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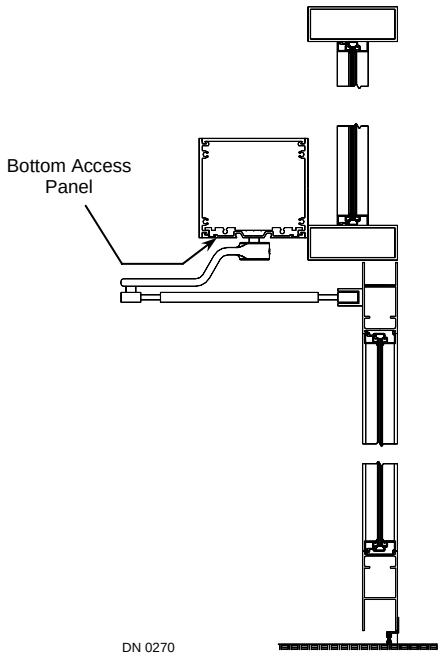
Gyro Tech Swing Door Conversion Unit (C.U.) Hardware Installation and Service Manual

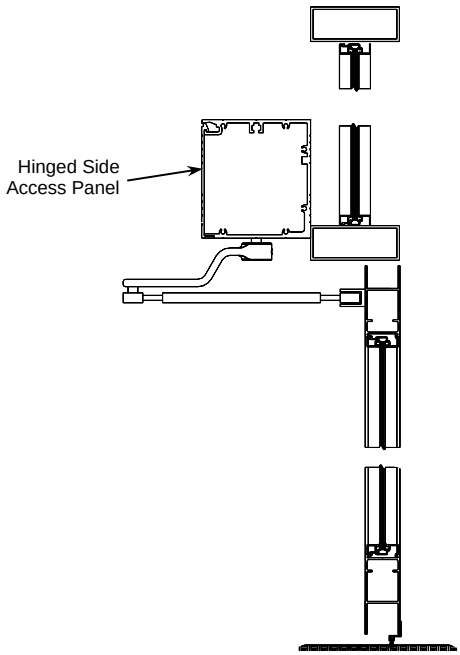
Bottom Load & Side Load

Swing Door Operators

Outswing Bottom Load Unit



Outswing Side Load Unit



WARNING

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

Part # 15-10538
Rev 7-26-07

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CAUTIONS !

Read all of this First !

Read these safety practices before installing, operating or servicing the automatic door. Failure to follow these practices may result in serious consequences.

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.

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

This manual and the owners' manual must be given to and retained by the purchasing facility or end user.

1. 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 contacted for corrective action. Never leave a door operating in an unsafe manner.

2. Disconnect power at the fused disconnect during all electrical or mechanical service. When uncertain whether power supply is disconnected, always verify using a voltmeter.

3. All electrical troubleshooting or service must be performed by qualified electrical technicians and must comply with all applicable governing agency codes.

4. It is the responsibility of the installing door technician to install all warning and instructional labels in accordance with ANSI 156.19 & ANSI 156.10 .

5. 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.

6. 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.

7. 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.

TO THE INSTALLER

All installation changes and adjustments must be made by qualified, NABCO trained technicians. The purpose of this manual is to familiarize the purchaser with the proper installation and operation of a NABCO surface applied swinger system. It is essential that this equipment be properly installed and operational before the door is used by the public. The installed system must comply with all applicable standards. In the United States, ANSI Standard 156.10 for GT 400 or 8400 (refer to chart below) or ANSI 156.19 for GT 500 or 8500 covers these types of doors. Other local standards or codes may apply. Use them in addition to the ANSI standard. The GT 400 or GT8400 and GT 500 or GT8500 Model Units are listed with Underwriters Laboratory and are identified as such on the label.

Instruct the building owners and operator on the essentials of the operation of the door and 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.

OVERVIEW

Gyro Tech Swing Door Conversion Unit (C.U.) operators are designed to be installed to the surface of the door frame. The operator is controlled by either the Gyro Tech Magnum or U series microprocessor based controllers or Model 1400 analog control. These controllers offers many features to accommodate most installation options. This manual provides step by step instructions to install the C.U. header and arm assemblies. Refer to your accompanying controller manual for information on wiring and adjusting the controller. Included in the controller manual you will find a trouble-shooting section and optional wiring diagrams.

SPECIFICATIONS

Models:

Conversion Unit Models		
Base Model	**Conversion Unit (CU) Bottom Load**	**Conversion Unit (CU) Side Load**
	Model	**Model**
Full Automatic (mechanical closer)	GT 400	GT 8400
Low Energy (mechanical closer)	GT 500	GT 8500

Available controls: ..... Model GT-400 or GT-8400 is available with:
Magnum, U Series or Analog Control
Model GT-500 or GT-8500 is available with:
Magnum or Analog Control Only

Minimum Frame Face for Mounting ..... 1 ¾" (44 mm)
Minimum Clearance from Top of Door to Ceiling ..... Bottom Load: 6 1/8" (156 mm)
Side Load: 7 1/8" (181 mm)

Door Hinge Requirements ..... Butt, Offset Pivot, Center Pivot or Swing Clear Hinges
Door Thickness ..... 1 ¾" (44 mm) Minimum
Door Width ..... Specify When Ordering

• Use of a supplemental door stop is always required.

HEADER CONFIGURATIONS

(See Figure 1)

The Gyro Tech CU (Conversion Unit) Swing Door Operator is available in two header configurations these are: Bottom Load and Side Load.

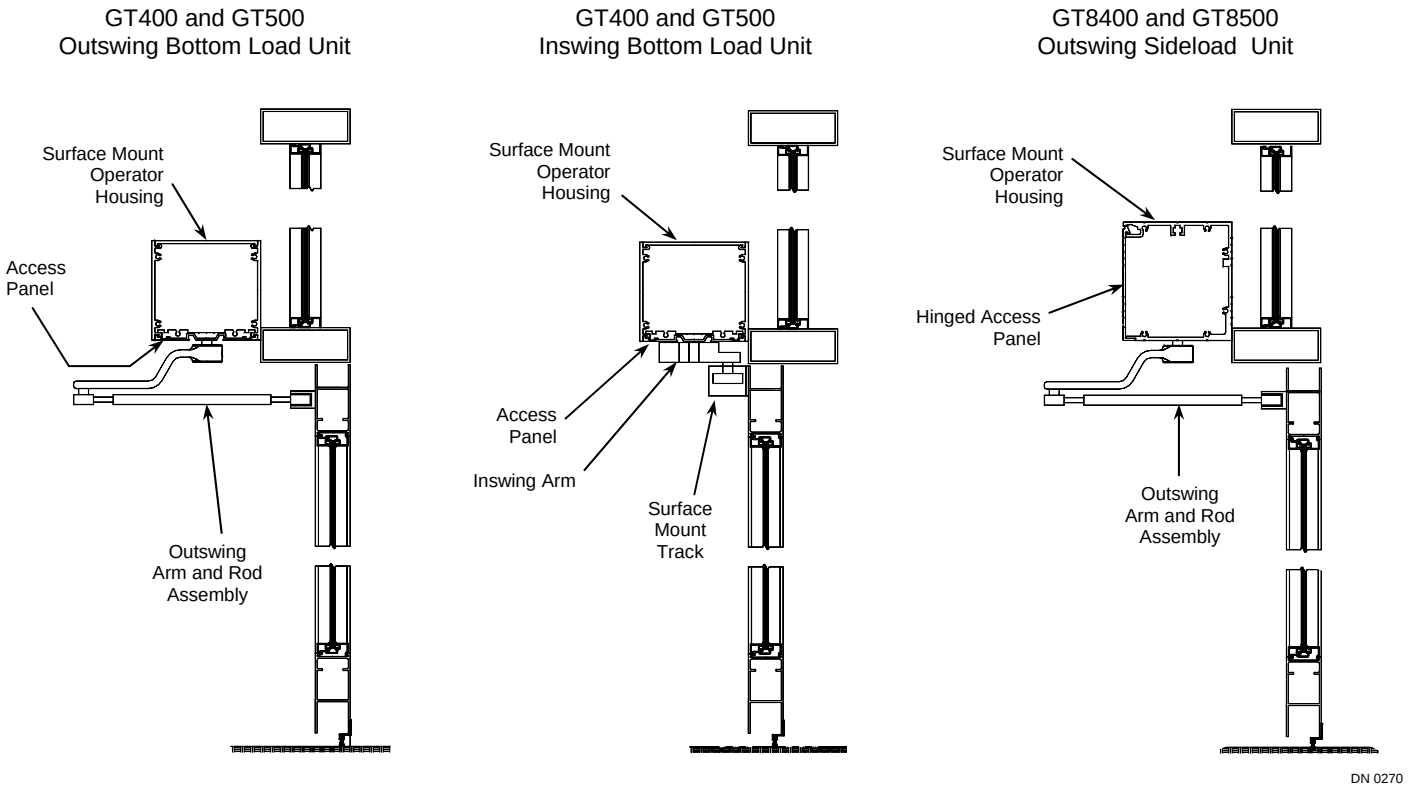
Bottom load units have an access panel located on the bottom of the housing. Side load units have the access panel located on the side of the unit. Both of these two header types are available for full automatic or low energy systems.

Full automatic units are power opened, spring closed. They employ sensors and once adjusted optimally will conform to ANSI 156.10. They are available with Magnum, “U” series or Analog controls.

Low energy units are used for barrier free access. They are power opened, spring closed, are usually activated with push button switches and once adjusted optimally will conform to ANSI 156.19. They are available with Magnum or Analog controls.

Access Panel Locations

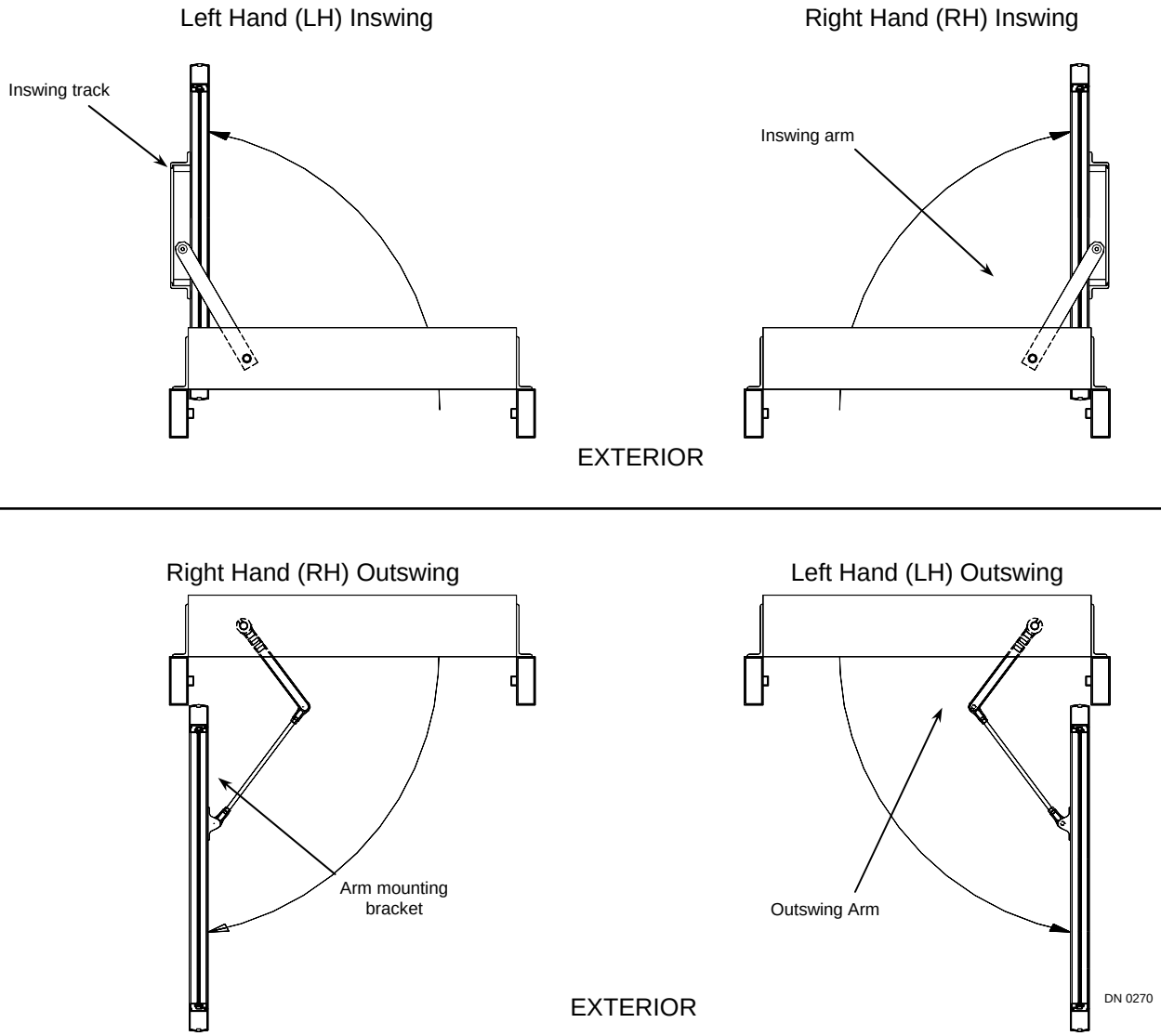
Figure 1



HANDING REQUIRMENTS

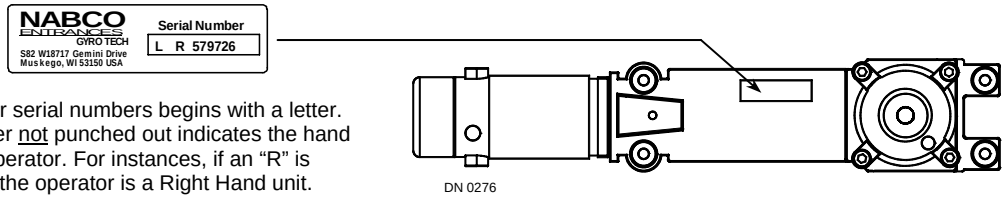
The Figure 2 below illustrate the various methods of handing

Figure 2



Note: The hand of the unit must match the hand of the door. To determine the hand of the unit refer to the end flap of the cardboard carton that contains the header housing assembly. Refer also to the serial number stamp on the underside of the operator. The first letter of the serial number will indicate the "hand" of the operator. For example, *L*2G755640 indicates that the operator is a left hand unit. *R*2G755640 indicates that the operator is a right hand unit. Refer to Figure 3 below.

Figure 3

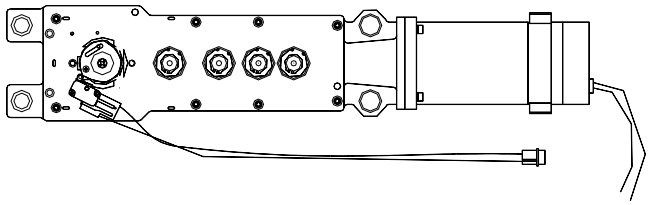


Operator serial numbers begins with a letter. The letter not punched out indicates the hand of the operator. For instances, if an "R" is visible, the operator is a Right Hand unit.

LIST OF MATERIALS

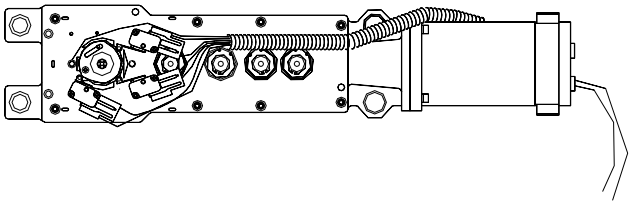
Below is a table of the major components that comprise a GT-400/8400 or GT500/8500 Installation.

ITEM 1



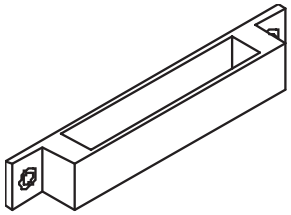
41-8987-01	LH Operator for U Series Control
41-8987-02	RH Operator for U Series Control

ITEM 2



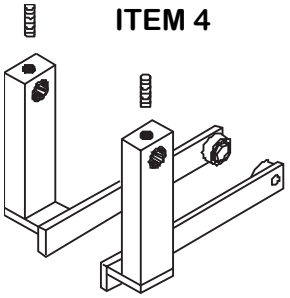
41-8987-07	LH Clutchless Operator for Magnum Ctrl.
41-8987-08	RH Clutchless Operator for Magnum Ctrl.
41-8987-09	LH Operator for Magnum Ctrl.
41-8987-10	RH Operator for Magnum Ctrl.
	LH Clutchless Operator for Analog Ctrl.
	RH Clutchless Operator for Analog Ctrl.
11-1391	LH Operator for Analog Ctrl.
11-1390	RH Operator for Analog Ctrl.

ITEM 3



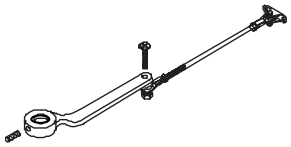
21-0997	Inswing Track Assy. (12.25")
21-0998	Inswing Track Assy. (21")

ITEM 4



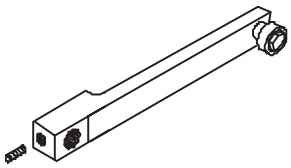
21-3568	Inswing Arm Assy LH, 204
21-3570	Inswing Arm Assy LH, 313
21-3567	Inswing Arm Assy RH, 204
21-3569	Inswing Arm Assy RH, 313

ITEM 5



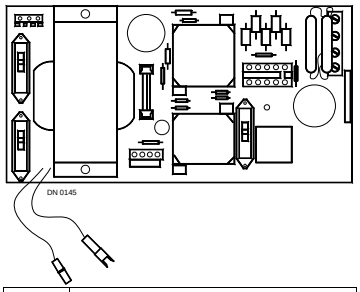
21-8848	Outswing Arm Assembly

ITEM 6



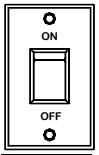
21-0902	Inswing Arm.

ITEM 11



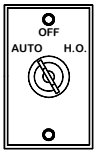
41-1512	Control, GT300 & GT500 OS - USA
41-2342	Control, GT300 & GT500 OS - Canada
41-2208	Control, GT500 Slow Mode - USA
41-3429	Control, GT500 Slow Mode - Canada

ITEM 7



10-3527
Rocker Switch

ITEM 8

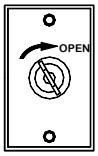


22-1772-03
Key Switch

ITEM 9

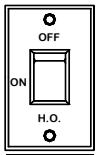
22-1772-04
Key Switch

ITEM 10



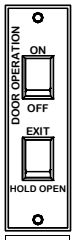
22-1772-05
Momentary Key Switch

ITEM 13



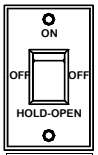
22-11350
Rocker Switch

ITEM 14



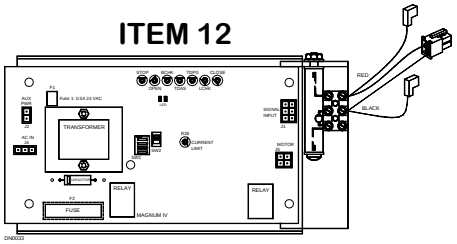
21-9823
Rocker Switch

ITEM 16



10-3528
Rocker Switch

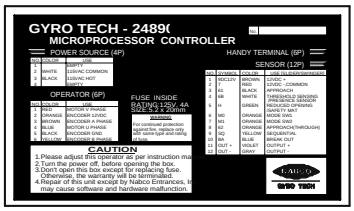
ITEM 12



12-10292	Magnum Control with Brake Module

Model/Control	Rocker Switch ITEM #	Outsw. Arm Assy. ITEM #	Inswing Arm Assy. ITEM #	Control ITEM #	Motor/Gearbox ITEM #
GT-400 U Series	13 or 14	5	3 + 4 or 6	15	1
GT-400 Magnum	7, 8, 9, 10, or 16	5	3 + 4 or 6	12	2
GT-400 Analog	7, 8, 9, 10, or 16	5	3 + 4 or 6	11	2
GT-8400 U Series	13 or 14	5	3 + 4 or 6	15	1
GT-8400 Magnum	7, 8, 9, 10, or 16	5	3 + 4 or 6	12	2
GT-8400 Analog	7, 8, 9, 10, or 16	5	3 + 4 or 6	11	2
GT-500 Magnum	7, 8, 9, 10, or 16	5	3 + 4 or 6	12	2
GT-500 Analog	7, 8, 9, 10, or 16	5	3 + 4 or 6	11	2
GT-8500 Magnum	7, 8, 9, 10, or 16	5	3 + 4 or 6	12	2
GT-8500 Analog	7, 8, 9, 10, or 16	5	3 + 4 or 6	11	2

ITEM 15



24-8901	U Series Control

INSTALLATION: **Steps 1 to 9** **Bottom Load**
Steps 10-15 **Side Load Unit**
Steps 16-22 **Both**

BOTTOM LOAD ONLY

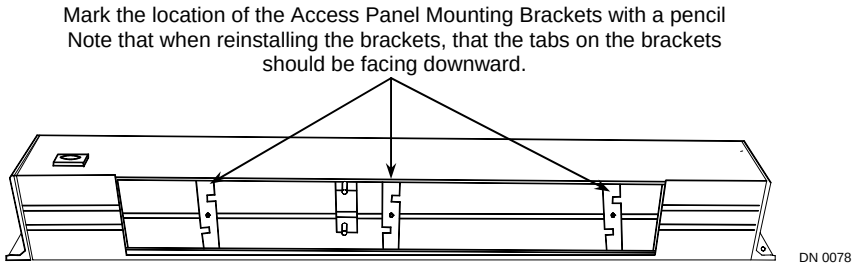
Step 1 - Remove material from packages and check contents:

Remove all contents from the carton. Check all items to ensure you have the material you need before beginning the actual installation.

Step 2 - Remove access panel from header housing assembly:

Carefully remove the header housing assembly from the cardboard carton. Using a Phillips screwdriver, remove the Access Panel (see Fig 1 on page 5). Use a pencil to mark the locations of the Access Panel Mounting Brackets. This will make it easy to place the brackets back in the correct position when re-installing the Access Panel. Refer to Figure 5 below.

Figure 5



Step 3 - Remove paperwork:

Remove all decals, paperwork and parts bag from inside header and set to one side.

Step 4 - Install wiring in frame:

All conduit and switch or sensor wires must be pulled through the frame or wall before mounting the operator housing. Refer to your separate Controller Installation Manual for wiring instructions.

Step 5 - Mount header housing assembly on door frame:

Refer to figures on next page. The following instructions refer to mounting the unit on aluminum framing. If the unit is not being installed on an aluminum frame then adequate structural framing must be available for mounting.

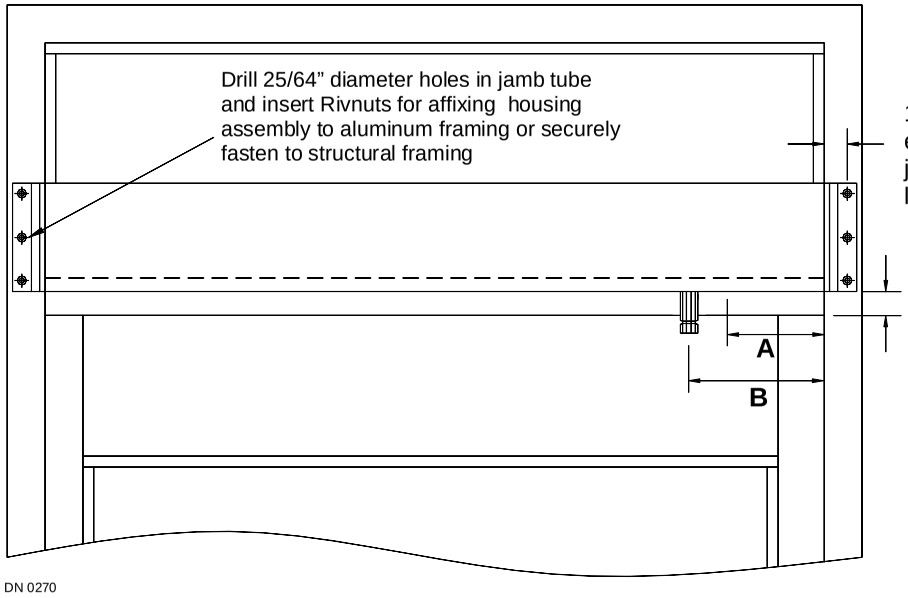
Note: There is a difference in the location of the operator spindle between inswing and outswing header housing assemblies. Therefore the width of the base pivot plate on which the operator is mounted is varied according to the type of door; inswing, outswing, with or without finger guard, etc. Refer to Figure 7 Page 9. To ensure you are matching the correct header housing to the door you are working on, refer to the table on the above mentioned page.

Once all wiring is in place, using the empty header mounting brackets as a template, hold the header against the frame, and mark the mounting holes on the jamb tubes as shown on the following page. Ensure bottom of header housing assembly is 1-1/8" up from the top of the door as shown in Figure 6 on Page 9. The center line of the three holes on the end mounting brackets must be located one (1) inch away from the edge of the door frame as shown. NABCO recommends the use of Rivnuts when mounting the header to aluminum framing. Using a #Q sized drill bit (0.332 DIA), drill out the four holes per bracket in the jamb tubes and countersink the holes 0.531 DIA x 100^{o} and insert the supplied Rivnuts. Using a Rivnut setting tool, expand the Rivnuts in the aluminum frame until they are "snug".

Caution! *Over tightening the Rivnuts will cause the threads to strip.*

Once all holes are properly drilled and Rivnuts installed, mount header housing to frame using the six 1/4-20 x 1" flat header screws provided. Affix the tape onto the end caps and mounting brackets to cover the mounting screws and end cap screws.

NABCO recommends the use of Rivnuts when mounting the header to aluminum framing. On other types of installations such as hollow metal door frames, adequate backing such as 2" x 10" wood backing is required above the top of the frame for anchoring the header housing to the wall. Using this method would require lag bolts instead of 1/4 x 20 Rivnuts to properly anchor the unit.

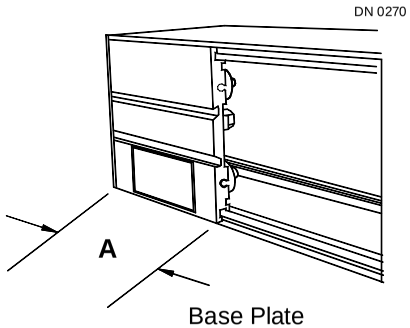


A = Base Plate dimension
B = Spindle Location

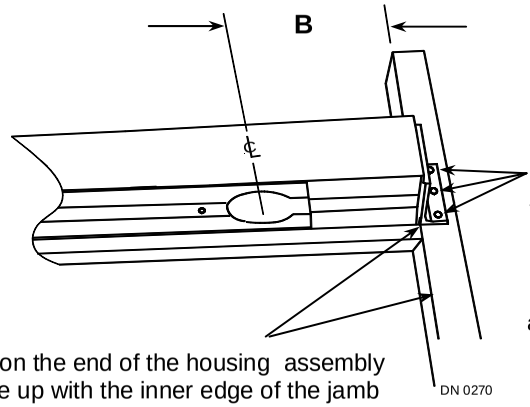
Figure 6

Note:
The illustrations on this page depict an installation to an aluminum door and frame. On other types of installations such as hollow metal door frames, adequate backing such as 2" x 10" fir or spruce to provide structural framing is required above the top of the frame for anchoring the header housing to the wall. Using this method would require lag bolts instead of 1/4 x 20 Rivnuts to properly anchor the unit.

Figure 7



Base Plate varies with door configuration (refer to chart below)



Mark holes for mounting screws. Drill out holes and securely fasten to structural framing.

Rivnuts must be used to secure housing to aluminum framing.

Position the end of the housing assembly to line up with the inner edge of the jamb tube (on the pivot side) as shown.

Figure 8

Spindle Locations and Base Pivot Plate Sizes

		Inswing				Outswing			
Model	Pivot Type	With Fingerguard		No Fingerguard		With Fingerguard		No Fingerguard	
		B	A	B	A	B	A	B	A
		Spindle Loc.	Base Plate	Spindle Loc.	Base Plate	Spindle Loc.	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"

Notes: N/A = Not Applicable

BOTTOM LOAD ONLY

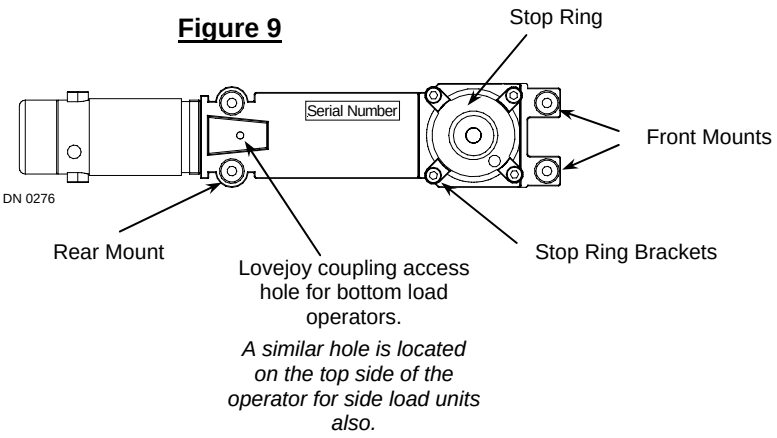
Step 6 - Install wires in header housing assembly:

Bring wires into housing assembly from lock side of header if possible since this is the side that is closest to the controller. Wires can be routed through the knockouts located at either end on the top of the header assembly. Using the supplied metal clips, route all loose wires through channels in header housing assembly and snap into place in channel as illustrated in Figure 10 below.

Step 7 - Install stop ring on operator:

Refer to Figure 9 below. Once all wires are in place, the operator and controller can be mounted in place in the header housing assembly. Place operator on bench with the underside facing up as shown in Figure 9. Remove the Stop Ring Assembly from the plastic bag and it install on the operator using the supplied brackets and the (4) 5/16-18 FL. HD. Soc. Mach. Screws. Do not tighten the screws all the way down until the operator is installed in the header housing assembly and the arm is installed.

Figure 9



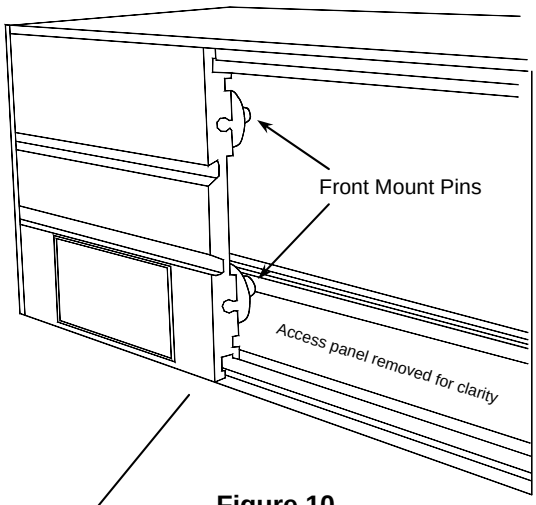
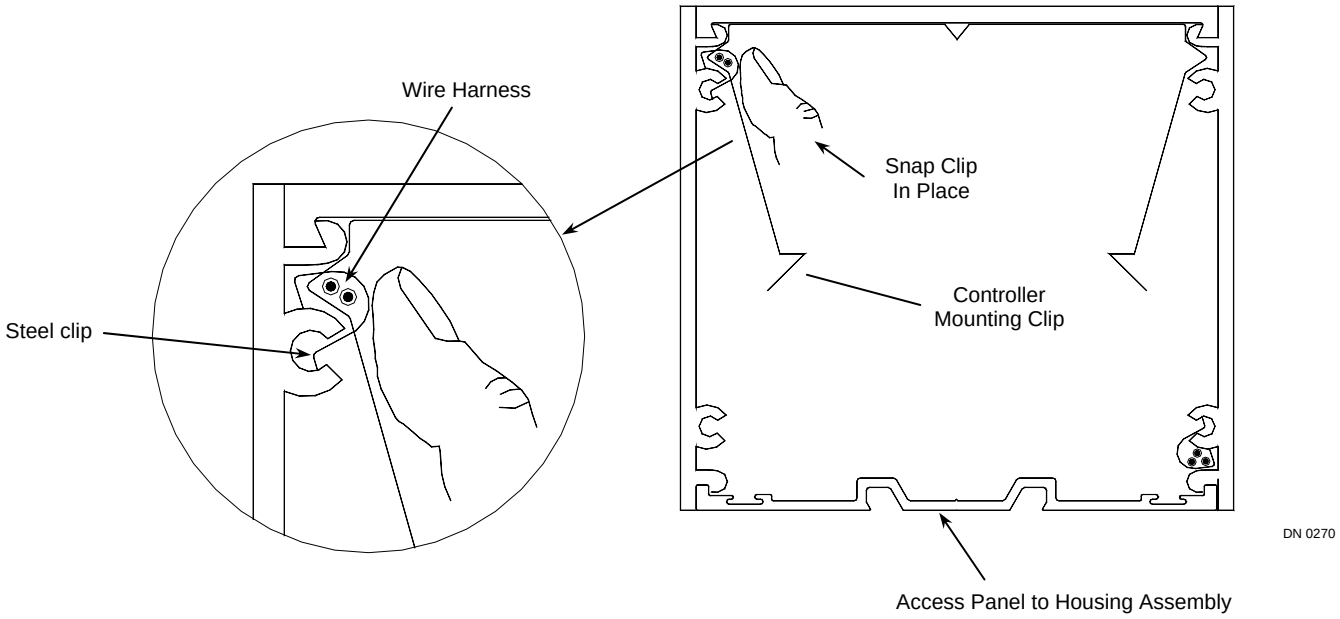


Figure 10



BOTTOM LOAD ONLY

Step 8 - Install operator in header housing assembly:

If installing Analog control it might be necessary to mount a soft start capacitor on the operator prior to installing it in the header housing assembly. Refer to your Controller Installation Manual for additional information. Using a 9/16" deep socket and ratchet, remove the nuts and washers from the operator mounting bracket inside the header housing assembly. Place them on the top of the installed header housing assembly for easy reach. Holding the operator at an angle as shown in Figure 11 below, slip the operator Front Mounts over the pins and the Rear Mounts over the operator mounting brackets. Holding the operator up in place, install the two 9/16" flat washers and nuts on to the mounting bracket studs and tighten securely. Figure 12 illustrates an installed operator. Once installed, the operator spindle should be located at the correct distance from the jamb as shown in the dimensions chart on page 9.

Figure 11

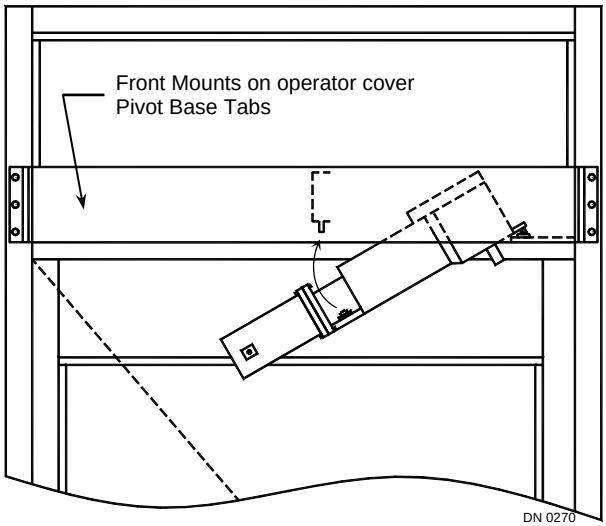
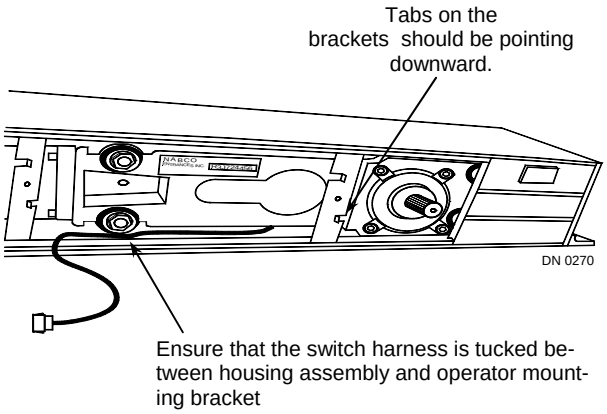


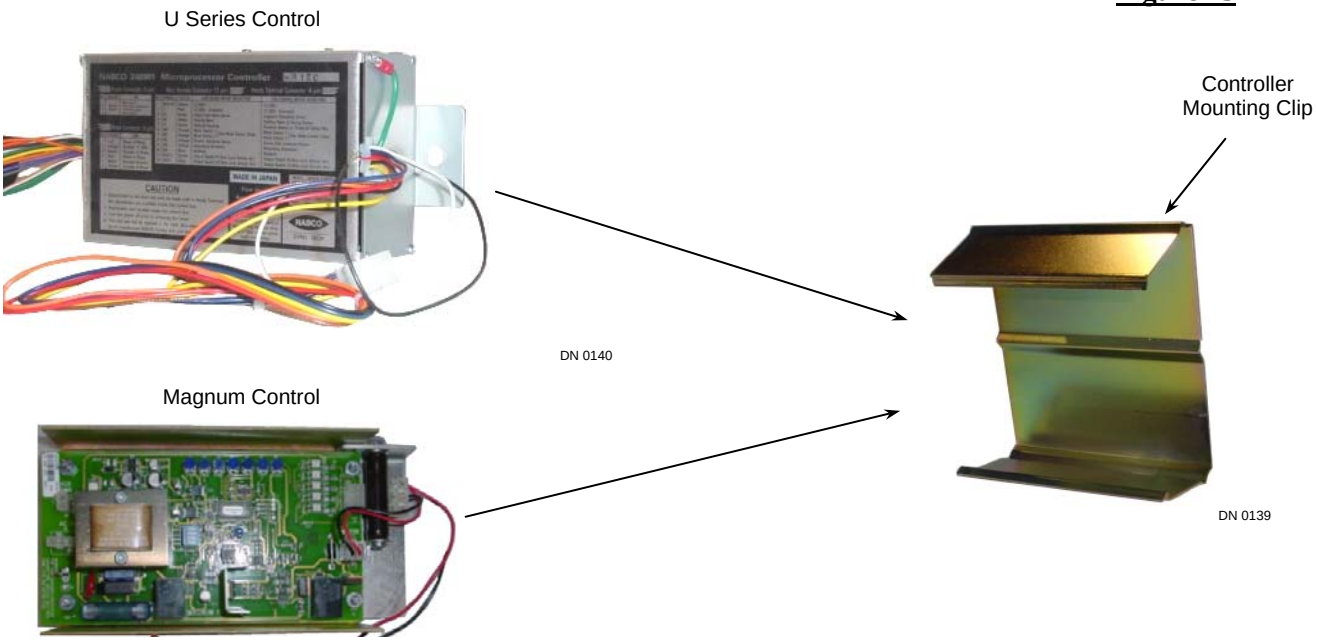
Figure 12



Step 9 - Install control mounting clip and controller:

Snap controller mounting clip into housing extrusion and then snap control into mounting clip. Refer to figure 10 & 13. Note: Magnum or "U" series controls used on simultaneous pairs require two controls and mounting clips. .

Figure 13



INSTALLATION: **Steps 1 to 9** **Bottom Load**
Steps 10-15 **Side Load Unit**
Steps 16-22 **Both**

SIDE LOAD ONLY

Step 10 - Remove material from packages and check contents:

Remove all contents from the carton. Check all items to ensure you have the material you need before beginning the actual installation. Refer to Figure 4 for an illustration of the components that make up a typical C.U. system.

Step 11 - Remove access panel from header housing assembly:

Carefully remove the header housing assembly from the cardboard carton. Using a Phillips screwdriver, remove the two Access panel retaining screws, refer to Figure 14 on the following page.

Step 12 - Remove paperwork:

Remove all decals, paperwork and parts bag from inside header and set to one side.

Step 13 - Install wiring in frame:

All conduit and switch or sensor wires must be pulled through the frame or wall before mounting the operator housing. Refer to your separate Controller Installation Manual for wiring instructions.

Step 14 - Mount header housing assembly on door frame:

Refer to Figure 14 on next page. The following instructions refer to mounting the unit on aluminum framing. If the unit is not being installed on an aluminum frame then adequate structural framing must be available for mounting.

Once all wiring is in place, drill two or three 1/4” holes through the back of the header housing to securely mount in place. These holes will be used to mount the header housing to the jambs. Wires can be routed out through the face of the jamb and into the back of the header housing. Alternatively, the unit can be ordered with knockouts located at either end on the top of the header assembly that can be used to route wires into.

Note: It might be necessary to remove the operator and motor assembly from the housing to reduce the weight of the unit while positioning the unit on the frame to be mounted.

Note: There is a difference in the location of the operator spindle (on which the arm is mounted) between inswing and outswing header housing assemblies. Therefore, the position of the operator spindle is varied according to the type of door, be it inswing, outswing, with or without finger guard, etc. To ensure you are matching the correct header housing to the door you are working on, refer to the table titled “GT-8400 and GT-8500 - Spindle Locations” on the following page.

Once holes are drilled, position the header housing on door frame so that the bottom of the header housing assembly is located 1-1/8” up from the underside of the door frame as shown in Figure 14. Using a pencil, scribe the holes for drilling the jamb tube.

Remove header housing. Using the penciled circles for guides, drill the jamb tubes using a #Q sized drill bit (0.332 DIA), and countersink the holes 0.531 DIA x 100º. Insert the supplied Rivnuts. Using a Rivnut setting tool, expand the Rivnuts in the aluminum frame until they are “snug”.

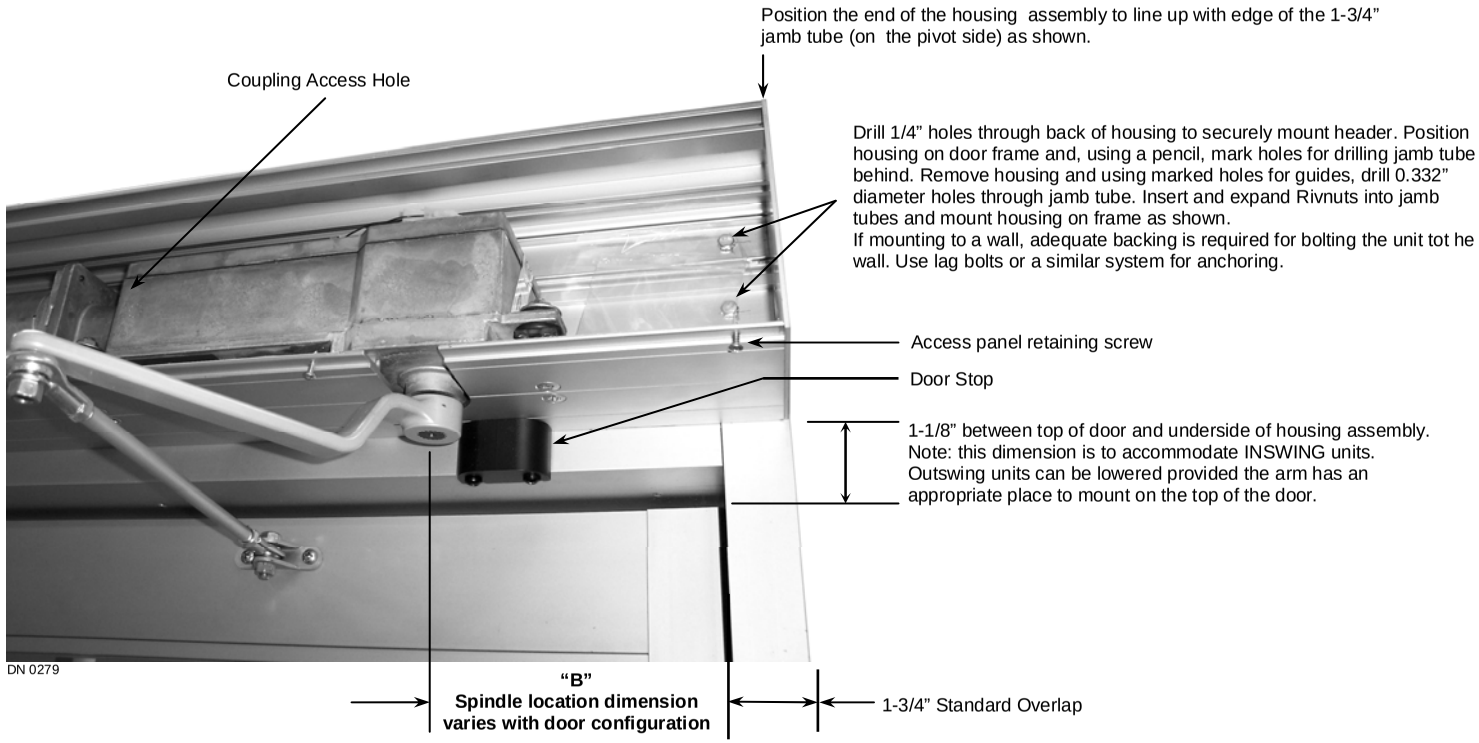
Caution! *Over tightening the Rivnuts will cause the threads to strip*

Once all holes are properly drilled and Rivnuts installed, mount header housing to frame using the six 1/4-20 x 1” flat header screws provided.

NABCO recommends the use of Rivnuts when mounting the header to aluminum framing. On other types of installations such as hollow metal door frames, adequate backing such as 2” x 10” wood backing is required above the top of the frame for anchoring the header housing to the wall. Using this method would require lag bolts instead of 1/4 x 20 Rivnuts to properly anchor the unit.

Side Load Header Only

Figure 14



Note:
Rivnuts must be used to secure housing to aluminum framing.

GT-8400 and GT-8500 - Spindle Locations

		Dimension "B"			
		Inswing		Outswing	
Model	Pivot Type	With Fingerguard	No Fingerguard	With Fingerguard	No Fingerguard
		Spindle Loc.	Spindle Loc.	Spindle Loc.	Spindle Loc.
GT-8400	Butt/Offset	N/A	5"	N/A	7-1/4"
	Center Pivot	6"	5"	8-1/4"	7-1/4"
GT-8500	Butt/Offset	N/A	5"	N/A	5"
	Center Pivot	6"	5"	6"	5"

Notes: N/A = Not Applicable

SIDE LOAD ONLY

Step 15 - Install operator in header housing assembly (if removed):

Position operator and motor assembly inside header housing assemble and secure from the bottom with four (4) 5/16-18 flat head screws as shown in Figure 15 below.

Once installed, the operator spindle should be located at the correct distance from the jamb as shown in the dimensions chart on page 13.

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Figure 15

Step 16 - Installation of Arms and Tracks: (ALL MODELS)

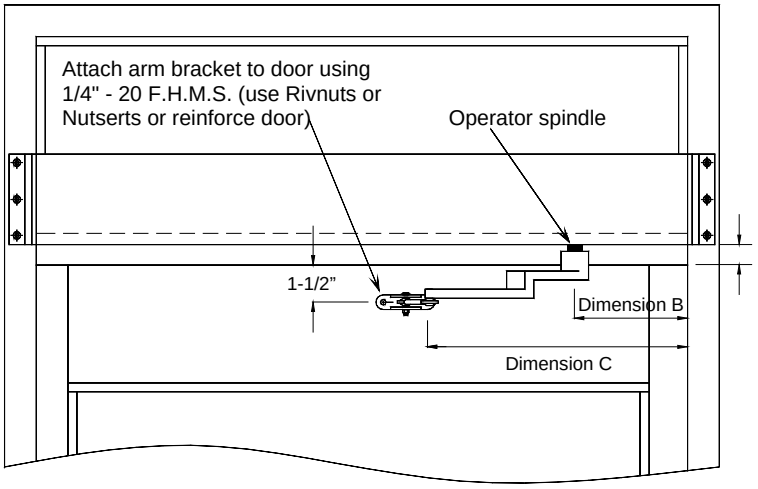
On outswing doors, remove the arm mounting bracket (refer to Figure 2 page 6) from the outswing arm assy. and install on door as shown below. On inswing units, remove the inswing track (refer to Figure 2 page 6) from box and install on door as shown below (do not install the arm on to the operator spindle at this time).

Dimension "C" - Outswing Arm Mounting Locations

Distance From Inside Edge of Pivot Jamb to Center Line of First Arm Bracket Mounting Hole

		Outswing	
Model	Pivot Type	With Fingerguard	No Fingerguard
GT-400 & GT-8400	Butt/Offset	Not Applicable	12-7/16"
	Center Pivot	16"	15"
GT-500 & GT-8500	Butt/Offset	Not Applicable	10-3/16"
	Center Pivot	13-3/4"	12-3/4"

Bottom load header shown, same for side load

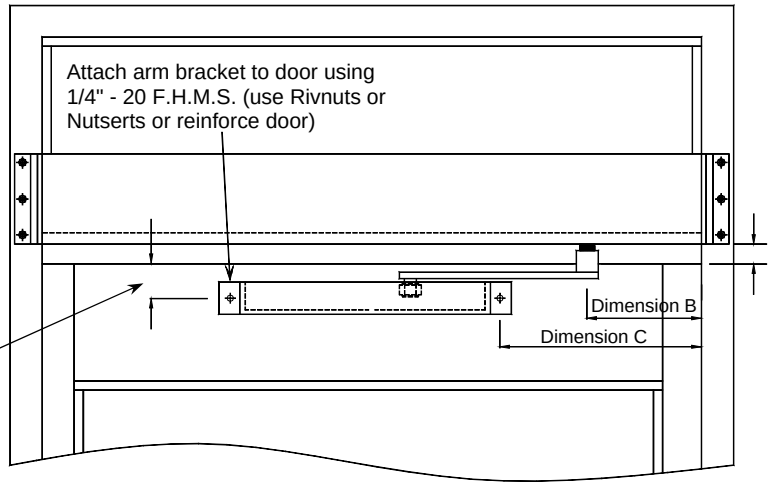


Dimension "C" - Inswing Track Mounting Locations

Distance From Inside Edge of Pivot Jamb to Center Line of First Mounting Hole

		Inswing Standard Track (ST) 11-1/4"		Inswing Panic Track (PT) 20-1/16"	
Model	Pivot Type	With Fingerguard	No Fingerguard	With Fingerguard	No Fingerguard
GT-400 & GT-8400	Butt/Offset	Not Applicable	8-1/4"	Not Applicable	Not Applicable
	Center Pivot	13"	12"	3-3/4"	2-3/4"
GT-500 & GT-8500	Butt/Offset	Not Applicable	8-1/4"	Not Applicable	Not Applicable
	Center Pivot	13"	12"	3-3/4"	2-3/4"

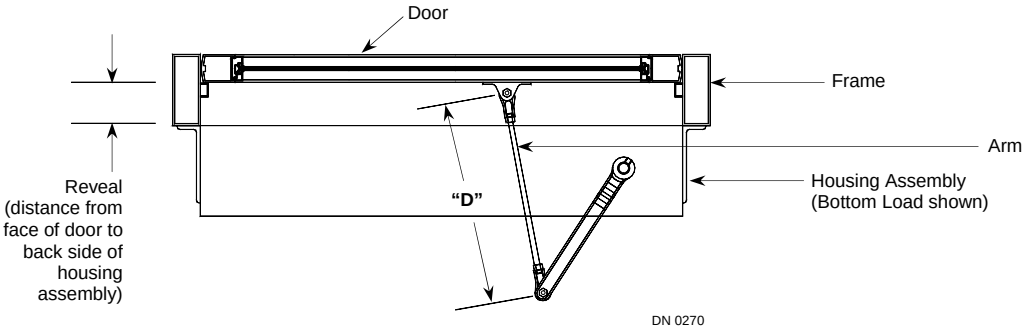
Bottom load header shown, same for side load



Step 17 - Outswing Arm Lengths:

Using the chart below, determine the appropriate length of the outswing arm (dimension “D”) and cut the supplied threaded rod to suit. Measure and cut the supplied plastic arm cover to suit rod length and slide over threaded rod. Assemble arm as shown in Figure 16 below.

Figure 16 (Plan View) Determining Dimension “D”



Dimension “D” Outswing Arm Length

Distance from Center Line of Arm Elbow to Center Line of Bolt on Door Bracket

		Reveal					
Model	Pivot Type	1-1/8”	2-1/8”	3-1/8”	4-1/8”	5-1/8”	6-1/8”
GT-400 & GT-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& GT-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”

Step 18 - Arm Pre-load on Magnum or Analog Controlled Units:
(if installing a unit with a "U" series microprocessor skip to Step # 20)

Refer to Figures 17 & 18 below. In order to achieve correct back check and latch positions, the operator must be pre-loaded (spring wound up before the arm is affixed to the door) by approximately 130 - 140 º. This also rotates the cams (located on the top of the operator) around to the required position to open and close the micro switches at the correct point of door travel. *With door closed and arm connected to the door, the scribe mark on the underside of the operator spindle should be parallel with the door*.

To properly pre-load operator and set arm in correct location on spindle, perform the following steps:

a. Be certain operator/motor is plugged into controller.

! WARNING !
The controller has an electrical circuit built in to slow the rotation of the operator arm while it is unwinding. Removing the pin while the motor is unplugged from the controller will allow the spindle and arm to unwind at high speed and can result in personal injury or damage. Great care must be taken not to dislodge pin or otherwise release the operator and arm unless the motor is properly plugged in to the controller.

b. With the operator fully unwound and the arm uninstalled, the position of the micro switch cam would be as shown in Figure 19 on the following page.
c. Install the arm on the operator spindle in the unwound position.
d. While tightly holding the arm, wind up the operator approximately 60 degrees.

On bottom load units, insert a 1/8" Allen wrench or similar tool into the Lovejoy coupling access hole located on the bottom of the operator at the motor end. Refer to Figure 9.

On side load units, insert a 1/8" Allen wrench or similar tool into the Lovejoy coupling access hole located on the top of the operator at the motor end. Refer to Figures 9 and 14. This will pin the motor and operator in the correct position and prevent them from unwinding.

e. Remove the arm, rotate it "minus" 60 degrees and reinstall it again. While holding arm, remove pin, wind up the spindle 60 degrees again and re-pin the operator. Repeat this process in increments of approximatley 60 degrees to achieve the necessary fully loaded position of 130-140 degrees. It might be possible to wind the arm more than 60 degrees at a time, if so, that is acceptable.
f. Inspect scribe mark on the underside of the spindle. *With door closed and arm connected to the door, the scribe mark on the underside of the operator spindle should be parallel with the door*.
g. Once item (f) is confirmed, tighten set screw on the arm. *Ensure the set screw on the arm is seated correctly in the groove on the operator spindle. Refer to Figure 23 on page 21.*
h. Once the arm is connected to the operator spindle, connect the other end of the arm to the door bracket or track. Note: the easiest way to install the inswing arm into the track is to remove the 1/4"-20 screw from one end of the track and let it swing down. Allow the roller to contact and push againist the door and then swing the track back up so that the roller is inside the track and re-install the screw.

Figure 17
Pre-loading a LH Inswing Operator

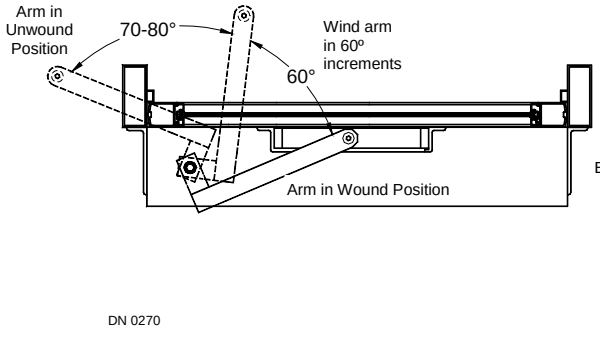


Figure 18
Pre-loading a RH Outswing Operator

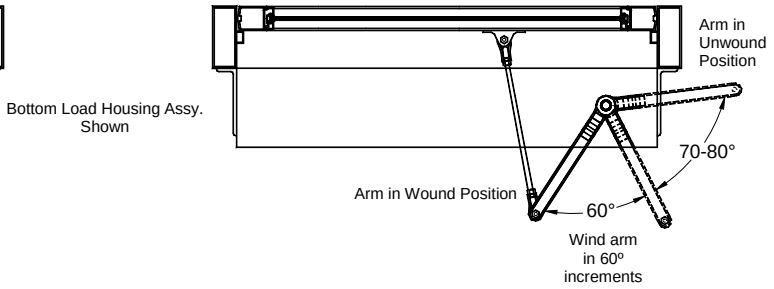
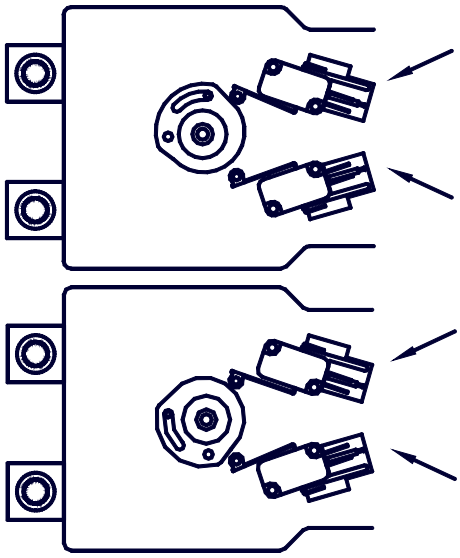


Figure 19
Position of the adjustment cam in the fully unwound position on left and right hand operators.
Magnum or Analog Controlled Units Only

Figure 19

Position of cam on LEFT Hand operator shown with spring FULLY UNWOUND

Position of cam on RIGHT Hand operator shown with spring FULLY UNWOUND



Latch Check Switch Wires
Magnum Control: White & Green
Analog Control: Orange & Brown

Back Check Switch Wires
Magnum Control: Red & Blue
Analog Control: Yellow, White & Blue

Back Check Switch Wires
Magnum Control: Red & Blue
Analog Control: Yellow, White & Blue

Latch Check Switch Wires
Magnum Control: White & Green
Analog Control: Orange & Brown

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Step 19 - Check Position Adjustments on Analog or Magnum Controlled Units:

Once the unit is mounted, the operator, control and arm is installed and the other half of the arm affixed to the door, the door can be used manually. To verify correct operator pre-load or check/change the desired position at which the door will go into back check and latch check, apply power to the units taking care to correctly connect the 120 VAC as outlined in the controller installation manual. Activate the unit. The door should go open, time out and close smoothly.

If adjustment of check positions are required, perform the following steps:

On a GT-400/500 Bottom Load Conversion Unit (CU):
Only the back check cam is adjustable on a bottom load unit. Refer to Figure 20 on the following page. The cam assembly can be adjusted through an access hole located on the top of the header housing. Remove the plastic snap in cover and observe the micro switches and cam on the top of the operator. The position at which the door is switched into back check can be varied by rotating the cam shown in Figure 20. The rotation of this cam is adjustable by removing the black “set screw” and placing it in the adjustable position as shown. Then, by loosening the “cam hold down screw” and rotating the cam, the point at which the door is switched into back check can be varied (this applies to Magnum or Analog controlled systems only – the U series microprocessor does not use switches to control back check and latch positions).

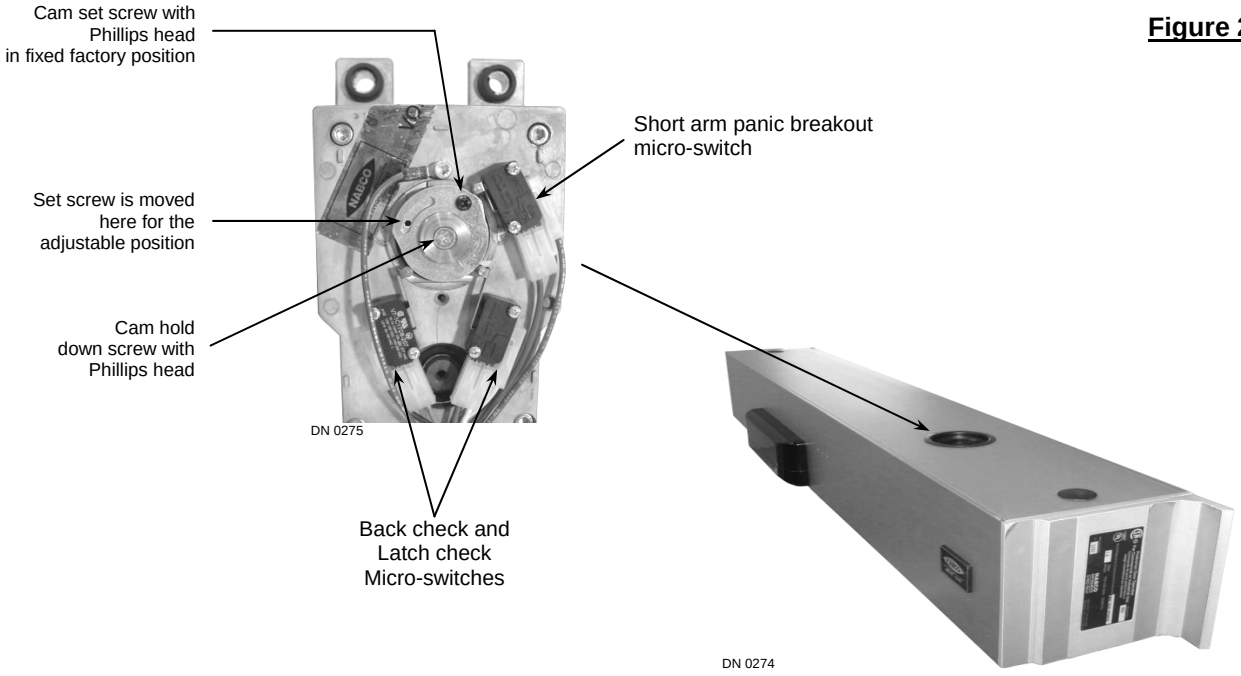
On a GT-8400/8500 Side Load Conversion Unit (CU):
Refer to Figure 21 on the following page. The cam assembly must be accessed from inside the header housing assembly. Using a 5/16” box or open end wrench, loosen the cam hold down screw. Using a 1/4” open ended wrench, loosen the cam set screw and rotate the top cam to adjust the back check position or the bottom cam to adjust the latch check position. This applies to Magnum or Analog controlled systems only. The U series microprocessor does not use switches to control back check and latch positions.

Note: Both the back check and the latch check positions can be varied.

Bottom Load Unit Only - Adjustment of Back Check Cam is made with Phillips Screwdriver from TOP of the Header
Magnum or Analog Controlled Units Only

The illustration below shows the procedure for repositioning the cam set screw to vary back check positions. To adjust, insert screw driver from top and loosen screws.

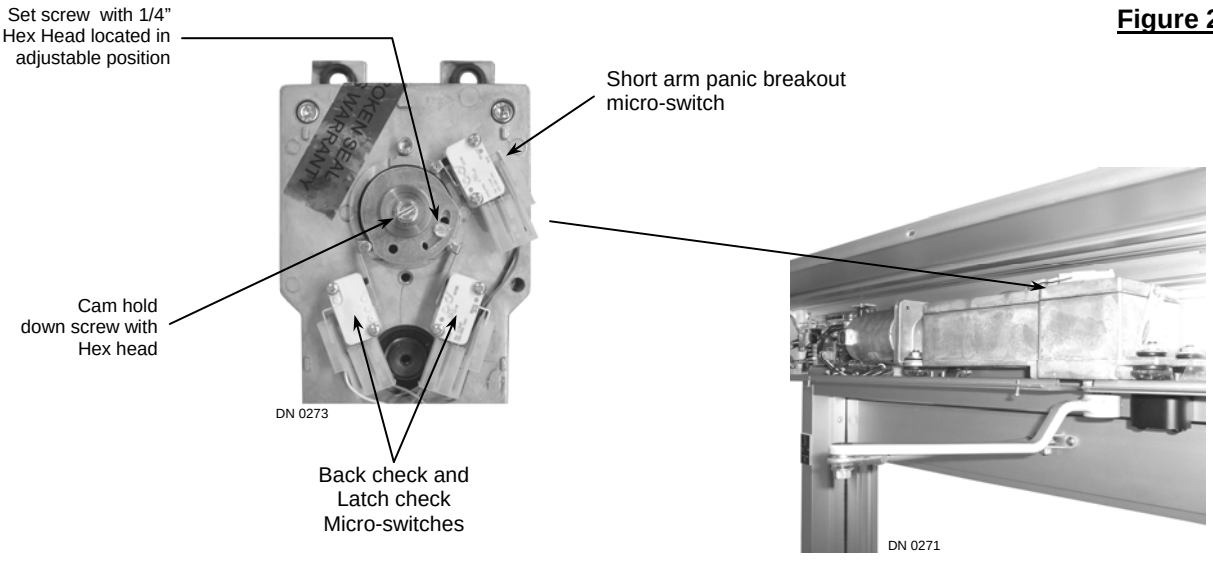
Figure 20



Side Load Unit Only - Adjustments of Back and Latch Check Cams are made with Wrench from SIDE of the Header
Magnum or Analog Controlled Units Only

The illustration below shows the procedure for repositioning the cam set screw to vary back check and latch check positions. To adjust, insert wrench from side and loosen screws.

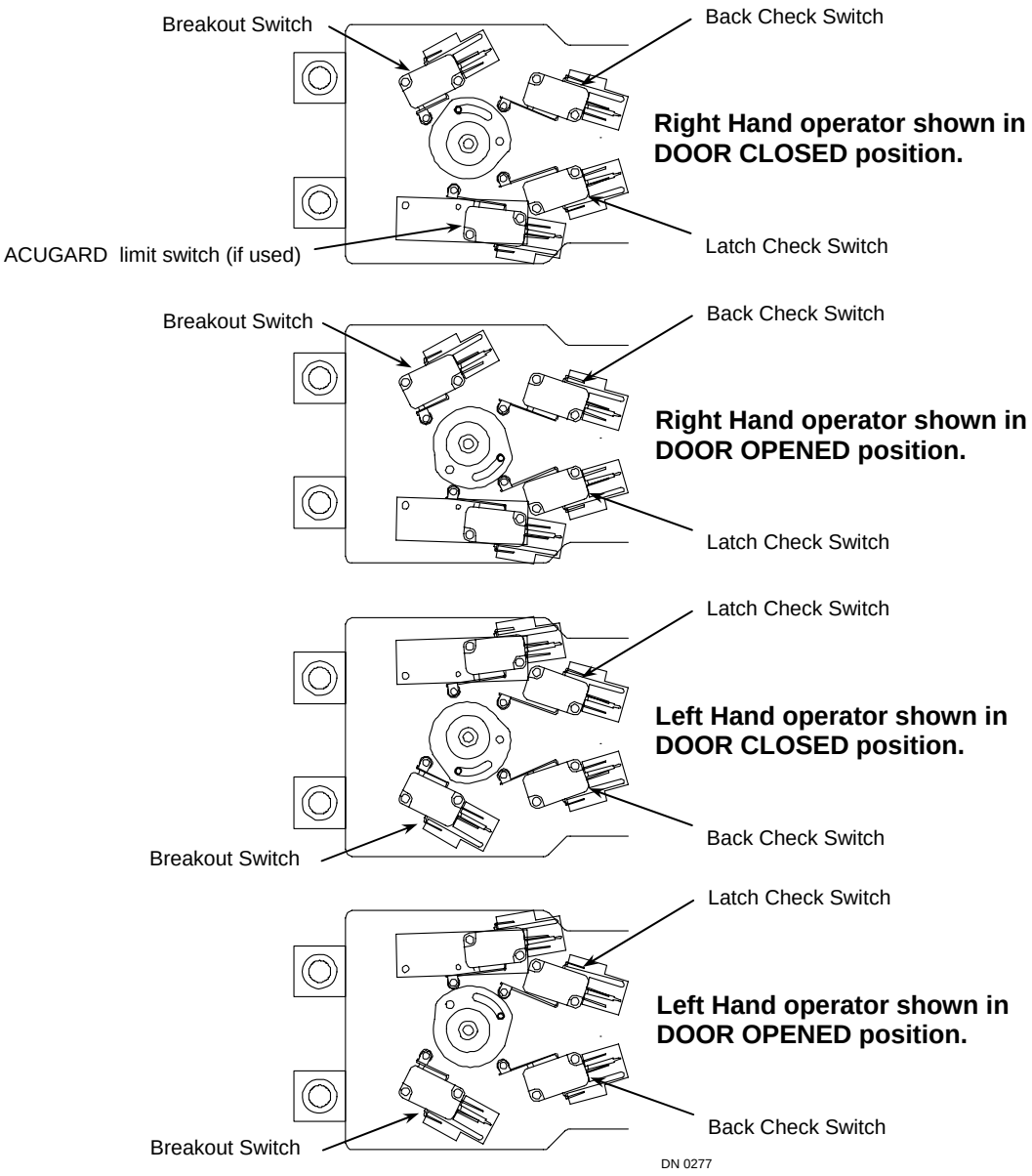
Figure 21



Notes:
The Latch Check and Back Check switches illustrated above are not used with the "U" Series control.
The short arm micro-switch is a panic breakout switch used on all inswing units.

(Magnum or Analog controls only) Figure 22 below illustrates the correct position of the switch cams in the door CLOSED and door OPENED positions with the operator pre-loaded 130º - 140º.

Figure 22



Step 20 - Arm Pre-loading on "U" Series Controlled Units:

The NABCO "U" Series Control keeps track of the door's position via the motor encoder. Therefore the degree of pre-load is not as crucial as with the Magnum or Analog control. The degree of pre-load on the operator arm is at the discretion of the installer. More pre-load can be applied when more closing force is desired. Once the control is powered up and the door is programmed for stroke via the Handy Terminal, the position of the door and arm is saved in the memory of the U Series Controller. To install the arm on the spindle, perform the following steps:

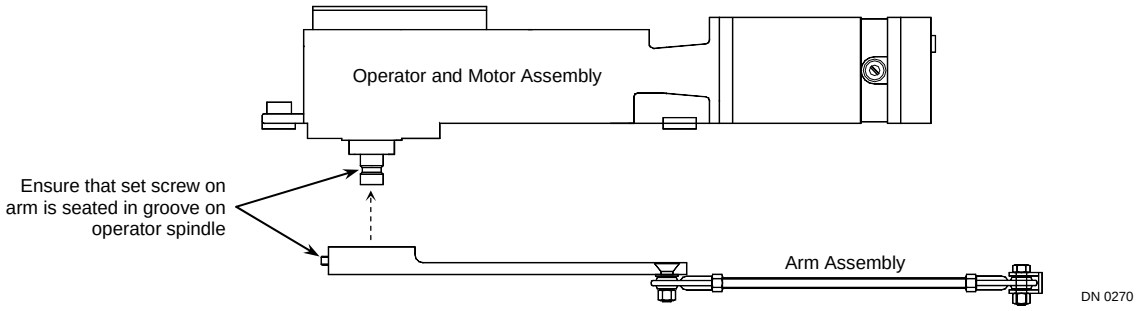
a. Be certain operator motor is plugged into controller.

! WARNING !

The controller has an electrical circuit built in to slow the rotation of the operator arm while it is unwinding. Unplugging the operator from the controller once the arm is wound up will allow the spindle and arm to unwind at high speed and can result in personal injury or damage.

b. For minumum door closing force: Install the arm on the operator spindle with a 45 degree pre-load. Install and connect control as Controller Installation Manual and program door stroke. Ensure the set screw on the arm is seated correctly in the groove on the operator spindle.

Figure 23



Step 21- Install door stop:

On Side Load Units, open door to the full open point and position door stop shown in Figures 14 & 15 so that it butts against the arm. Using a pencil mark the hole positions. Drill and tap for 1/4" - 20 bolts. Secure arm stop to underside of housing with two (2) 1/4" - 20 round head screws supplied.

On Bottom Load Units, loosen stop ring brackets shown in Figure 9 on page 10, open door to the full open point and rotate the door stop so that it butts against the arm and tighten stop ring bracket retaining screws.

Step 22 - All units - Install wiring, and sensors as per the separate Controller Installation manual.

TROUBLE SHOOTING

Symptom	Action/Cause	Solution
Operator does not function.	1. Gears slipping or binding in operator or coupling slipping between motor and operator 2. Motor is plugged in backwards	1. Re-secure or free up gears or couplings 2. Reverse motor leads
Door is staying open on activation	Spring is broken in the operator	Replace spring
Door slams closed.	Clutch gear or woodruff keys slipping in operator	Replace operator
Motor spins on activation but door does not open	Check polarity of motor input wires at connector on motor.	Reverse motor leads.
Door begins to open then closes suddenly	Clutch gear or woodruff keys slipping in operator	Replace operator
Door does not stay tightly closed.	1. Preload on swing arm is not correct. 2. Building stack pressure excessive.	1. Set pre-load on arm as explained on page 17 2. Replace clutched operator with clutchless operator

NABCO Entrances Return Policy - Limited Warranty
NABCO ENTRANCES INC. for its Gyro Tech product line, provides to its distributor a limited warranty, on Gyro Tech products. This warranty is:

NABCO ENTRANCES INC. will exchange or repair, F.O.B. the plant, any component found defective in workmanship and/or material, subject to Nabco's inspection, for a period of one (1) year after installation or 18 months after manufacture, whichever comes first. Warranty does not include field service labor. The installing contractor/distributor will be responsible for installation and field service. This is NABCO ENTRANCES Inc.'s sole warranty.

This warranty does not cover loss or damages resulting from causes beyond the manufacturer's control, misuse, neglect, accidents, windstorms, or other acts of God, or acts of terrorism. Warranty is for normal use and service. The warranty does not apply to equipment that has been repaired or altered so as to adversely affect conditions of operation. Warranty will not obligate NABCO for damages resulting from such alterations, misuse, or acts of God, or acts of terrorism.

Extended Warranties - New Parts and Equipment Only

Two-year warranties on all Gyro Tech entrance systems are available. The two (2) year warranty is the same as the one (1) year warranty except for a period of two (2) years after installation or 30 months after manufacture whichever comes first. All orders requesting a multi year warranty must be included on the purchase order at the time of the original order to establish proper records. Any other extended warranty must be specifically approved and priced by NABCO Management.

Warranty Seal on Operators
All operators will contain a warranty seal placed over the cover and housing. The warranty will become invalid if any operator is returned with the seal broken.

Return of Warranty Parts
NABCO must be promptly notified (within 2 weeks of failure) of all warranty claims. All parts for warranty claims must be returned to NABCO within the following two (2) weeks for US locations and six (6) weeks for all other locations. All parts must be returned freight prepaid and include a Return Material Authorization Tag/Number which is available by contacting the Customer Service Department. All items returned are subject to inspection and testing to determine the cause of failure. If in NABCO's determination:

A. For all items, when the part returned is defective and within the terms of the warranty, it will be repaired or replaced. Any repaired item would carry the full warranty from original installation date. If the piece has been replaced, a credit memo will be issued against the replacement invoice. Warranty parts are shipped prepaid via ground transportation by Nabco. Expedited delivery costs are paid by the distributor.

B. For all items, if it is determined the part returned is <u>not defective and within the terms of the warranty</u> the part will remain the property of the Distributor at the time of this determination. The disposition of the item will be agreed upon with the distributor. The only options considered will be:

1. To return the item at the distributor cost.
2. To return it to stock less inspection and testing costs if the piece has not been used and remains saleable as a new part. A 20% restocking charge will apply and be paid by the distributor.
3. Discarded by NABCO.

Non-warranty Returns
Applications for the return and credit of any parts item must be made in writing to Nabco Customer Service within 60 days of the date of our shipment. Only items listed on attached Nabco RMT tags will be considered.

Parts that have been ordered incorrectly can be exchanged for the correct items provided Nabco Customer Service is notified in writing within 60 days of the date of our shipment and subsequent return authorization has been given. Credit for parts that have been ordered by the distributor and are no longer needed for repair in the field will be subject to the discretion of Nabco. A 20% stocking fee will apply.

END.