GT20 Swing Door Operator Installation Manual

P/N C-00171 Rev 10-2-18

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Associated Manuals Part Numbers: *GT20 Swing Door Wiring and Programming Manual (P/N C-00169)*
GT20 Swing Door Owners Manual (P/N C-00170) for Decal Installation)
NABCO Price Book; P/N 16-9244-30 (for Sensors, Switches, and Accessories)

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.**

Table of Contents

CHAPTER 1: WARNING LABELS 3

CHAPTER 2: GENERAL SAFETY RECOMMENDATIONS 3

CHAPTER 3: SCOPE 4

SECTION 3.1 To the Installer 4
SECTION 3.2 Objective 4

CHAPTER 4: GETTING STARTED 5

SECTION 4.1 Electrical Specifications 5
SECTION 4.2 Operator Assembly Specifications 5
SECTION 4.3 Basic Features 6
SECTION 4.4 Input / Output Specifications 6
SECTION 4.5 Adjustable Options 6
SECTION 4.6 Required Tools 6
SECTION 4.7 Windload 7
SECTION 4.8 Power Output 8
SECTION 4.9 Mechanical Operation of Door 8
SECTION 4.10 Important Header Information 8
SECTION 4.11 Selector Buttons on End Cap 10
SECTION 4.12 Optional Relay Board 10
SECTION 4.13 Double Swing Door Units 11
SECTION 4.14 The Guide Track Assembly 11
SECTION 4.15 Fail Safe, Fail Secure Locks 11
SECTION 4.16 Spindle Extension 12
SECTION 4.17 The Stop Finger 12
SECTION 4.18 The Vice Grip (Inswing Doors) 12

CHAPTER 5: INSTALL THE OUTSWING OPERATOR (WITH ARM SHOE) 13

SECTION 5.1 Install the Header 13
SECTION 5.2 Install the Outswing Arm 14

SECTION 5.3 Mark Arm Shoe location onto Door Panel 14
SECTION 5.4 Install the Arm Shoe onto the Door Panel 16
SECTION 5.5 Install the Lever Arm to the GT20 Operator 16
SECTION 5.6 Install Arm and Set Preload 17
SECTION 5.7 Permanently Tighten the Bolt to the Spindle Extension 17

CHAPTER 6: INSTALL THE OUTSWING OPERATOR (WITH GUIDE TRACK). 18

CHAPTER 7: INSTALL THE INSWING OPERATOR (NO REVEAL) 22

SECTION 7.1 Install the Header 22
SECTION 7.2 Install the Track Mounting Bracket 23
SECTION 7.3 Install the Guide Track 24
SECTION 7.4 Install Arm and Set Preload 24
SECTION 7.5 Permanently Tighten the Bolt to the Spindle Extension 25

CHAPTER 8: INSTALL THE INSWING OPERATOR ASSEMBLY (W/REVEAL). 26

SECTION 8.1 Install the Track Mounting Bracket 27
SECTION 8.2 Install the Guide Track 28
SECTION 8.3 Assemble the Inswing “Reveal” Arm. 28
SECTION 8.4 Set Preload and Install Arm 29
SECTION 8.5 Permanently Tighten the Bolt to the Spindle Extension 30

CHAPTER 9: CONNECT THE MOTOR HARNESSES 30

CHAPTER 10: 120 VAC GENERAL WIRING 31

CHAPTER 11: ADJUSTMENTS. 31

SECTION 11.1 Adjust the Stop Finger 31
SECTION 11.2 Adjust Preload 32
SECTION 11.3 FSlam Potentiometer (Power OFF) 33
SECTION 11.4 Adjust the Activation Angle 34

SERVICE PARTS: INSWING ARM PARTS BOX 35

SERVICE PARTS: OUTSWING ARM PARTS BOX 36

SERVICE PARTS: MOTOR/OPERATOR ASSEMBLY HEADER 37

CHAPTER 1: 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.

CHAPTER 2: GENERAL SAFETY RECOMMENDATIONS

DANGER **According UL 325 8.4, Do Not mount Operator onto flammable surfaces!**

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.**

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. 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.**

WARNING **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.**

WARNING **The GT20 Swing Door Operator Assembly must not be mounted within locations presenting explosion hazards. The presence of flammable gases or smoke represents a considerable safety hazard.**

Attention: Any modifications of the installation that are not described in this manual are not approved by the manufacturer.

Notice: This Manual, the User's Guide Manual, and all other associated manuals, must be given to and retained by the purchasing facility or end user.

Notice: For Escape Routes, Rescue Routes, Exhausting Smoke or for Heat Applications; National and/or Local Requirements/Regulations may exist. Please ensure these Requirements/Regulations are fulfilled.

- Application limits must be observed.
- Choice of Fasteners depend on the construction base.

- When configuring the installation, it is essential to make sure local regulations are complied. It is particularly important to ensure Door Panels do not have any sharp edges. The secondary closing edges must be designed by customers in such a fashion as to eliminate any dangerous crushing and shearing points.
- The swing door drive mechanism GT20 may only be installed and operated for indoor use. If this condition cannot be fulfilled, the customer must provide sufficient protection from moisture.
- In order to guarantee the safety of the users at all times, the installation must have an AAADM inspection before it is put into service and during normal operation, at least once a year.
- It is inadmissible to bypass, shunt or disable the safety devices. Any defective safety devices may not be disconnected in order to continue the operation of the installation.
- Disconnect power at the branch circuit protection 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 (Full Energy) or ANSI 156.19 (Low Energy) and verify compliance.
- 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.
- A safe and reliable function of the installation can only be guaranteed if it is operated with the original NABCO Entrances, Inc. accessories/spare parts. NABCO Entrances, Inc. declines all responsibility for damages resulting from unauthorized modifications of the installation or from the use of foreign accessories/spare parts.

CHAPTER 3: SCOPE

SECTION 3.1 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 (Full Power) and ANSI Standard 156.19 (Low Energy) covers the GT20 Swing Door Operator Assembly. Other local standards or codes may apply. Use them in addition to the ANSI standard. Both Full Power and Low Energy Swing door Units are listed by UL according to UL325 and is identified as such on the label.

Instruct the building owners and operator on the essentials of the operation of this device. The owner should follow these instructions to determine whether 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. 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.

SECTION 3.2 Objective

The Swing Door Operator assembly is designed to be installed onto the top surface of the Door Frame, or Door Panel, or between the Jamb Tubes under the Door Frame (OHC). This manual was created to offer step by step instructions.

CAUTION **A pedestrian Door that does not have Its glass sections installed at the Factory shall specify that the glazing material employed is to comply with the requirement in UL 325 par.30.5.1:**

"The glazing material in both fixed and sliding panels of all sliding doors and in all unframed swinging doors shall comply with the requirements in the Performance Specifications and Methods of Test for Safety Glazing Material Used in Buildings, ANSI Z97.1. Glazing material for other pedestrian doors shall also comply with ANSI Z97.1, except that single strength or heavier glass may be used for those portions of doors involving a glazed area of less than 1ft^2 (0.9 m^2) and having no dimension greater than 18 in (457 mm)".

CHAPTER 4: GETTING STARTED

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

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

SECTION 4.1 Electrical Specifications

Note: All Wiring Diagrams included within this manual, reflect typical primary and secondary circuits that might be commonly used. On site wiring may be different from that shown.

Note: NABCO factory utilizes Underwriters Laboratories (UL) recognized component wire, terminals and connector housings to manufacture Opus Automatic Door systems.

Item	Description	Current Consumption
Power Input	120 VAC (+10/-15%) 60 Hz	1.5A average Per Door (*NABCO recommends min. 5A service)*
Auxiliary Power Output	24VDC (±10%)	2A

SECTION 4.2 Operator Assembly Specifications

Specification	Description		
Weight Operator Assembly	23 pounds (10,5 kg)		
Motor Type	DC Brush Motor (with Encoder installed on Gear Box)		
Motor Voltage	30V		
Motor Power Rating	100 W		
Power consumption	Max. 560 W		
Maximum Door Weight	Full Energy	550 pounds (250 kg)	
	Low Energy	220 pounds (100 kg)	
Maximum Door Width	Full Energy	33-1/2” - 63” (851mm - 1,600mm)	
	Low Energy	30” - 48” (762mm - 1,219mm)	
Maximum Reveal	Outswing Arm		9”
	Outswing with Track		5”
	Inswing with Track		5”
Power Transmission	Outswing Arm	Adjustable Rods attached to Arm Shoe	
	Inswing Arm	Arm slides into Track	
Header Dimensions	Height	3-3/4” (95mm)	
	Width	Full Width of Door, or Minimum 27-1/8”	
	Depth	4-3/4” (120mm)	
Operating/Shipping Temperature	5 to 122 ˚F (-15...+50 ˚C)		
Protection Type	IP 40 (IP 42) Weather Resistant to Water and Dust		
Output Shaft Torque	Max. 59 lb, (80nm)ft		
Maximum distance door hinge to Output Shaft	11”		
Maximum Door Opening Angle	105˚		
Maximum Opening Speed	40˚ (opening degree per second)		
Maximum Closing Speed	40˚ (opening degree per second)		
Hold Open Time	0 - 60 seconds		
Hold Open Time with Night Mode	0 - 180 seconds		

SECTION 4.3 Basic Features

Feature	Description	
Simultaneous Pair Synchronization	Pairs are synchronized to ease adjustability and to operate smoothly.	
Astragal Function	Opens and/or Closes (1) Door Panel slightly ahead of an opposite Door Panel.	
Independent Dual	(2) Independent Swing Doors operated by a (2) Operator Assemblies.	
Low Energy	Utilize a Knowing Act to open a Swing door.	
Full Energy	Utilize Sensor(s) to open a Swing door.	
Air Lock w/optional plug-in board	Activation of first Door Panel prevents second Door Panel from opening	
Power Boost	Power Close	
Hold Close	Applies pressure to keep Door closed	
Obstacle Detection	► Opening	Door Panel will reverse or stop depending on which sensor is activated.
	► Closing	
Inverse Operation	Programmable	In the event of a Power Failure or alarm, Inverse Operation opens the Door Panel under Spring Power for: ► Smoke Evacuation ► Egress Minimizes the need for battery back-up.
Wind Compensation	Control will gradually increase motor current to counteract wind pressure	

SECTION 4.4 Input / Output Specifications

Input	Description	
Number of Signal Inputs	► 3 x Activation: Interior, Exterior and Key ► 3 x Safety Inputs: 1 x Header mounted, 2 x Door mounted ► 1 x Emergency Input	
Optically Isolated Input	(1) Wall Switch can activate multiple Units without using an Isolation Relay.	
Lockout Angle for Door Mounted Sensor	Determines what angle the door mounted sensor is ignored by the control.	
	► Pull Side	Programmable - 45 degrees to Full Open
	► Push Side	Programmable - 0 - 60 degrees
Output	**Description**	
Number of Outputs	► 1 x Electric Lock Form C Relay ► 1 x Electric Lock Status	

SECTION 4.5 Adjustable Options

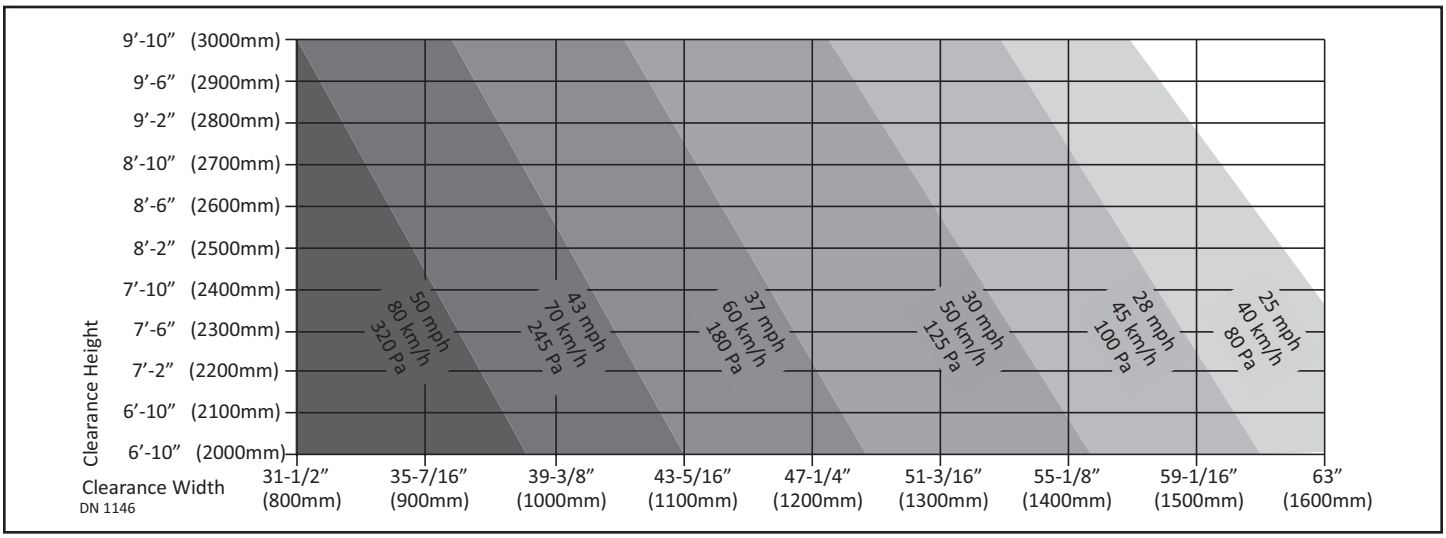
Option	Description	
Sensitivity Adjustment for Obstacle Detection	► Yes • Opening and Closing	Adjusts how hard the Door Panel pushes against an Object before recycling.
Time Delay Adjustment for Activation	► 0 -60 seconds • Interior or Exterior Activation Inputs ► 0-180 seconds • Key Input	Determines hold open time after fully open.
Electronic Delay Timer	0 - 4 seconds	Adjusts amount of time the Door Panel hesitates before opening when locked.

SECTION 4.6 Required Tools

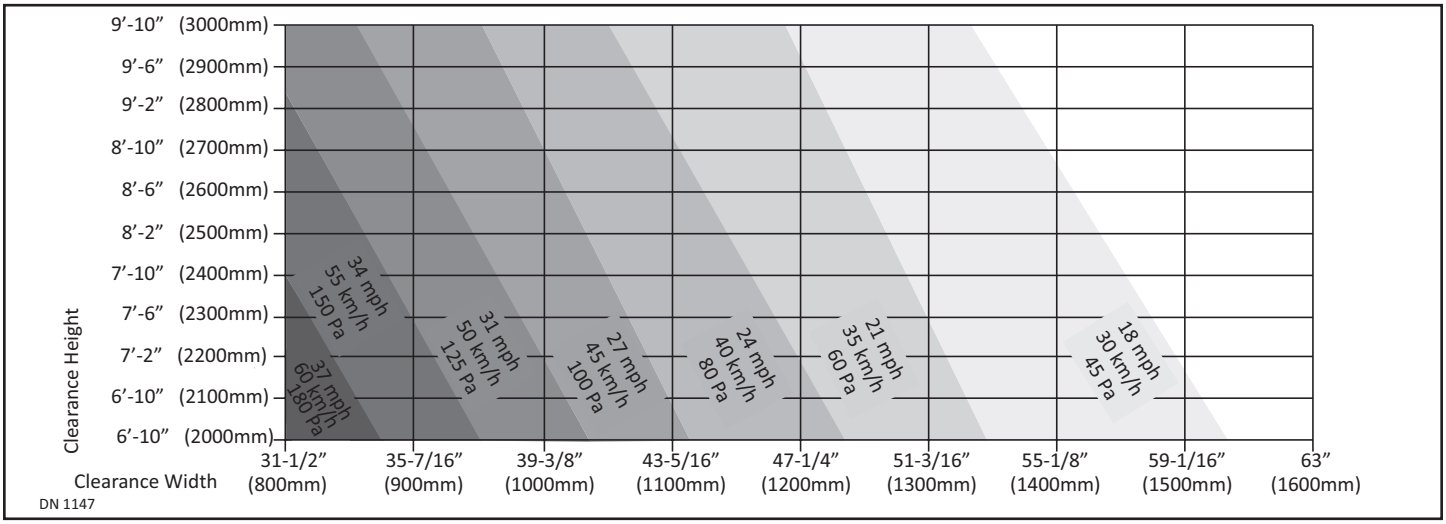
► 6mm Allen Wrench ► 5mm Allen Wrench (For Outswing Arm socket joint, clamping nut) ► Mounting tools: drill, etc.
► 1.5 mm Allen wrench (For REF switch adjustment if necessary) ► 13mm Open Box/Combination Wrench

SECTION 4.7 Windload

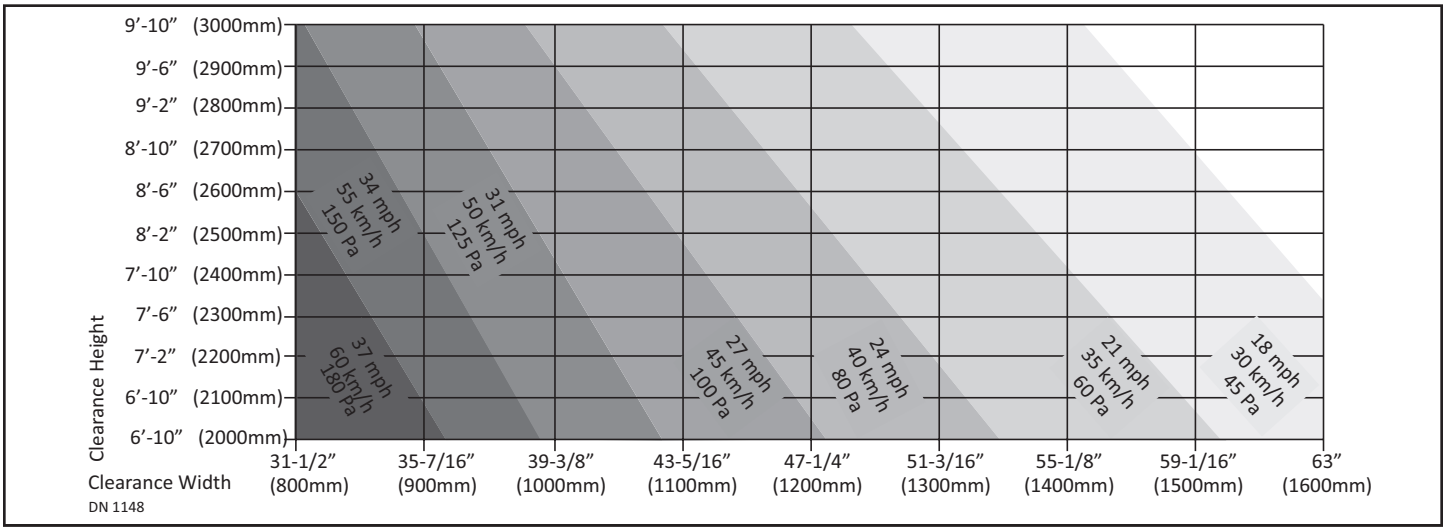
4.7.1 Outswing Arm PUSH Function



4.7.2 Inswing Arm PUSH Function



4.7.3 Inswing Arm PULL Function



SECTION 4.8 Power Output

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

SECTION 4.9 Mechanical Operation of Door

- With Power
  - Standard Swing Door
    The Swing door automatically opens upon activation of a Sensor or a Knowing Act, and then fully closes after the programmed "hold-open" time has expired.
  - Inverse Swing Door
    The Swing door automatically opens upon activation of a Sensor or a Knowing Act, and then fully closes after the programmed "hold-open" time has expired.
- Without Power
  - Standard Swing Door
    An internal spring located inside the Operator automatically CLOSES the Swing door. The motor acts as a brake to control the closing of the door. The Swing door can be manually opened at any time.
  - Inverse Swing Door
    An internal spring located inside the Operator automatically OPENS the Swing door (unless the Swing door has been locked with a Fail Secure electric lock). The Motor acts as a Brake to allow the Swing door to fully open with a slow, controlled motion. Inverse Swing Door is suitable for:
    - Escape Routes and/or Rescue Routes
    - Extracting smoke from buildings
    - Extracting heat from buildings

Notice: For Escape Routes, Rescue Routes, Exhausting Smoke or for Heat Applications; National and/or LocalRequirements/Regulations may exist. Please ensure these Requirements/Regulations are fulfilled.

It is recommended to install a Fail Safe electric lock on Swing doors using Inverse Swing Doors. During normal operation, the Fail Safe lock applies continuous pressure to keep the Swing door in a fully closed position. During a Power Failure, the Fail Safe lock automatically unlocks, thus allowing the Swing door to fully open.

DANGER **Do Not install Fail Secure electric locks on Swing Doors using Inverse Swing Doors. Fail Secure electric locks will not allow the Swing door to open during a Power Failure.**

SECTION 4.10 Important Header Information

4.10.1 Seal Header for Wet Environment

1. Seal all Header Seams with Sealing Compound and Transparent Adhesive Tape.

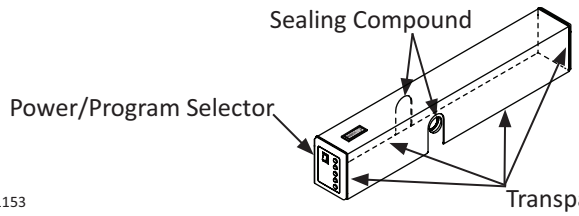


Figure 1 Seal the GT-20 Swing Door Operator to obtain Protection Type IP 42

4.10.2 Remove the GT20 Header Cover

Note: To avoid unauthorized manipulations on the Drive/Control Unit and also to prevent the Cover from falling off, the Cover is tightly latched.

1. Remove (2) #8 x .625 inch Phillips Head screws from bottom of Header. Pull off cover by hand.

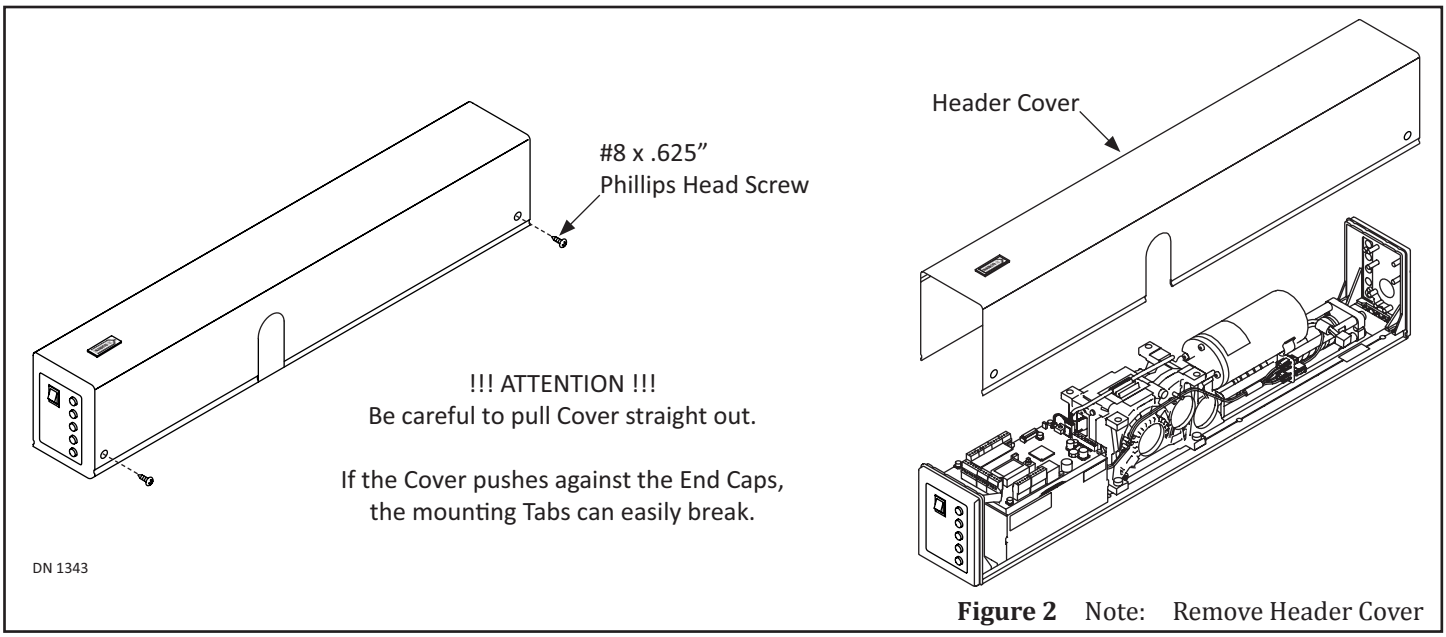
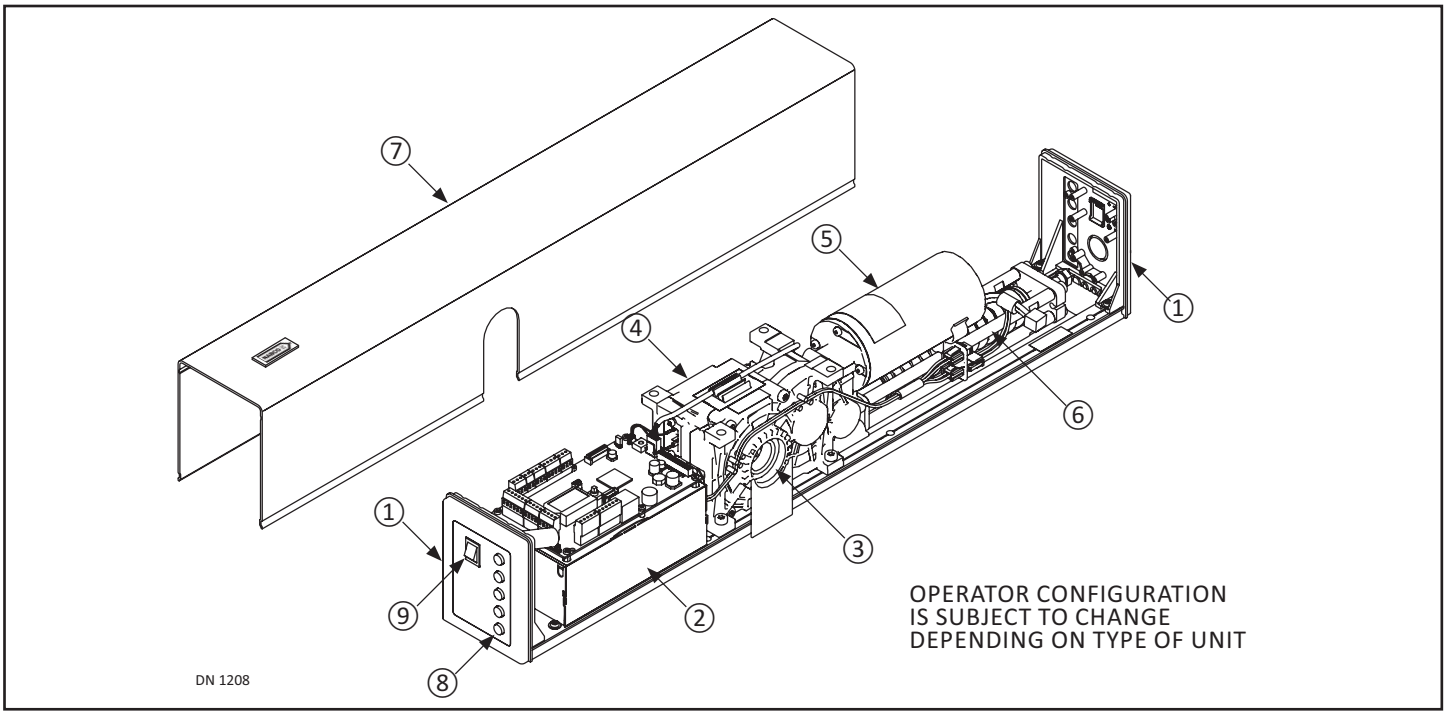


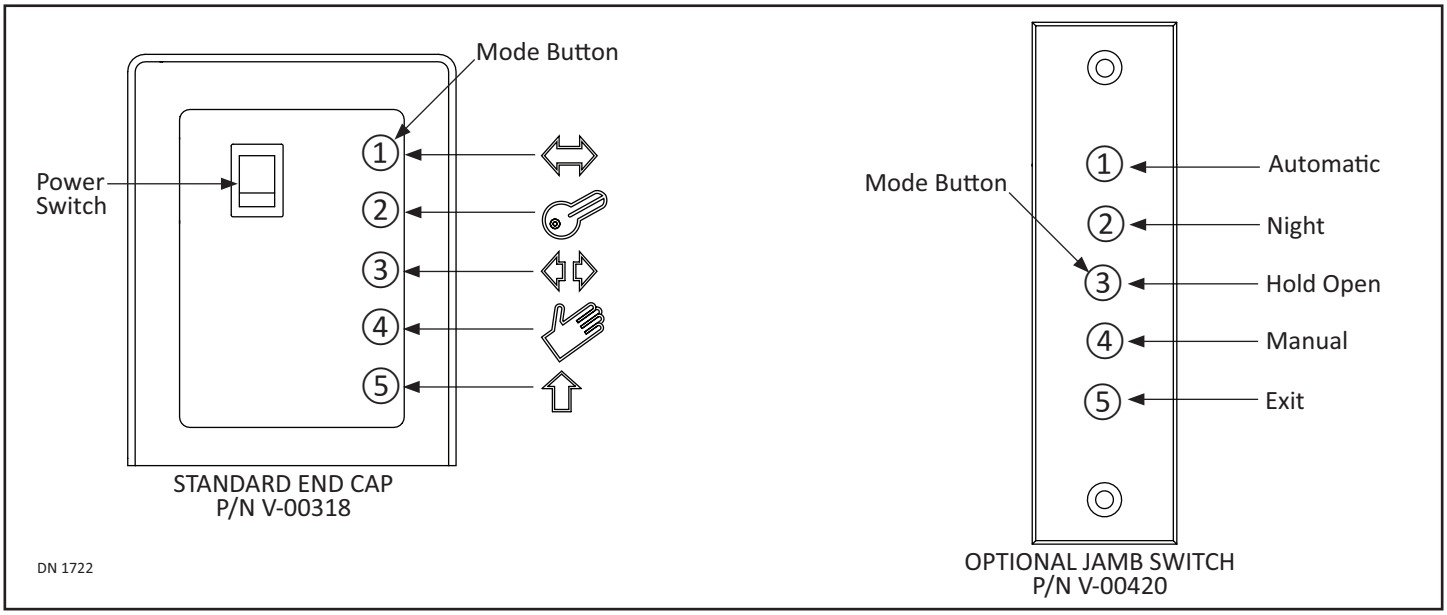
Figure 2 Note: Remove Header Cover

4.10.3 GT 20 Header Components



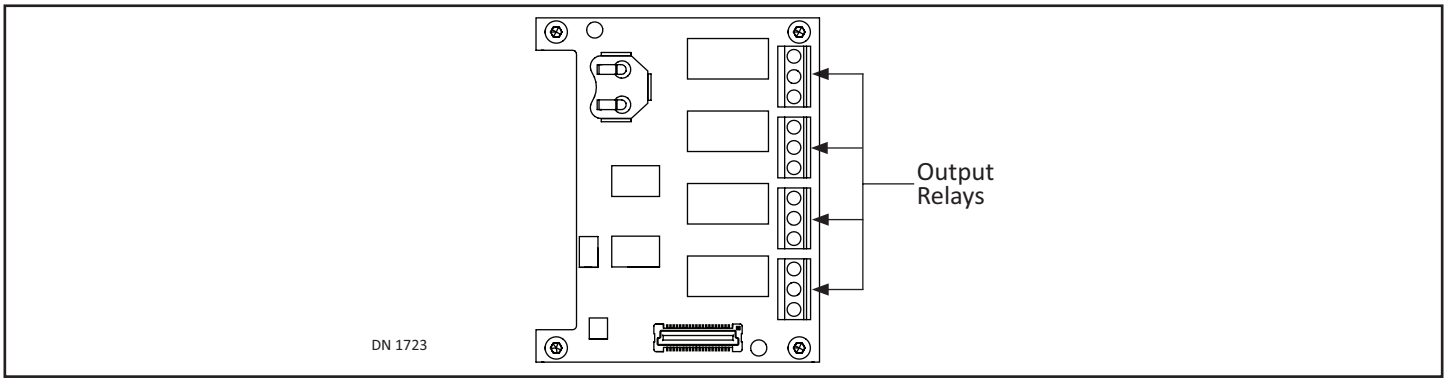
Header Components					
1	End Cap	4	Gear Box	7	Header Cover
2	GT20 Control	5	Motor	8	Program Selector
3	Output Shaft Receiver	6	Spring Unit (for spring-powered closing)	9	Power Switch

SECTION 4.11 Selector Buttons on End Cap



Mode Button	Icon	Definition	Description
1		Automatic	Door is opened by any activation
2		Night	Door can only be opened by an activation on the “Key” Input Terminal
3		Hold Open	Door will open and stay open
4		Manual	All activation devices are ignored
5		Exit	Only an activation on the Interior Sensor Terminal will open the Door

SECTION 4.12 Optional Relay Board



The Optional Relay Board provides four separate Output Relays that change state when the Door is: fully closed, fully open, during opening, during closing, or upon Error. Also when the Door is in the following Modes: Auto, Exit, Hold Open, or Manual, and momentarily upon an Interior Activation, and finally when the Door is locked.

SECTION 4.13 Double Swing Door Units

Operator Assembly can be an installed with an Outswing Unit, an Inswing Unit, or a Double Swing Unit (Combination of both the Outswing and Inswing Unit). Double Swing door Units are installed the same way as an Inswing Unit or an Outswing Unit. Depending upon how the GT20 Control is programmed. Double Swing door Units can be:

- Dual Independent: Connected to separate Operator Assemblies and operate independently.
- Simultaneous Pair: Both swing doors open at same time.
- Astragal: Master swing door opens first. The Slave swing door is delayed before opening, and then closes before the Master swing door.

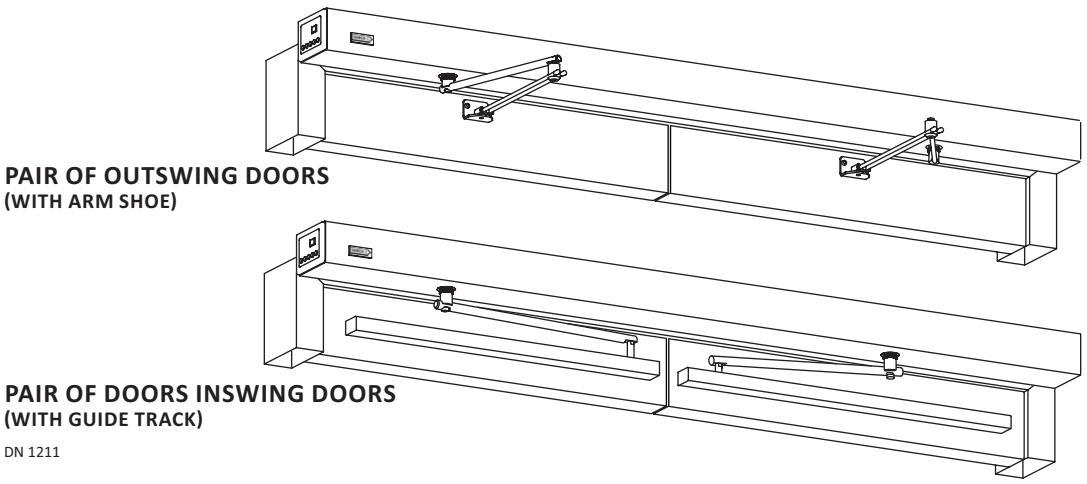


Figure 3 Simultaneous Pair Doors

SECTION 4.14 The Guide Track Assembly

The Guide Track Assembly consists of (3) major parts:

- (1) Mounting Bracket: Secures the Guide Track to the Door Panel.
- (1) Guide Track: Guides the Arm as the Door Panel opens/closes.
- (2) End Caps plus Hardware: Secures the Guide Track to the Mounting Bracket.

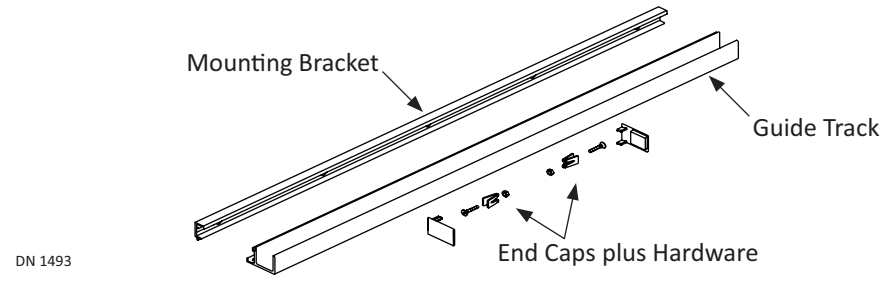


Figure 4 Guide Track Assembly

SECTION 4.15 Fail Safe, Fail Secure Locks

It is recommended to install a Fail Safe electric lock on Swing doors using Inverse Swing Doors. During normal operation, the Fail Safe lock applies continuous pressure to keep the Swing door in a fully closed position. During a Power Failure, the Fail Safe lock automatically unlocks, thus allowing the Swing door to fully open.

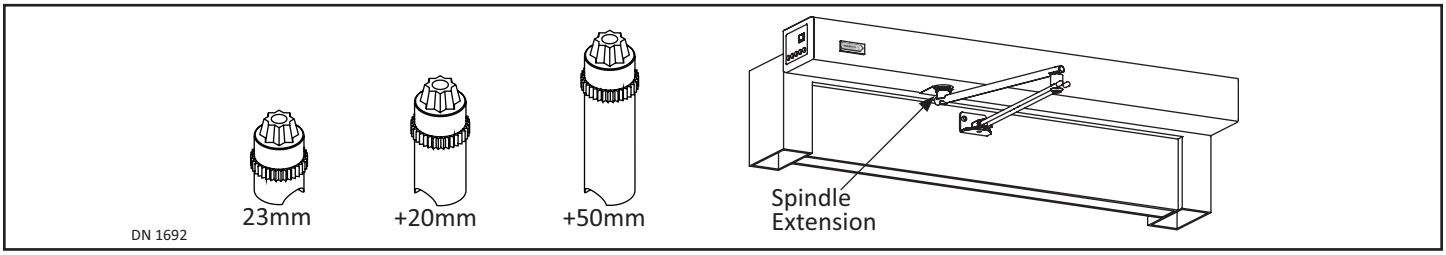
DANGER **Do Not install Fail Secure electric locks on Swing Doors using Inverse Swing Doors. Fail Secure electric locks will not allow the Swing door to open during a Power Failure.**

SECTION 4.16 Spindle Extension

Note: The Spindle Extension can also be known as a Clamping Adapter.

Spindle Extension			
Size	**Outswing Arm**	**Inswing Arm**	**Part Number**
23mm	Raises Arm by 3/4 inch	Standard for Inswing Doors	V-00513
+20mm	Standard for Outswing doors	Lowers Arm by 3/4 inch	V-00407
+50mm	Lowers Arm by 1/4 inch	Lowers Arm by 2 inches	V-00408

Depending upon the Size, a Spindle Extension can Lower or Raise the Swing Arm once it is inserted within the Output Shaft.



SECTION 4.17 The Stop Finger

Attention: The Stop Finger must point in the same direction the Gear rotates to open the Door Panel. The Stop Finger can be adjusted, please refer to the "Adjustments" chapter within this manual.

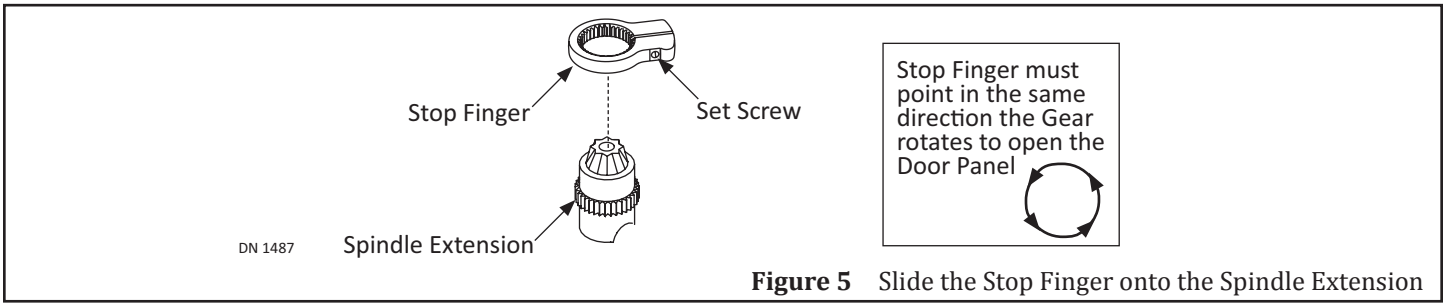


Figure 5 Slide the Stop Finger onto the Spindle Extension

SECTION 4.18 The Vice Grip (Inswing Doors)

Attention: While installing/uninstalling the Arm on Inswing Doors, or when making Swing Door adjustments, it is recommended to clamp a Vice Grip onto the end of the Motor Shaft to keep It from rotating. Please go to the Adjustment Chapter within this manual for detailed instructions.

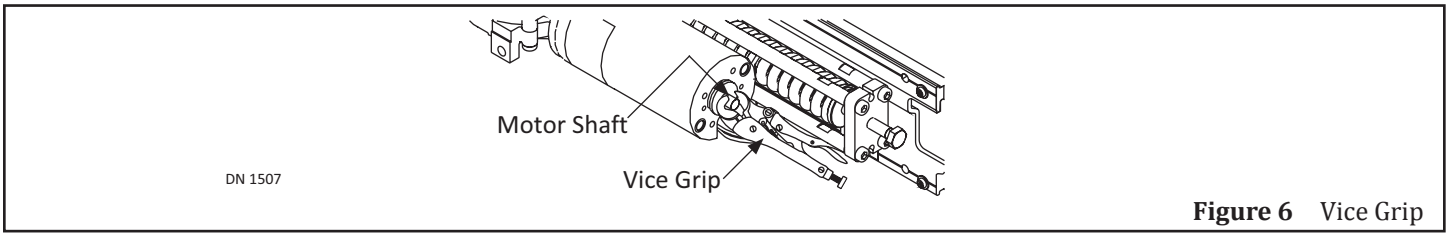


Figure 6 Vice Grip

CHAPTER 5: INSTALL THE OUTSWING OPERATOR (WITH ARM SHOE)

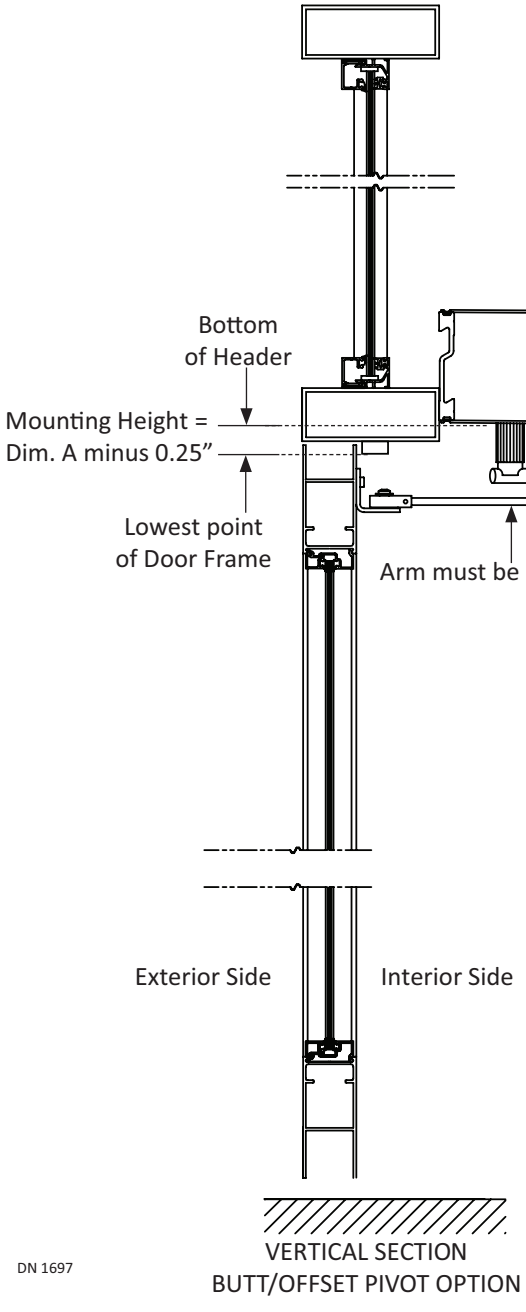
DANGER **Shut incoming electrical power to Header OFF. Failure to do so may result in serious personal or fatal injury. When uncertain whether power supply is disconnected, always verify using a voltmeter.**

WARNING **Electrical circuit to Nabco operator must not be not shared with other equipment such as lighting, cash registers, or any device that might cause electrical interference on the circuit.**

SECTION 5.1 Install the Header

Attention: Due to various types of Door Frames, the mounting Height of each Operator must be determined by the Installer. Ensure the Swing Door can fully open.

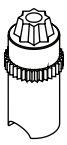
1. Determine Header Mounting Height. Please see Figure 7.



The Top of Arm must clear the Lowest Point on bottom of Door Frame. Therefore, mounting height of Header is determined relative to the lowest point of the Door Frame.

To determine correct mounting height of GT20 Header, determine:

- Dimension A:
  - Equals the distance from the Top of Arm to the underside of Header.
  - Distance will vary based on what LENGTH of Spindle Extension is used. Please refer to Table below.



Dimension A (when used with)		
Spindle Extension 23mm Dim. A = 0.28”	P/N	V-00513
Spindle Extension (Standard) Dim. A = 1.56”	P/N	V-00407
Spindle Extension +50mm Dim. A = 2.76”	P/N	V-00408

Instruction:

1. Measure up from the lowest point on Door Frame that the Arm needs to clear a distance = (Dimension A minus 0.25”).
2. Mark a Horizontal Line on the Door Frame.
   a. This will be the mounting height of Header.
3. Position the Bottom of the Header even with the Horizontal Line.

Figure 7 Determine Header Mounting Height

2. Mark a horizontal line on the Door Frame to indicate the mounting location of the bottom of Header.
3. From the Center Line of Pivot, measure 11 inches across the Top Door Frame.
4. Mark a vertical line across the horizontal line. This vertical line indicates the centerline of the operator Spindle. Please see Figure 8.

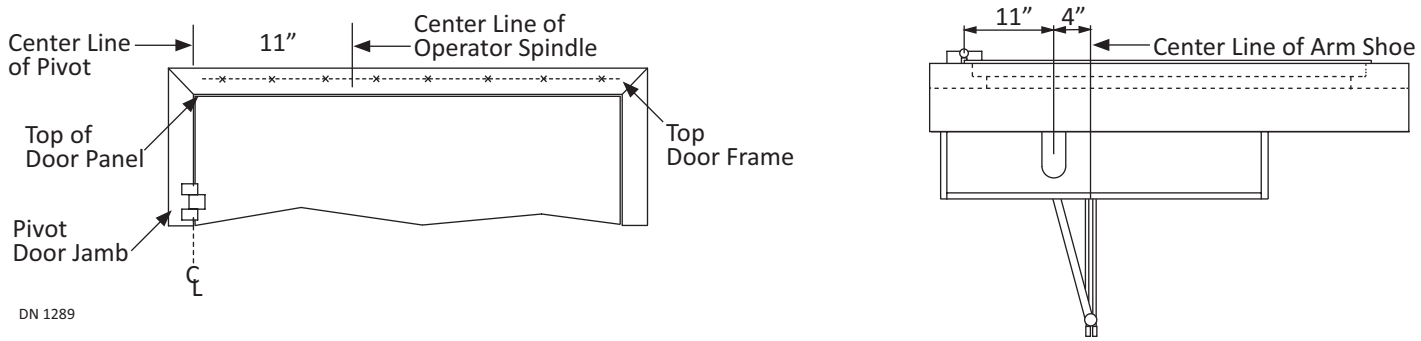


Figure 8 Measure to Mark Screw Holes

5. Lift and then Butt the bottom of Header to the horizontal line. Ensure the Header is square and level.
6. Slide the Header horizontally until the Operator Spindle is centered on the Vertical line.
7. Using the predrilled holes in the Header baseplate, as a template, mark the location of holes on the horizontal Door Frame.
8. Remove Header. Pre-drill the marked holes into the Door Frame to accept 1/4” Screws or Rivnuts.
9. Secure Header to Door Frame with 1/4” Screws or Rivnuts through the (8) predrilled screw holes on Header Baseplate.
   a. Header must be level and securely fastened to the Door Frame and/or solid wood Blocking above Door Frame to prevent flexing or movement of Header during operation.

SECTION 5.2 Install the Outswing Arm

The Outswing Arm with an Arm Shoe consists of (2) major parts:

- Arm Shoe Assembly: Used to secure the Outswing Arm to the Door Panel.
- The Lever Arm: Used to secure the Outswing Arm to the GT20 Operator.

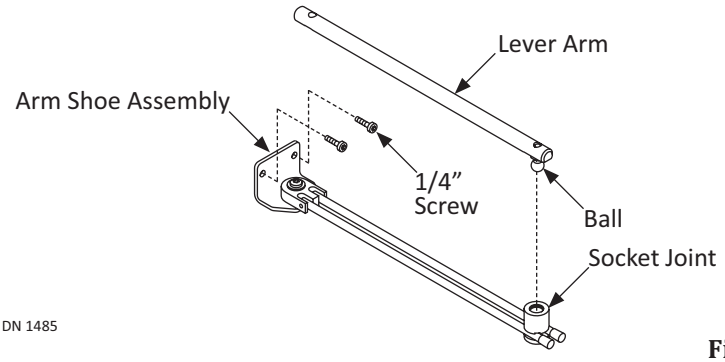


Figure 9 Outswing Arm Assembly

SECTION 5.3 Mark Arm Shoe location onto Door Panel

1. From the Center Line of Pivot, measure 14-1/8 inches across the Door Panel. Mark a vertical line.

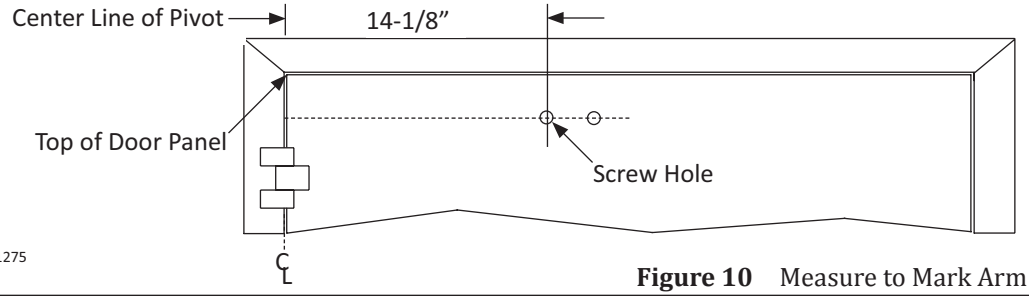


Figure 10 Measure to Mark Arm Shoe Screw holes

2. Obtain the Stop Finger and then loosen the Set Screw located on the side.
3. Slide the Stop Finger onto the Spindle Extension.
   a. The Stop Finger must point in the same direction the Gear rotates to open the Door Panel.
4. From the bottom of the Lever Arm, slide (1) Bolt all the way up through both bolt holes.

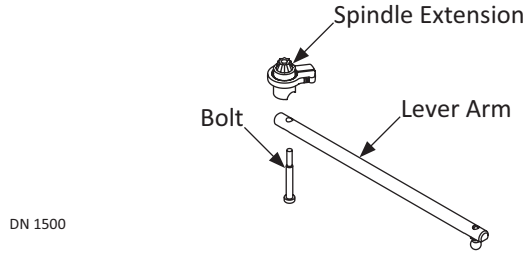


Figure 11 Secure the Spindle Extension

5. Insert the Spindle Extension into the Output Shaft. Temporarily tighten the Bolt.

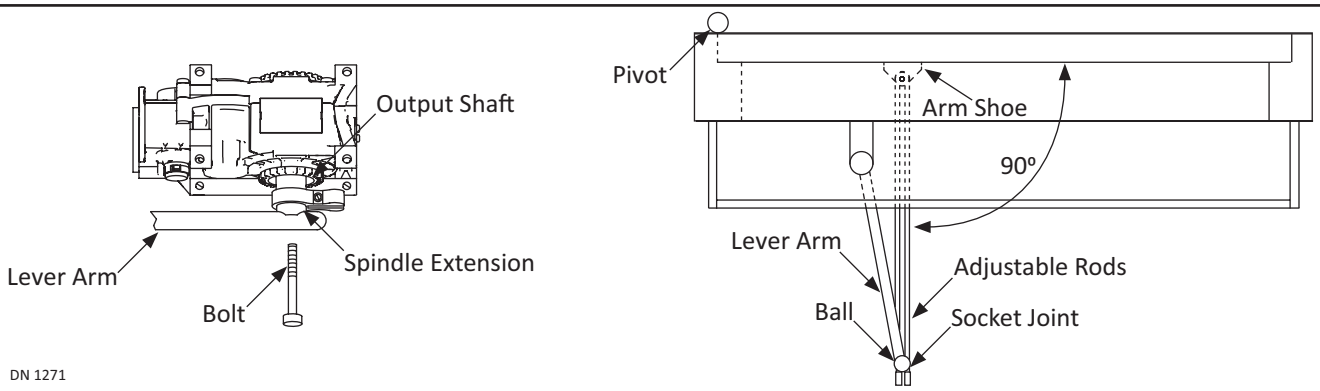


Figure 12 Position the Arm Shoe on Door Panel

6. Position the Arm Shoe up against the Door Panel. Center the first screw hole (Pivot side of Header) to the Vertical Line.
   a. Ensure the Lever Arm is level.
7. Use the Arm Shoe as a template to mark (2) 1/4 inch screw holes.
   a. Ensure the Lever Arm is level.
8. Remove the Spindle Extension from the Output Shaft. Set aside.

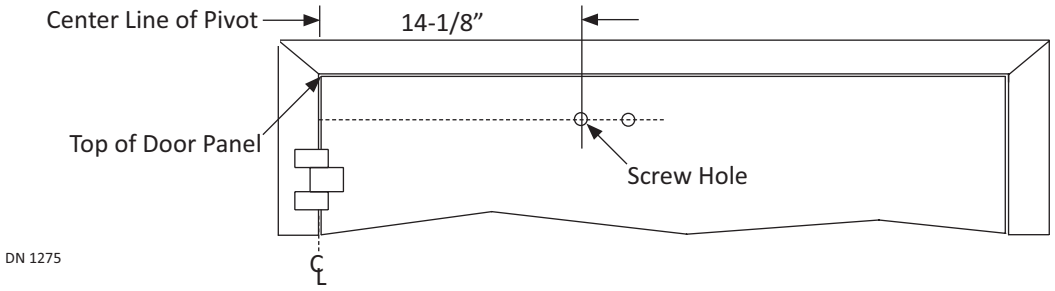


Figure 13 Measure to Mark Screw holes

SECTION 5.4 Install the Arm Shoe onto the Door Panel

1. Separate the Lever Arm from the Arm Shoe Assembly by pulling the Ball out from the Socket Joint. Set aside.

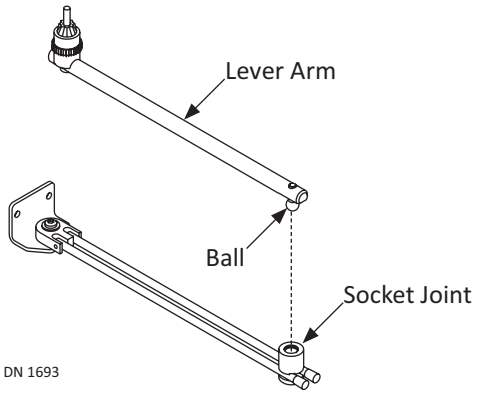


Figure 14 Separate Outswing Arm Assembly

2. Secure the Arm Shoe to the Swing Door with (2) 1/4 inch Screws or (2) 1/4 x 3/4 inch Sex Bolt Screws (Sex Bolt kit provided by NABCO).
   - ▶ If 1/4 inch screws are being used to secure the Arm Shoe Assembly:
     - Align the first pre-drilled screw hole to the measured mark and use the Arm Shoe as a template to mark and drill (2) 1/4 inch screw holes. Ensure the Header is square and level.
   - ▶ If Sex Bolts are being used to secure the Arm Shoe Assembly:
     - Align the first pre-drilled screw hole to the measured mark and use the Arm Shoe as a template to mark and drill (2) screw holes all the way through the Door Panel, so they are big enough to allow the sex bolts to be inserted. Ensure the Header is square and level.

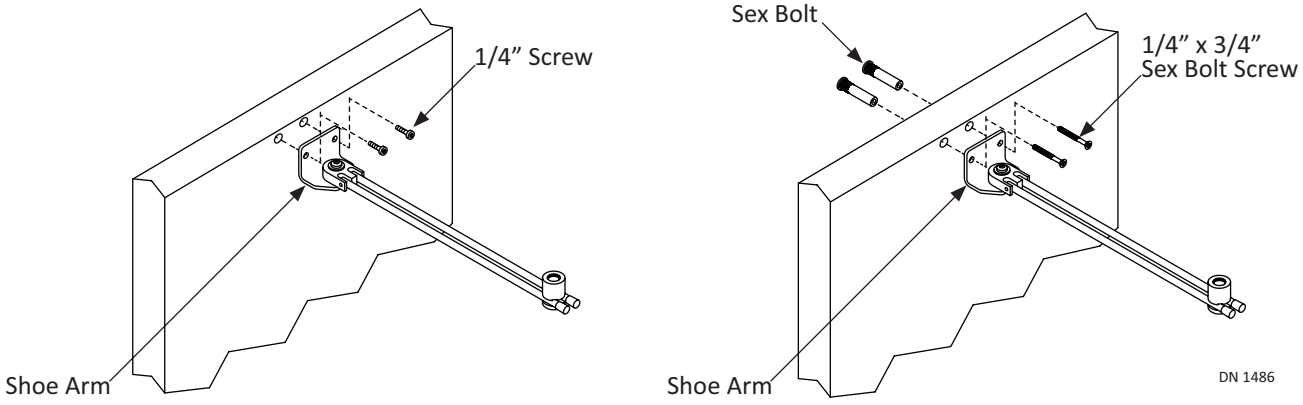


Figure 15 Secure the Arm Shoe to the Door Panel

SECTION 5.5 Install the Lever Arm to the GT20 Operator

1. Replace the Spindle Extension and Stop Finger assembly back onto the top of the Lever Arm.
2. From the bottom of the Lever Arm, slide (1) Bolt all the way up through both bolt holes.

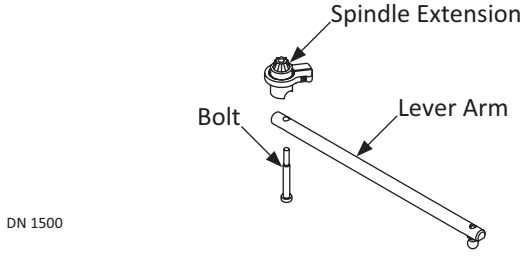


Figure 16 Secure the Spindle Extension

3. Insert the Spindle Extension back into the Output Shaft. Tighten the Bolt.
4. Position the Adjustable Rods and Lever Arm as perpendicular as possible (90 degrees) with regard to the Door Panel.

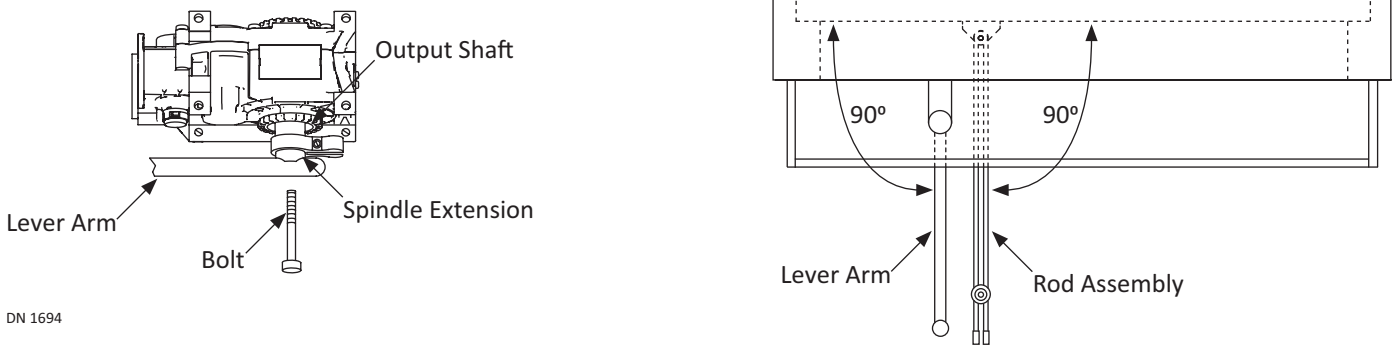


Figure 17 Secure the Lever Arm to the Operator

SECTION 5.6 Install Arm and Set Preload

CAUTION **If Rod Arms hit/touch a surface while the Swing Door is Closing/Opening, the Rod Arms must be shortened.**

1. Manually close the Swing Door.
2. Go to the bottom of the Socket Joint. Slightly loosen the Bolt so the Socket Joint can slide up/down the Rod Arm Assembly.
3. With the Rod Assembly as perpendicular as possible (90 degrees); swing the Lever Arm over to the Socket Joint.
4. Snap the Lever Arm back into the Socket Joint. Tighten the Bolt.
   a. If done correctly, the Lever Arm will be at an angle, and the adjustable rod assembly will be perpendicular to the door.

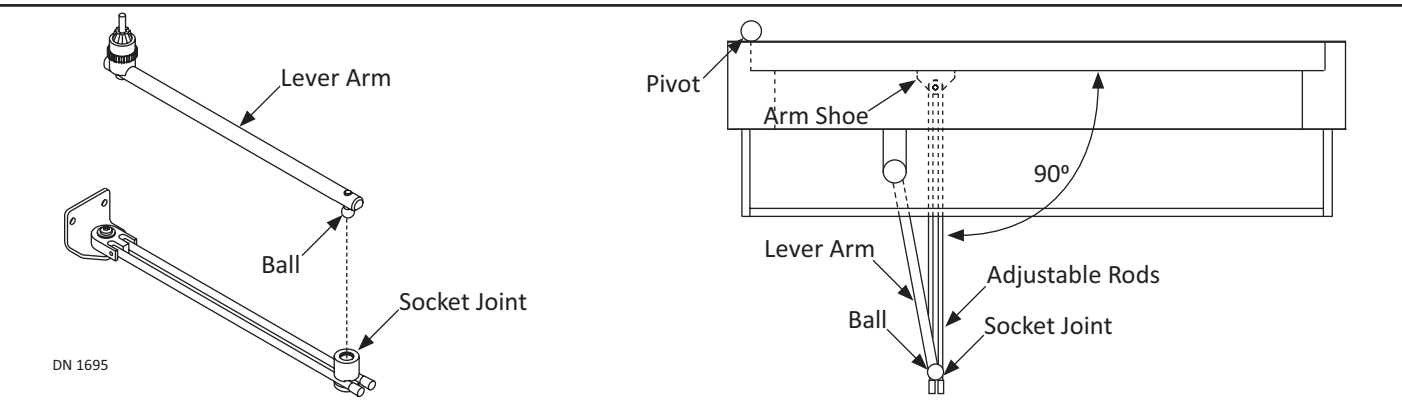


Figure 18 Connect the Lever Arm to the Arm Shoe Assembly

SECTION 5.7 Permanently Tighten the Bolt to the Spindle Extension

1. Tighten the Bolt with a Torque Wrench:
   - The existing Bolt must be torqued appropriately (200 in-lb).
   - If the existing Bolt is removed; a new Bolt can be used providing Loctite is applied and torqued appropriately (200 in-lb).
   - Alternatively, the existing Bolt can be used providing it is first cleaned (existing Loctite removed), before fresh Loctite is applied and torqued appropriately (200 in-lb).
   - Compatible Torque Wrenches: Grainger/Westward Fixed 3/8” Micrometer Torque Wrench, 50 to 250 In-Lb or Sears/ Craftsman Micro-Clicker Torque Wrench 3/8” Drive 25 to 250 In-Lb.

CHAPTER 6: INSTALL THE OUTSWING OPERATOR (WITH GUIDE TRACK)

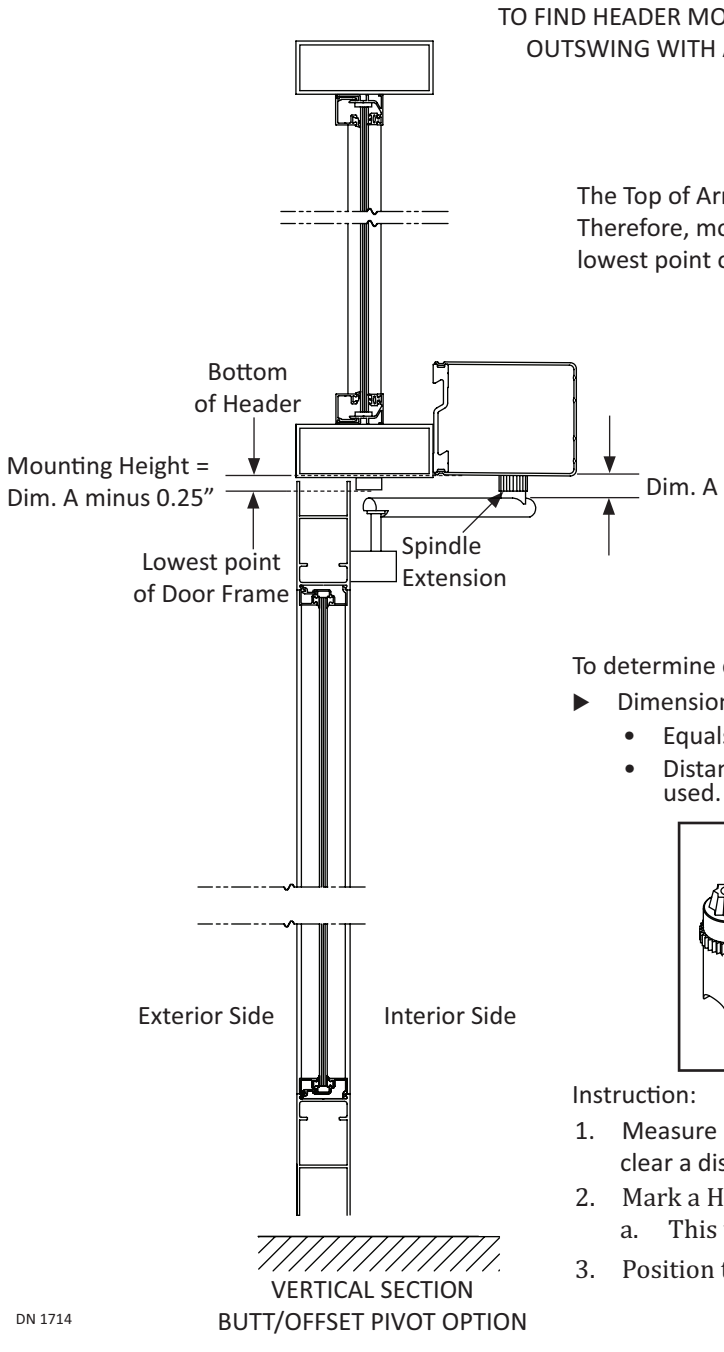
DANGER **Shut the installation site, branch Circuit Breaker OFF. Failure to do so may result in serious personal or fatal injury. When uncertain whether power supply is disconnected, always verify using a voltmeter.**

WARNING **Electrical circuit to Nabco operator must not be not shared with other equipment such as lighting, cash registers, or any device that might cause electrical interference on the circuit.**

SECTION 6.1 Install the Header

Attention: Due to various types of Door Frames, the mounting Height of each Operator must be determined by the Installer. Ensure the Swing Door can fully open.

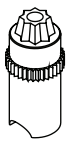
1. Determine Header Mounting Height. Please see Figure 19.



The Top of Arm must clear the Lowest Point on bottom of Door Frame. Therefore, mounting height of Header is determined relative to the lowest point of the Door Frame.

To determine correct mounting height of GT20 Header, determine:

- Dimension A:
  - Equals the distance from the Top of Arm to the underside of Header.
  - Distance will vary based on what LENGTH of Spindle Extension is used. Please refer to Table below.



Dimension A (when used with)		
Spindle Extension 23mm Dim. A = 0.28”	P/N	V-00513
Spindle Extension (Standard) Dim. A = 1.56”	P/N	V-00407
Spindle Extension +50mm Dim. A = 2.76”	P/N	V-00408

Instruction:

1. Measure up from the lowest point on Door Frame that the Arm needs to clear a distance = (Dimension A minus 0.25”).
2. Mark a Horizontal Line on the Door Frame.
   a. This will be the mounting height of Header.
3. Position the Bottom of the Header even with the Horizontal Line.

Figure 19 Determine Header Mounting Height

2. Mark a horizontal line on the Door Frame to indicate the mounting location of the bottom of Header.
3. From the Center Line of Pivot, measure 11 inches across the Top Door Frame.
4. Mark a vertical line across the horizontal line. This vertical line indicates the centerline of the operator Spindle.

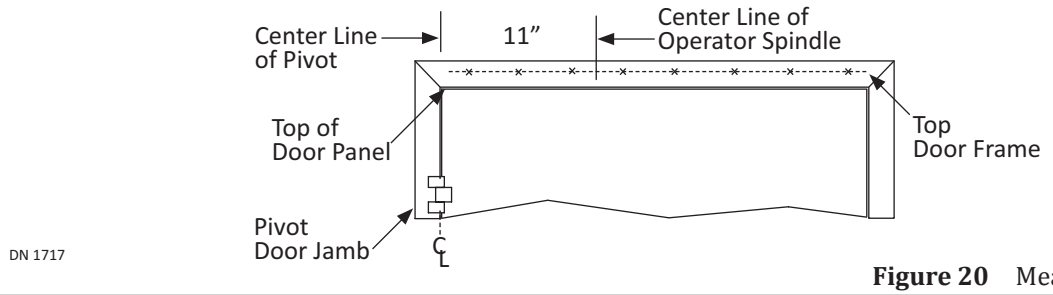


Figure 20 Measure to Mark Screw Holes

5. Lift and then Butt the bottom of Header to the horizontal line. Ensure the Header is square and level.
6. Slide the Header horizontally until the Operator Spindle is centered on the Vertical line.
7. Using the predrilled holes in the Header baseplate, as a template, mark the location of holes on the horizontal Door Frame.
8. Remove Header. Pre-drill the marked holes into the Horizontal Door Frame to accept 1/4” Screws or Rivnuts.
9. Secure Header to Door Frame with 1/4” Screws or Rivnets through the (8) predrilled screw holes on Header Baseplate.
   a. Header must be level and securely fastened to the Door Frame and/or solid wood Blocking above Door Frame to prevent flexing or movement of Header during operation.

SECTION 6.2 Install Arm and Set Preload

1. Loosen the Set Screw located on the side of the Stop Finger. Slide the Stop Finger onto the Spindle Extension.
   a. The Stop Finger must point in the same direction the Gear rotates to open the Door Panel.
2. Close the Door Panel. Place the Spindle Extension onto the top of the Lever Arm. Align both holes.
3. From the Bottom of the Lever Arm, slide (1) Bolt all the way up through both bolt holes.

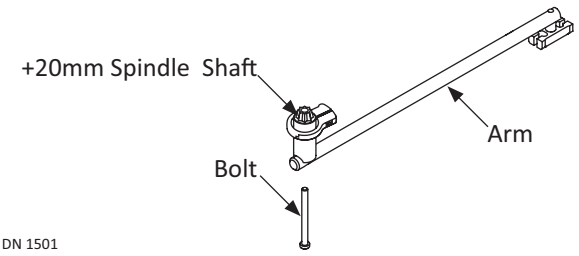


Figure 21 Secure the Spindle Extension

4. With the door panel closed, insert the Spindle Extension into the Output Shaft with the arm approximate 15 degrees away from the face of the closed door.
5. Temporarily tighten the Bolt holding the Spindle Extension onto the Operator.
6. Grabbing the Arm, rotate the Arm towards the door panel so that the Slide Block is resting against the door panel.
7. Using vice grips, clamp the end of the motor shaft to hold the Arm in place at this point.
8. Remove the arm while leaving the Vice Grips in place.

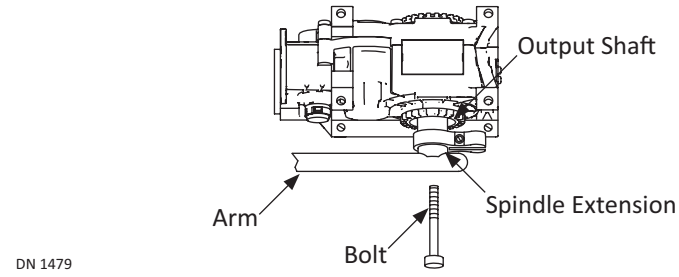
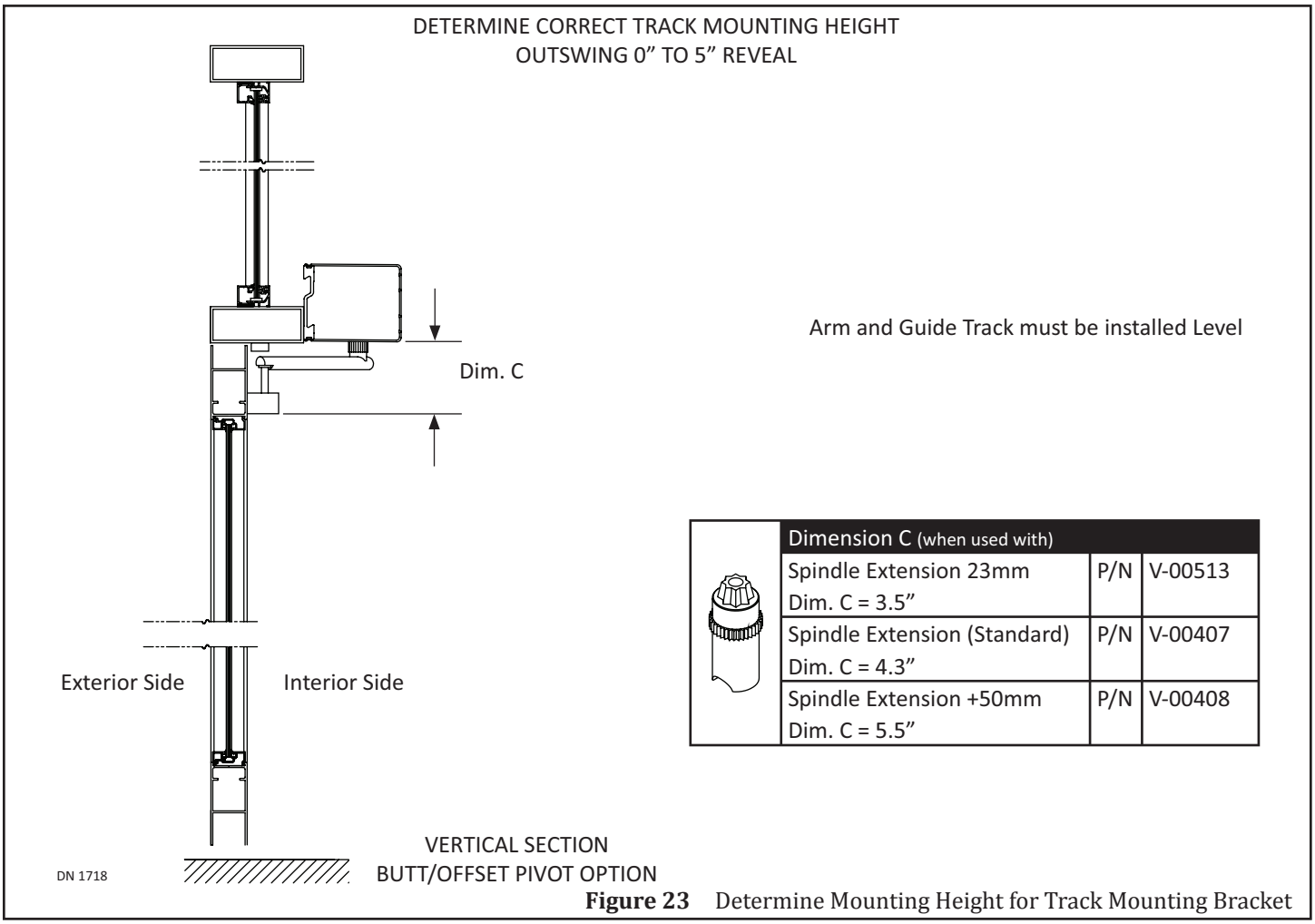


Figure 22 Insert the Spindle Extension into the Output Shaft

SECTION 6.3 Install the Track Mounting Bracket

1. To determine correct mounting height for the Track Mounting Bracket, the Header must first be installed as per Figure 19.
2. Find the distance from the underside of the Header to the bottom of the Track Mounting Bracket (Dimension C in Figure 23).



Dimension C (when used with)		
Spindle Extension 23mm Dim. C = 3.5”	P/N	V-00513
Spindle Extension (Standard) Dim. C = 4.3”	P/N	V-00407
Spindle Extension +50mm Dim. C = 5.5”	P/N	V-00408

Figure 23 Determine Mounting Height for Track Mounting Bracket

3. Mark a Horizontal line on the Door Panel to indicate location of the bottom of Track Mounting Bracket.
4. From the Center Line of Pivot, measure 5-1/2 inches across the Door Panel.
5. Mark a vertical line across the horizontal line.

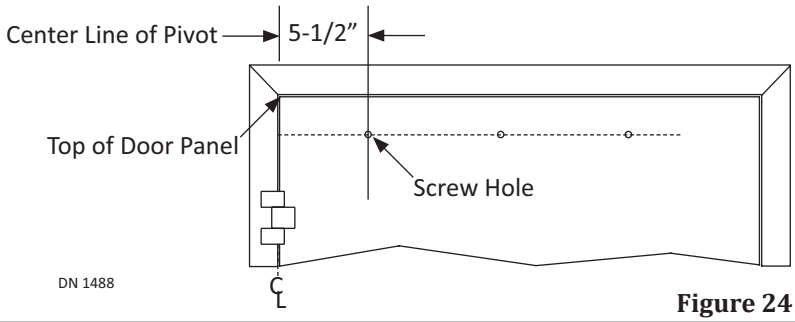


Figure 24 Measure to Mark Screw Holes

6. Butt the bottom of Mounting Bracket to the horizontal line. Ensure the Mounting Bracket is square and level.
7. Center the first screw hole (Pivot side of Door) to the vertical line. Mark and drill (1) #10 screw hole into the Door Panel.
8. Continue to use the Mounting Bracket as a template to mark and drill (2) more #10 screw holes.
9. Secure the Mounting Bracket to the Door Panel with (3) #10 Screws (not provided by NABCO).

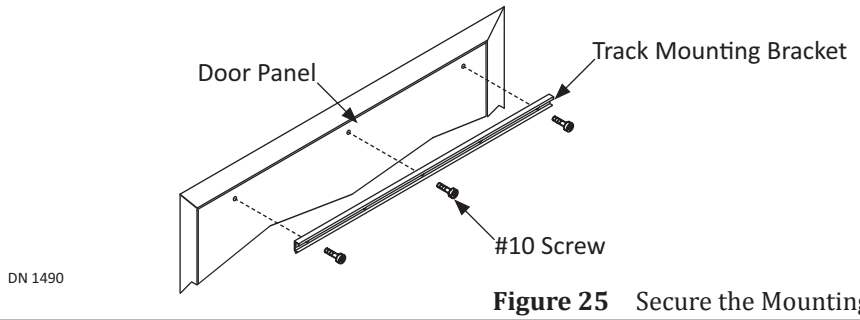


Figure 25 Secure the Mounting Bracket to the Door Panel

SECTION 6.4 Install the Guide Track

1. Secure the Guide Track to the Mounting Bracket with (1) nut, (1) Wedge Clamp, and (1) screw into each open end.
2. Insert (1) end cap into each side.

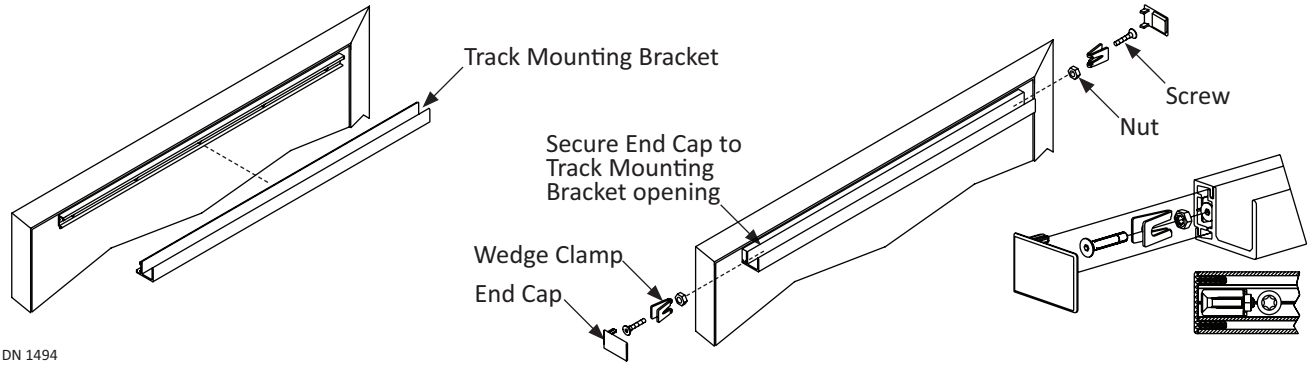


Figure 26 Mark to Measure Mounting Bracket Screw Holes

SECTION 6.5 Install the Arm

1. With door closed, re-install the Spindle Extender in Operator with Arm and Slide Block assembly in the Guide Track.
2. Tighten bolt on Spindle Extender as described within SECTION 6.6.

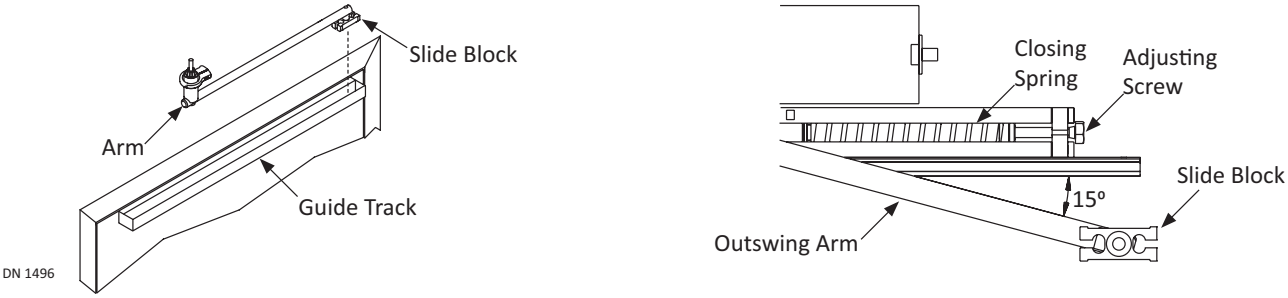


Figure 27 Secure the Rotating Arm to the Spindle Extension

SECTION 6.6 Permanently Tighten the Bolt to the Spindle Extension

1. Tighten the Bolt with a Torque Wrench:
   - ▶ The existing Bolt must be torqued appropriately (200 in-lb).
   - ▶ If the existing Bolt is removed; a new Bolt can be used providing Loctite is applied and torqued appropriately (200 in-lb).
   - ▶ Alternatively, the existing Bolt can be used providing it is first cleaned (existing Loctite removed), before fresh Loctite is applied and torqued appropriately (200 in-lb).

   a. Compatible Torque Wrenches: Grainger/Westward Fixed 3/8” Micrometer Torque Wrench, 50 to 250 In-Lb or Sears/ Craftsman Micro-Clicker Torque Wrench 3/8” Drive 25 to 250 In-Lb.

CHAPTER 7: INSTALL THE INSWING OPERATOR (NO REVEAL)

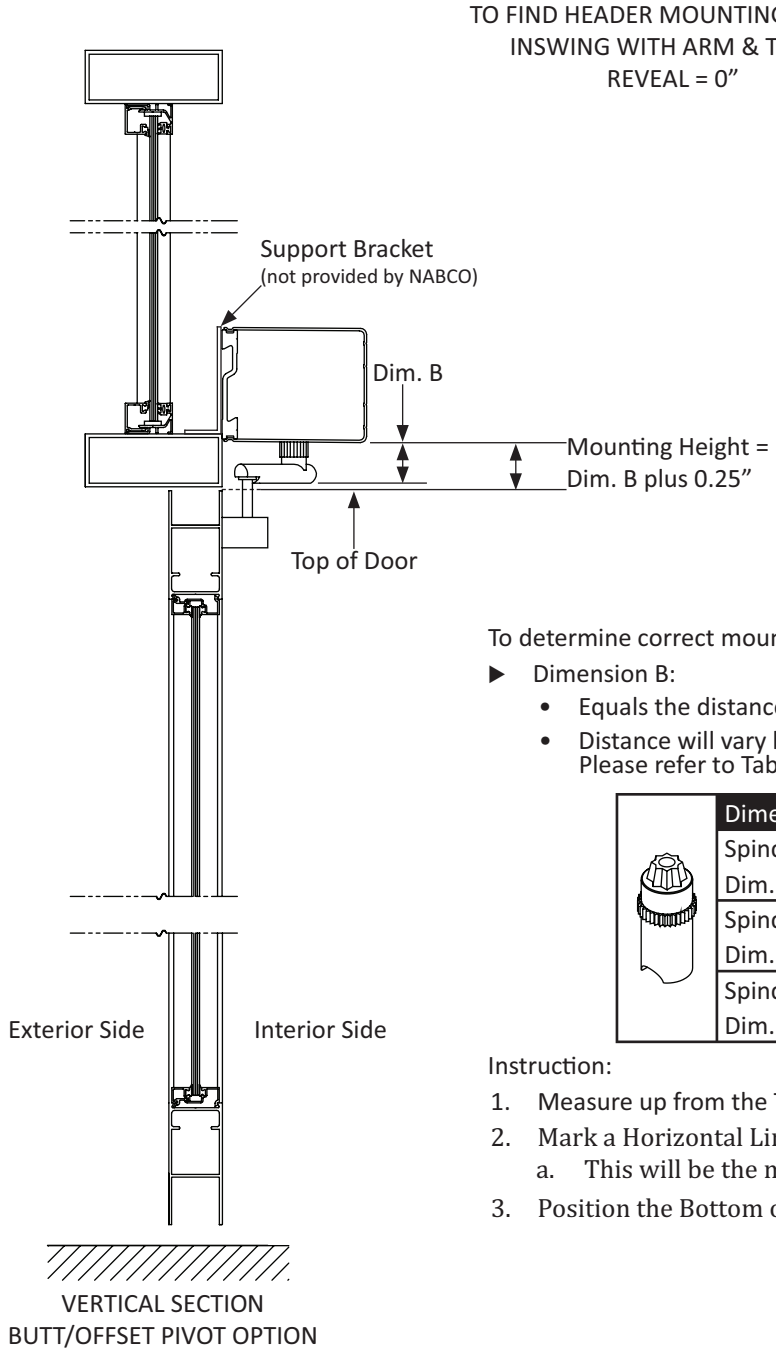
DANGER **Shut the installation site, branch Circuit Breaker OFF. Failure to do so may result in serious personal or fatal injury. When uncertain whether power supply is disconnected, always verify using a voltmeter.**

WARNING **Electrical circuit to Nabco operator must not be not shared with other equipment such as lighting, cash registers, or any device that might cause electrical interference on the circuit.**

SECTION 7.1 Install the Header

Attention: Due to various types of Door Frames, the mounting Height of each Operator must be determined by the Installer. Ensure the Swing Door can fully open.

1. Determine Header Mounting Height. Please see Figure 28.



To determine correct mounting height of GT20 Header, determine dimension “B”.

▶ Dimension B:
- Equals the distance from Underside of Arm to the underside of Header.
- Distance will vary based on what LENGTH of Spindle Extension is used. Please refer to Table below.

Dimension B (when used with)		
Spindle Extension (standard) Dim. B = 0.91”	P/N	V-00513
Spindle Extension +20mm Dim. B = 2.19”	P/N	V-00407
Spindle Extension +50mm Dim. B = 3.4”	P/N	V-00408

Instruction:
1. Measure up from the Top of Door a distance = (Dimension B plus 0.25”).
2. Mark a Horizontal Line on the Door Frame.
   a. This will be the mounting height of Header.
3. Position the Bottom of the Header even with the Horizontal Line.

DN 1719

Figure 28 Determine Header Mounting Height

2. Mark a horizontal line on the Door Frame to indicate the mounting location of the bottom of Header.
3. From the Center Line of Pivot, measure 11 inches across the Top Door Frame.
4. Mark a vertical line across the horizontal line. This vertical line indicates the centerline of the operator Spindle.
5. Lift and then Butt the bottom of Header to the horizontal line. Ensure the Header is square and level.
6. Slide the Header horizontally until the Operator Spindle is centered on the Vertical line.
7. Using the predrilled holes in the Header baseplate, as a template, mark the location of holes on the horizontal Door Frame.
8. Remove Header. Pre-drill the marked holes into the Horizontal Door Frame to accept 1/4" Screws or Rivnuts.
9. Secure Header to Door Frame with 1/4" Screws or Rivnets through the (8) predrilled screw holes on Header Baseplate.
   a. Header must be level and securely fastened to the Door Frame and/or solid wood Blocking above Door Frame to prevent flexing or movement of Header during operation.

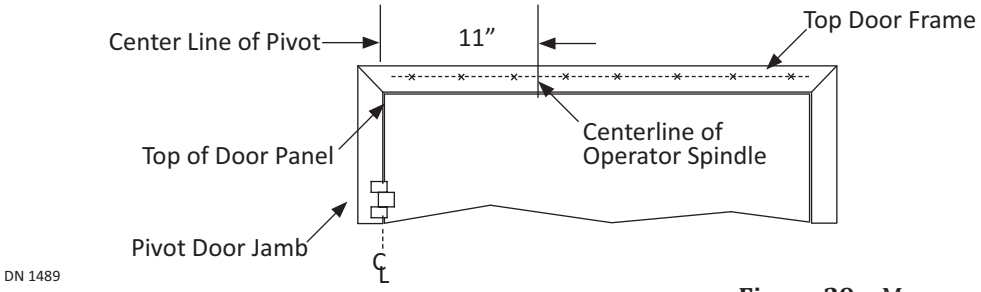
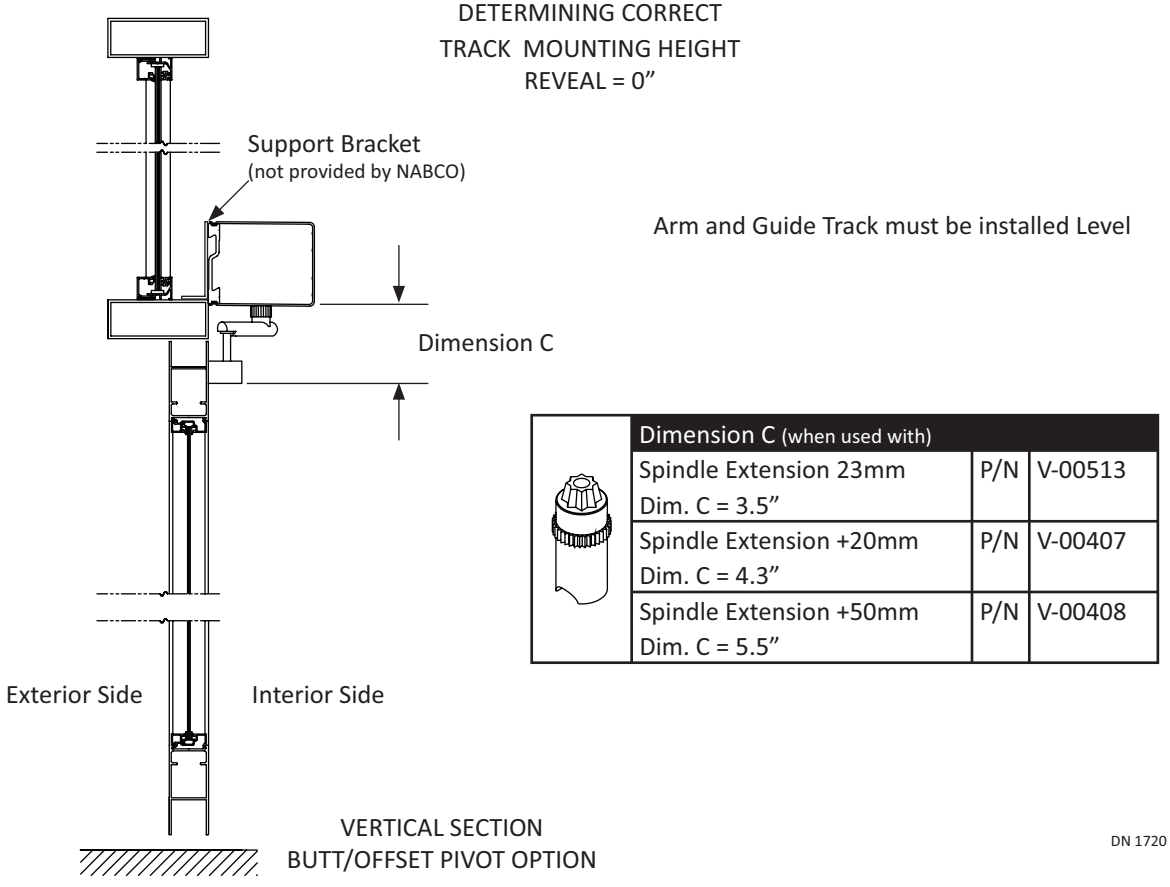


Figure 29 Measure to Mark Screw Holes

SECTION 7.2 Install the Track Mounting Bracket

1. To determine correct mounting height for the Track Mounting Bracket, the header must first be installed as per Figure 28.
2. Find the distance from the underside of the Header to the bottom of the Track Mounting Bracket from Dimension C.



Dimension C (when used with)		
Spindle Extension 23mm Dim. C = 3.5"	P/N	V-00513
Spindle Extension +20mm Dim. C = 4.3"	P/N	V-00407
Spindle Extension +50mm Dim. C = 5.5"	P/N	V-00408

Figure 30 Determine Mounting Height for Track Mounting Bracket

3. Mark a horizontal line on the Door Panel to indicate location of the bottom of Track Mounting Bracket.
4. From the Center Line of Pivot, measure 5-1/2 inches across the Door Panel. Mark a vertical line across the horizontal line.
5. Butt the bottom of Mounting Bracket to the horizontal line. Ensure the Mounting Bracket is square and level.

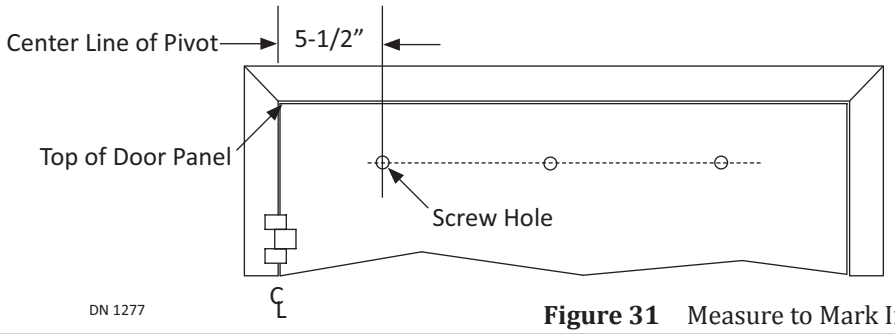


Figure 31 Measure to Mark Inswing Track Screw Holes

6. Center the first screw hole (Pivot side of Door) to the vertical line. Mark and drill (1) screw hole for a #10 screw into the Door Panel (Not provided by NABCO).
7. Continue to use the Mounting Bracket as a template to mark and drill (2) more screw holes for #10 Screws.
8. Secure the Mounting Bracket to the Door Panel with (3) #10 Screws (not provided by NABCO).

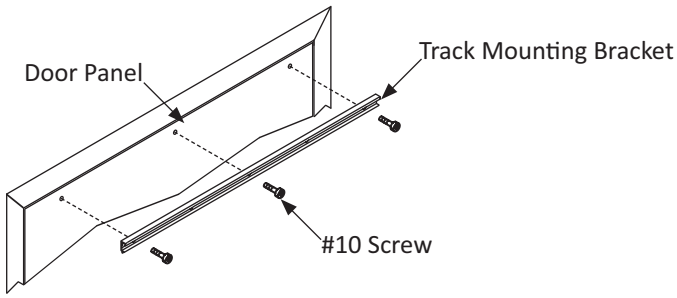


Figure 32 Secure the Mounting Bracket to the Door Panel

SECTION 7.3 Install the Guide Track

1. Assemble the Guide Track to the Mounting Bracket.
2. Secure the Guide Track to the Mounting Bracket with (1) nut, (1) Wedge Clamp, and (1) screw into each open end.
3. Insert (1) end cap into each side.

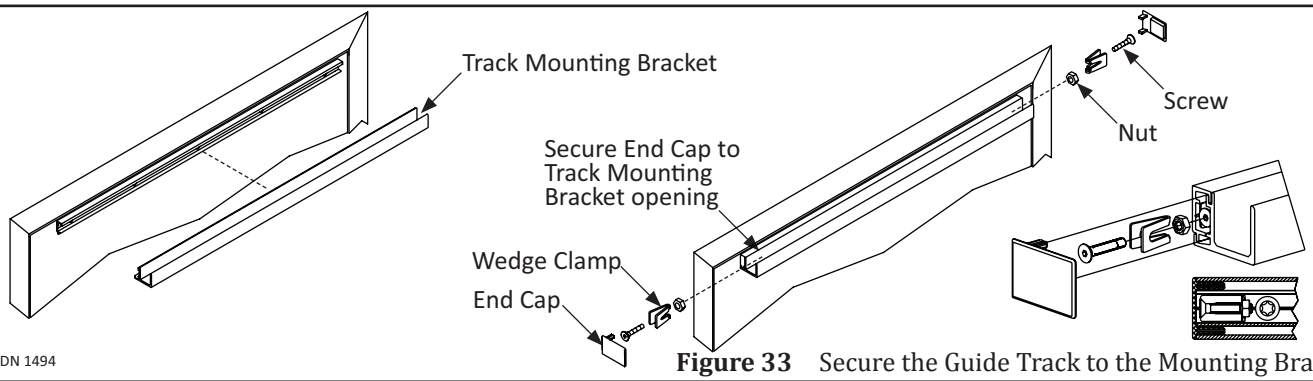


Figure 33 Secure the Guide Track to the Mounting Bracket

SECTION 7.4 Install Arm and Set Preload

Note: It is recommended to clamp a Vice Grip onto the end of the Motor Shaft to keep It from rotating.

1. Grasp, and rotate Arm back from within Door opening, so the Slide Block can rest against Door in the Fully Closed position.
2. Clamp Motor Shaft in place with Vice Grips. Remove the Arm once the Shaft is clamped in place. Set aside.

3. Close the door panel. Reinstall the Arm/Spindle Extension with the Door Fully Closed and the Slide Block sitting in the Guide Track.
4. Remove the Vice Grips.
   a. This completes the installation of the Inswing Arm and the Operator Preload.

Note: If REF appears on the screen when power is applied, it might be necessary to remove the Arm and increase or decrease Preload slightly, as per the above instructions, or adjust the FSlam CAM.

5. Loosen the Set Screw located on the side of the Stop Finger.
6. Slide the Stop Finger onto the Spindle Extension.
   a. The Stop Finger must point in the same direction the Gear rotates to open the Door Panel.
7. Open the Door Panel. Place the Spindle Extension onto the top of the Lever Arm. Align both holes.
8. From the Bottom of the Lever Arm, slide (1) Bolt all the way up through both bolt holes.

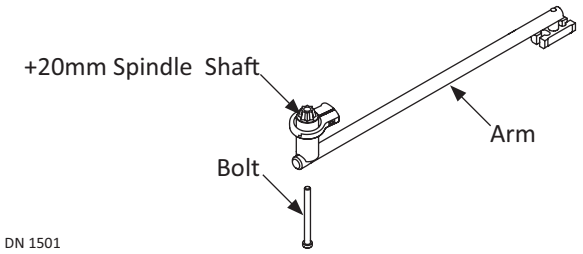


Figure 34 Secure the Spindle Extension

9. Position the Inswing Arm with a 15° offset into the Door opening.
   a. To facilitate the installation: the Closing Spring can be completely released by means of the Adjusting Screw.
   b. The more the Closing Spring is tightened by the Adjusting Screw, the more the Gear centers the Spindle Extension, thus the Inswing Arm. If deemed necesssary, please go to the Adjustment Chapter within this manual to Adjust Preload.
10. Insert the Spindle Extension into the Output Shaft. Tighten the Bolt.

Note: It is recommended to clamp a Vice Grip onto the end of the Motor Shaft to keep It from rotating.

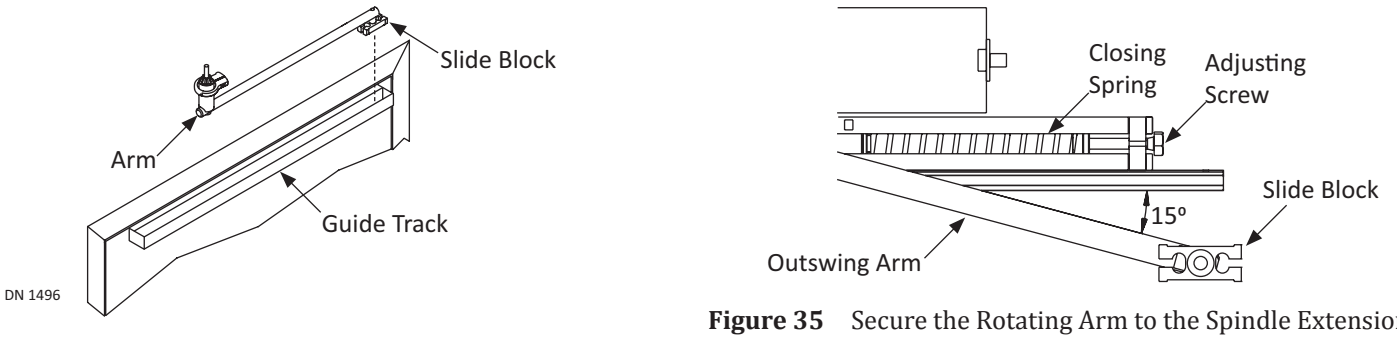


Figure 35 Secure the Rotating Arm to the Spindle Extension

11. Close the door panel. Reinstall the arm/spindle with the door closed and slide block sitting in the track.
12. Remove the vice grips.
13. This completes the installation of the inswing arm and the operator preload.

Note: if REF appears on the screen when power is applied it might be necessary to remove arm and increase or decrease preload slightly as per the above instfucitons.

SECTION 7.5 Permanently Tighten the Bolt to the Spindle Extension

1. Tighten the Bolt with a Torque Wrench:
   - ▶ The existing Bolt must be torqued appropriately (200 in-lb).
   - ▶ If the existing Bolt is removed; a new Bolt can be used providing Loctite is applied and torqued appropriately (200 in-lb).
   - ▶ Alternatively, the existing Bolt can be used providing it is first cleaned (existing Loctite removed), before fresh Loctite is applied and torqued appropriately (200 in-lb).
   a. Compatible Torque Wrenches: Grainger/Westward Fixed 3/8” Micrometer Torque Wrench, 50 to 250 In-Lb or Sears/ Craftsman Micro-Clicker Torque Wrench 3/8” Drive 25 to 250 In-Lb.

CHAPTER 8: INSTALL THE INSWING OPERATOR ASSEMBLY (W/REVEAL)

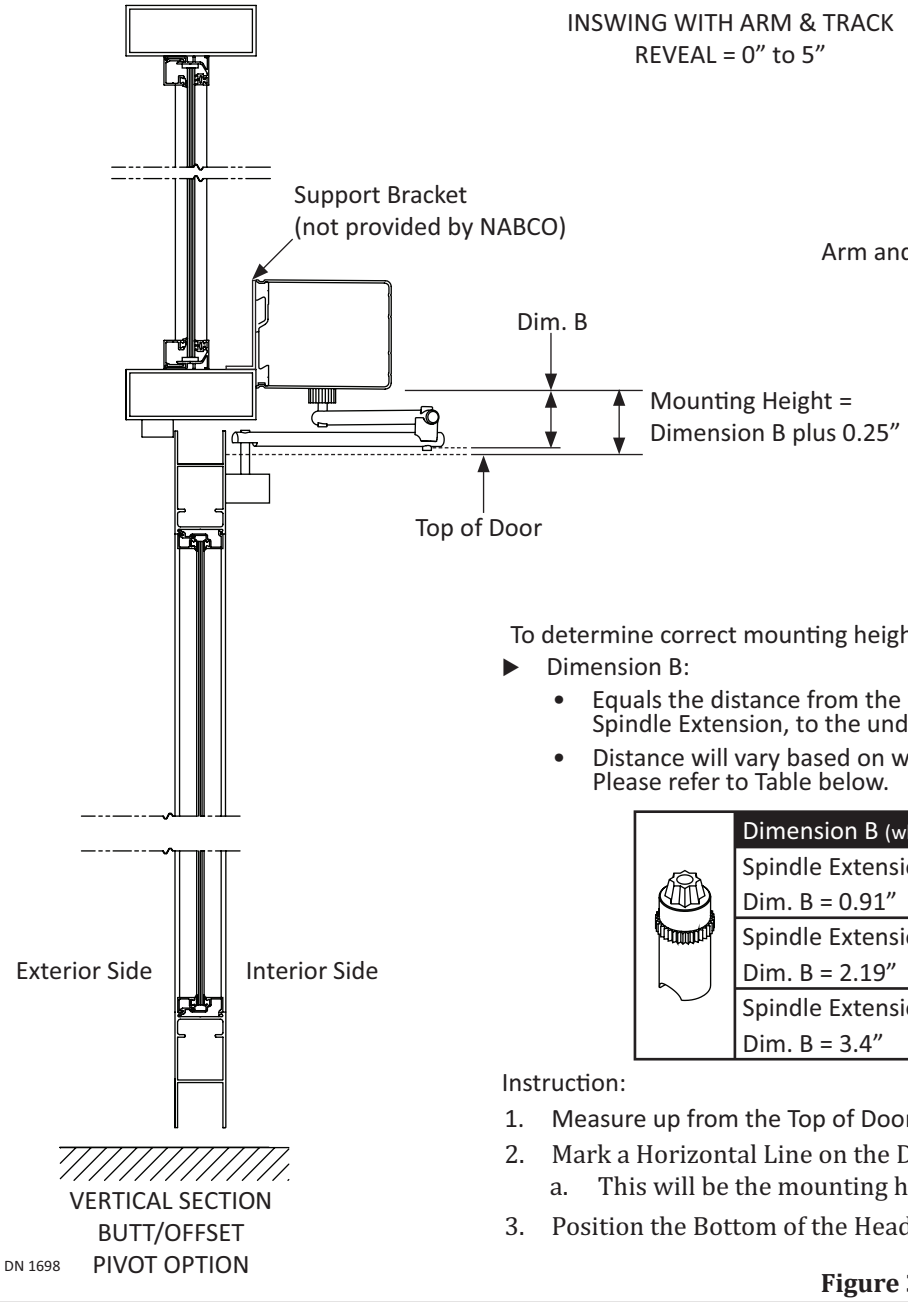
DANGER **Shut the installation site, branch Circuit Breaker OFF. Failure to do so may result in serious personal or fatal injury. When uncertain whether power supply is disconnected, always verify using a voltmeter.**

WARNING **Electrical circuit to Nabco operator must not be not shared with other equipment such as lighting, cash registers, or any device that might cause electrical interference on the circuit.**

Attention: Due to various types of Door Frames, the mounting Height of each Operator must be determined by the Installer. Ensure the Swing Door can fully open.Attention:

Attention: For Inswing Door Units with reveals greater than (zero), a special Swing Arm must be used. P/N is M-01791. Maximum Reveal on the GT20 is 5 inches.

1. Determine Header Mounting Height. Please see Figure 36.



To determine correct mounting height of GT20 Header, determine dimension "B".

- Dimension B:
  - Equals the distance from the Underside of Arm that is connected to the Spindle Extension, to the underside of Header.
  - Distance will vary based on what LENGTH of Spindle Extension is used. Please refer to Table below.

Dimension B (when used with)		
Spindle Extension (Standard) Dim. B = 0.91"	P/N	V-00513
Spindle Extension +20mm Dim. B = 2.19"	P/N	V-00407
Spindle Extension +50mm Dim. B = 3.4"	P/N	V-00408

Instruction:

1. Measure up from the Top of Door a distance = (Dimension B plus 0.25").
2. Mark a Horizontal Line on the Door Frame.
   a. This will be the mounting height of Header.
3. Position the Bottom of the Header even with the Horizontal Line.

Figure 36 Determine Mounting Height for Header

2. Mark a horizontal line on the Door Frame to indicate the mounting location of the bottom of Header.
3. From the Center Line of Pivot, measure 11 inches across the Top Door Frame.
4. Mark a vertical line across the horizontal line. This vertical line indicates the centerline of the operator Spindle.

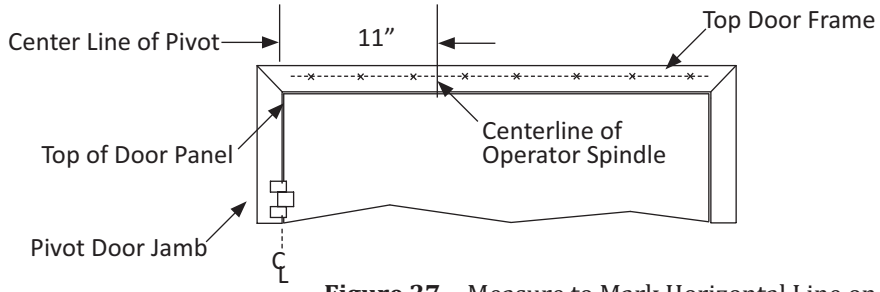
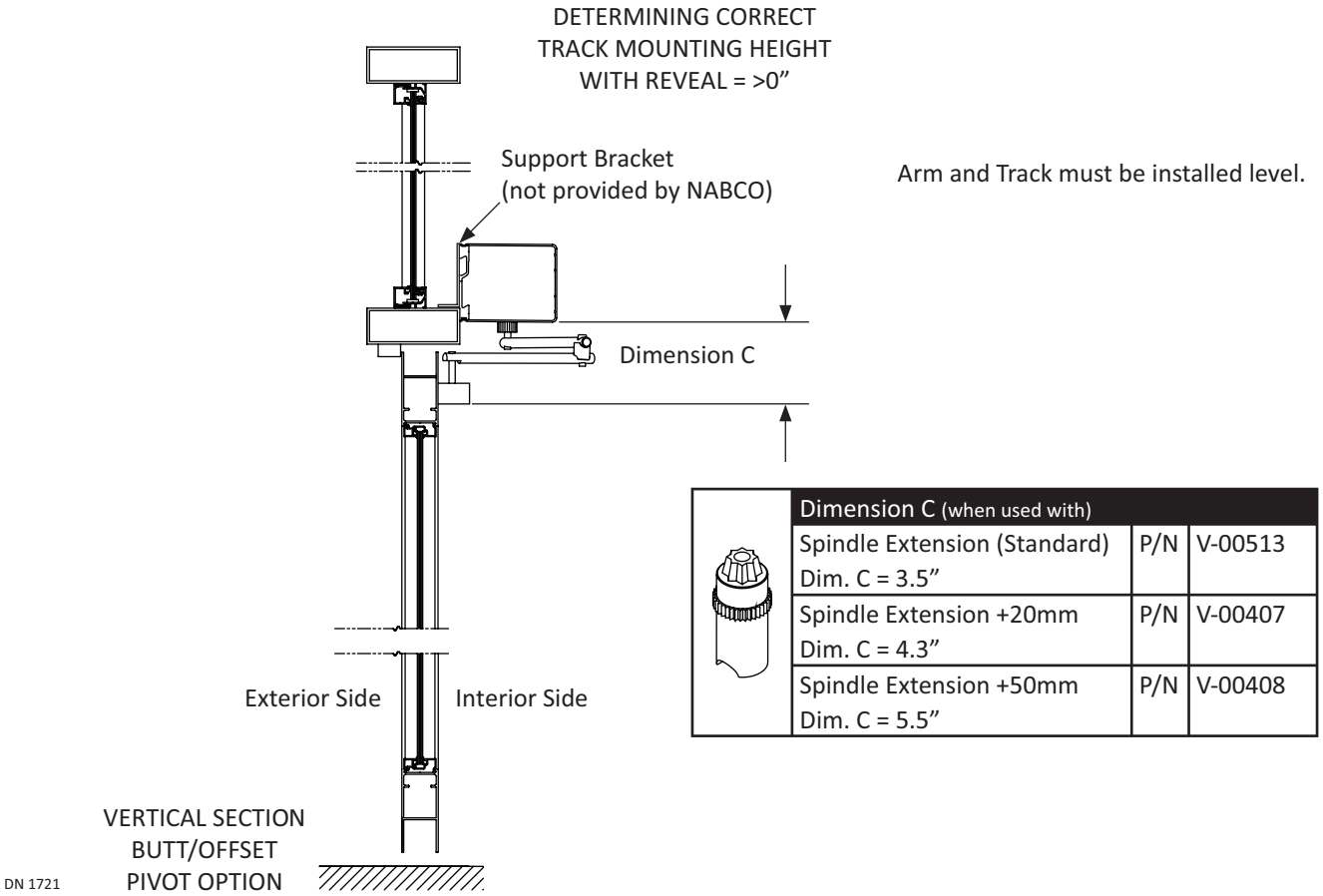


Figure 37 Measure to Mark Horizontal Line on Face of Top Door Frame

5. Lift and then Butt the bottom of Header to the horizontal line. Ensure the Header is square and level.
6. Slide the Header horizontally until the Operator Spindle is centered on the Vertical line.
7. Using the predrilled holes in the Header baseplate, as a template, mark the location of holes on the horizontal Door Frame.
8. Remove Header. Pre-drill the marked holes into the Horizontal Door Frame to accept 1/4” Screws or Rivnuts.
9. Secure Header to Door Frame with 1/4” Screws or Rivnets through the (8) predrilled screw holes on Header Baseplate.
   a. Header must be level and securely fastened to the Door Frame and/or solid wood Blocking above Door Frame to.

SECTION 8.1 Install the Track Mounting Bracket

1. To determine correct mounting height for the Track Mounting Bracket, the header must first be installed as per Figure 36.
2. Find the distance from the underside of Header to the bottom of the Track Mounting Bracket from Dimension C in Figure 38.



	Dimension C (when used with)		
	Spindle Extension (Standard) Dim. C = 3.5”	P/N	V-00513
	Spindle Extension +20mm Dim. C = 4.3”	P/N	V-00407
	Spindle Extension +50mm Dim. C = 5.5”	P/N	V-00408

Figure 38 Determine Mounting Height for Track Mounting Bracket

3. Mark a horizontal line on the Door Panel to indicate the location of the bottom of Mounting Bracket.
4. From the Center Line of Pivot, measure 5-1/2 inches across the Door Panel.
5. Mark a vertical line across the horizontal line.

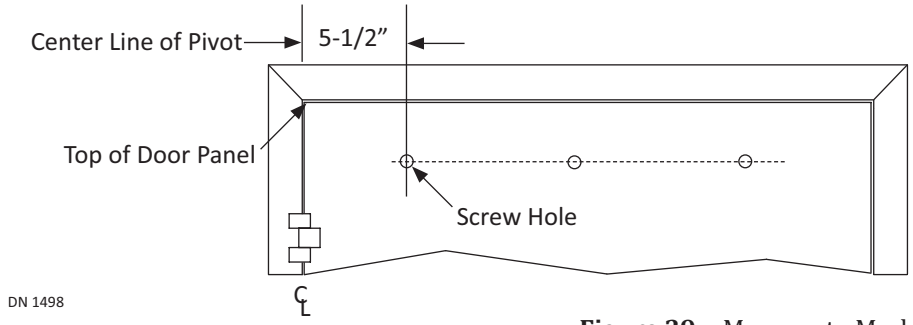


Figure 39 Measure to Mark Inswing Track Screw Holes

6. Butt the bottom of Mounting Bracket to the horizontal line. Ensure the Mounting Bracket is square and level.
7. Center the first screw hole (Pivot side of Door) to the vertical line. Mark and drill (1) #10 screw hole into the Door Panel.
8. Continue to use the Mounting Bracket as a template to mark and drill (2) #10 screw holes.
9. Secure the Mounting Bracket to the Door Panel with (3) #10 Screws (not provided by NABCO).

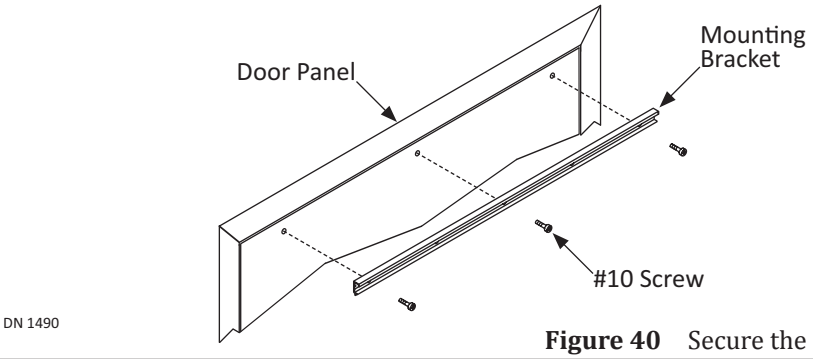


Figure 40 Secure the Mounting Bracket to the Door Panel

SECTION 8.2 Install the Guide Track

1. Assemble the Guide Track to the Mounting Bracket.
2. Secure the Guide Track with (1) nut, (1) Wedge Clamp, and (1) screw into each open end.
3. Insert (1) end cap into each side.

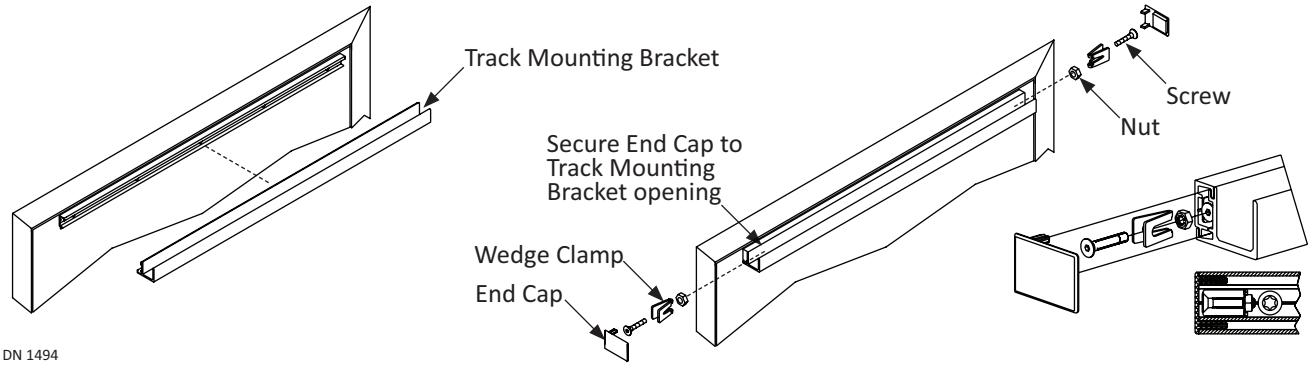


Figure 41 Secure the Guide Track to the Mounting Bracket

SECTION 8.3 Assemble the Inswing “Reveal” Arm

1. Take out all contents shipped within the Standard Arm box. NABCO ships the Reveal Arm inside the Standard Arm box.
2. If necessary, remove the Slide Block from the Standard Arm. Set aside.

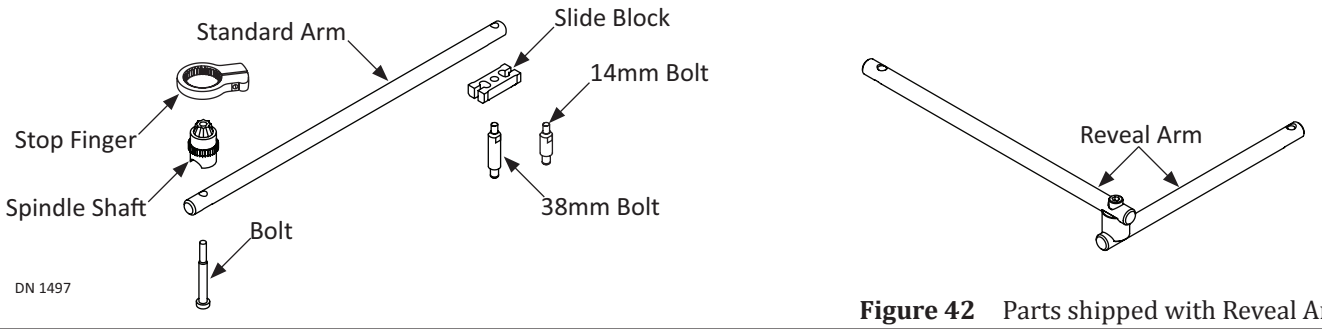


Figure 42 Parts shipped with Reveal Arm

3. Some Units are shipped with a 38mm Bolt. Due to a redesign of the Reveal Arm, only (1) 14mm Bolt is used to secure the Slide Block. Discard the 38mm Bolt (if shipped).
4. Obtain the Reveal Arm. Place the Slide Block under the end of the Short Arm. Align the bolt holes.
5. Slide (1) 14mm Bolt through the Slide Block and the Reveal Arm.
6. Go under the Slide Block. Secure the 14mm Bolt to the Reveal Arm with (1) Ring Clamp.

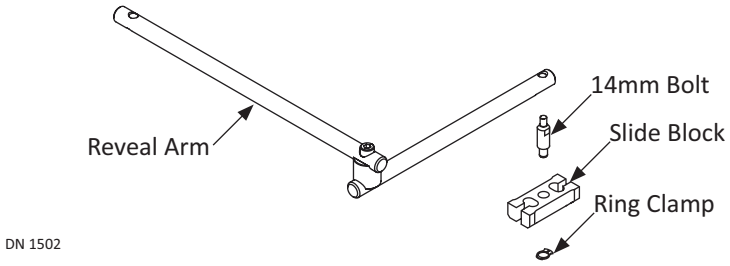


Figure 43 Secure the Slide Block to the Reveal Arm

7. Loosen the Set Screw located on the side of the Stop Finger. Slide the Stop Finger onto the Spindle Extension.
   a. The Stop Finger must point in the same direction the Gear rotates to open the Door Panel.
8. Set Arm Assembly aside.

SECTION 8.4 Set Preload and Install Arm

Note: It is recommended to clamp a Vice Grip onto the end of the Motor Shaft to keep It from rotating.

1. Position the Inswing Arm with a 15° offset into Door opening.
   a. To facilitate the installation: the Closing Spring can be completely released by means of the Adjusting Screw.
   b. The more the Closing Spring is tightened by the Adjusting Screw, the more the Gear centers the Spindle Extension, thus the Inswing Arm. If deemed necesssary, please go to the Adjustment Chapter within this manual to Adjust Preload.
2. Grasp, and rotate Arm back from within Door opening, so the Slide Block can rest against Door in the Fully Closed position.
3. Clamp Motor Shaft in place with Vice Grips. Remove the Arm once the Shaft is clamped in place. Set aside.

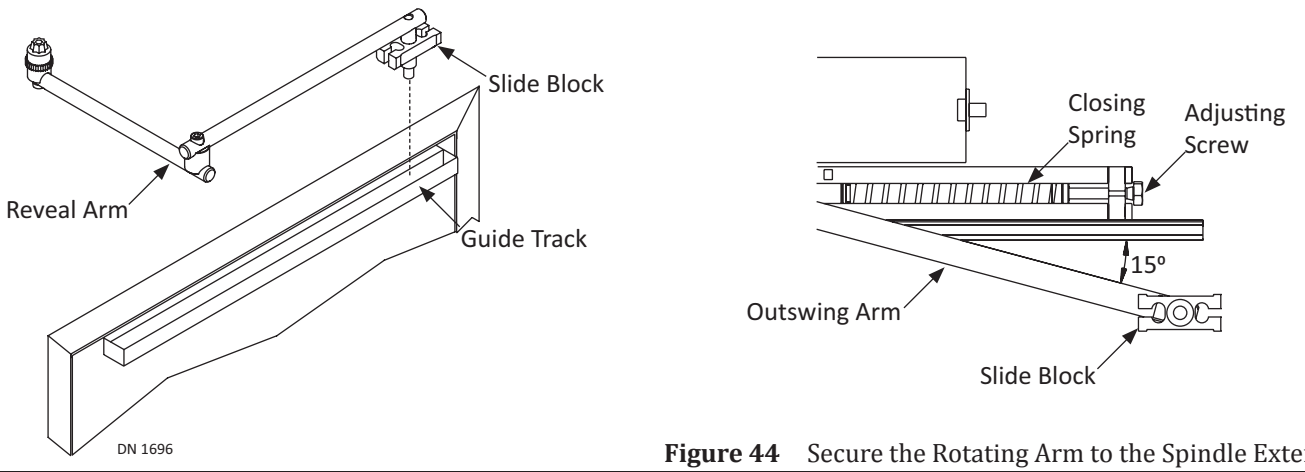


Figure 44 Secure the Rotating Arm to the Spindle Extension

4. Close the door panel.
5. Reinstall the Arm/Spindle Extension with the Door Fully Closed and the Slide Block sitting in the Guide Track.
6. Remove the Vice Grips from Motor Shaft.

SECTION 8.5 Permanently Tighten the Bolt to the Spindle Extension

1. Tighten the Bolt with a Torque Wrench:
   - ▶ The existing Bolt must be torqued appropriately (200 in-lb).
   - ▶ If the existing Bolt is removed; a new Bolt can be used providing Loctite is applied and torqued appropriately (200 in-lb).
   - ▶ Alternatively, the existing Bolt can be used providing it is first cleaned (existing Loctite removed), before fresh Loctite is applied and torqued appropriately (200 in-lb).
   a. Compatible Torque Wrenches: Grainger/Westward Fixed 3/8" Micrometer Torque Wrench, 50 to 250 In-Lb or Sears/ Craftsman Micro-Clicker Torque Wrench 3/8" Drive 25 to 250 In-Lb.

CHAPTER 9: CONNECT THE MOTOR HARNESSES

The Motor Connector Harness has (2) Male Connectors. Each Male Connector is identified by color: (Y) Green and (X) Orange. Only (1) Male Connector is connnected to the motor.

WARNING **!!! If a Panic Breakout latch is installed and the motor is plugged in backwards, or the wrong arms are chosen during programming, the door can burst open unexpectedly towards the installer once TEACH mode is initiated!!!**

WARNING **Turn Power OFF before installing the Motor Connector Harness.**

WARNING **Clear the area of any persons or objects in the path of moving Door Panel, in order to avoid injuries or damages.**

1. Ensure all Power is turned OFF.
2. Connect the Motor Connector Harness to the Motor Harness.
   a. Green Wires for Inswing; Orange Wires for Outswing.

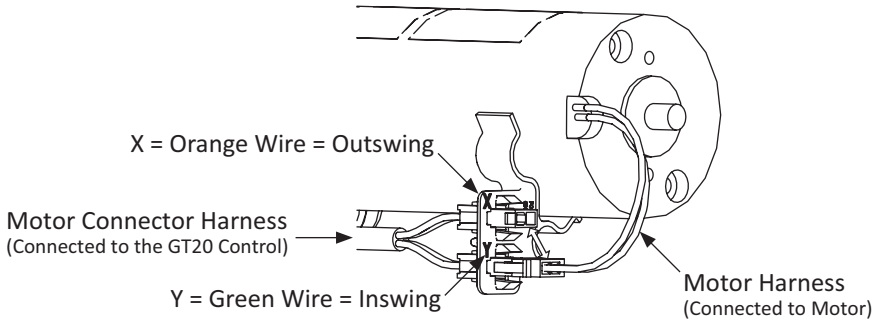


Figure 45 Connect the Motor Connector Harness

3. Go to the GT20 Control. Locate the FSlam Potentiometer.
4. The FSlam Potentiometer is a blue square labeled "R522".
5. Ensure the FSlam Potentiometer is turned fully counter clockwise.

Attention: FSlam potentiometer must always be turned fully counterclockwise. The FSlam potentiometer is used to govern Latch Check speed when power is turned OFF; or when the Door is used manually.

6. Please refer to "GT20 Wire and Programming Manual", P/N C-00140, for Parameter Menu, ROD.
7. Test the Swing Door.
   1. Manually OPEN the Door Panel to the Full Open position, then let it go.
      a. The Swing door should slow down before reaching the Fully Closed Position.
      b. If the Door Panel slams shut, the Motor Connector Harness is connected wrong. In that event:
         1. Swap the connections to the Motor. Test the Door Operation again.

CHAPTER 10: 120 VAC GENERAL WIRING

DANGER **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 **Electrical circuit to Nabco operator must not be not shared with other equipment such as lighting, cash registers, or any device that might cause electrical interference on the circuit.**

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: **Depending upon the installation, the Power Switch/Program Selector may have to be installed on the opposite side of the Header. If 120 VAC Power wires must be installed from Hinge Side of Header, ensure all wires are securely clipped to prevent pinching of the wires during the Motor/Operator installation process.**

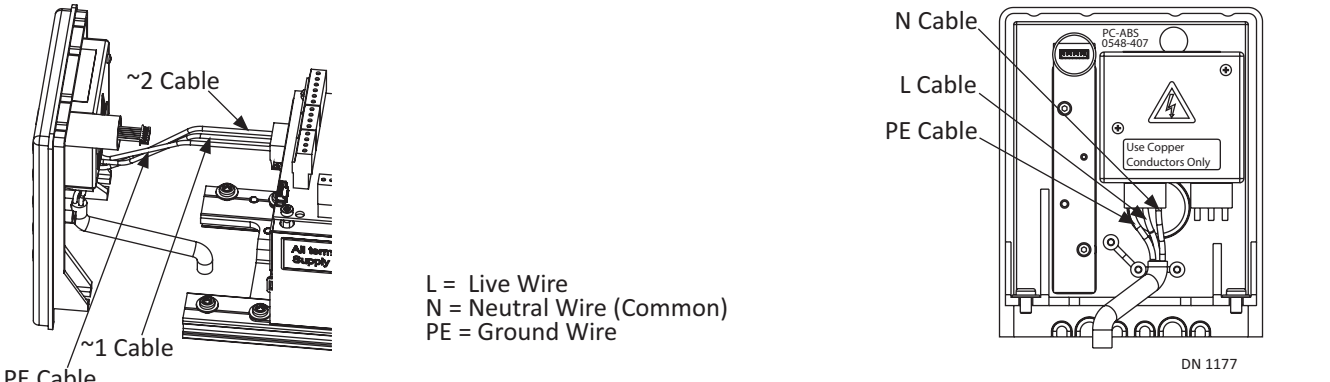


Figure 46 Connect the Power Supply

CHAPTER 11: ADJUSTMENTS

CAUTION

- **Ensure the Door may be opened without power applied to the Unit.**
- **Ensure the force required to open the Door with power disconnected, shall not be greater than 30 pounds (222.4N).**
- **Ensure the Door does not close with a force greater than 30 pounds (133.4N) at the Latch Side of the closing stile, and does not close the final 10 degrees in less than 1.5 seconds.**

SECTION 11.1 Adjust the Stop Finger

If the Door Panel opens too far, or not far enough, and/or the Stop Finger is not positioned so it is just short of touching the Door Stop Eccentric in the fully open position; the Stop Finger and/or the Eccentric must be adjusted. There are two types of adjustments:

- ▶ Coarse: The Stop Finger is repositioned.
- ▶ Fine: The Eccentric is repositioned.

1. Manually open the Door Panel. The maximum door opening angle is 105 degrees.

2. Clamp the end of the Motor Shaft with a Vice Grip to keep It from rotating.
   - Coarse Adjustment:
     1. Loosen the Set Screw located on the side of Stop Finger.
     2. Slide the Stop Finger off the Gear Teeth.
     3. Rotate the Stop Finger clockwise/counterclockwise as needed.
     4. Slide the Stop Finger back onto the Gear Teeth.
     5. Tighten the Set Screw.
   - Fine Adjustment:
     1. Loosen the Eccentric with an Allen Wrench.
     2. Rotate the Eccentric clockwise/counterclockwise as needed.
     3. Tighten the Eccentric with an Allen Wrench.
3. Remove the Vice Grip.

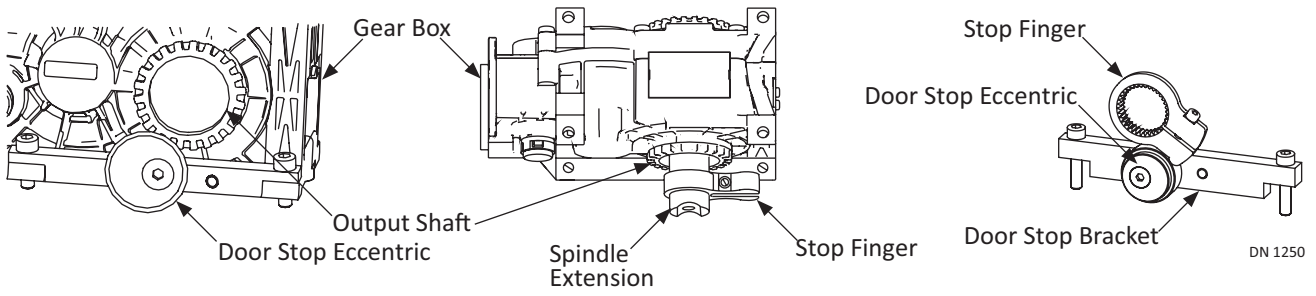


Figure 47 The Open-Position Door Stop

SECTION 11.2 Adjust Preload

- By default, Pre-load for the Closing Spring is: X* = 1-1/32 inch (26 mm).
- The Set Screw needs to be shortened by 3/8 inch (10mm) if it butts up against the side cover where the Power/Mode Switch is installed.
- Pre-load adjustments must be done before carrying out the automatic set-up procedure.
- Adjust the spring pressure so Door Panels correctly engage existing locks.
- Close Spring force can be ***reduced*** on Standard Installations.

1. Close the Door Panel. Go to the Closing Spring.
2. Locate the Adjusting Screw.
3. Adjust distance X* according to Table 1 or Table 2.
4. Open the Door Panel at least 60 degrees, then let it go.
   a. If the Door Panel fails to fully close, repeat Steps 1 - 4.

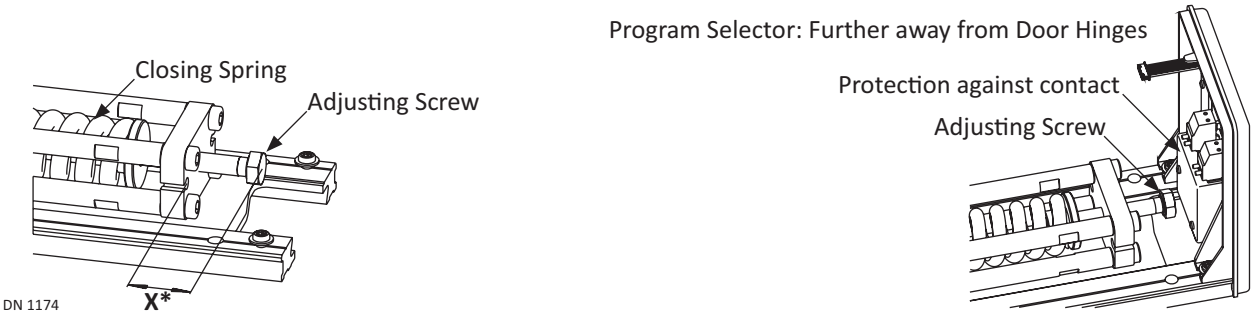


Figure 48 Adjust Preload

Table 1 Standard GT20 Swing Door Operator Assembly

Door Panel Width	37-3/8"	43-3/8"	49-1/4"	55-1/8"	63"
Closing torque 0...4	13.2 lb/ft;18 Nm	19 lb/ft; 26 Nm	27.2 lb/ft; 37 Nm	39.7 lb/ft; 54 Nm	64 lb/ft 87 Nm
Outswing Arm attached to Arm Shoe (pushing function)					
Measure X*	1-1/2"	1-3/8"	1-1/8"	7/8"	3/4"
Inswing Arm slides into Guide Track (pulling function)					
Measure X*	1-3/8"	1-3/16"	7/8"	5/8"	1/2"
Outswing using Inswing Arm slides into Long Guide Track (pushing function)					
Measure X*	1-1/4"	1-1/8"	7/8"	9/16"	1/2"

► X* = Approximate value for a Reveal of 0 mm.
► ANSI 156.10 reference = Amount of Force required to prevent a *stopped* power operated Swing Door from moving in the direction of closing shall not exceed 30 lb. if measured 1 inch from the lock edge of the Door Panel at any point during the closing cycle."

Table 2 Value according to National Regulations

Door Panel Width	37-3/8"	43-3/8"	49-1/4"	55-1/8"	63"
Swing Rod attached to Arm Shoe (pushing function)					
Measure X*	1-9/16"	1-7/16"	1-1/4"	1-1/16"	7/8"
Swing Arm slides into Guide Track (pulling function)					
Measure X*	1-1/2"	1-3/8"	1-1/8"	7/8"	3/4"
Outswing using Inswing Arm slides into Long Guide Track (pushing function)					
Measure X*	1-7/16"	1-5/16"	1-1/16"	3/4"	11/16"

► * Measure X is an approximated value for a Reveal of 0mm.
► Increase the Spring Tension only as little as necessary.
► The Operator Assembly must be able to open the Door Panel safely from any position.

SECTION 11.3 FSlam Potentiometer (Power OFF)

CAUTION

- **Only adjust the Cam when absolutely necessary.**
- **During a Power Failure or when Power is turned OFF, ONLY adjust the Cam if the FSlam Potentiometer will not close the Door after repeated adjustment attempts have been made. The Cam can be adjusted to vary the angle where the slam function will start.**

Note: The FSlam Potentiometer is utilized for Standard Application only (not Inverse Application).

Note: If after adjusting the cam, the display shows a REF error, ensure the Arm is installed correctly. If the REF error is still displayed, the cam will need to be readjusted to a position that eliminates this error.

When Power is OFF or during Manual Mode, the Motor slows the Door Panel down to a constant closing speed until the Full Closed position is reached and the Door Panel is locked. This is done by utilizing the FSlam potentiometer (accelerated force).

To ensure the FSlam parameter setting is correct:

1. Open the door Panel 90 degrees, then let it go. Make adjustments if the Door Panel fails to fully close and then lock.
    1. Go to either side of the GT20 Control to locate a Blue square. Exact location depends upon type of installation.
    2. With a flat head screwdriver turn the Potentiometer: Clockwise for maximum accelerated force, Counterclockwise for minimum accelerated force.

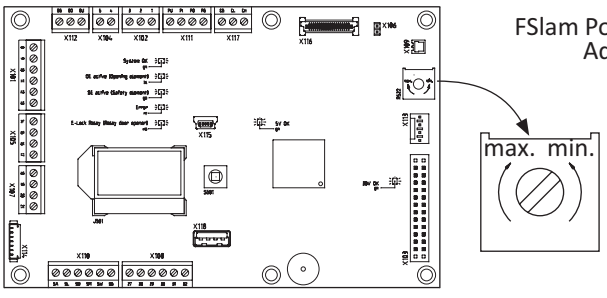


Figure 49 Adjust Closing Force

SECTION 11.4 Adjust the Activation Angle

Note: By default, the FSlam Angle (from the Fully Closed Position) is approximately 5 degrees.

1. Carefully pry the Service Cover from the gearbox housing with a flathead screwdriver.
2. Locate the Cam Disk.
   a. The Locking Screw may be positioned under Cam Setting 1 or Cam Setting 2.
3. Slightly loosen the Locking Screw with a 1.5mm socket wrench.
4. According to Table 3, turn the Cam Disk clockwise or counterclockwise to adjust the Angle.
   a. Angle range is between 5 degrees - 15 degrees.
5. Tighten the Locking Screw.
6. Open the Door Panel 45 degrees, then let it go.
   - If the Door Panel locks:
     1. Snap the Service Cover back onto the Gearbox Housing.
   - If the Door Panel fails to lock:
     1. Repeat steps 1 - 5 accordingly.

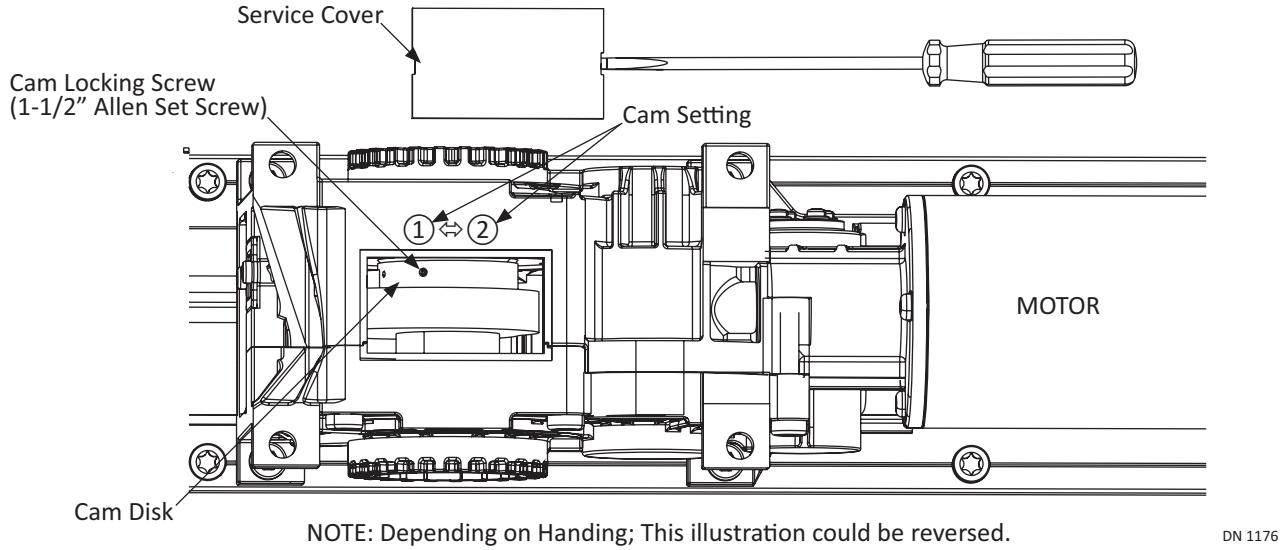
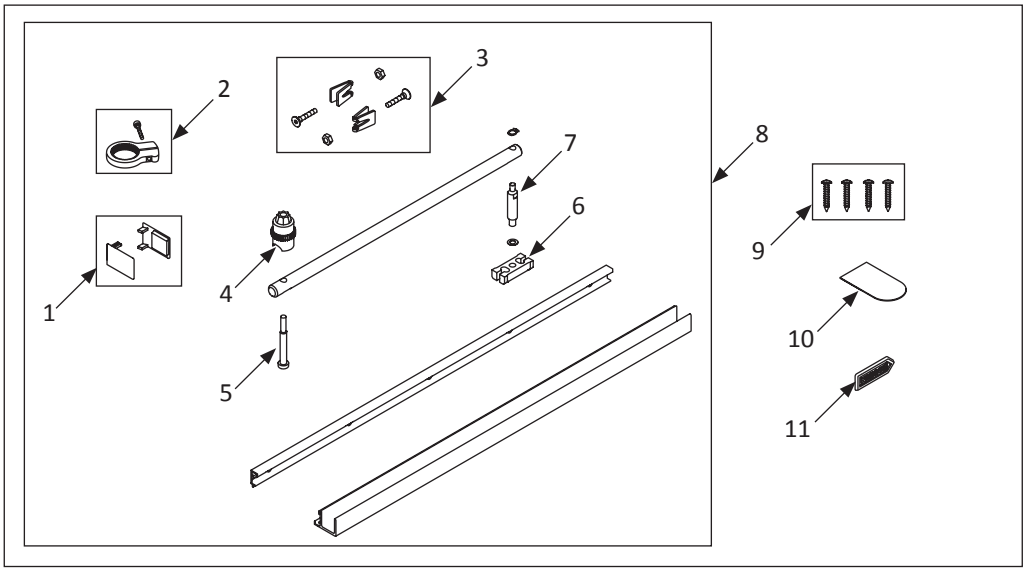


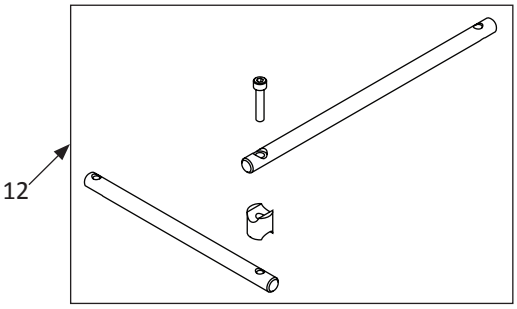
Figure 50 Adjust Activation Angle

Table 3 Angle Range

Angle Range according to Cam Setting			
Setting	**Swing Arm**	**Mount**	**Angle Range**
1	Inswing Arm (pull)	Frame	Smaller
	Outswing Arm (push)	Frame	Bigger
	Inswing Arm (push)	Frame	Bigger
	Inswing Arm (push)	Door Panel	Bigger
2	Inswing Arm (pull)	Frame	Bigger
	Outswing Arm (push)	Frame	Smaller
	Inswing Arm (push)	Frame	Smaller
	Inswing Arm (push)	Door Panel	Smaller

SERVICE PARTS: INSWING ARM PARTS BOX



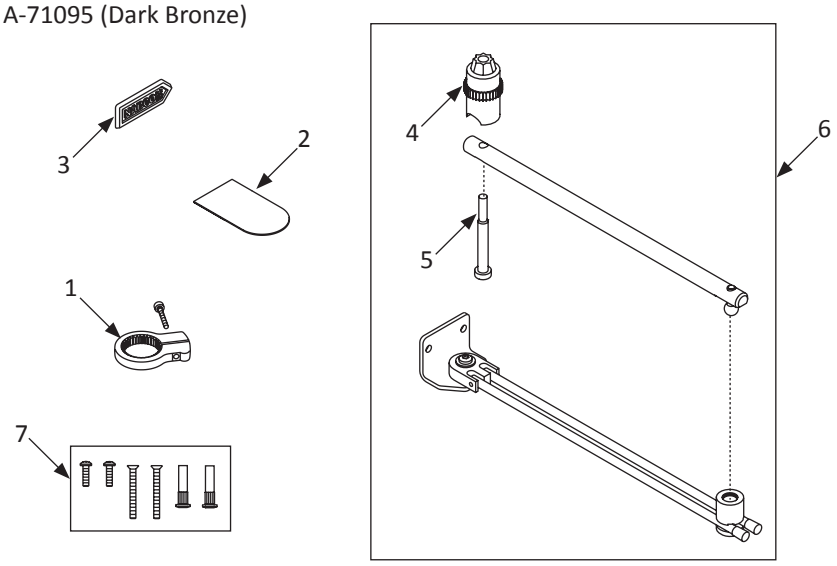


DN 1511

Inswing Arm Parts Box					
Item	**Part**	**Notes**	**Description**	**Qty**	**Used to**
1	V-00630		"ENDCAPS,TRACK,INSWING,GT20"	1	Keep inside of Track free of dust and debris
2	V-00664		"RING,STOP,GT20"	1	Keep door from swinging past Full Close Position
3	V-00517		"CLIP,V,GT20 INSWING TRACK"	1	Assemble Inswing Track
4	V-00513		"ADAPTER,CLAMPING,STANDARD,GT20"	1	Secure swing arm to Operator and clear door frame
	V-00407	Optional	"ADAPTER,CLAMPING,+20mm,GT20"	1	Secure swing arm to Operator and clear door frame
	V-00408	Optional	"ADAPTER,CLAMPING,+50mm,GT20"	1	Secure swing arm to Operator and clear door frame
5	V-00631		"SHCS,M8 X 70,LOW PROFILE,GT20"	1	Secure swing arm to Operator
	V-00632	Optional	"SHCS,M8 X 90,LOW PROFILE,GT20"	1	Secure swing arm to Operator
	V-00633	Optional	"SHCS,M8 X 120,LOW PROFILE,GT20"	1	Secure swing arm to Operator
6	V-00628		"BLOCK,SLIDE,GT20"	1	Slide arm within Inswing Track to open/close door
7	V-00629	38mm	BOLT,TRACK,38 mm,GT20	1	Secure Slide Block to Swing Arm
	Call Factory	14mm	BOLT, TRACK 14mm,GT20	1	Secure Slide Block to Swing Arm
8	V-00324	Clear	ARM,SLIDING,GT 20	1	Open/close swing door
	A-01134	DrkBronze	ARM,SLIDING,GT 20	1	Open/close swing door
9	A-00796		PARTS BAG,INSWING TRACK,GT20	4	Secure Inswing Track to Swing Door
10	V-00322		COVER,PLASTIC,GT20 COVER	1	Protect inside of Header from dust and debris
11	C-00067		"NAMEPLATE, ADHESIVE BACKED"	1	NABCO Logo
12	M-01791		"ARM,INSWING,RIGHT ANGLE,GT20"	1	Open/close Reveal Doors (only)

SERVICE PARTS: OUTSWING ARM PARTS BOX

P/N A-61095 (Clear); P/N A-71095 (Dark Bronze)

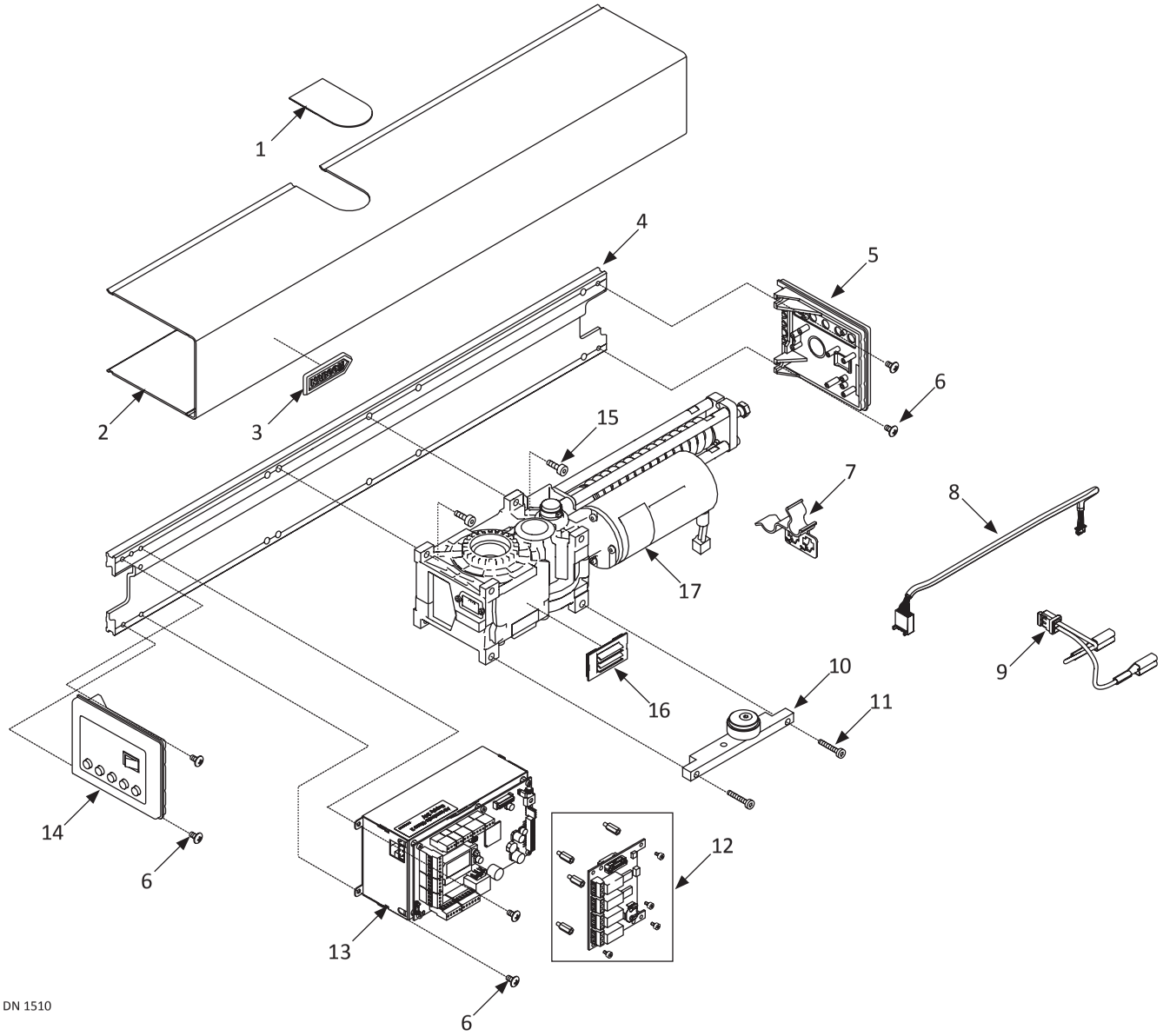


Outswing Arm Parts Box					
Item	**Part**	**Notes**	**Description**	**QTY**	**Used To**
1	V-00664		"RING,STOP,GT20"	1	Keep door from swinging past Full Close Position
2	V-00322		COVER,PLASTIC,GT20 COVER	1	Protect inside of Header from dust and debris
3	C-00067		"NAMEPLATE, ADHESIVE BACKED"	1	NABCO Logo
4	V-00407		"ADAPTER,CLAMPING,+20mm,GT20"	1	(Spindle Extender) Secure swing arm to Operator
	V-00513	Optional	"ADAPTER,CLAMPING,STANDARD,GT20"	1	(Spindle Extender) Secure swing arm to Operator
	V-00408	Optional	"ADAPTER,CLAMPING,+50mm,GT20"	1	(Spindle Extender) Secure swing arm to Operator
5	V-00632		"SHCS,M8 X 90,LOW PROFILE,GT20"	1	Secure swing arm to Spindle Extender
	V-00631	Optional	"SHCS,M8 X 70,LOW PROFILE,GT20"	1	Secure swing arm to Spindle Extender
	V-00633	Optional	"SHCS,M8 X 120,LOW PROFILE,GT20"	1	Secure swing arm to Spindle Extender
6	V-00323		ARM,OUTSWING,GT 20	1	Open/close swing door
7	A-00389	Clear	PARTS BAG,TRACK AND ARM CU GUIDE,204	1	Secure Arm Shoe to swing door
	A-00388	DkBronze	PARTS BAG,TRACK AND ARM CU GUIDE,313	1	Secure Arm Shoe to swing door

SERVICE PARTS: MOTOR/OPERATOR ASSEMBLY HEADER

Viewed from ***Non-Break*** Out Side

* Included in Parts Box P/N A-61094 (Clear)
P/N A-71094 (Dark Bronze)
P/N A-61095 (Clear)
P/N A-71095 (Dark Bronze)



Motor/Operator Assembly Header			
Item	**Part**	**Finish/Sizes/Notes**	**Description**
1	V-00322		COVER,PLASTIC,GT20 COVER
2	A-61009	Clear	“COVER,SINGLE,GT20,204”
	A-71009	Dark Bronze	“COVER,SINGLE,GT20,313”
3	C-00067		“NAMEPLATE, ADHESIVE BACKED”
4	A-01010		“BASEPLATE,SINGLE,GT20”
5	V-00319		END CAP,COVER,GT 20
6	T-00452		THMS,M4-.7 X 8 mm LG,PHIL,ZINC
7	V-00476		“CLIP,MOTOR LEADS,GT20”
8	V-00636		“CABLE,ENCODER,GT20”
9	V-00637		“CABLE,SWITCH,GT20”
10	V-00325		OPEN & STOP ,GT 20
11	T-00451		SHCS,M6-1.0 X 30 mm LG,ZINC
12	V-00326	Optional	RELAY,PCB,GT 20
13	V-00317		CONTROL UNIT, GT 20
14	V-00318		END CAP,COVER,PUSH BUTTONS,GT 20
15	T-00450		SHCS,M6-1.0 X 20 mm LG,ZINC
16	V-00638		“COVER,SERVICE/CABLE GUIDE,GT20”
17	V-00316		DRIVE MODULE, GT 20