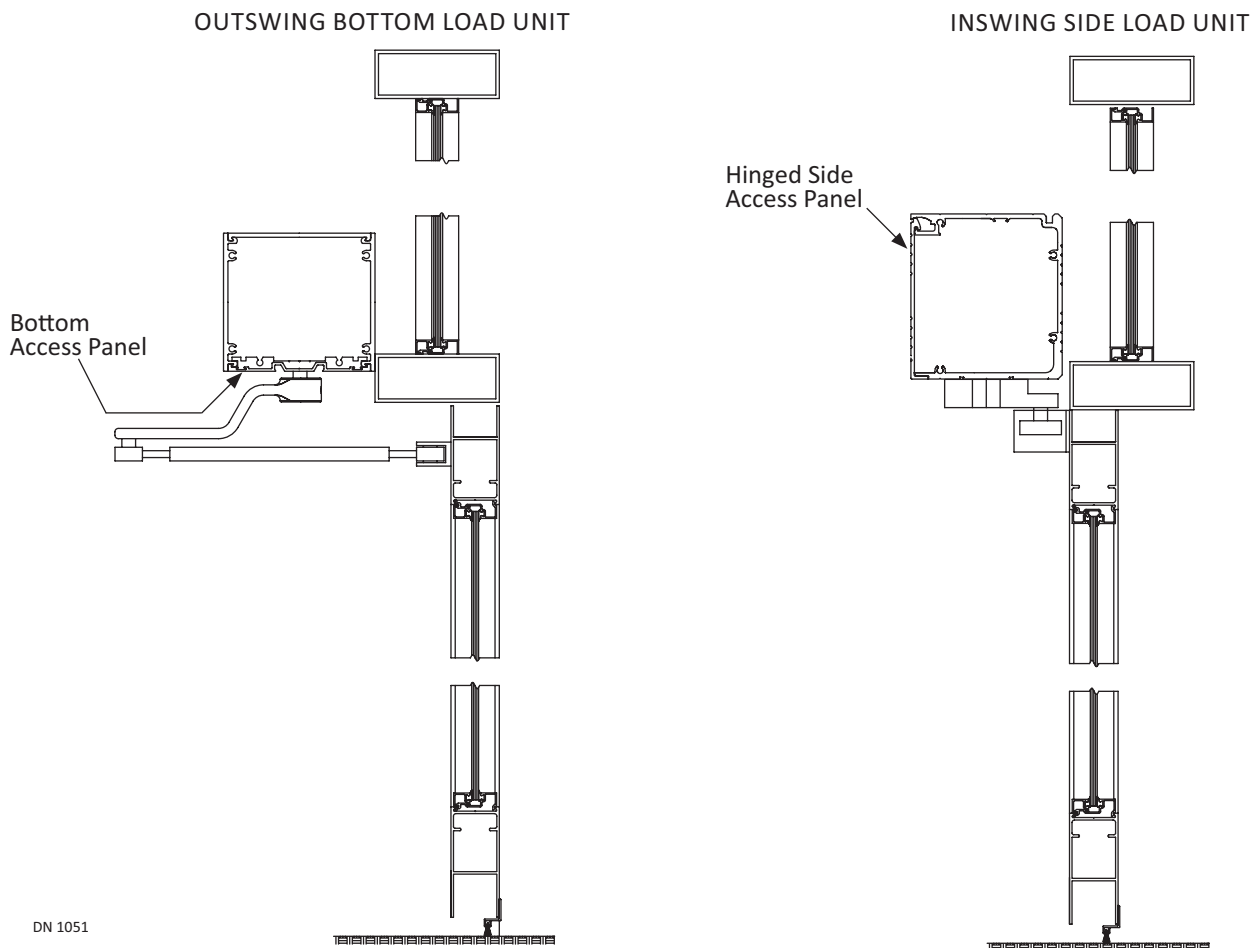




S82 W18717 Gemini Drive
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Technical Support: (866) 622-8325

Conversion Unit Hardware Installation Manual With Opus Control

Bottom Load Units: GT400 and GT500 and GT600
Side Load Units: GT8400 and GT8500 and GT8600



WARNING

- Turn OFF all power to the Automatic Door if a Safety System is not working.
- Instruct the Owner to keep all power turned OFF until corrective action can be achieved by a NABCO trained technician. Failure to follow these practices may result in serious consequences.
- NEVER leave a Door operating without all Safety detection systems operational.

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WARNING LABELS

Warning labels are universal and used to alert an individual of potential harm to one's self or to others. The following warning labels are listed in a hierarchy order that defines the most potential danger first, and the least potential danger last. Please refer to this page in the event that a warning label is displayed within this manual and further definition needs to be explained.

DANGER

Indicates potentially dangerous situations. Danger is used when there is a hazardous situation where there is a *high* probability of severe injury or death. It should not be considered for property damage unless personal injury risk is present.

WARNING

Indicates a hazardous situation which has *some* probability of severe injury. It should not be considered for property damage unless personal injury risk is present.

CAUTION

Indicates a hazardous situation which *may result in a minor injury*. Caution should not be used when there is a possibility of serious injury. Caution should not be considered for property damage accidents unless a personal injury risk is present.

Attention: A situation where material could be damaged or the function impaired.

Notice: Indicates a statement of company policy as the message relates to the personal safety or protection of property. Notice should not be used when there is a hazardous situation or personal risk.

Note: Indicates important information that provides further instruction.

GENERAL SAFETY RECOMMENDATIONS

WARNING

Read this “General Safety Recommendations” section before installing, operating or servicing the automatic door. Failure to follow these practices may result in serious consequences.

Notice: Read, study and understand the operating instructions contained in, or referenced in this manual before operating. If you do not understand the instruction, ask the installing qualified technician to teach you how to use the door.

WARNING

Do not install, operate or service this product unless you have read and understand the General Safety Recommendations, Warning Labels, Installation and Operating Instructions contained in this manual. Failure to do so may result in bodily injury, or property damage.

Notice: This manual and the owner’s manual must be given to and retained by the purchasing facility or end user.

- ▶ If the door appears broken or does not seem to work correctly, it should be immediately removed from service until repairs can be carried out or a qualified service technician is contacted for corrective action.
- ▶ Disconnect power at the fused disconnect during all electrical or mechanical service. When uncertain whether power supply is disconnected, always verify using a voltmeter.
- ▶ All electrical troubleshooting or service must be performed by qualified electrical technicians and must comply with all applicable governing agency codes.
- ▶ It is the responsibility of the installing door technician to install all warning and instructional labels in accordance with ANSI 156.10 and ANSI 156.19.
- ▶ It is the responsibility of the purchasing facility or end user to keep warning and instructional labels and literature legible, intact and with the door.
- ▶ Replacement labels and literature may be obtained from local NABCO Entrances, Inc. distributors. If the name of the local distributor is unknown, contact NABCO Entrances, Inc. at 1-877-622-2694 for assistance.

DANGER

Do not place finger or uninsulated tools inside the electrical controller. Touching wires or other parts inside the enclosure may cause electrical shock, serious injury or death.

CHAPTER 1: SCOPE

Section 1a: To the Installer

The purpose of this manual is to familiarize the installer and purchaser with the proper installation and operation of this system. It is essential that this equipment be properly installed and operational before the door is used by the public. It is the installer's responsibility to inspect the operation of the entrance system to be sure it complies with any applicable standards. In the United States, ANSI Standard 156.10 (Used to cover Full Energy doors) and ANSI Standard 156.19 (Used to cover Low Energy doors) apply. Other local standards or codes may apply. Use them in addition to the ANSI standards.

The owner should determine the door is operating properly and should immediately call for service if there is any malfunction. All installation changes and adjustments must be made by qualified, NABCO trained technicians.

If after troubleshooting a problem, a satisfactory solution cannot be achieved, please call Nabco Entrances at 1-877-622-2694 between 8 am – 4:30 pm Central time for additional assistance.

Section 1b: Objective

Swing Door Conversion Units are designed to be installed onto the top surface of the Door Frame. The Operator is controlled by the Opus Control (Standard) or by the Analog Control (Optional). Both Controls offer many features to accommodate most installation options. This manual offers step by step instructions.

CHAPTER 2: GETTING STARTED

Section 2a: Mechanical Configurations

Base Model	Conversion Unit Bottom Load	Conversion Unit Side Load
Full Power	GT 400	GT 8400
	GT 600	GT 8600
Low Energy	GT 500	GT 8500

Section 2b: Electrical Standards

Note: It is recommended for the Installer to use an Electrical Conduit to house all incoming 120 VAC wires.

Note: All wiring must conform to standard wiring practices and be in accordance with national and local electrical codes.

Electricity	Description	Current Consumption
Power Input	110VAC - 130 VAC, AC 50-60 Hz	3A (NABCO recommends min. 5A service)
Available Current for accessories	12 VDC	750mA
Available wire size for incoming power	14 AWG	-

Section 2c: Installation Specifications

Specification	Measurement	
Minimum Frame Face for Mounting	1-3/4 inches (44mm)	
Minimum Clearance from Top of Door to Ceiling	Bottom Load	Side Load
	6-1/8" (156 mm)	7-18" (181 mm)
Minimum Door Thickness	1-3/4 inches (44 mm)	
Door Width	Specified when ordered	

Section 2d: Base Unit Types

2.d.a: Full Energy Doors

- ▶ Utilize Sensor(s) to open a Swing door.
Sensors activate the Control by detecting motion of pedestrians (or moving objects) coming into range.
- ▶ Must be compliant with ANSI Standard Code 156.10 to reduce chance of injury to pedestrians and wheeled traffic.

2.d.b: Low Energy Doors

- ▶ Utilize a Knowing Act to open a Door.
A conscious effort that is carried out in many different ways, including (but not limited to): manually opening a Door; pressing various types of Push Plates; turning a Key switch; utilizing a keypad or card reader, etc.
- ▶ Must be compliant with the ANSI Standard Code 156.19 to reduce chance of injury to pedestrians and wheeled traffic.

TOTAL current draw from the Opus Control must not exceed 0.7A when providing power to:

- ▶ Sensors
- ▶ Modules
- ▶ Accessories
- ▶ Auxiliary Equipment

If *TOTAL* current draw exceeds 0.7A the installer must utilize an auxiliary power supply such as the NABCO Transformer 24 VAC, P/N A-01185.

Section 2e: Header Types

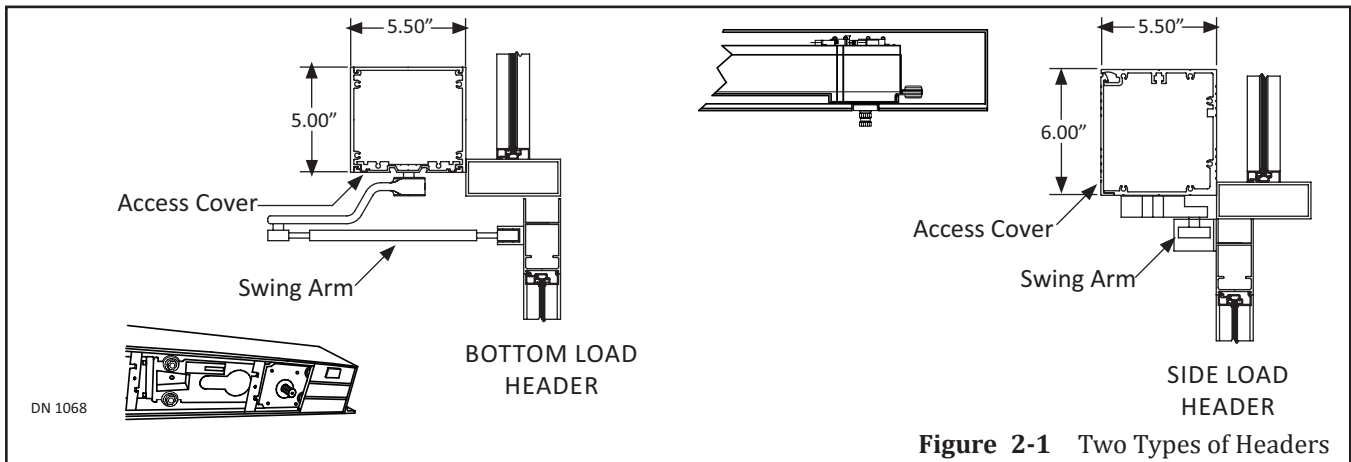
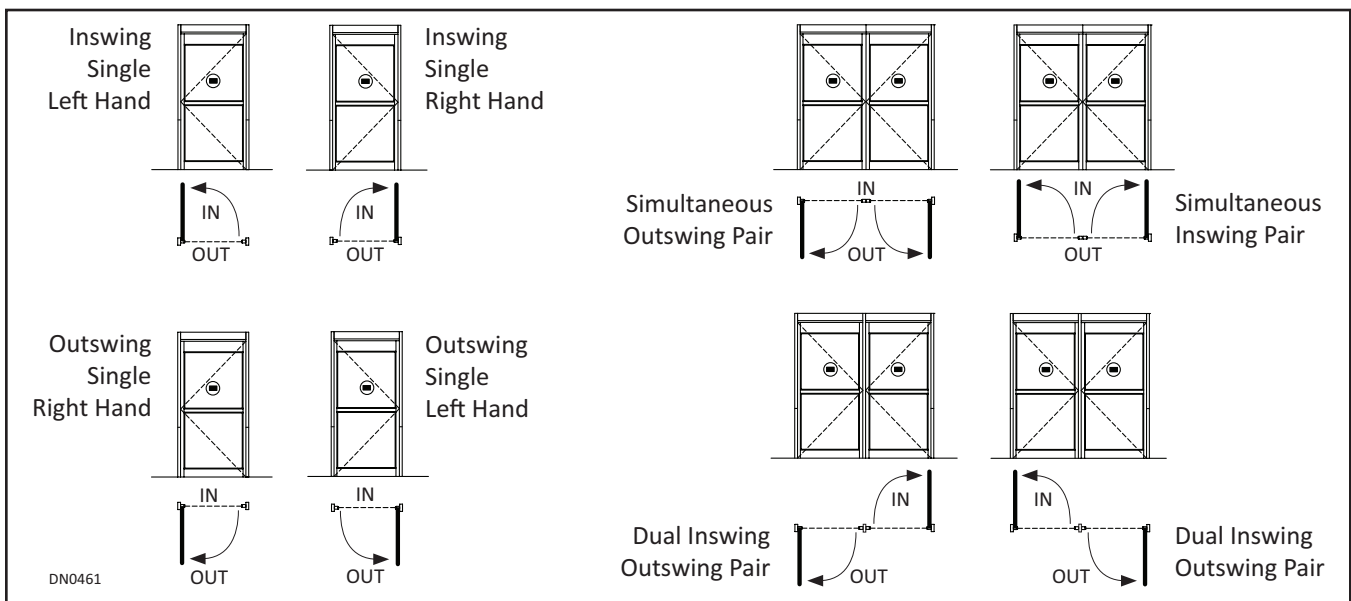


Figure 2-1 Two Types of Headers

Section 2f: Swing Door Types



DN0461

Section 2g: Control Types

The Control is programmed to open/close the Swing door according to how the door will be used in terms of Handing, Speed, Time Delay, Back Check, and Latch Check. Two types of Controls can be purchased for the CU Series Swing doors:

- ▶ Opus Control
- ▶ Analog Control

Section 2h: Associated Manuals Part Numbers

- ▶ Opus Control Wiring and Programming Manual; P/N 15-14973
- ▶ Analog Control Wiring and Adjustment Manual; P/N 15-10745
- ▶ GT400-500-600-8400-8500-8600 C.U. with Opus Control QSPG; P/N C-00174
- ▶ GT Swing Door Owner's Manual; P/N C-00110 (for Decal Installation)
- ▶ NABCO Price Book; P/N 16-9244-30 (for Sensors, Switches, and Accessories)

CHAPTER 3: INSTALL THE BOTTOM LOAD HEADER

FOR SIDE LOAD UNITS SKIP TO CHAPTER 5

Section 3a: Before Installing the Header

1. Open the Inswing door 90 degrees.
 - a. Outswing doors do not need to be measured.
2. Measure between the wall and the outside face of the Swing Door. Please see Figure 3-1.
 - a. There must be a 2 inch minimum gap. If there is less than a 2 inch gap, please call Customer Service at (877) 622-2694.

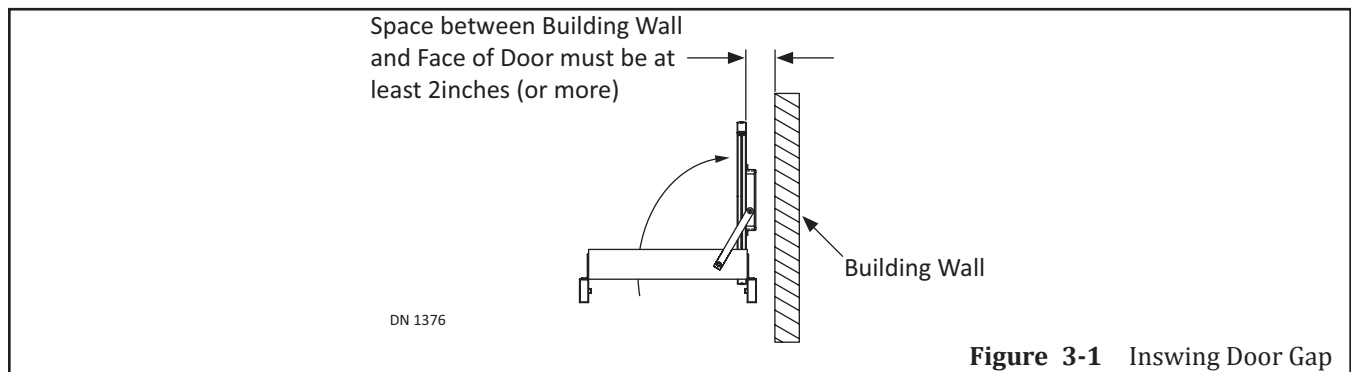


Figure 3-1 Inswing Door Gap

Section 3b: Prepare the Header

1. Place the Header on flat surface with Bottom facing up.
 - a. Protect Header from scratches.
2. Remove #10-24 x 3/4 inch screws and Dress Plate. Set aside. Please see Figure 3-2.
3. Mark the locations of each Lock Cover Plate to ensure it is reinstalled in the correct position.
4. Remove Lock Cover Plates. Set Aside.
5. Remove boxes and/or parts bags from inside Header. Set aside.

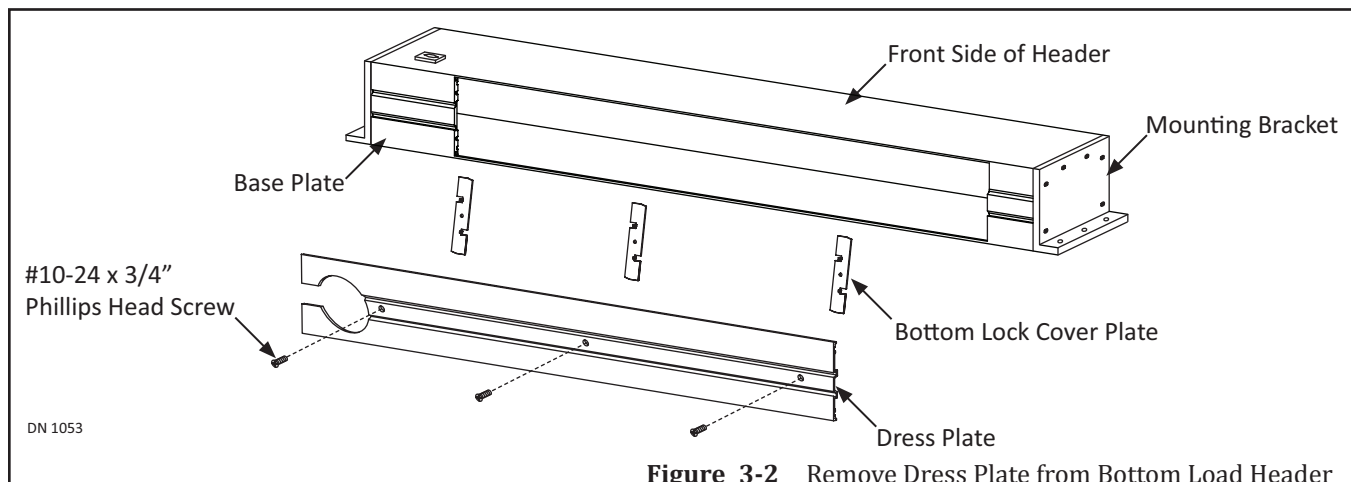


Figure 3-2 Remove Dress Plate from Bottom Load Header

3.c.b: Metal Door Frames

Note: The following instructions are for typical Metal Doors and Frame Profile. If the Door Frame is not Metal, ensure the Door Frame being used is of equal strength. It is recommended to use lag bolts.

Note: If the Door Frame is not properly reinforced nor anchored to the building surface, and/or is hollow, reinforce the Door Frame with 1/4-20 blind rivnuts (not provided by NABCO).

1. Go to the Pivot Side of Swing door. Measure up 1-1/8 inch from the Top of Door to the face of Door Frame.
2. Mark a Horizontal Line on the face of the Top door frame, at both ends. Please see Figure 3-3.

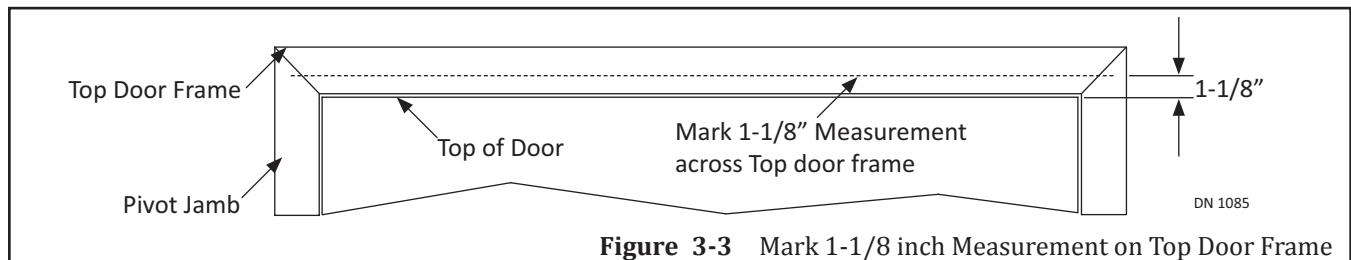


Figure 3-3 Mark 1-1/8 inch Measurement on Top Door Frame

3. Lift the Header up against the Top door frame until the bottom edge of Header is butted up against the Horizontal Lines. Please see Figure 3-4.
4. To ensure proper operation of the Swing Arm:
 - ▶ For a Door Jamb that is 1-3/4 inches wide, position the Pivot side of Header so it is flush to the outside edge of the Pivot Door Jamb.
 - ▶ For a Door Jamb that is wider than 1-3/4 inches, measure from the inner edge of the Pivot Door Jamb to the center. Mark a vertical line at the 1-3/4 inch measurement. The Pivot side of Header must butt against the 1-3/4 inch mark.

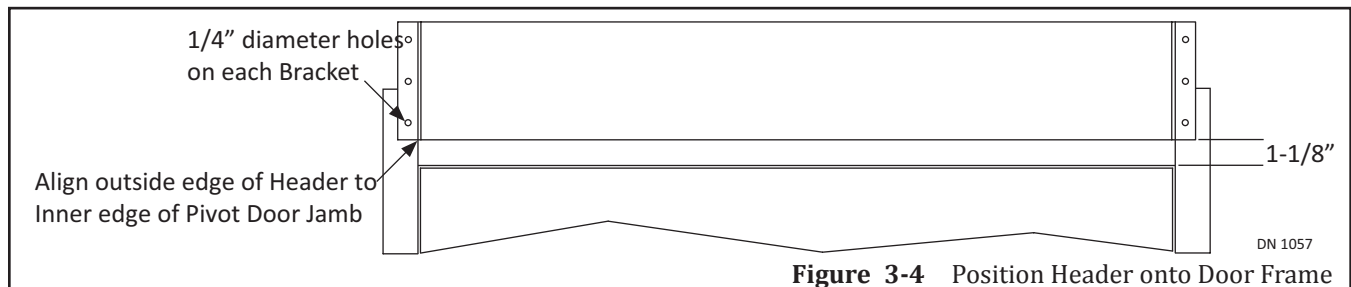


Figure 3-4 Position Header onto Door Frame

5. Ensure the Header is square and level. Use the Header as a template to mark screw holes onto the face of the door frame.
6. Remove the Header. Set Aside.

Section 3d: Secure the Header to the Door Frame

1. Lift up Header to insert Power Wiring through the 7/8 inch hole.
 - a. It is recommended to use a Conduit.
 - b. It is recommended to insert all other Wiring through a separate hole.
2. Butt the bottom edge of Header against the 1-1/8 inch Horizontal Line.
3. Line up the scw holes. Secure the Header to the Door Frame. Please see Figure 3-5.
 - a. It is recommended to use Lag Bolts.
 - b. For additional mounting, secure the Header to the Studs located behind the Shim.

CHAPTER 4: INSTALL BOTTOM LOAD COMPONENTS

FOR SIDE LOAD UNITS SKIP TO CHAPTER 5

Note: Location of Contents within Header are subject to change according to Swing door specifications.

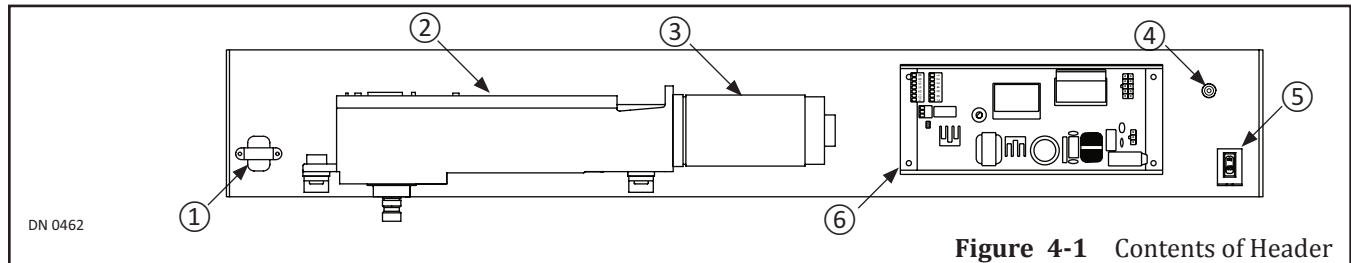


Figure 4-1 Contents of Header

- | | |
|---------------------------|------------------|
| 1. Transformer (Optional) | 4. Ground Screw |
| 2. Operator | 5. Rocker Switch |
| 3. Motor | 6. Control |

Section 4a: Secure Incoming Wires

1. Obtain (self sticking) white plastic Wire Clips provided by NABCO. Please see Figure 4-2.
2. Adhere each Wire Clip to sides of Header. Insert wiring (as deemed necessary).
 - a. 120 VAC Power wires must be routed separate from other wiring, adhere those Wire Clips inside the Header, near the top to prevent pinching.

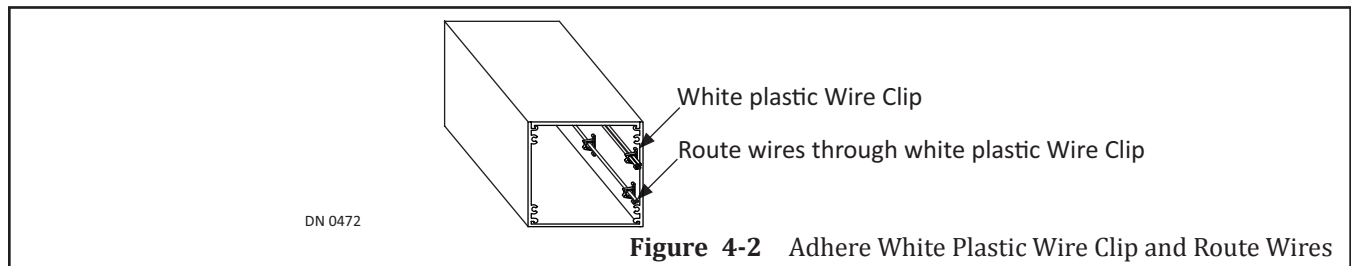


Figure 4-2 Adhere White Plastic Wire Clip and Route Wires

Section 4b: Install the Stop Ring

1. Place the Motor/Operator on a flat surface with the underside facing up.
2. Obtain the Stop Ring Assembly provided by NABCO.
3. Slide the Limit Stop onto the Spindle. Please see Figure 4-3.
4. Secure (4) Ring Stops onto the Limit Stop with 5/16-18 Socket Head screws. Do not fully tighten at this time.
5. Once the Swing Arm is fully installed and Pre-Load has been tested:
 1. Open the Swing door 90 degrees.
 2. Rotate the Limit Stop Spindle until it hits the Swing Arm.
 3. Tighten down (4) Ring Stops with 5/16-18 Socket Head screws.

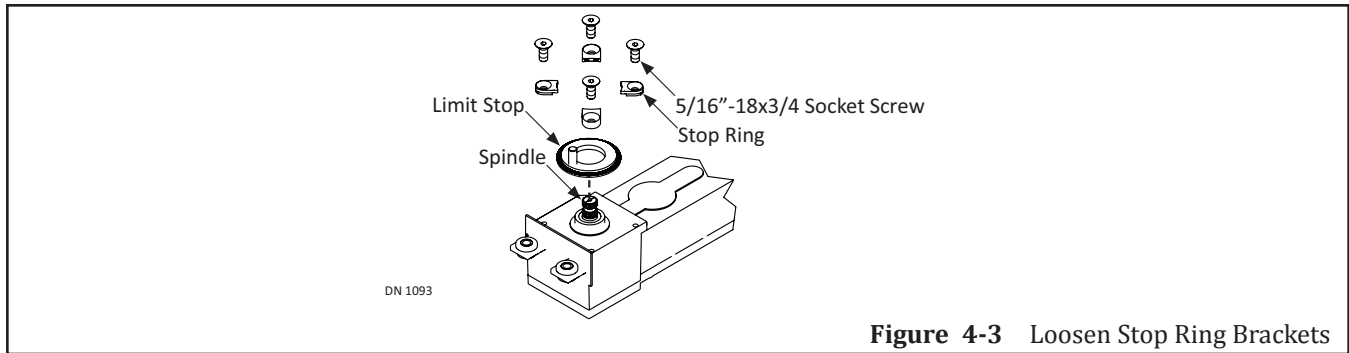


Figure 4-3 Loosen Stop Ring Brackets

Section 4c: Install the Motor/Operator

1. Go to Table 4-1 to determine the distance from the center of the Operator Spindle to the Center Pivot or the inside edge of the Pivot Door Jamb.

Table 4-1 Dimension "A" Spindle Location

Model	Bottom Load Units Pivot Type	Inswing				Outswing			
		With Fingerguard Spindle Loc.	No Fingerguard Base Plate	Spindle Loc.	Base Plate	With Fingerguard Spindle Loc.	No Fingerguard Base Plate	Spindle Loc.	Base Plate
GT 400	Butt/Offset	N/A	N/A	5"	2-1/2"	N/A	N/A	7-1/4"	4-3/4"
	Center Pivot	6"	3-1/2"	5"	2-1/2"	8-1/4"	5-3/4"	7-1/4"	4-3/4"
GT 500	Butt/Offset	N/A	N/A	5"	2-1/2"	N/A	N/A	5"	2-1/2"
	Center Pivot	6"	3-1/2"	5"	2-1/2"	6"	3-1/2"	5"	2-1/2"
GT 600	Butt/Offset	N/A	N/A	5"	2-1/2"	N/A	N/A	7-1/4"	4-3/4"
	Center Pivot	6"	3-1/2"	5"	2-1/2"	8-1/4"	5-3/4"	7-1/4"	4-3/4"

2. Mark that measurement onto the face of Swing Door. Please see Figure 4-4.

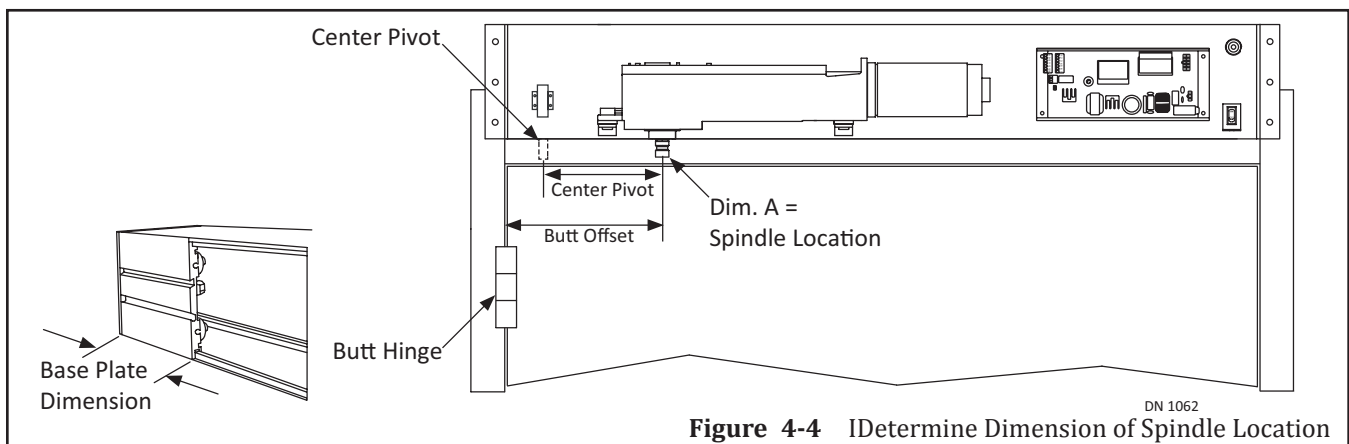


Figure 4-4 Determine Dimension of Spindle Location

3. Locate the factory installed Rear Mount Bracket at the top of Header.
4. With a 9/16 inch Deep Well Socket and Ratchet, remove (2) 3/8-16 inch Hex Jam Nuts and (2) 7/16 x 1 inch Washers from (2) Studs extending downward. Please see Figure 4-5.
5. Hold the Front end of Motor/Operator at an upward angle to slide Front Mount onto (2) Pivot Base Tabs located inside the Header.

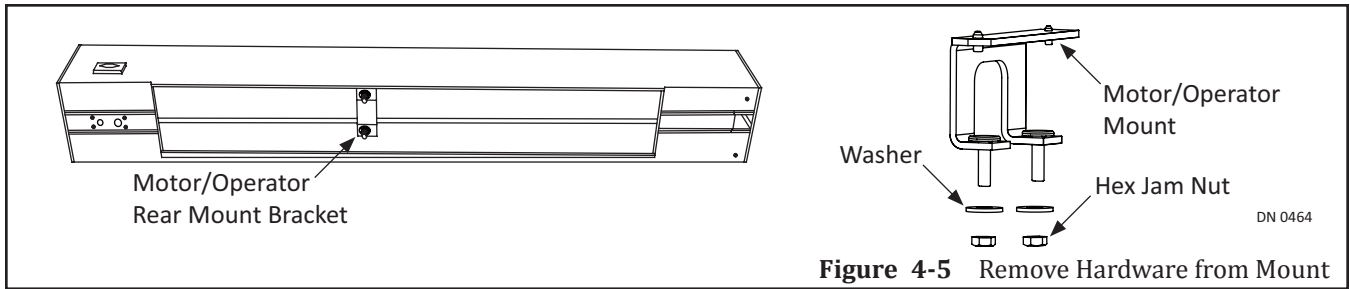


Figure 4-5 Remove Hardware from Mount

6. Lift the rear of the Motor Operator up onto (2) studs extending downward. Please see Figure 4-6.
 - a. Ensure the Switch Harness is tucked between the back wall of Header and above the Mounting Bracket.
7. Secure the Motor/Operator with (2) 3/8-16 inch Hex Jam Nuts and (2) 7/16 x 1 inch Washers.
 - a. It is important not to pinch any wiring during the Motor/Operator installation.

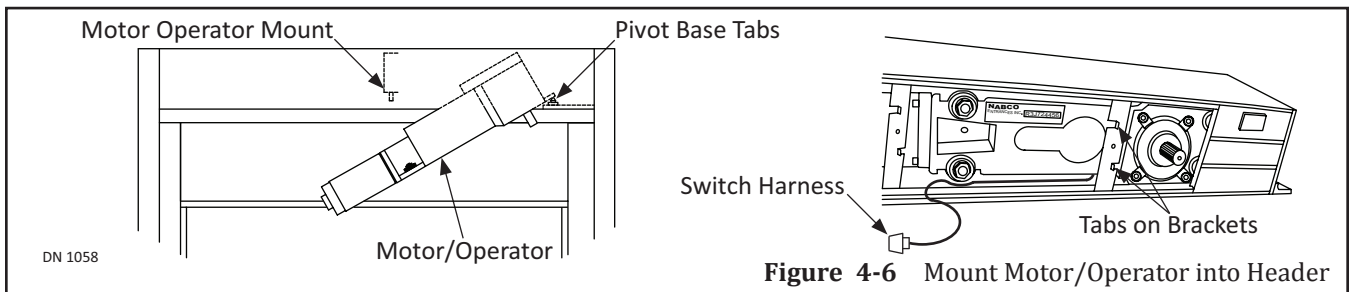


Figure 4-6 Mount Motor/Operator into Header

Section 4d: Install the Control

Note: It may be necessary to mount a Soft Starter Capacitor on the Operator prior to installing the Analog Control. For detailed information, please refer to the "Analog Control Wiring and Adjustment Manual; P/N 15-10745".

1. Obtain the Opus Control assembly.
2. Locate where the Opus Control needs to be installed within the Header.
3. Insert the Opus Control with the Mounting Bracket at a 90 degree angle (Control will approximately be at a 4 degree angle).
4. Rotate the Opus Control until each side of the Mounting Bracket slides into each Channel located at the top; inside Header.
5. Secure the Mounting Bracket to the Header by tightening (2) 10-24x.875 inch Socket Head Cap screws, until the tip butts against the inside wall of the Header.

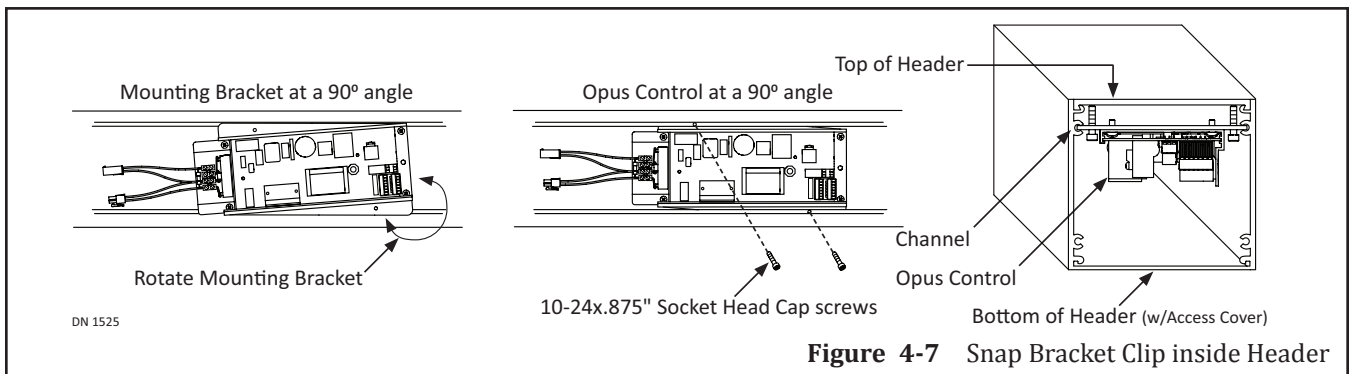


Figure 4-7 Snap Bracket Clip inside Header

CHAPTER 5: INSTALL THE SIDE LOAD HEADER

FOR BOTTOM LOAD UNITS SKIP TO CHAPTER 6

Section 5a: Before Installing the Header

1. Open the Inswing door 90 degrees. Outswing doors do not need to be measured.
2. Measure between the wall and the outside face of the Swing Door. Please see Figure 5-1.
 - a. There must be a 2 inch minimum gap. If there is less than a 2 inch gap, please call Customer Service at (877) 622-2694.

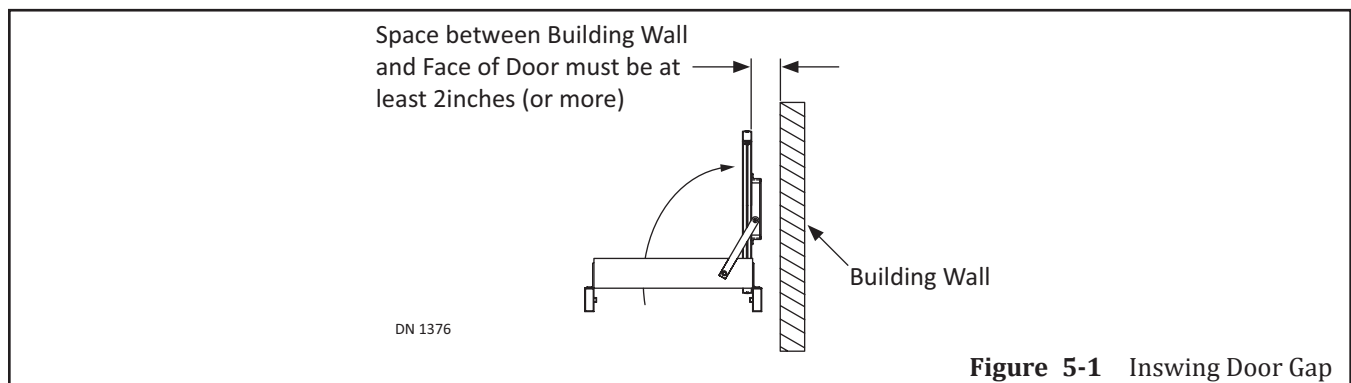


Figure 5-1 Inswing Door Gap

Section 5b: Drill Holes

1. Go to the Strike side of Header. Drill one 7/8 inch hole through the Header to allow all wiring to be drawn inside.
 - a. The Side Load Header can be ordered with a Knockout hole located at either end of the Header. For details, please call Customer Service at 1-888-679-3319.
2. Go to the back wall inside Header on the Pivot side.
3. Measure 1 inch from the End Cap towards the center of Header. Mark a Horizontal Line. Please see Figure 5-2.
4. Measure at least 1/2 inch from the bottom of Header towards the top. Mark a Vertical Line across the Horizontal line. This is the center of the first screw hole. Drill 1/4 inch screw hole.
5. Measure at least 1/2 inch from the top of Header towards the bottom. Mark (1) more Horizontal line across the Vertical line directly above the first screw hole. This is the center of the second screw hole. Drill 1/4 inch screw hole.
6. Go to the other End Cap. Repeat steps 3 thru 5.

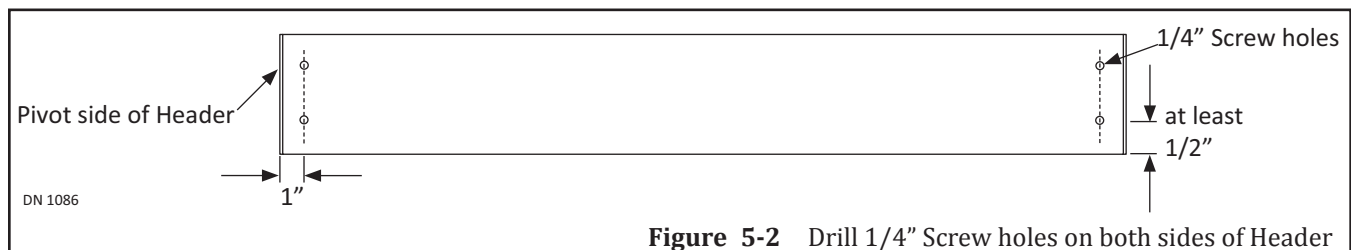


Figure 5-2 Drill 1/4" Screw holes on both sides of Header

Section 5c: Prepare the Door Frame

5.c.a: Non-Metal Door Frames

Note: If the Door Frame is not properly reinforced nor anchored to the building surface, and/or is hollow, reinforce the Door Frame with 1/4-20 blind rivnuts (not provided by NABCO).

Note: If the Door Frame is not Metal, ensure the Door Frame being used is of equal strength.

1. Go to the Pivot Side of Swing door. Measure up 1-1/8 inch from the Top of door to the face of Door Frame. Please see Figure 5-3.
2. Mark a Horizontal Line onto the face of the Top door frame, at both ends.

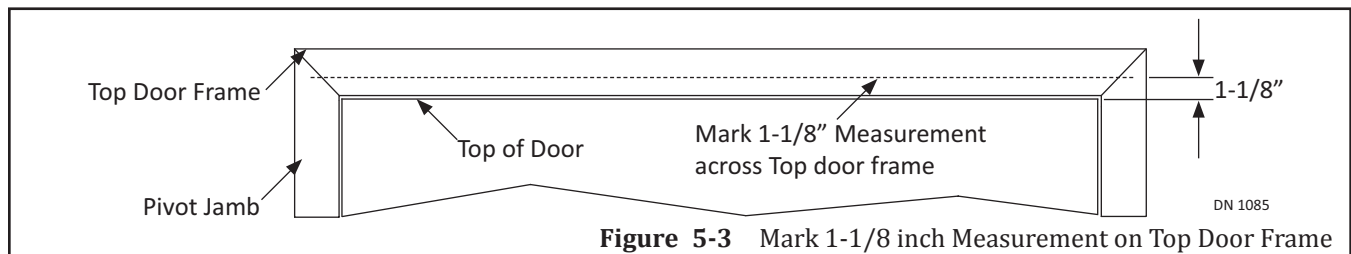


Figure 5-3 Mark 1-1/8 inch Measurement on Top Door Frame

3. Lift the Header up to butt the bottom edge of Header against the Horizontal Line, at both ends. Please see Figure 5-4.
4. To ensure proper operation of the Swing Arm:
 - ▶ For a Door Jamb that is 1-3/4 inches wide, position the Pivot side of Header so it is flush to the outside edge of the Pivot Door Jamb.
 - ▶ For a Door Jamb that is wider than 1-3/4 inches, measure from the inner edge of the Pivot Door Jamb to the center. Mark a vertical line at the 1-3/4 inch measurement. The Pivot side of Header must butt against the 1-3/4 inch mark.
5. Ensure the Header is square and level.
6. Use the Header as a template to mark screw holes onto the face of the door frame. Remove the Header. Set Aside.

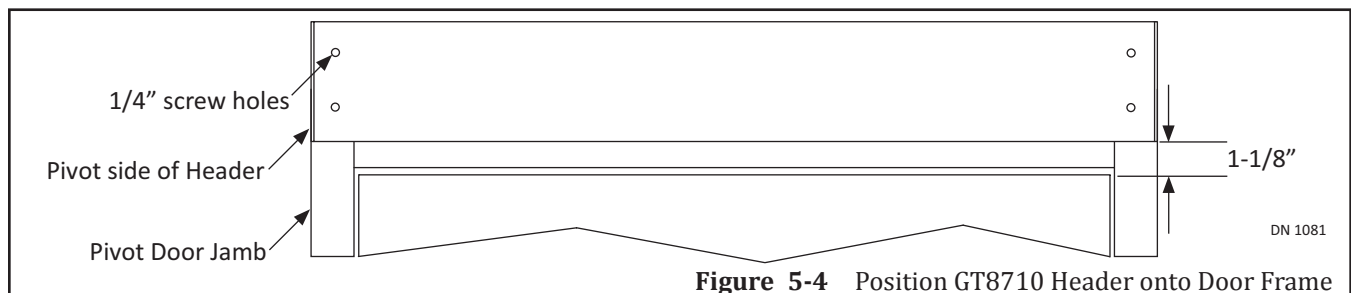
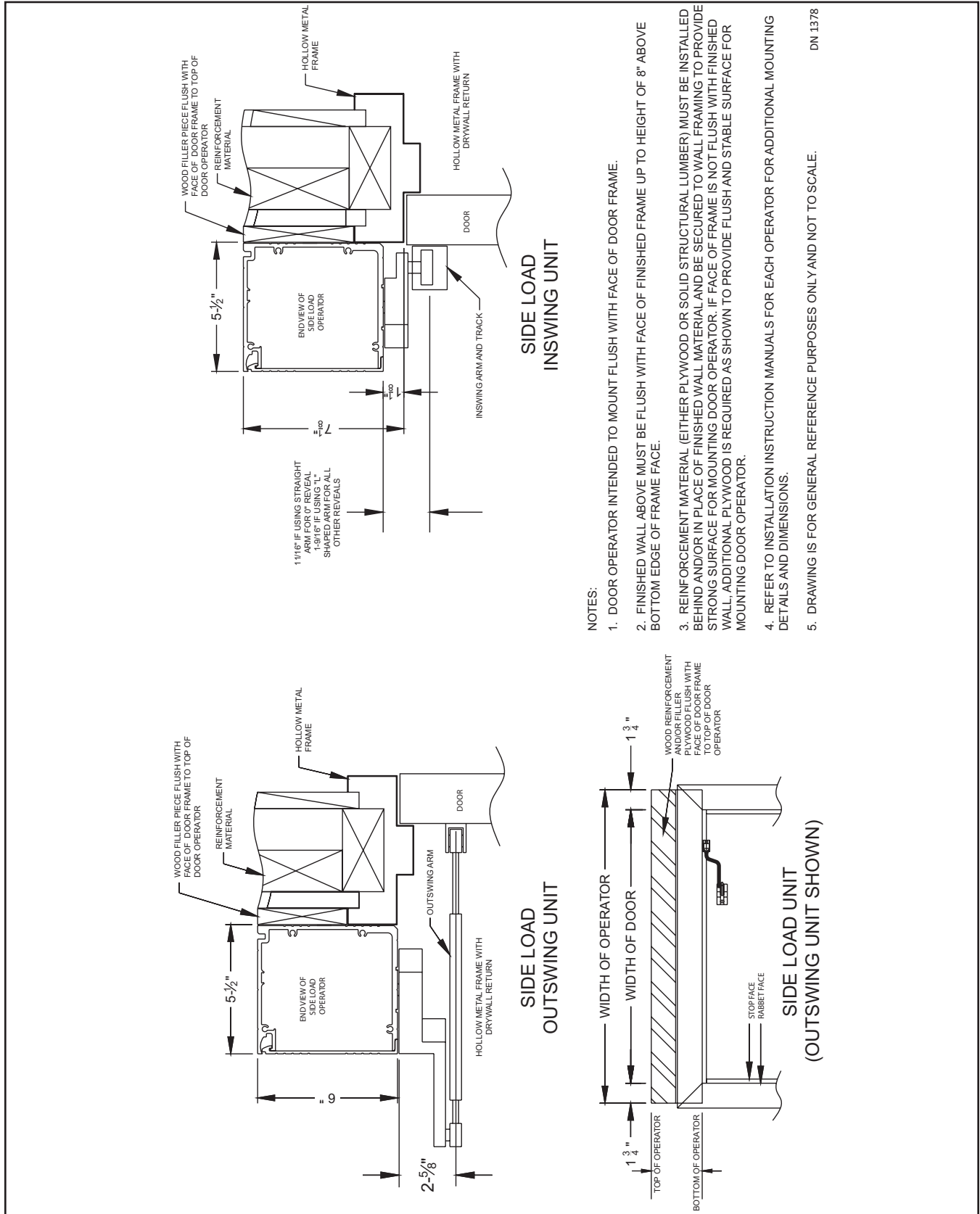


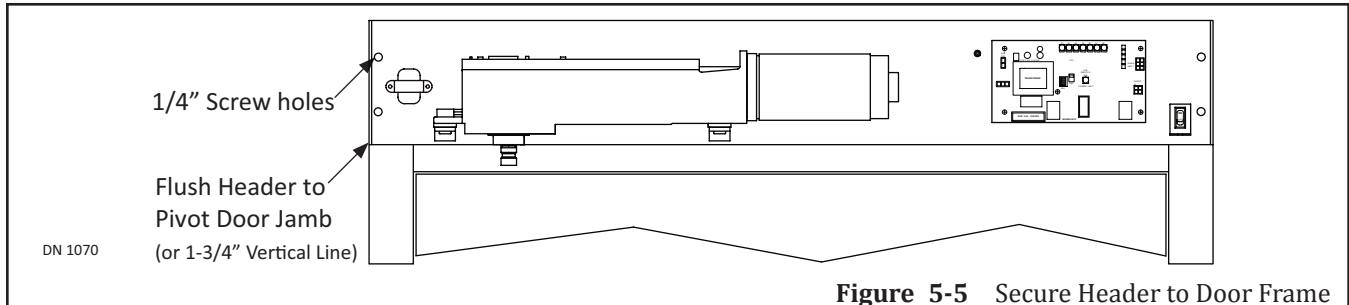
Figure 5-4 Position GT8710 Header onto Door Frame

5.c.b: Metal Door Frames



5.c.c: Secure the Header to the Door Frame

1. Lift up the Header to insert Power Wiring through the 7/8 inch hole.
 - a. It is recommended to use a Conduit.
 - b. It is recommended to insert all other Wiring through a separate hole.
2. Line up the screw holes. Secure the Header to the Door Frame. It is recommended to use Lag Bolts.
 - a. For additional mounting, secure the Header to the Studs located behind the Shim. It is recommended to use Lag Bolts.



CHAPTER 6: 120 VAC GENERAL WIRING

WARNING

Shut the installation site, branch Circuit Breaker OFF. Failure to do so may result in serious personal or fatal injury. When uncertain whether power supply is disconnected, always verify using a voltmeter.

WARNING

All high voltage electrical connections must be made by licensed electricians according to National and Local electrical codes/regulations.

CAUTION

Permanent wiring shall be employed as required by local codes.

CAUTION

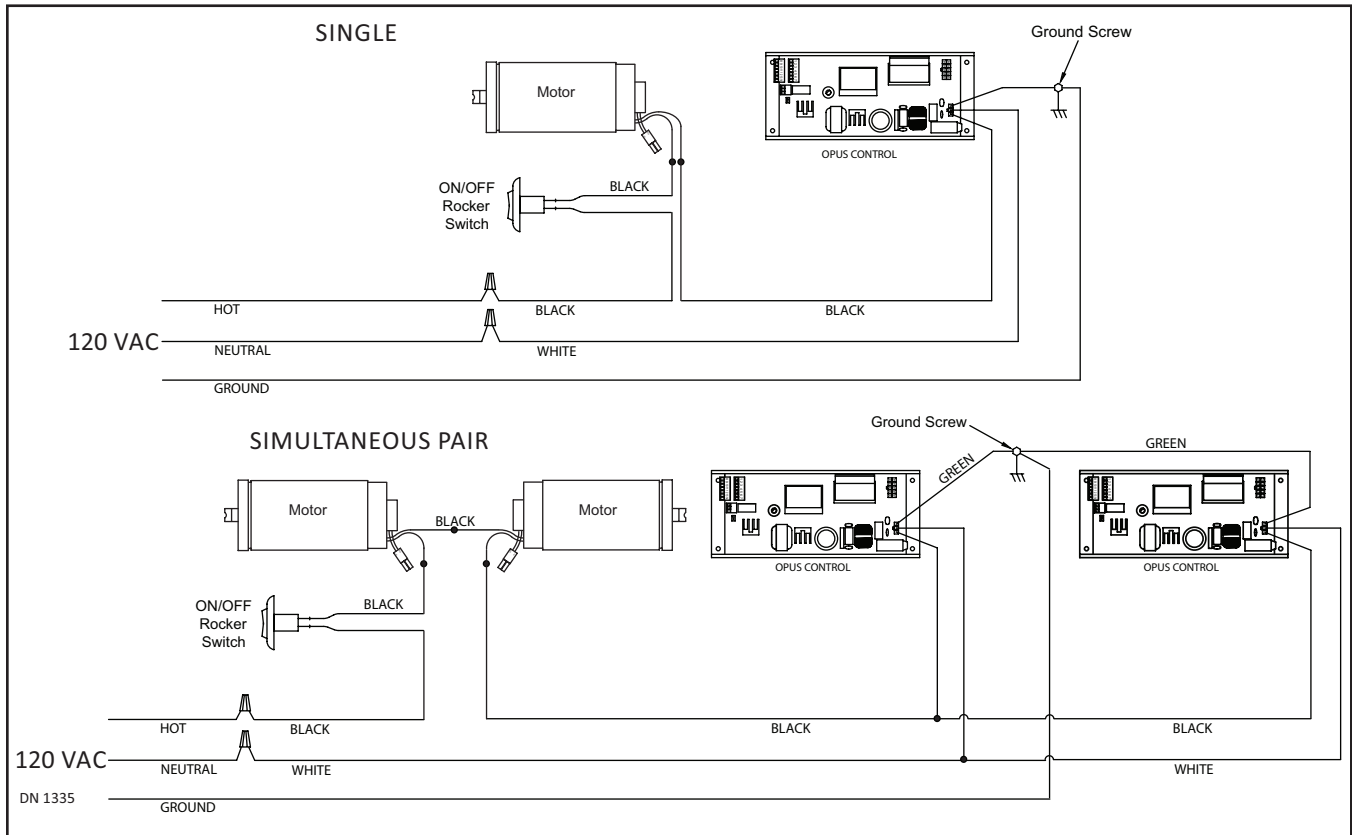
Keep all Incoming 120 VAC wiring separate from low voltage wiring within Header. 120 VAC Power wires must be routed (separate from other wiring) located near the top of inside Header.

CAUTION

Ensure that the Grounding of the Electric Power Supply is installed/connected in a proper way (especially the PE Cable from the Building Side).

Attention: Insert all Incoming 120 VAC Power wires into the pre drilled Electric Service Access Hole located at the left or right side of Header End Cap.

Note: It is recommended for the Installer to house all Incoming 120 VAC wires within an Electrical Conduit.



CHAPTER 7: HANDING

Section 7a: How to Determine Handing

- ▶ Locate the Serial Number underneath the Operator. Please see Figure 7-1.
 - The Letter (L) or (R) located in front of the Serial Number indicates the Handing.

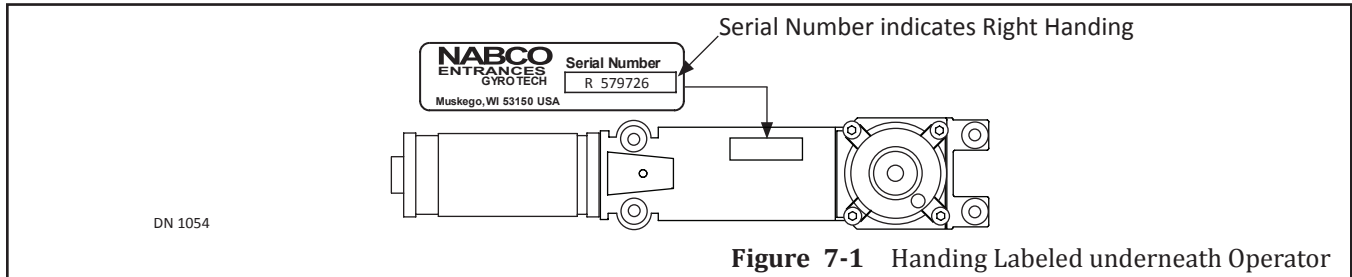


Figure 7-1 Handing Labeled underneath Operator

- ▶ Stand underneath the Header and then open the Swing door. Butt your back against the Pivot side of the Swing door. Swing out your (right or left) arm in the direction the Swing door opened. If you swing out your Right Arm the Swing Door is Right Handed. If you swing out your Left arm the Swing Door is Left Handed. Please see Figure 7-2.

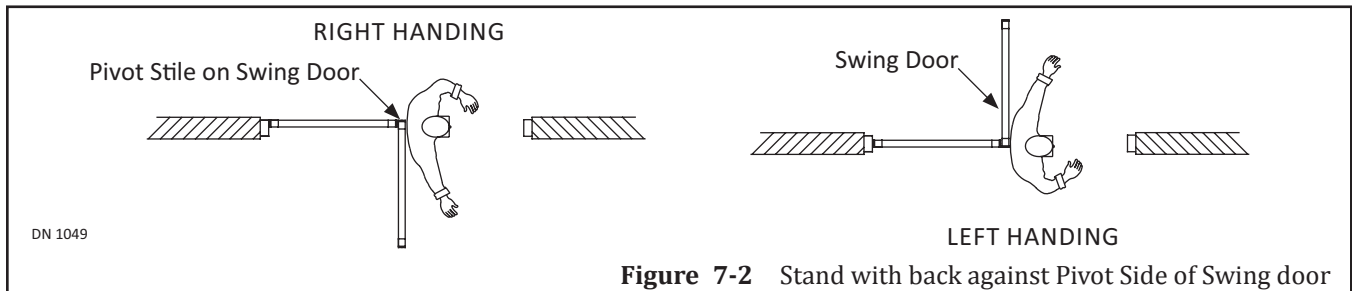


Figure 7-2 Stand with back against Pivot Side of Swing door

- ▶ If the Swing Arm does not swing underneath the Threshold to open, it is an Inswing Unit. Please see Figure 7-3.
- ▶ If the Swing Arm swings underneath the Threshold to open, it is an Outswing Unit.

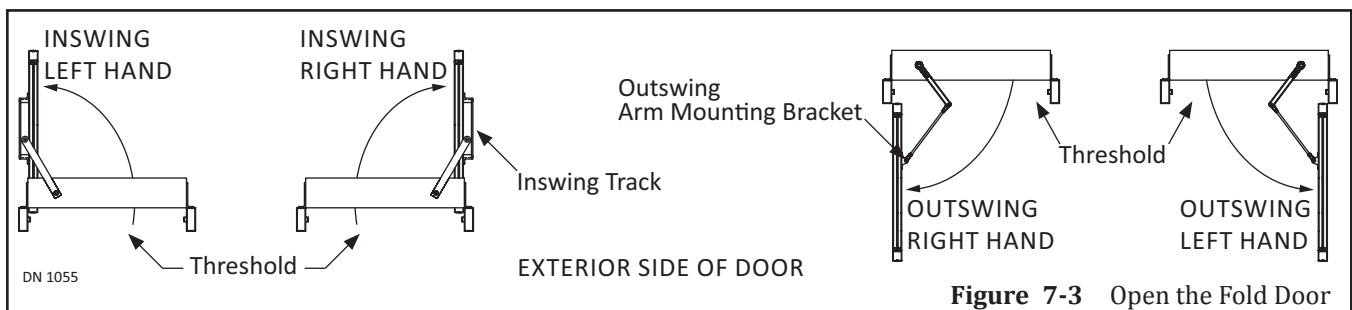


Figure 7-3 Open the Fold Door

Section 7b: Install the Handing Harness

The Handing Harness is used for Right Handed Units only. Left Handed Units do not use a Handing Harness.

1. Obtain the Handing Harness.
2. Connect the (Break Module Harness) Female Pin to the Male Pin Housing (Handing Harness). Please see Figure 7-4.
3. Connect the (Break Module Harness) Male Pin Housing to the Female Pin (Handing Harness).

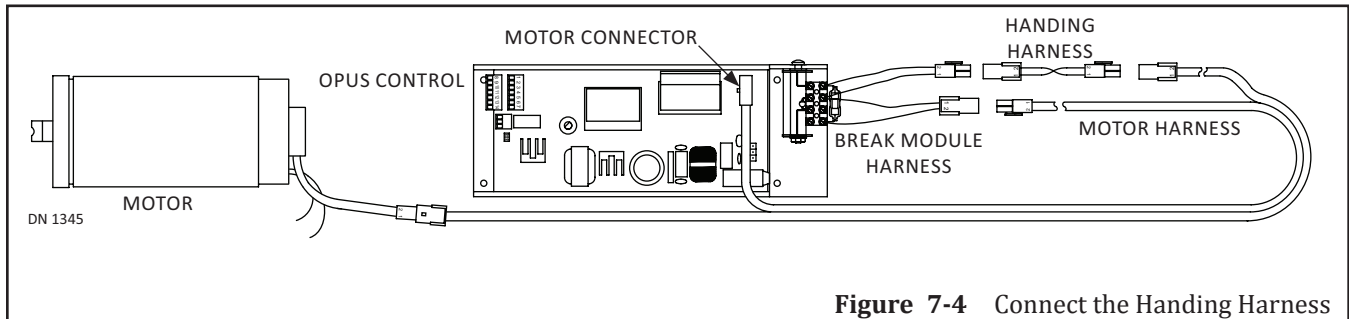


Figure 7-4 Connect the Handing Harness

CHAPTER 8: INSTALL THE FIRST HALF OF SWING ARM

Section 8a: Outswing Arm

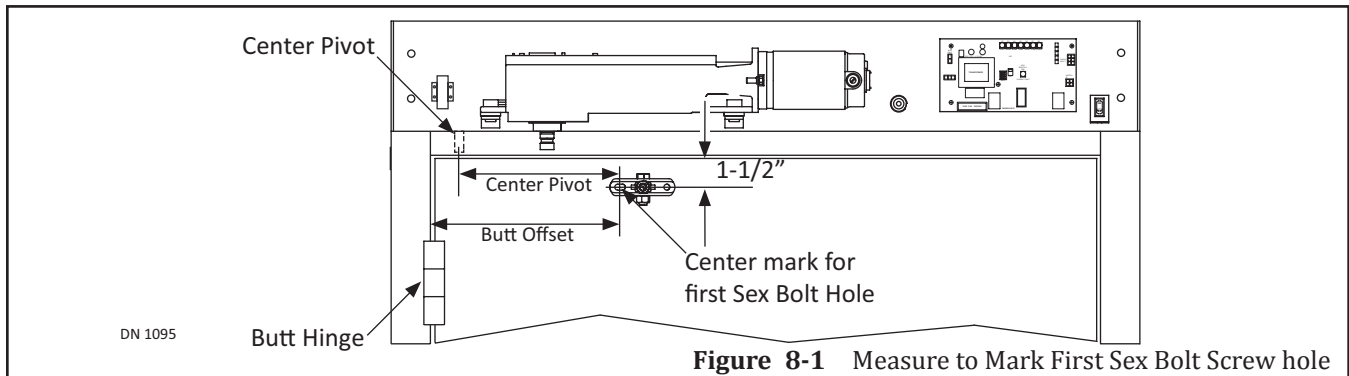
8.a.a Prep the Swing Door

1. Measure and mark a Horizontal Line from the (Center Hinge or Butt Hinge) to the center of the Face of Door according to Table 8-1.

Table 8-1 Dimension "A" Arm Shoe Mounting Locations

Model	Pivot Type	Outswing	
		With Fingerguard	No Fingerguard
GT 400 & 8400	Butt/Offset	N/A	12-7/16"
	Center Pivot	16"	15"
GT 500 & 8500	Butt/Offset	N/A	10-3/16"
	Center Pivot	13-3/4"	12-3/4"
GT 600 & 8600	Butt/Offset	N/A	12-7/16"
	Center Pivot	16"	15"

2. Measure 1 - 1/2 inches from the Bottom of Door Frame down to the Horizontal Line. Mark a Vertical line across the Horizontal Line. This is the center of the first Sex Bolt hole. Please see Figure 8-1.
3. Butt the Arm Shoe against the Swing door by aligning the first Sex Bolt hole with the measured Mark.
4. Ensure the Arm Shoe is square and level.
5. Use the Arm Shoe as a Template to mark the second Sex Bolt hole. Set aside.



8.a.b Prep the Outswing Arm Assembly

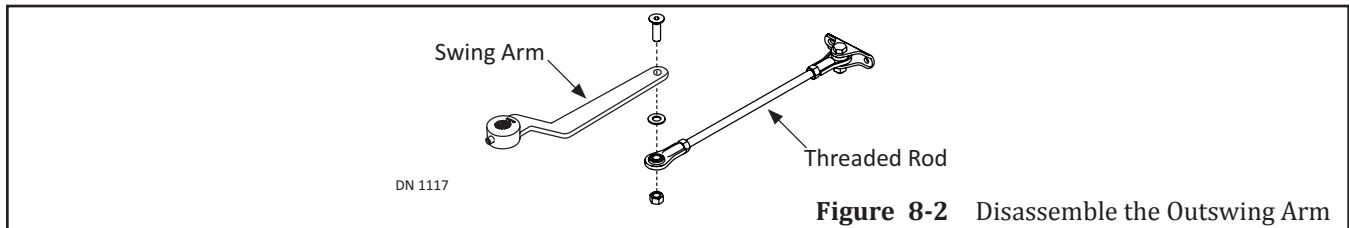
1. Please refer to Table 3 to obtain the appropriate full length measurement of the Outswing Arm.

Table 8-2 Rod Length

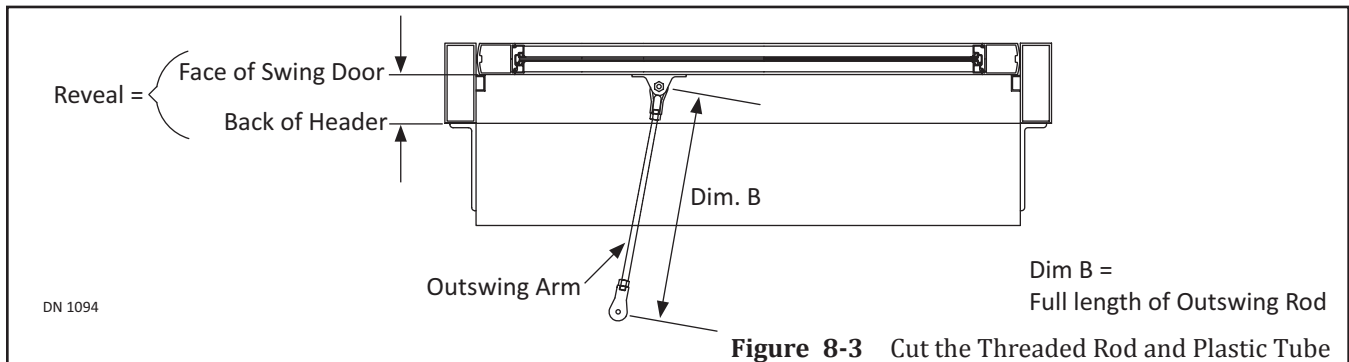
Model	Pivot Type	Reveal					
		1-1/8 inch	2-1/8 inch	3-1/8 inch	4-1/8 inch	5-1/8 inch	6-1/8 inch
GT 400 & 8400	Butt/Offset	11-7/8"	12-7/8"	13-7/8"	14-7/8"	15-7/8"	16-7/8"
	Center Pivot	12-1/2"	13-1/2"	14-1/2"	15-1/2"	16-1/2"	17-1/2"
GT 500 & 8500	Butt/Offset	11-7/8"	12-7/8"	13-7/8"	14-7/8"	15-7/8"	16-7/8"
	Center Pivot	11-7/8"	12-7/8"	13-7/8"	14-7/8"	15-7/8"	16-7/8"

Model	Pivot Type	Reveal					
		1-1/8 inch	2-1/8 inch	3-1/8 inch	4-1/8 inch	5-1/8 inch	6-1/8 inch
GT 600 & 8600	Butt/Offset	11-7/8"	12-7/8"	13-7/8"	14-7/8"	15-7/8"	16-7/8"
	Center Pivot	12-1/2"	13-1/2"	14-1/2"	15-1/2"	16-1/2"	17-1/2"

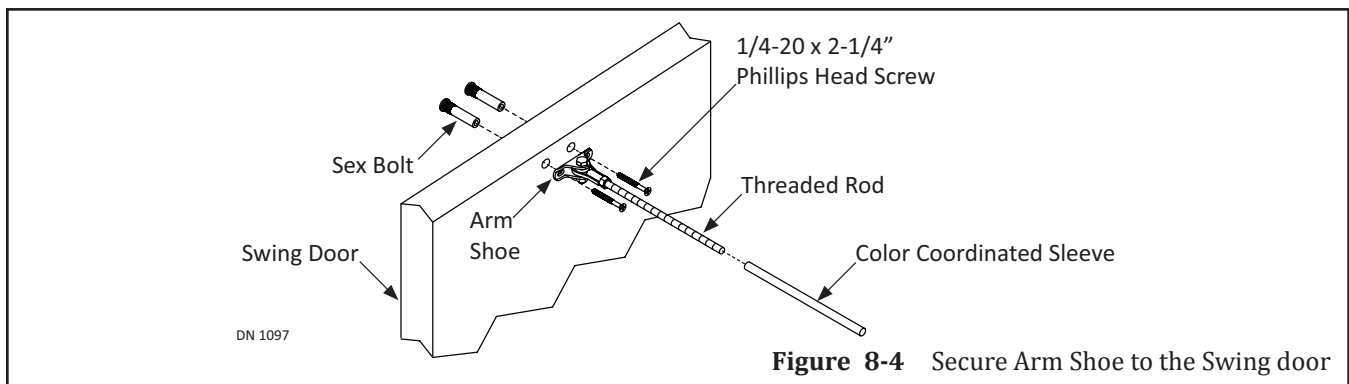
1. Remove the Outswing Arm from the Threaded Rod. Please see Figure 8-2.



2. Measure between the center of each Eye located at each end of the Outswing Rod. Write that measurement down. Please see Figure 8-3.



3. Cut the Threaded Rod until the appropriate Full Length measurement is achieved (according to Table 8-2).
 - a. The Threaded Rod will be approximately 1 inch shorter than the full length measurement.
 - b. For Reveals that are (0 inches thru 6-1/2 inches), a 20 inch Threaded Rod must be purchased.
 - c. For Reveals that are (6-3/4 inches and higher), a 30 inch Threaded Rod must be purchased.
4. Obtain (1) color coordinated Plastic Tube from the Outswing Rod assembly.
5. Cut the Plastic Tube to the same length as the exposed Rod (between the Links and Nuts).
6. Slide the Plastic Tube over the Threaded Rod. Replace the Rod Link back onto the Threaded Rod.
7. Tighten the Nut against the Link to prevent the Rod from screwing In or Out.



8.b.c Secure the Arm Shoe to the Swing Door

1. Butt the Arm Shoe against the Swing door. Align the first Sex Bolt hole to the measured Mark. Please see Figure 8-4.
2. Ensure the Arm Shoe is square and level.
3. Use the Arm Shoe as a Template to mark the second Sex Bolt hole. Set aside.
4. Drill (2) 3/8 inch bolt holes all the way through the Swing door.
5. Go to the back of the Swing door. Insert each Sex Bolt into the drilled holes.
6. Secure the Arm Shoe to the to the front face of Swing Door with (2) 1/4-20 x 2-1/4" Screws.

Section 8b: Inswing Arm

Note: Ensure there is a 2 inch gap between the wall and the outside face of the Swing door in the fully opened position (90 degrees) for the Inswing Arm to operate properly.

1. Measure and mark a Horizontal Line from Center Hinge or Butt Offset to the center of the Face of Door according to Table 8-3.

Table 8-3 Dimension "C" Track Mounting Locations

Model	Pivot Type	Inswing Standard Track (ST) 12-1/4"		Inswing Standard Track (PT) 21"	
		With Fingerguard	No Fingerguard	With Fingerguard	No Fingerguard
GT 400 & 8400	Butt/Offset	N/A	8-1/4"	N/A	N/A
	Center Pivot	13"	12"	3-3/4"	2-3/4"
GT 500 & 8500	Butt/Offset	N/A	8-1/4"	N/A	N/A
	Center Pivot	13-3/4"	12"	3-3/4"	2-3/4"
GT 600 & 8600	Butt/Offset	N/A	8-1/4"	N/A	N/A
	Center Pivot	13"	12"	3-3/4"	2-3/4"

2. Measure:
 - ▶ Straight Arm:
 - 11/16 inch from the Bottom of Door Frame down to the Horizontal Line. Mark a vertical line across the Horizontal Line. This is the center of the first Sex Bolt hole. For Zero Reveal, please refer to Subsubsection 8.b.a "Zero Reveal".
 - ▶ L-Shape Arm:
 - 1-9/16 inch from the Bottom of Door Frame down to the Horizontal Line.
 - ▶ For dimensions not shown (L-Shape Arm):
 - Reveal + 8-7/8 inch = New dimension

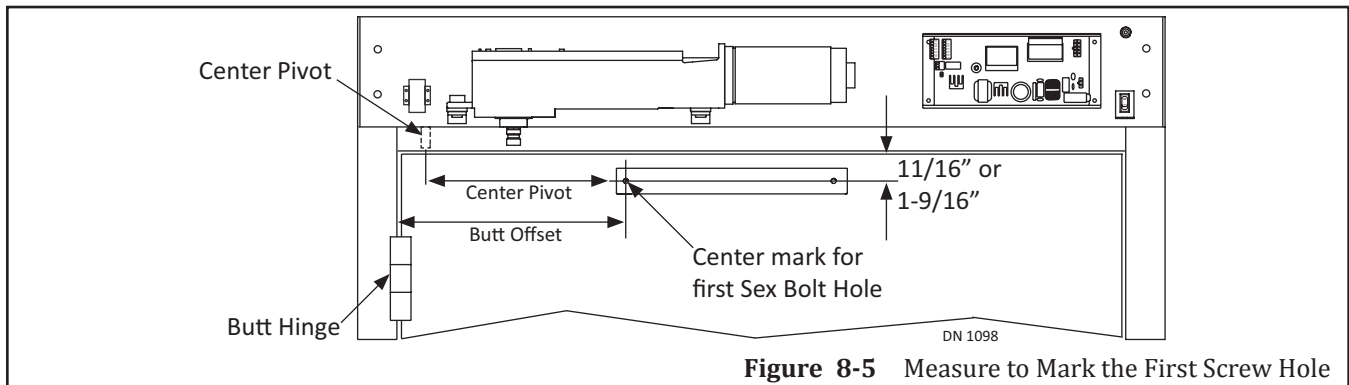
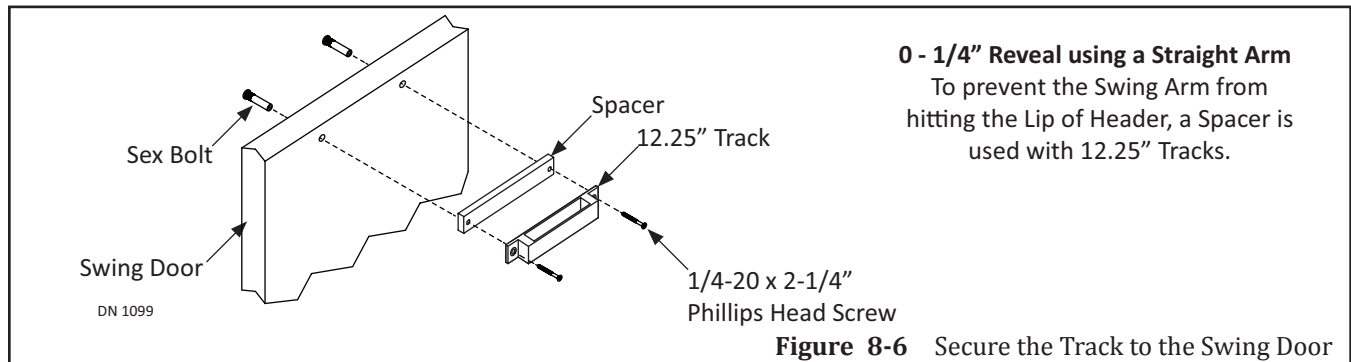


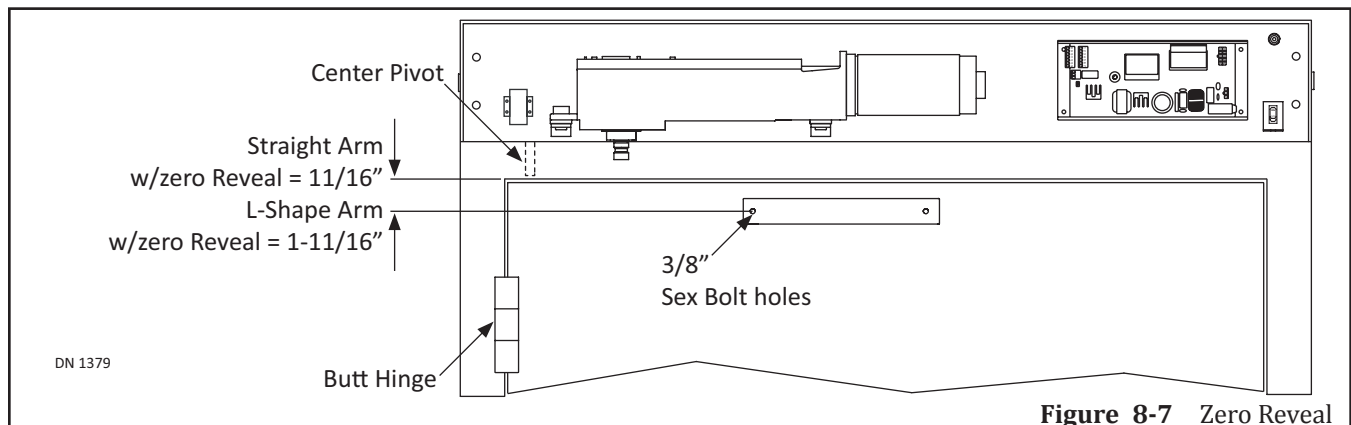
Figure 8-5 Measure to Mark the First Screw Hole

3. Butt the Track against the Swing door by aligning the first Sex Bolt hole with the measured Mark. Please see Figure 8-6.

4. Ensure the Track is square and level. Use the Track as a Template to mark the second Sex Bolt hole.
5. Drill (2) 3/8 inch bolt holes all the way through the Swing door.
6. Go to the back of the Swing door. Insert each Sex Bolt into the drilled holes.
7. Go to the front of the Swing door. Butt the Track against the Swing door by aligning the Sex Bolt holes.
 - a. Install (1) Spacer behind the Track for Swing doors with "0" Reveal.
8. Secure the Track to the Swing Door with (2) 1/4-20 x 2-1/4" Screw.



8.b.a: Zero Reveal



Note: For zero Reveal applications the Straight Arm can be used to eliminate the Arm protruding into the room.

- ▶ Straight Arm:
 - Measure 11/16 inch from the Bottom of Door Frame down to the Horizontal Line.
- ▶ L-Shape Arm:
 - Measure 1-11/16 inch from the Bottom of Door Frame down to the Horizontal Line.

CHAPTER 9: INSTALL THE SECOND HALF OF SWING ARM

Section 9a: Set Pre-Load

WARNING

Proper Preload is critical for the Control and Operator to open/close the Swing Door correctly.

CAUTION

Power must be turned OFF during the Swing Arm installation.

DANGER

Ensure the Motor/Operator is plugged into the Controller. This needs to be done so the Swing Arm will not swing back as fast, if accidentally let go.

Full Energy 400/600/8400/8600	Low Energy 500/8500
20 degrees to 140 degrees	20 degrees to 140 degrees
Not to exceed 15 to 30 pounds of Pressure	Not to exceed 15 pounds of Pressure

1. Ensure the Spring on the Operator is in the Unwound (0 degree) position. Please see Figure 9-1.
 - a. The Motor/Operator is shipped in the Unwound (0 degree) position.

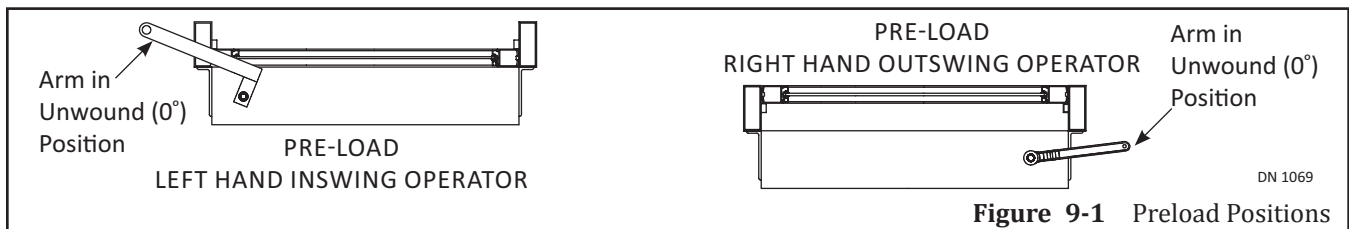


Figure 9-1 Preload Positions

2. Obtain (1) Pin or 1/8 inch Allen Wrench. Go underneath the Header. Locate the Operator Spindle. Please see Figure 9-2.
3. At the 0 degree position, slide the Swing Arm onto the Spindle.
4. With a firm grip, from the Unwound (0 degree) position, rotate the Swing Arm approximately 20 - 140 degrees.

DANGER

Do not allow the Pin or 1/8 inch Allen Wrench to drop out of the Lovejoy Coupling Access hole at any time during installation. The Swing Arm will spring back to its original location and can result in personal injury or damage.

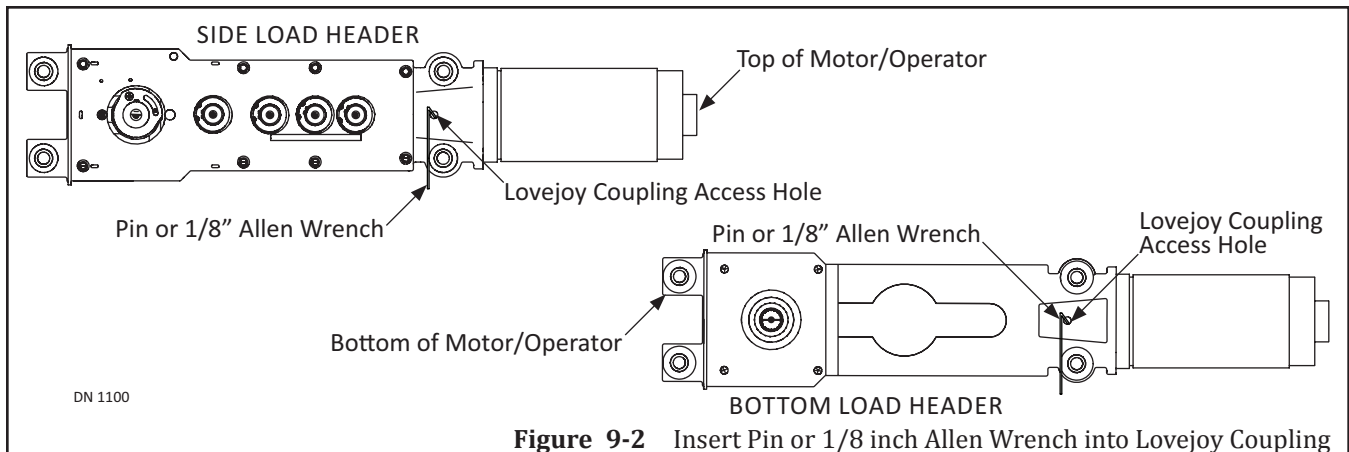


Figure 9-2 Insert Pin or 1/8 inch Allen Wrench into Lovejoy Coupling

Section 9b: Secure the Swing Arm to the Swing Door

9.b.a: Outswing Arm

- Align the Screw hole at the end of Swing Arm to the Screw hole at the end of Threaded Rod. Please see Figure 9-3.
 - It may be necessary to remove and then slide the Swing Arm back onto the Operator Spindle.
- Secure the Swing Arm to the Threaded Rod with (1) 3/8"-24 x 1-1/4" Socket Screw, (1) .405 Washer, and (1) 3/8"-24 Lock Nut.

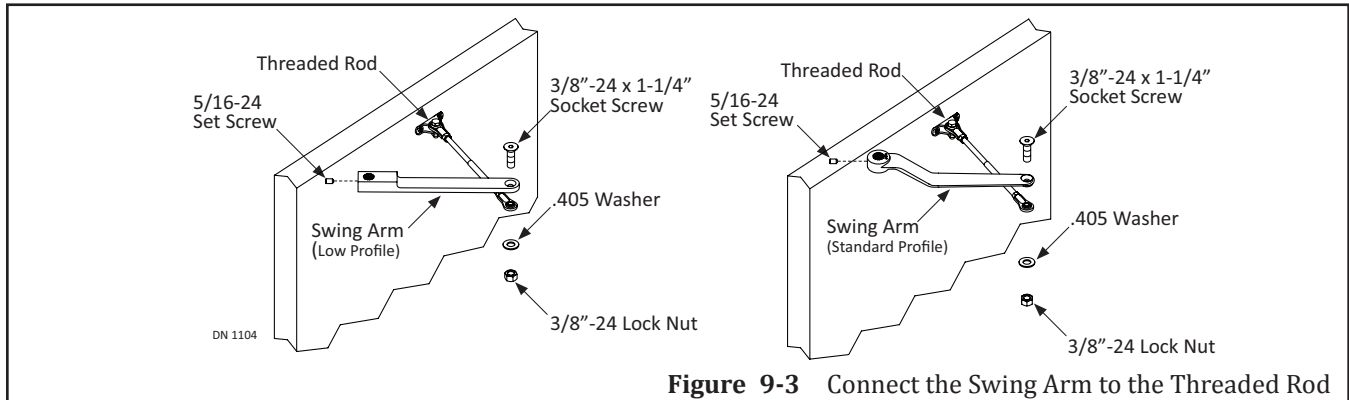


Figure 9-3 Connect the Swing Arm to the Threaded Rod

9.b.b: Inswing Arm

- Remove the first 1/4"-20 x 2-1/4" Screw (closest to the Pivot Door Jamb) that is used to secure the Track to the Swing door, so that side of the Track will hang down. Please see Figure 9-4.
- Close the Swing door to allow the Wheeled Roller (located at the end of the Swing Arm) to butt against the Swing door.
- Raise the Track until the screw hole is aligned with the screw hole on the Swing door.
 - The Wheeled Roller will insert itself into the Track.
- Secure the Track to the Swing door with (1) 1/4"-20 x 2-1/4" Screw.
- Secure the Swing Arm to the Operator Spindle with (1) Set Screw. Tighten but do not overtighten.
 - Ensure the Set Screw is seated correctly within the groove on the Operator Spindle.
- Remove the (Pin or 1/8 inch) Allen Wrench.

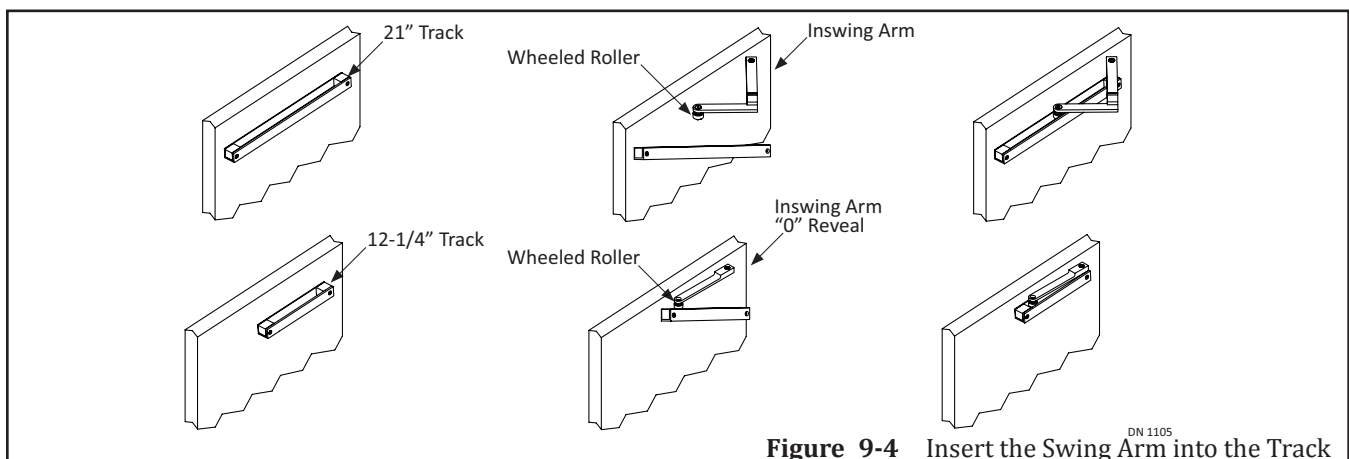


Figure 9-4 Insert the Swing Arm into the Track

CHAPTER 10: INSTALL THE ARM STOP (SIDE LOAD UNITS)

NOT USED ON BOTTOM LOAD UNITS

CAUTION

Do Not drill screw holes for the Arm Stop into the Motor/Operator!!!

1. Open the Swing Door 90 degrees.
2. Obtain the Parts Bag that includes (1) Arm Stop and (2) 1/4-20 inch Self Tapping screws.
3. Position the Arm Stop at the bottom of Header according to type of Swing Arm and Reveal shown in Figure 10-1.
4. Use the Arm Stop as a template to mark and drill (2) 7/32 inch diameter screw holes.
5. Secure the Arm Stop with (2) 1/4-20 inch Self Tapping screws.

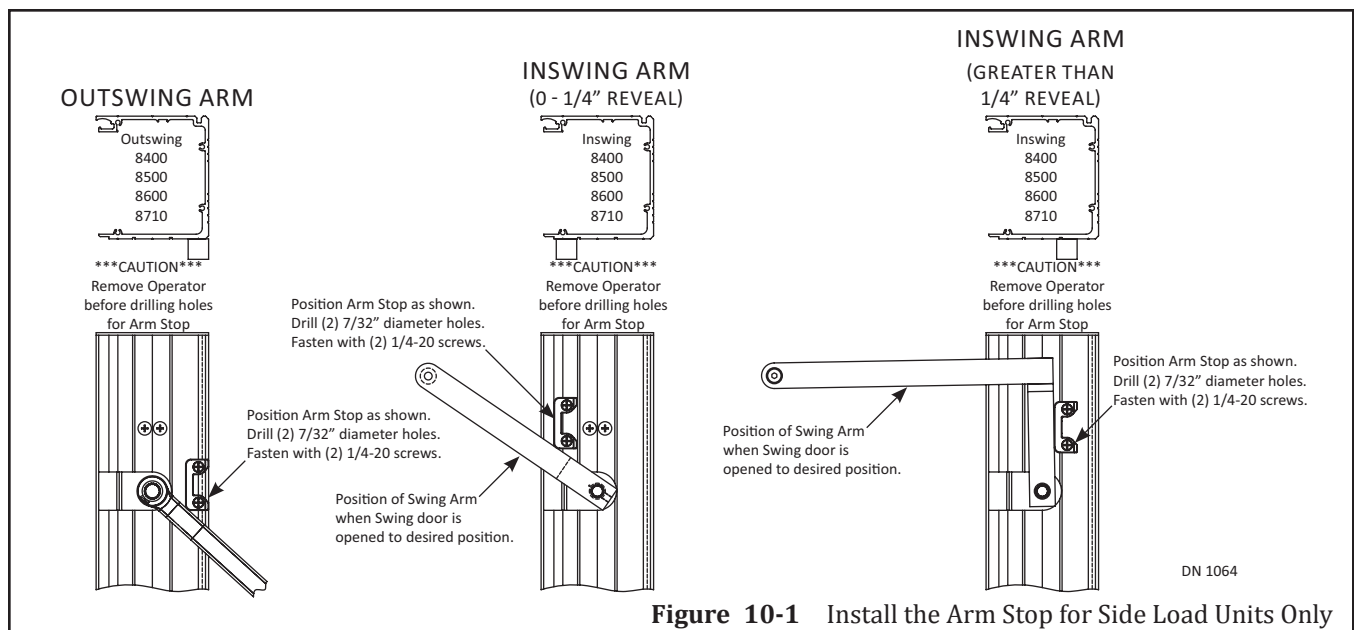


Figure 10-1 Install the Arm Stop for Side Load Units Only