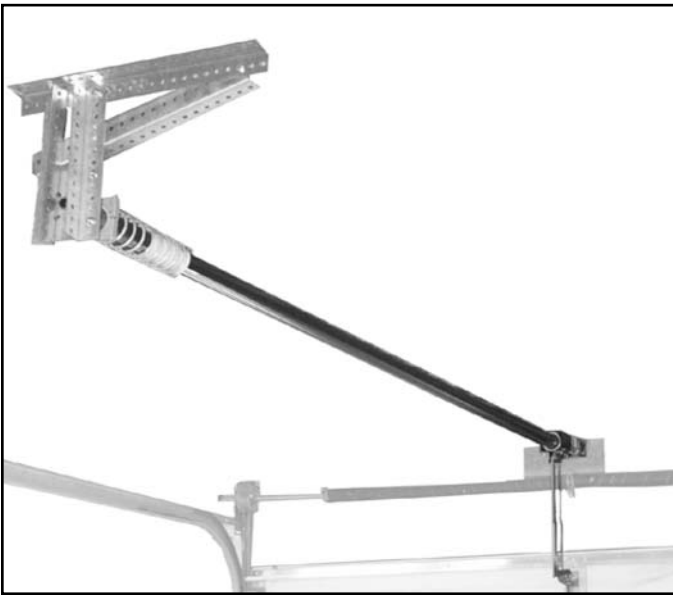
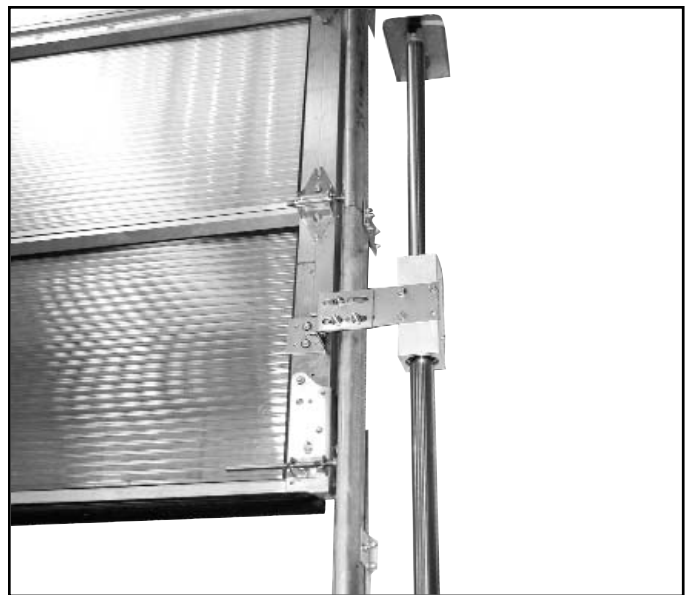


Numaxtm

**Magnetically Coupled
Air-Powered Operator**



Horizontal Mount



Vertical Mount

Installation Manual

1-20-07

**American Garage Door Supply, Inc.
1-800-233-1487**

Numax™ Air-Powered Operator Installation

Please read Instructions completely before installation!

Standard Recommendations

1. Before you begin the installation of the Numax™ product; test your door for proper operation - your door must operate smoothly without binding and also be balanced equally from the close to the open position. An out of balance door will cause problems with the operation of the air operator.
2. All Numax™ operators utilize a cushioning spring to cushion the end of the open cycle. The down cycle will automatically cushion by design.
3. All air-powered operators should have an inline dryer located before the control box to eliminate moisture in the airlines. Units installed without inline dryer may void the warranty.
4. Oilers may be used with your Numax™ system. It is important to keep oil reservoirs full or the operator seals may dry out. Lubricant can attract contaminants and cause damage to the operator.
5. The Numax cylinder surface should be kept clean and should not be dented in any manner. A dented cylinder will restrict the operation of the internal piston and external trolley slide.
5. Do not use airline larger than 3/8" between the control box and the operator cylinder. Using larger line will slow the unit down

Horizontal Mount Recommendations

1. If your door has a coupler on the torsion shaft, mount the coupler 4"-6" off the vertical centerline of the door.
2. You will need a minimum of 6" of space above the high point of the door travel to install a Numax™ in a horizontal position.
3. A strut must be placed on the top section of any door that will be using a horizontal mount Numax™. This increases the strength of the section and will prevent bowing of the section after repeated usage of the door system.

Vertical Mount Recommendations

1. 12" or more of highlift (19" true highlift) is required for vertical mount applications.
1. Vertical Numax™ installations require a mounting surface on the same vertical plane as the track/jamb mounting surface ("buck"). This must be prepared in advance. Minimum 2" x 6" treated lumber construction recommended.

Safety

1. **Use the shut-off valve in the off position until installation is complete. To turn the valve to the off position turn the valve handle 90° to the valve.**
2. **Torsion springs and counterweights on overhead type doors are under extreme torque and if handled improperly could cause serious injury, even death. Always use extreme caution when working with or near torsion springs, counterweights or any counterbalance system. Installation should be performed by a trained professional.**
3. **Follow manufacturer's recommendations on tools, ladders and other equipment used for installation.**
4. **Any air-powered opener must be equipped with a safety reversing device that operates reliably. Failure to install workable safety devices such as photoeyes, reversing edges and etc. may cause the door to strike an object or person causing serious damage, injury or death.**
5. **Use precaution when installing or servicing air-powered openers. Air-powered openers utilize high pressure air for a power source and can cause equipment damage, serious injury or death if used improperly.**

Horizontal Mounting Instructions

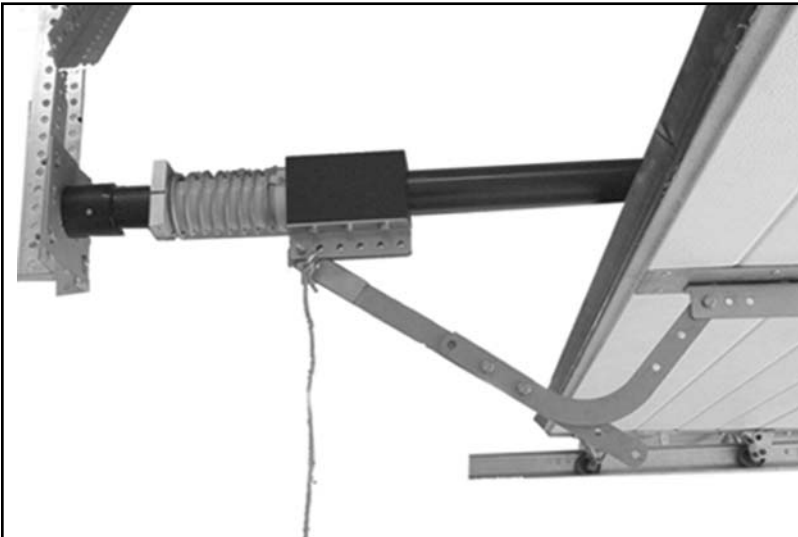
Sample Installation Pictures



Overview- Installation Complete



Door Arm- Door Closed



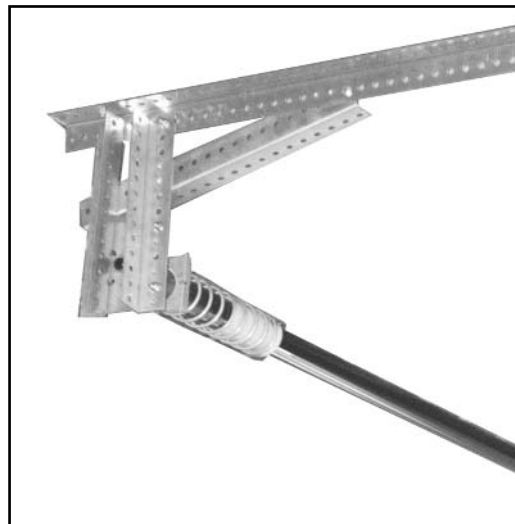
Back View



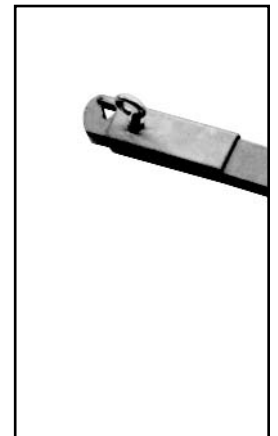
Header View



Side View



Rear View- Backhang



Drawbar
Arm
Assembly

Material List

Provided Materials

1- NMCXX(08-16)	Numax Cylinder (Typically 24" Longer than height of door)
1- NMMHHB	Header U-Bracket
1- NMMHFB	Front U-Bracket
1- NMMHRB	Rear Mounting Bracket
1- NMMHDB	Door Arm Bracket
2- NMHTB	Trolley Brackets
1- HBLTS51615	5/16"-18 x 1-1/2" Hex Head Bolt
1- NUTLS516	5/16"-18 SS Lock Nut
15- HBLTS51634	5/16" x 3/4" SS Hex Head Bolt
9- NUTFS516	5/16"-18 SS Nut- Typically Preassembled
6- WASHLS516	5/16" Lock Washer
1- MHFLKIT	Flow Control Assembly
1- MLHA	SS Drawbar Arm Assembly- Pre-Assembled
3- HBLTS381	3/8" x 1" S.S Bolt
2- NUTFS38	3/8"-16 SS Flange Nut
1- NUTLS38SS	3/8"-16 SS Lock Nut
1- MLHRP	Disconnect Rope
1- NM12PS	Cushioning Spring Assembly
4- LAG516158	5/16" x 1-5/8" Wood Lags
4- TAOS141W	1/4" x 1" SS Self Drilling Screws
2- SLRF15X38	1-1/2" X 3/8" Nipple
2- QDEV	Quick Dump Exhaust Valve
2- SLPF-38X38	3/8" x 3/8" Pushin Fitting
2- SLPE38	3/8" Porex Muffler
1-TRIBOLUBE12	Tribolube Lubricant- Tube
1- ANTI-SEIZE-2	Anti-Seize Lubricant- Mini Packet

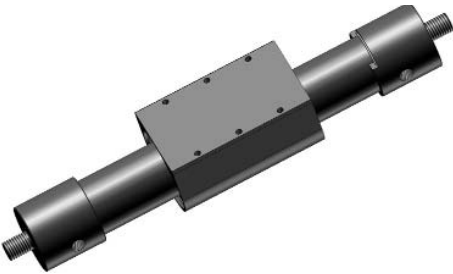
Materials Sold Separately

Photoeye or other Safety Reversing Mechanism
Inline Dryer
Z- Strut for Top Section
Punched Angle Iron for Backhang
5/16" SS or Galvanized Bolts and Nuts for Backhang
Installation Kits- (3/8" Polyflow Airline & Fittings)
Control Box Assembly with Valve & Regulator
3/8" Polyflow Airline
Automatic Oiler

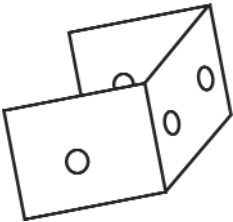
Tools Required

Ladder
Vise Grip Locking Pliers
Hand Wrenches- 7/16", 1/2", 9/16", 5/8"
3/8" Socket Set- 7/16", 1/2", 9/16", 5/8"
Electric Impact or Drill with 3/8" and 7/16" Sockets

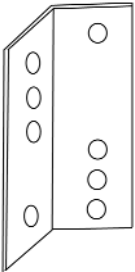
Components Identification



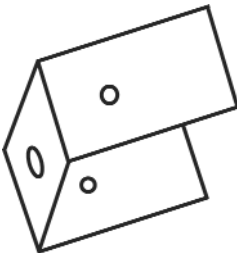
Cylinder



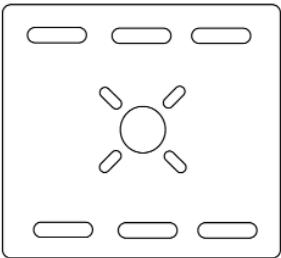
Header U-Bracket



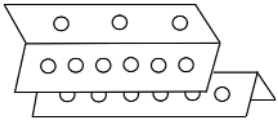
Door Arm Bracket



Front U-Bracket



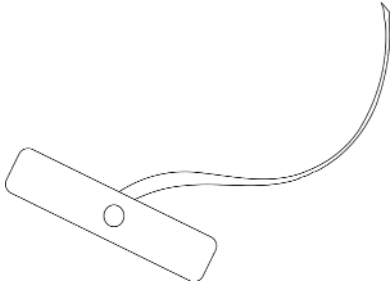
Rear Mounting Bracket



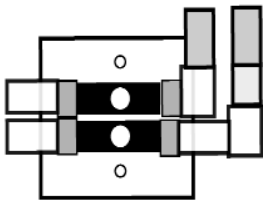
Trolley Bracket



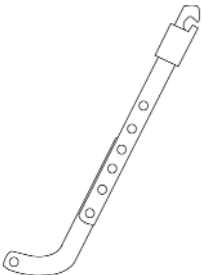
Cushioning Spring



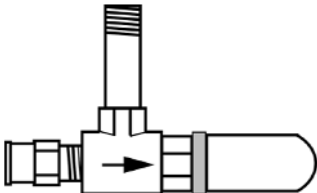
Disconnection Rope



Flow Control



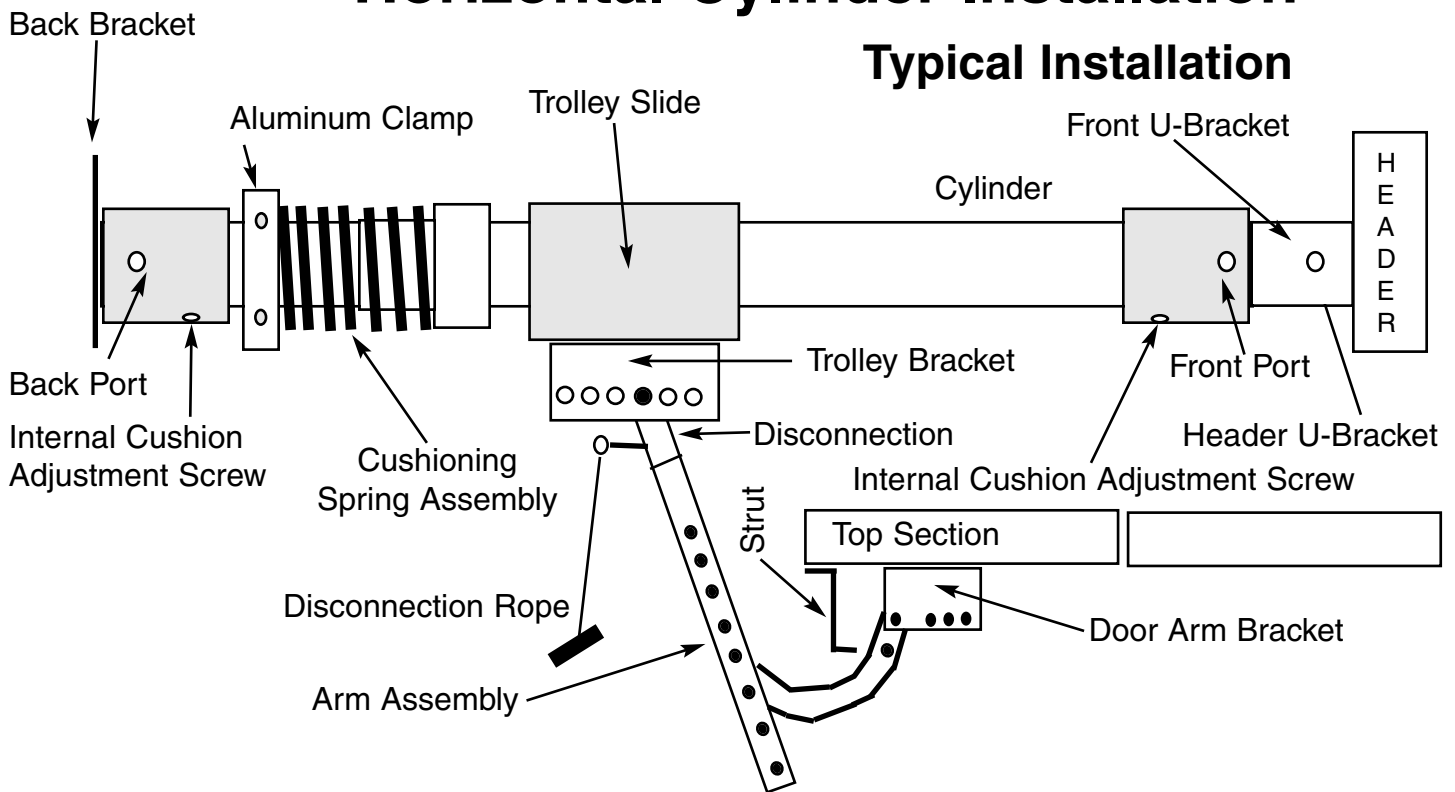
Drawbar Arm Assembly



Quick Dump Exhaust Assembly

Horizontal Cylinder Installation

Typical Installation



Step 1

Please inspect all packages for damage and missing parts (refer to components and material identification pages). You will need a minimum of 6" of additional headroom above the high point of the door travel to install an Numax™ in a horizontal position.

Step 2

Place the Numax cylinder on a flat surface, attach the front U-bracket to the front of the cylinder. (Figure 1). Use the cylinder nut provided. Position the port for air fitting to your desired position before tightening nut. (typically to the side)

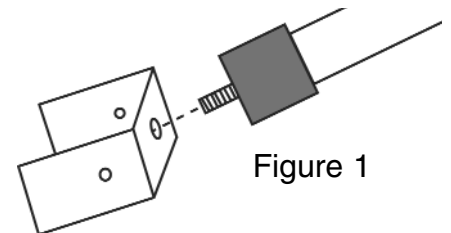


Figure 1

Step 3

Attach the back mounting brackets to the back of the cylinder (Figure 2). Use the cylinder nut provided. Position port for air fitting for ease of access and tighten nut.

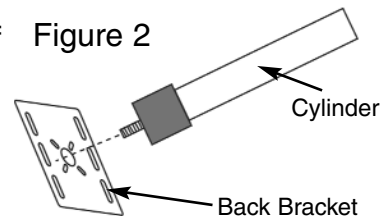


Figure 2

Step 4

(Typically pre-assembled from factory) Slide the cushioning spring onto the cylinder by removing end cap See special instructions for end cap removal installation towards back of this manual. Either end of the cylinder can be used for the front or back.

The cushioning spring must always be positioned near the rear of the cylinder. The plastic stop should be pointing towards the trolley slide and the aluminum clamp should be positioned towards the end of the cylinder. (Figure 3)

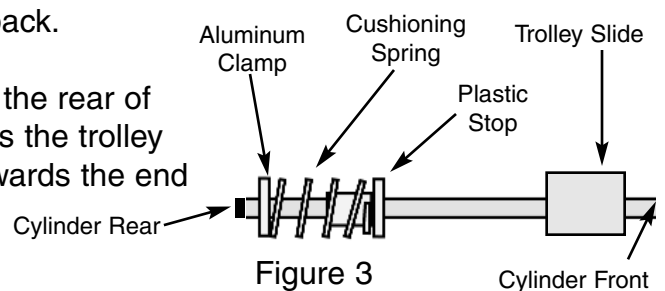


Figure 3

Step 5

Assemble trolley brackets onto the trolley slide with 6- 5/16" x 3/4" SS bolts and 5/16" lock washers, use anti-seize on these bolt threads!! (Figure 3A). Add 5/16" x 1-1/2" bolt with 5/16 lock nut (Figure 3B) to one of the trolley bracket holes for future connection of the drawbar arm. This may/will be repositioned for final connection and adjustment of arm.

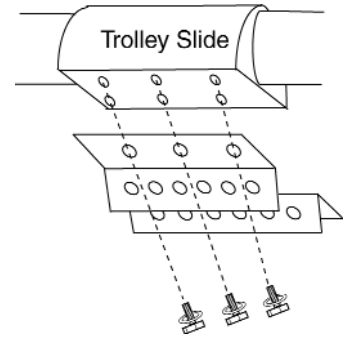


Figure 3A

Step 6

Install the quick dump exhaust assemblies to the ports located on each end of the cylinder (Figure 4).

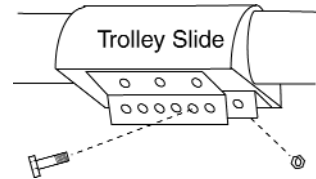


Figure 3B

Step 7

Close the door and lock down with a slide lock or vise grip the track to keep the door in it's closed position.

Step 8

Install the door arm bracket on the top section of the door. Place the top of the bracket 4" below the top of the section. Fasten with 1/4" x 1" stainless steel self-drilling screws or equivalent. (Figure 5).

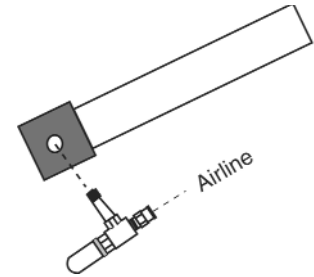


Figure 4

Note: The door arm should attach to the top section on the same horizontal height as the top roller (Figure 5). Generally the door arm bracket will be installed on the center stile located at midcenter of the door. It may be also relocated off center of the door at another stile location to avoid obstacles. Fasten the door arm bracket just underneath the previously installed strut. The strut should always be installed as close to the top of the top section as possible. (Figure 5a)

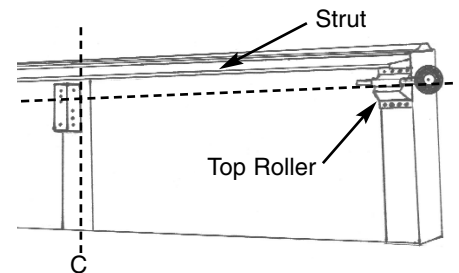


Figure 5

Step 9

Open the door to the high point of door travel (Figure 6) and lock into position with visegrips under any roller on the track. Place a level from the top of the doors' top section to the wall and mark a horizontal line 4" above the level dimension on the header (Figure 7).

Make sure to make this mark directly above the previously mounted door arm bracket. This will be the horizontal top of the header U- bracket.

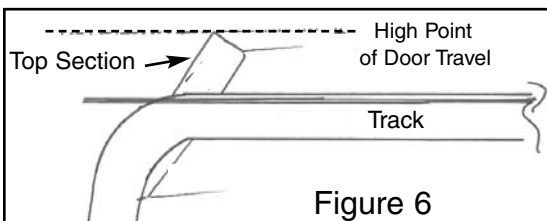


Figure 6

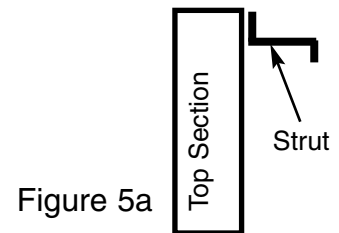


Figure 5a

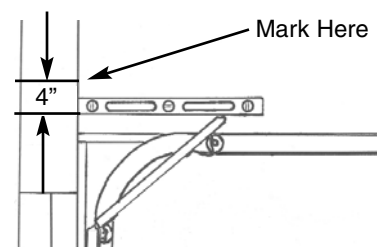


Figure 7

Step 10

Close the door and place the level vertically on the door's top section upward from the previously attached door arm bracket. Mark a vertical line to intersect with the previous mark made horizontally to create an \pm on the header (Figure 8). This will be the vertical centerline of the header U-bracket.

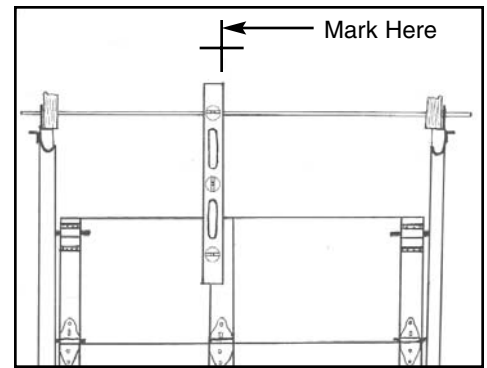


Figure 8

Step 11

Fasten the header U-bracket to the wall above the torsion shaft. Use the wood lags provided. (Figure 9)

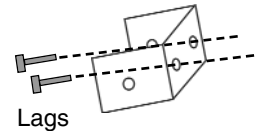


Figure 9

Step 12

With the door closed. Place a ladder just inside door opening slightly to the side of the vertical centerline of the door.

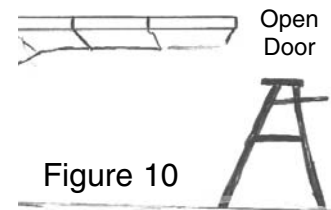


Figure 10

Step 13

Place another ladder back from the opening approximately the height of the door the vertical centerline of the door. Use a step ladder high enough to reach above door when the door is in its open position (Figure 10).

Step 14

Raise the front of the cylinder up to the header and bolt the front U-bracket to the header U-bracket with 2- 3/8" x 1" stainless steel bolts and 3/8" flange nuts (Figure 11).

Do not tighten the bolts until the rear backhangs have been installed.

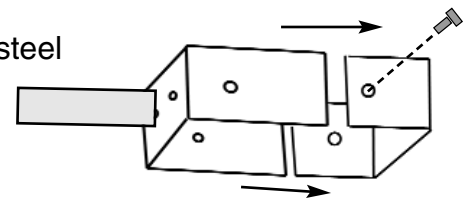


Figure 11

Step 15

Lift the back end of the cylinder above the track and the traveling path of the door (Figure 12). Tie off with a rope or secure on top of the ladder. This will keep the back end of the cylinder above the door travel for clearance when opening the door.

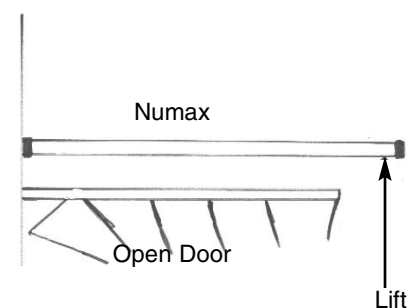


Figure 12

Step 16

Open the door to its fully up position and lock a vise grip on the track under the bottom of a roller to prevent the door from closing.

Step 17

Place 4" blocking material on top of the top section and rest the cylinder on top of the blocking to hold cylinder up approximately 4" above the door. Center the cylinder with the door arm bracket previously attached to the top section (Figure 13).

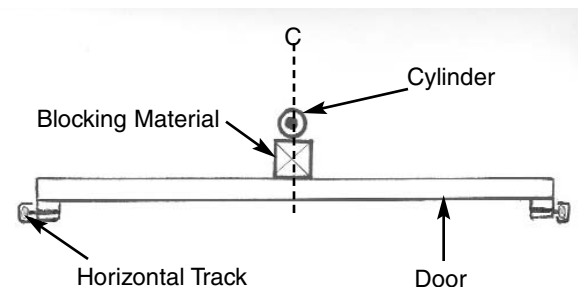
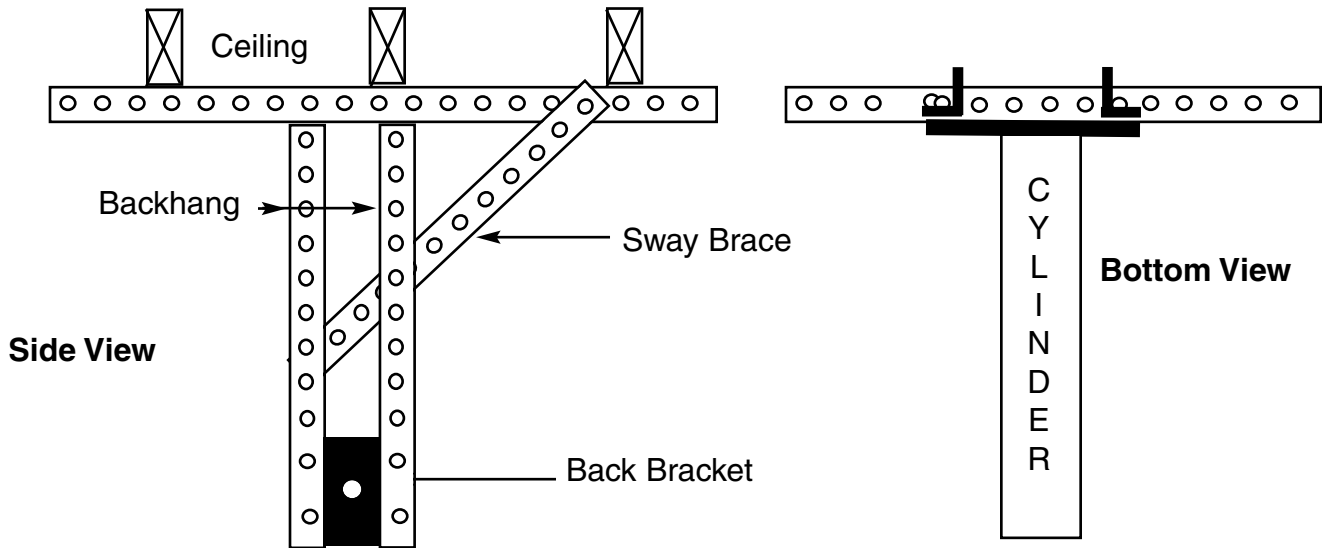


Figure 13

Step 18

Attach backhang material to back end of operator from the ceiling. Be sure to attach sway braces to eliminate lateral movement.

Common Backhang Details.



It is recommended to use 5/16" x 3/4" S.S bolts and nuts to fasten backhang material together.

Use a minimum of 12 ga. 1-1/2" x 1-1/2" galvanized or stainless steel prepunched angle iron.

Other methods may be used, but the backhang must be anchored securely and should not move when the opener is cycling with attachment to door.

Step 19

Remove blocking material holding cylinder up above top section. Unlock vise grips or lock.

Step 20

Close door and lock down with vise grips or lock.

Step 21

Tighten fasteners holding header u-bracket to the front u-bracket.

Step 22

Check to make sure operator is aligned properly and that the trolley bracket is 1/2"-1" above the high travel point of the doors' top section. Maintain a clearance of 1/2"-1" between the bottom of the trolley bracket from the high point of travel and the top of the fully open door. (Figure 14)

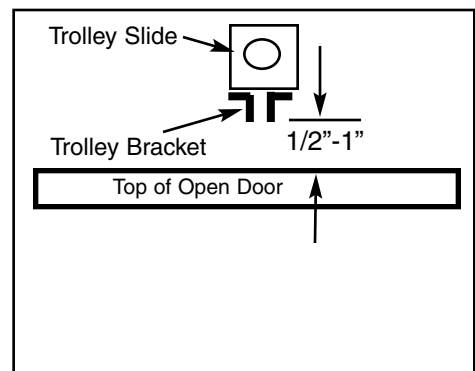


Figure 14

Step 23

Assemble drawbar arm together using 2- 3/8" x 1" SS hex head bolts and 2- 3/8" SS flange nuts (Typically Preassembled) Adjust arm to correct length by holding arm up to trolley bracket assembly and aligning with door arm bracket. (Figure 16)

Step 24

Attach drawbar arm assembly to the trolley bracket. Emergency disconnect end of arm will attach to the trolley bracket bolt in the trolley bracket.

Connect the other end of the arm to the door arm bracket with 1- 3/8" x 1" SS hex head bolt and 1-3/8" SS locknut.

Tighten the lock nut leaving approximately 1/8" of play in the bolt to allow arm to pivot at door arm bracket.

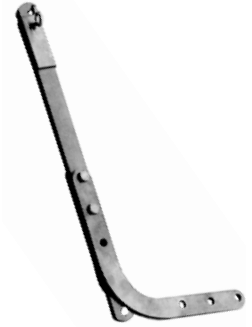


Figure 16

Adjust the arm, so that the straight portion of the arm will be near vertical when fastened to the door arm bracket on the top section and connected to the trolley bracket on the cylinder when the trolley slide is all the way forward. Adjust the arm length, connection at trolley bracket and/or door arm to achieve good bottom seal. There should be a slight downward pressure on the door when the trolley slide is fully forward or closed.

Step 25

Loosen bolts on the aluminum clamp on cushioning spring. Slide cushioning spring to back of operator. Make sure to keep plastic sleeve under aluminum block to keep from scratching or denting the cylinder.

Step 26

Disconnect vise grips and manually open the door to your customers' desired fully open height. This should be done with the door arm attached to the trolley slide. When door is in fully open position, slide the cushioning spring up to the trolley slide. Mark desired open position with a felt tip pen or pencil. Close the door at least 12" and position the cushioning spring so that it will compresses 75% and tighten the bolts on the aluminum clamp (Figure 17).

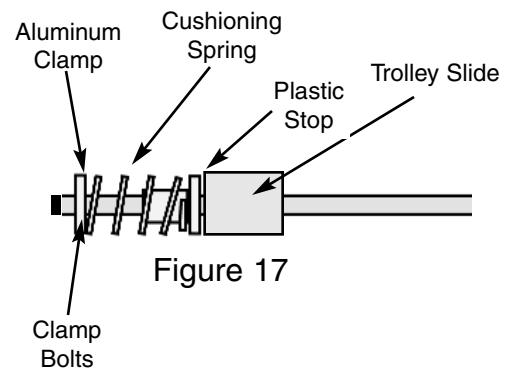


Figure 17

Step 27

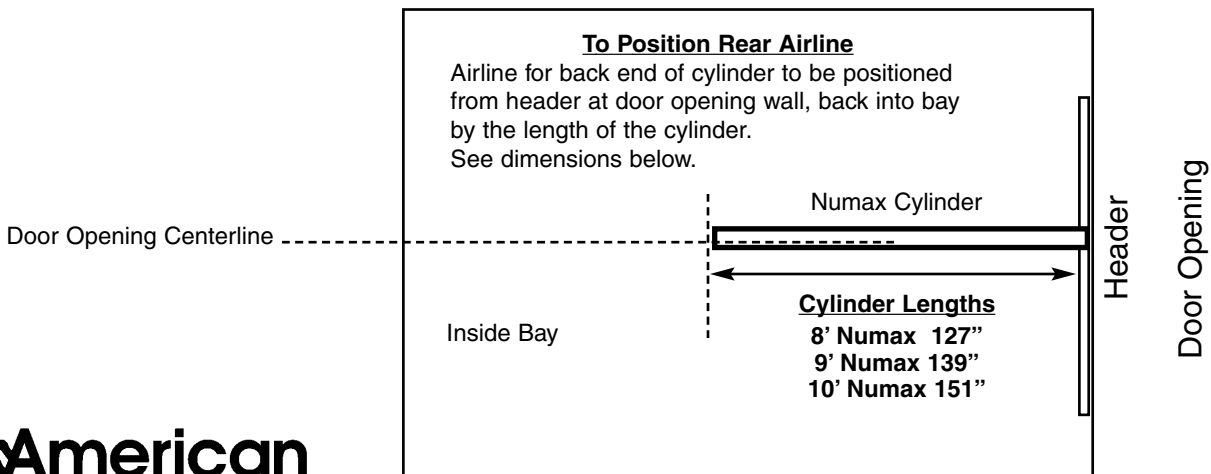
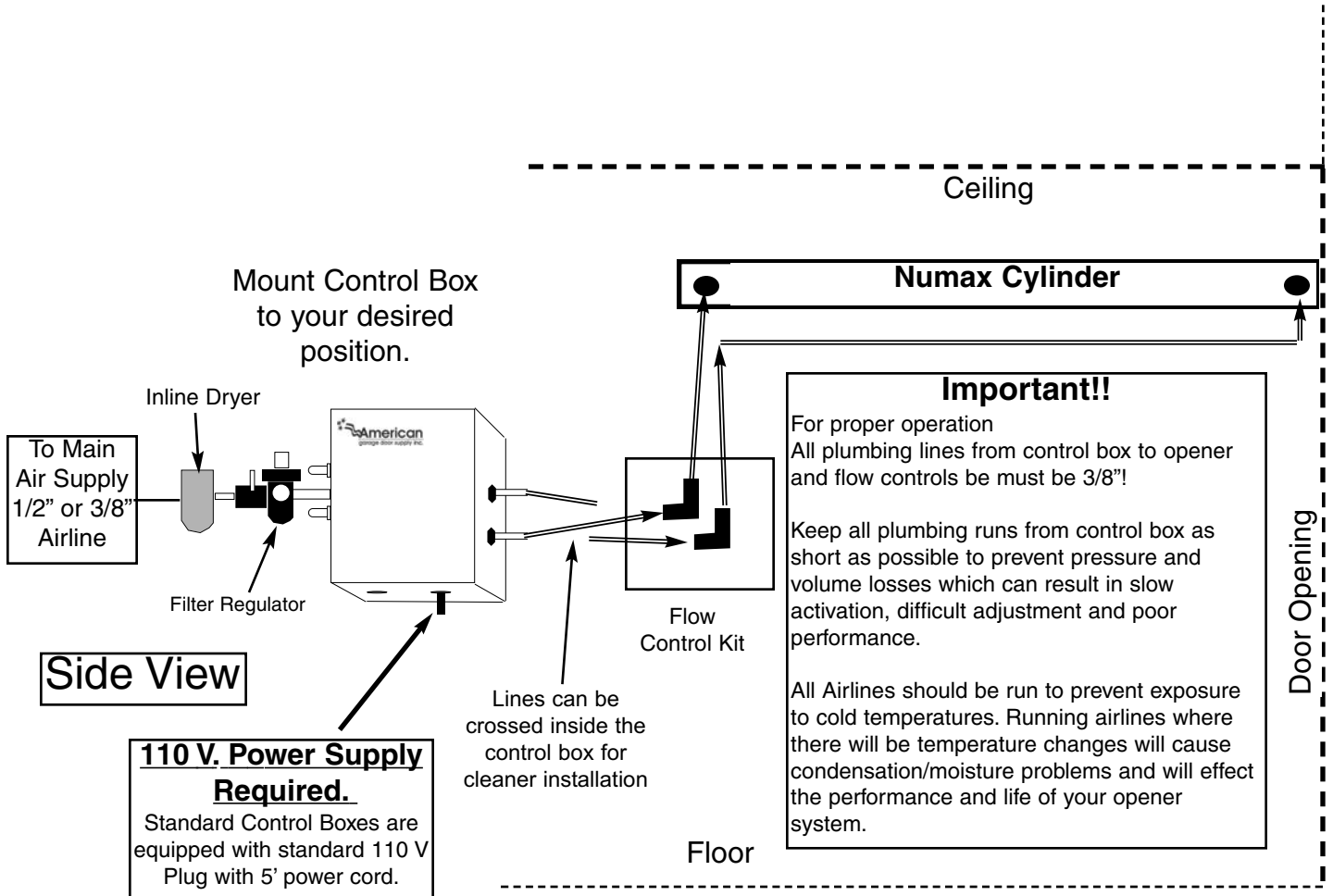
Install rope on eye bolt on quick disconnect of drawbar arm.

Your Numax is now ready for control box installation, final hook-up and adjustment.

Numax Plumbing Detail

Horizontal Mount

Plumbing Lines

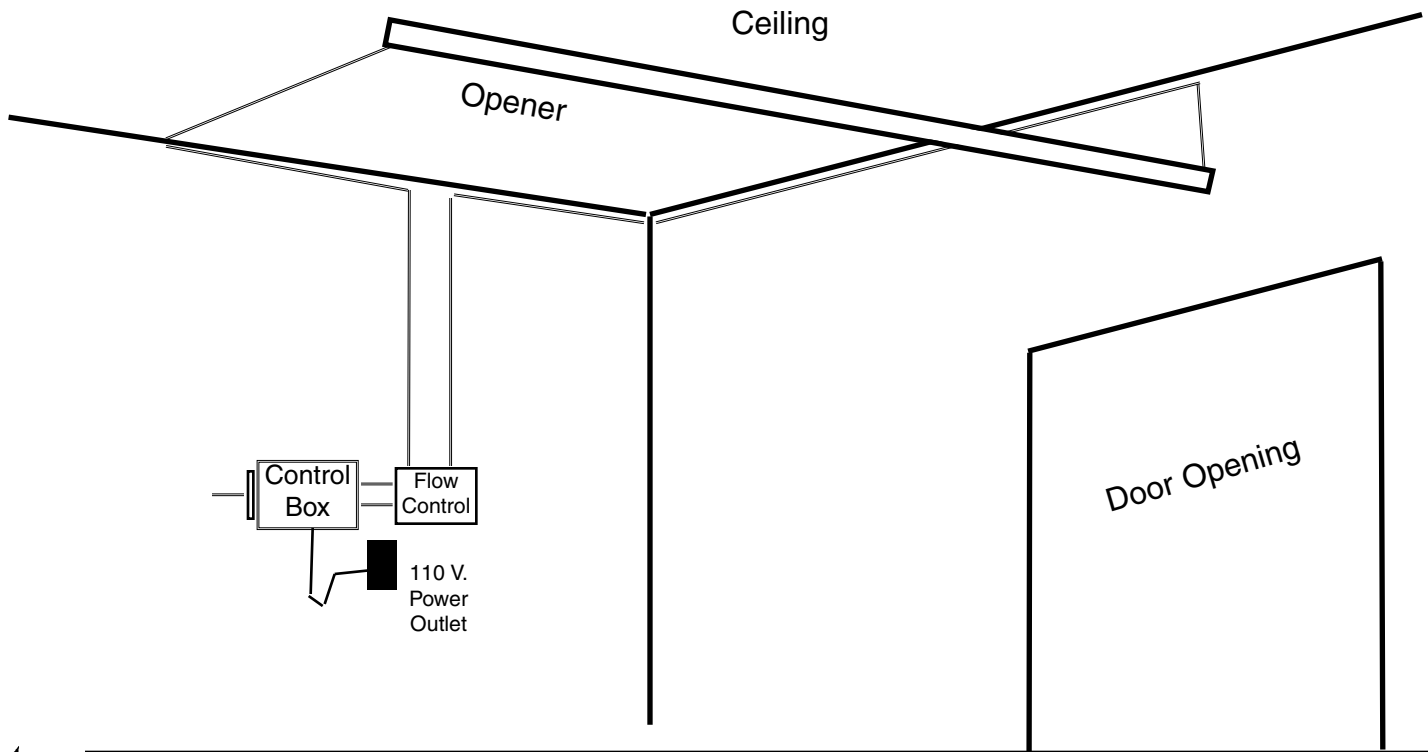
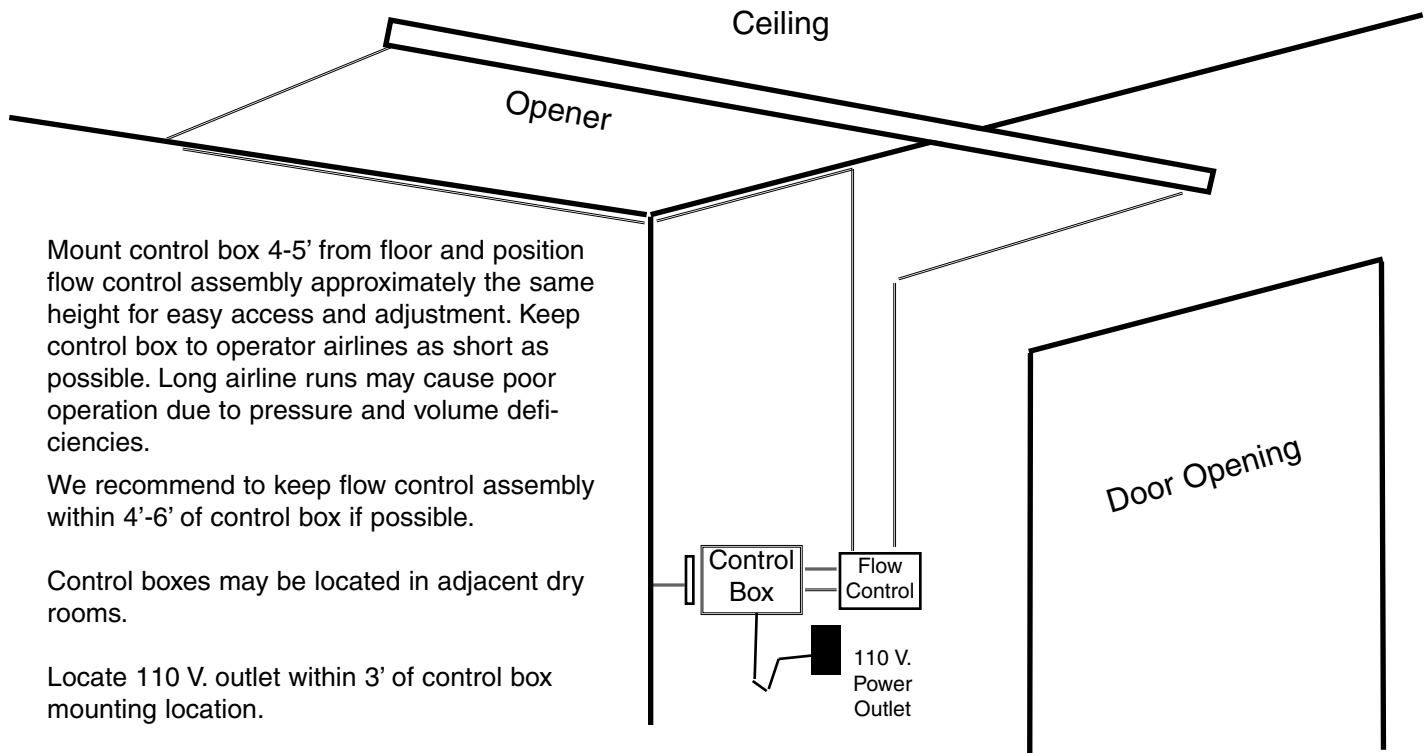


1-800-233-1487

Top View

Oct. 1, 2006

Numax-Horizontal Mount Typical Installations



Vertical Mounting Instructions

Material List

Provided Materials

1- NMCXX (08-16)	Numax Cylinder (Typically 24" Longer than height of door)
1- NMVBWB	Bottom Wall Bracket
1- NMVTB	Top Wall Bracket
1- NMVDB	Door Bracket
1- NMVLTA	Trolley Traveler Bracket
1- NMMLVCB	Trolley Center Bracket
4- HBLTS51634	5/16" x 3/4" SS Hex Head Bolt
6- RBLTS51634	5/16" x 3/4" SS Carriage Bolt
8 - NUTFS516	5/16"-18 SS Flange Nut
10- WASHLS516	5/16" SS Lock Washer
1- MLVFLKIT	Flow Control Assembly
1- NM12PS	Cushioning Spring Assembly
4- LAG516158	5/16" x 1-5/8" Wood Lags
6- TAOS141	1/4" x 1" SS Self Drilling Screws
2- SLRF15X38	1-1/2" X 3/8" Nipple
2- QDEV	Quick Dump Exhaust Valve
2- SLPF-38X38	3/8" x 3/8" Pushin Fitting
2- SLPE38	3/8" Porex Muffler
1-TRIBOLUBE12	Tribolube Lubricant- Tube
1- ANTI-SEIZE-2	Anti-Seize Lubricant- Mini Packet

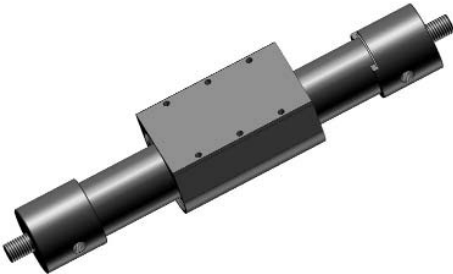
Materials Sold Separately

Photoeye or other Safety Reversing Mechanism
Inline Dryer
Installation Kits- (3/8" Polyflow Airline & Fittings)
Control Box Assembly with Valve & Regulator
3/8" Polyflow Airline

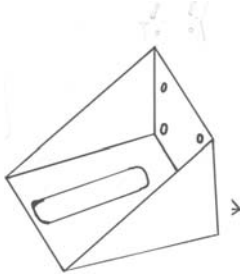
Tools Required

Ladder
Vise Grip Locking Pliers
Hand Wrenches- 7/16", 1/2", 9/16", 5/8"
3/8" Socket Set- 7/16", 1/2", 9/16", 5/8"
Electric Impact or Drill with 3/8" and 7/16" Sockets

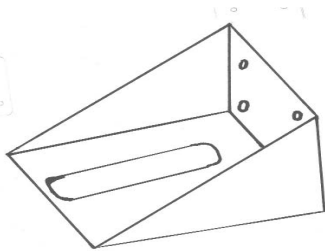
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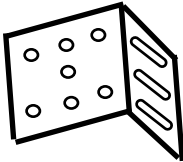
Cylinder



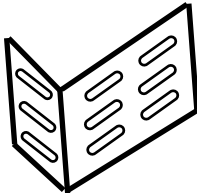
Bottom Wall Bracket



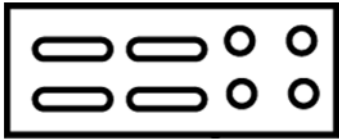
Top Wall Bracket



Trolley Door Bracket



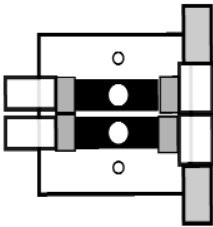
Center Trolley Bracket



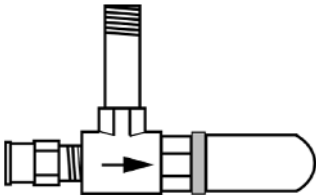
Trolley Traveler Bracket



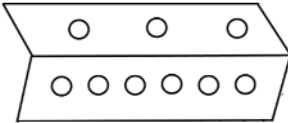
Cushioning Spring



Flow Control



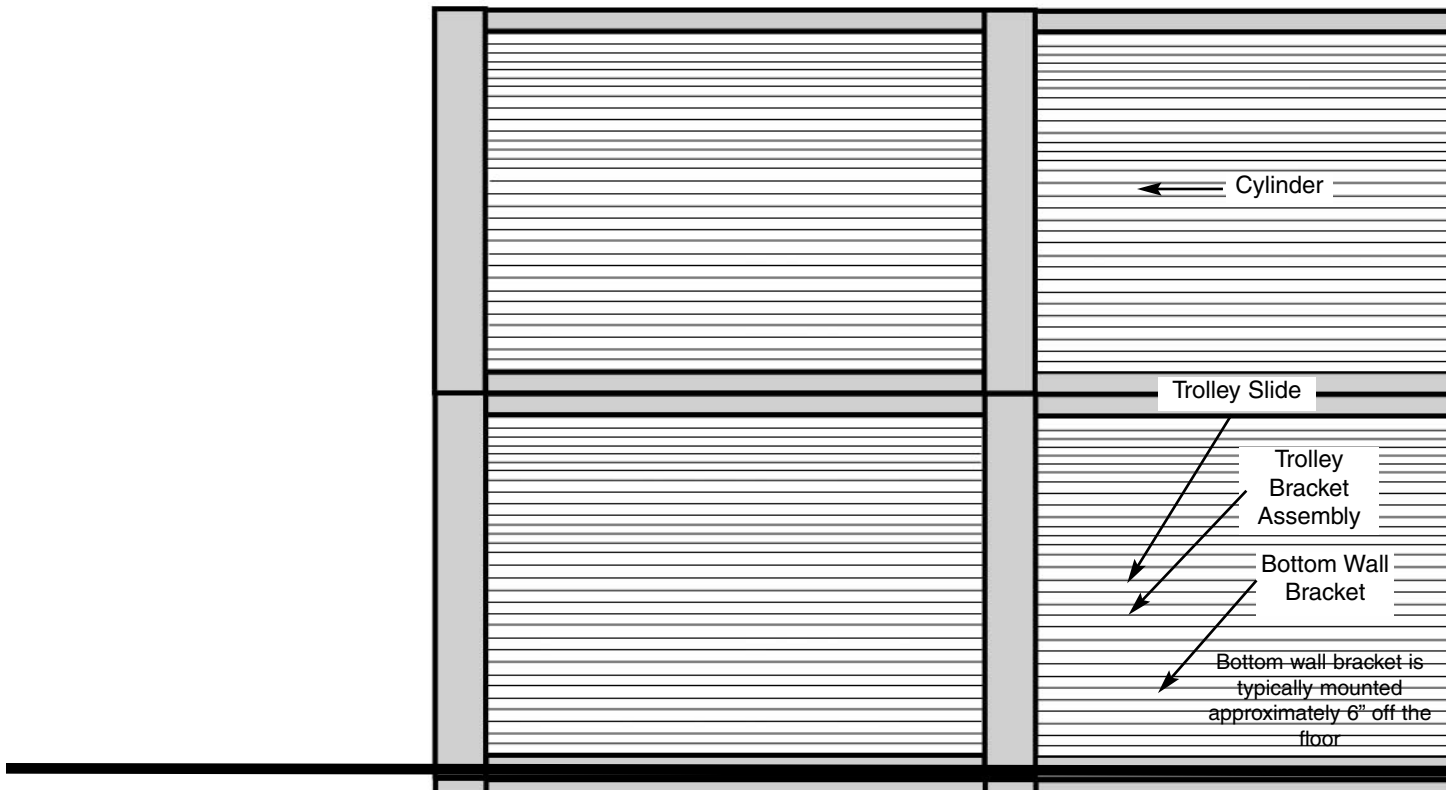
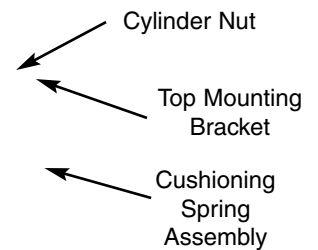
Quick Dump Exhaust Assembly



Trolley Bracket

Vertical Cylinder Installation

Typical Installation



Step 1

Please inspect all packages for damage and missing parts (refer to components and material identification pages). You will need a minimum of 12" of highlift to install a Numax vertically. (19" true highlift)

Step 2

Slide the cushioning spring onto the cylinder by removing end cap (Typically pre-assembled from factory) See special instructions for end cap removal installation towards back of this manual. Either end of the cylinder can be used for the top or bottom. The cushioning spring must always be positioned near the top of the cylinder.

The plastic stop should be pointing towards the trolley slide and the aluminum clamp should be positioned towards the top of the cylinder. Hand tighten near the end (top) of the cylinder (Figure 1)

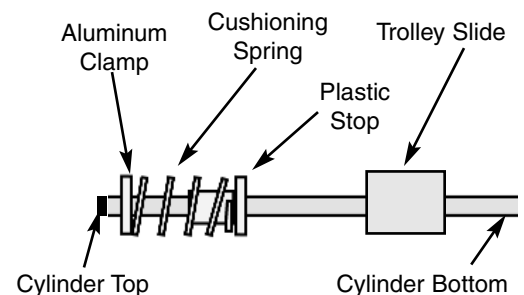


Figure 1

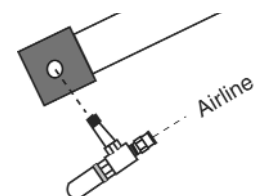


Figure 2

Step 3

Place the Numax cylinder on a flat surface, and install the quick dump exhaust assemblies to the ports located on each end of the cylinder (Figure 2).

Step 4

Attach the bottom and top wall brackets to the cylinder with the provided cylinder nuts.

Top Bracket: Place the long bracket on the top of the cylinder. The mounting holes should be up. (Figure 3)

Bottom Bracket: Place the short bracket on the bottom of the cylinder. The mounting holes should be down. (Figure 4)

Position port for air fitting to your desired position (typically to the side or back) before hand tightening cylinder nuts.

Note: Leave cylinder nuts loose enough for the cylinder to slide in wall brackets.

Step 5

Fasten trolley door bracket just above bottom cable bracket on door with self-drilling screws. (Figure 5).

Tip: Start with 2 and finish later with remaining 4.

Step 6

Close the door and lock down with a slide lock or vise grip the track to keep the door in it's closed position.

Step 7

Install trolley center bracket to trolley door bracket with 2- 5/16" x 3/4" carriage bolt and 5/16" flange nuts Hand tighten nuts. (Figure 6).

Step 8

Push trolley slide on cylinder to the bottom of the cylinder. The trolley slide should bottom out. This is the bottom of the stroke. (Figure 7)

Important!!

Once the trolley slide bottoms out push trolley slide back towards the center of the cylinder 3/4-1" for cushioning.

Note- You may need to remove quick dump exhaust to accomplish this.

Step 9

Fasten trolley traveler bracket to trolley slide using 4- 5/16" x 3/4" hex head bolts and lock washers, use anti-seize on these bolt threads!! (Figure 8)

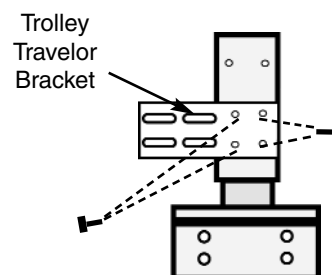
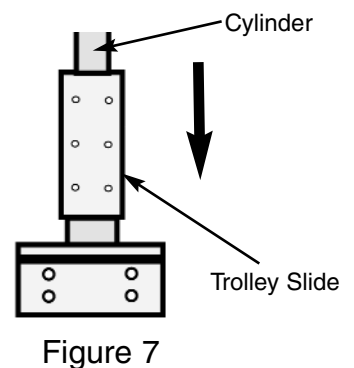
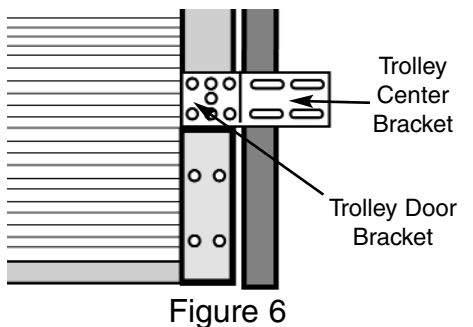
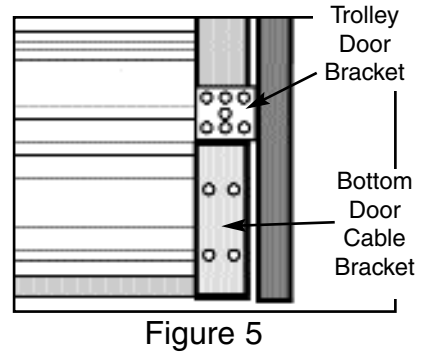
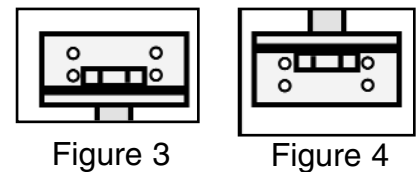


Figure 8

Step 11

Lift pre-assembled cylinder and wall bracket assembly alongside door track at the height where the trolley center bracket and the trolley traveler bracket holes match. Attach trolley door bracket, trolley center bracket assembly and the trolley traveler bracket together using 4-5/16" x 3/4" carriage bolt and 5/16" flange nuts (Figure 9) Do not completely tighten at this time.

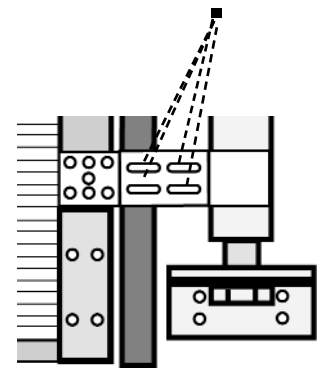


Figure 9

Step 12

While holding the operator up against your prepared mounting surface, position the bottom wall bracket assembly and the cylinder so there is approximately 1" of stroke (travel) left from the bottom of the trolley slide and the bottom of the cylinder. Once you have found a position that the bracket assembly will clear the track, fasten the wall bracket to the prepared mounting surface with the provided wood lags. (Figure 10)

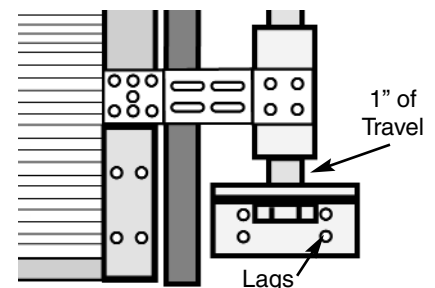


Figure 10

Step 13

Place a ladder slightly to the side of the door track and place a level vertically on the cylinder. Find the plumb line. Fasten the top wall bracket to the prepared mounting surface with the provided wood lags.

Important!

Keep the cylinder parallel with the door track. The track should always be plumb!! (Figure 11)

Step 14

Hand tighten the bottom cylinder nut.

Step 15

Open the door manually to it's fully up position. Slide the cylinder in slotted top wall bracket to align door/trolley bracket assembly throughout it's travel to the open position. Once adjusted hand tighten top cylinder nut.

Step 16

Close and open door several times to ensure that wall brackets and trolley bracket assemblies are set for best movement throughout door travel. Adjust and tighten cylinder nuts and trolley bracket assembly bolts until the door travels smoothly without binding or bowing the cylinder and with the least amount of resistance/friction.

Step 17

Tighten top and bottom cylinder nuts, and all bracket fasteners.

Step 18

Manually open the door to your customers' desired fully open height. When door is in fully open position, slide cushioning spring down to the trolley slide. Mark the position with a felt tip pen or pencil. Close the door at least 12" and position cushioning spring so that it compresses nearly completely and tighten the bolts on the aluminum clamp.

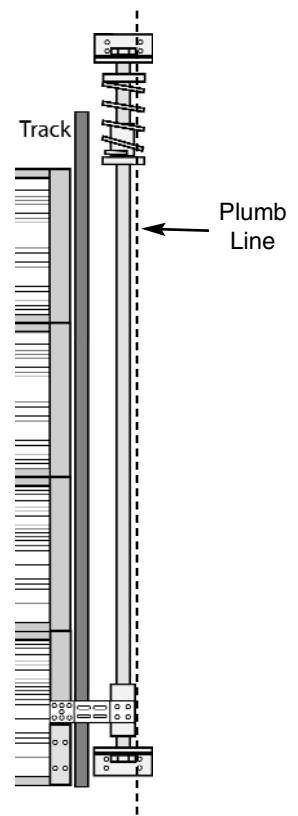


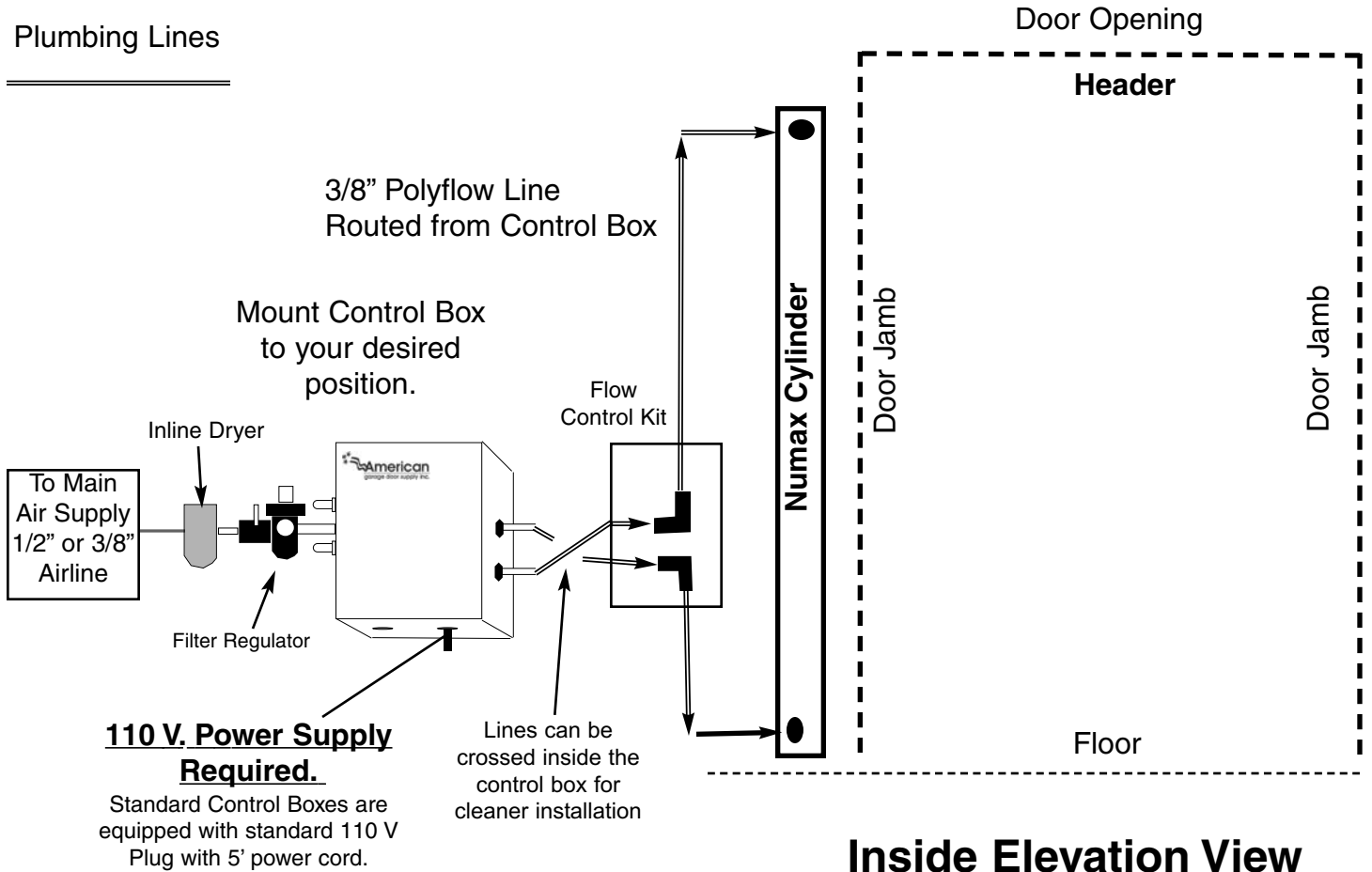
Figure 10

Your Numax is now ready for control box installation, final hook-up and adjustment.

Numax Plumbing Detail

Vertical Mount

Plumbing Lines



Inside Elevation View

Note

Vertical mount Numaxs may be mounted to the left or right side of the door. Please check clearances before permanently mounting airlines.

Important!!

For proper operation
All plumbing lines from control box to opener and flow controls be must be 3/8"!

Keep all plumbing runs from control box as short as possible to prevent pressure and volume losses which can result in slow activation, difficult adjustment and poor performance.

All Airlines should be run to prevent exposure to cold temperatures. Running airlines where there will be temperature changes will cause condensation/moisture problems and will effect the performance and life of your opener system.



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Oct. 1, 2006

Numax-Vertical Mount Typical Installations

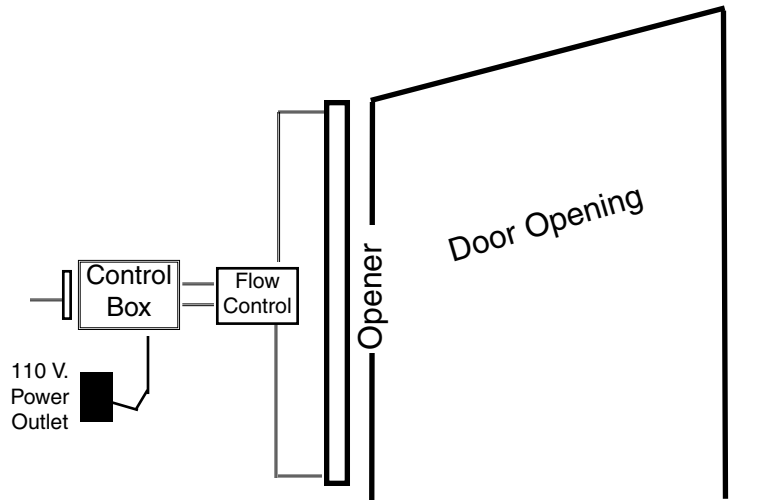
Ceiling

Mount control box 4-5' from floor and position flow control assembly approximately the same height for easy access and adjustment. Keep control box to operator airlines as short as possible. Long airline runs may cause poor operation due to pressure and volume deficiencies.

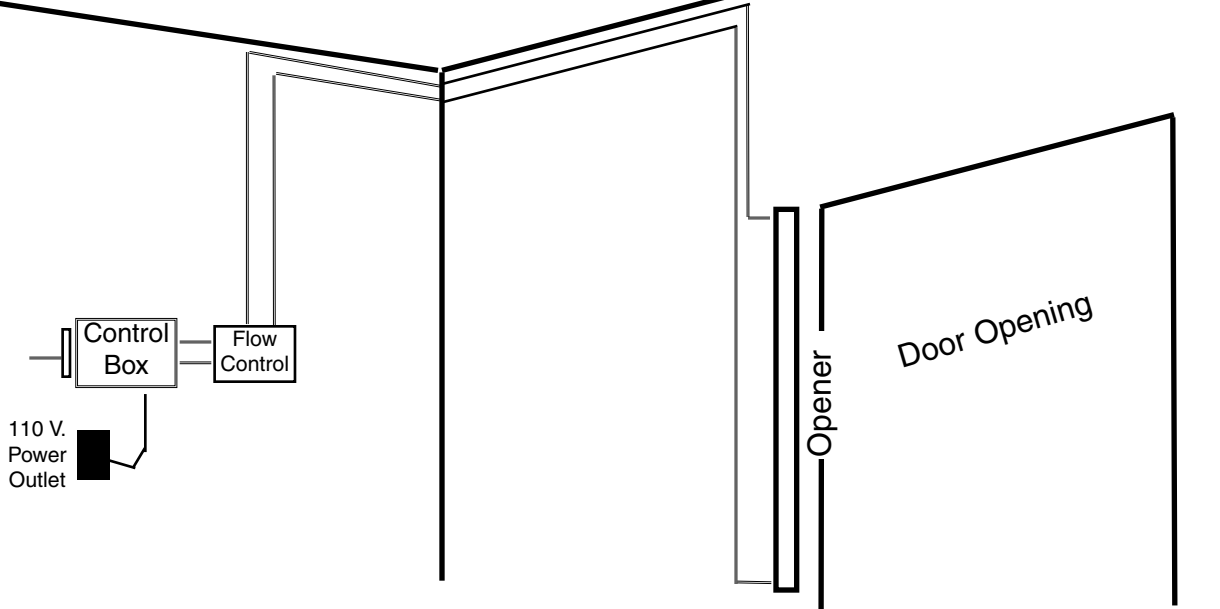
We recommend to keep flow control assembly within 4'-6' of control box if possible.

Control boxes may be located in adjacent dry rooms.

Locate 110 V. outlet within 3' of control box mounting location.



Ceiling



NuMax End Cap Removal

1. Remove end of the cylinder from the mounting brackets.
2. Locate the end of the retaining ring that is located at the end of the cylinder by carefully rotating the end cap until the end of the retaining ring is visible through the opening on the side of the end cap.
3. Using a small standard screwdriver, lift the end of the retaining ring out of the groove that it rides in. Place the end of the retaining ring onto the cylinder out of the groove.
4. Carefully turn the end cap until the retaining ring feeds out of the groove onto the cylinder. Turn slowly and feed the ring onto the cylinder as you turn the end cap. Go slowly as to not damage the o-ring located inside the end cap.
5. Once the ring is totally onto the cylinder and out of the groove. The end cap can be pulled off the end of the cylinder. Pull the end cap off slowly and carefully as not to damage the O-ring. You may have to wiggle the end cap slightly and rotate it some as you are pulling the end cap off the cylinder.
6. To install a cushioning spring. You will have to remove the retaining ring from the cylinder. To do this. Use the screwdriver to feed the ring over the groove and off the cylinder.
7. Slide on the cushioning spring. The white stop should be positioned towards the center of the cylinder away from the end cap you just removed. The aluminum clamp will be closest to the end cap you just removed.
8. Once the cushioning spring is installed. Feed the retaining ring onto the cylinder and position past the groove towards the center of the cylinder.
9. Lubricate the O-ring located inside the end cap with some vasolene.
10. Gently push the end cap back onto the end of the cylinder, you may have to wiggle and turn it as you are pushing it on. Be careful not to damage the o-rings.
11. Feed the end of the retaining ring into the opening on the side of the end cap. Feed the end into the groove on the cylinder. Push the retaining ring so it is close to the end of the end cap and gently turn the end cap until the retaining ring is completely in the groove and the end cap is secure.
12. Replace the end brackets and install.

Note: It is advisable to test the unit before installing to make sure there are no air leaks!



Step 1



Step 3



Step 3



Step 4



Step 6



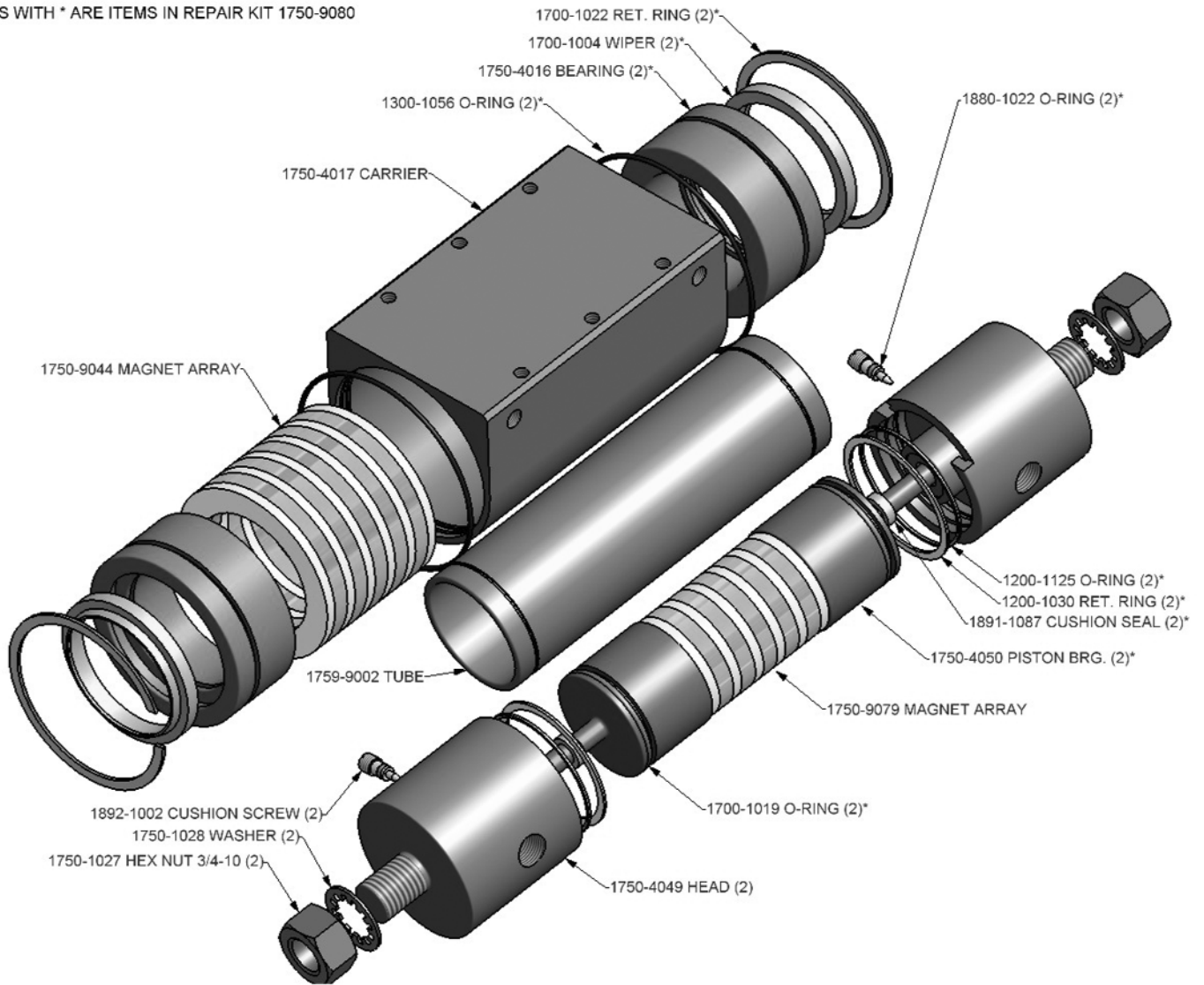
Step 11

Monthly Maintenance

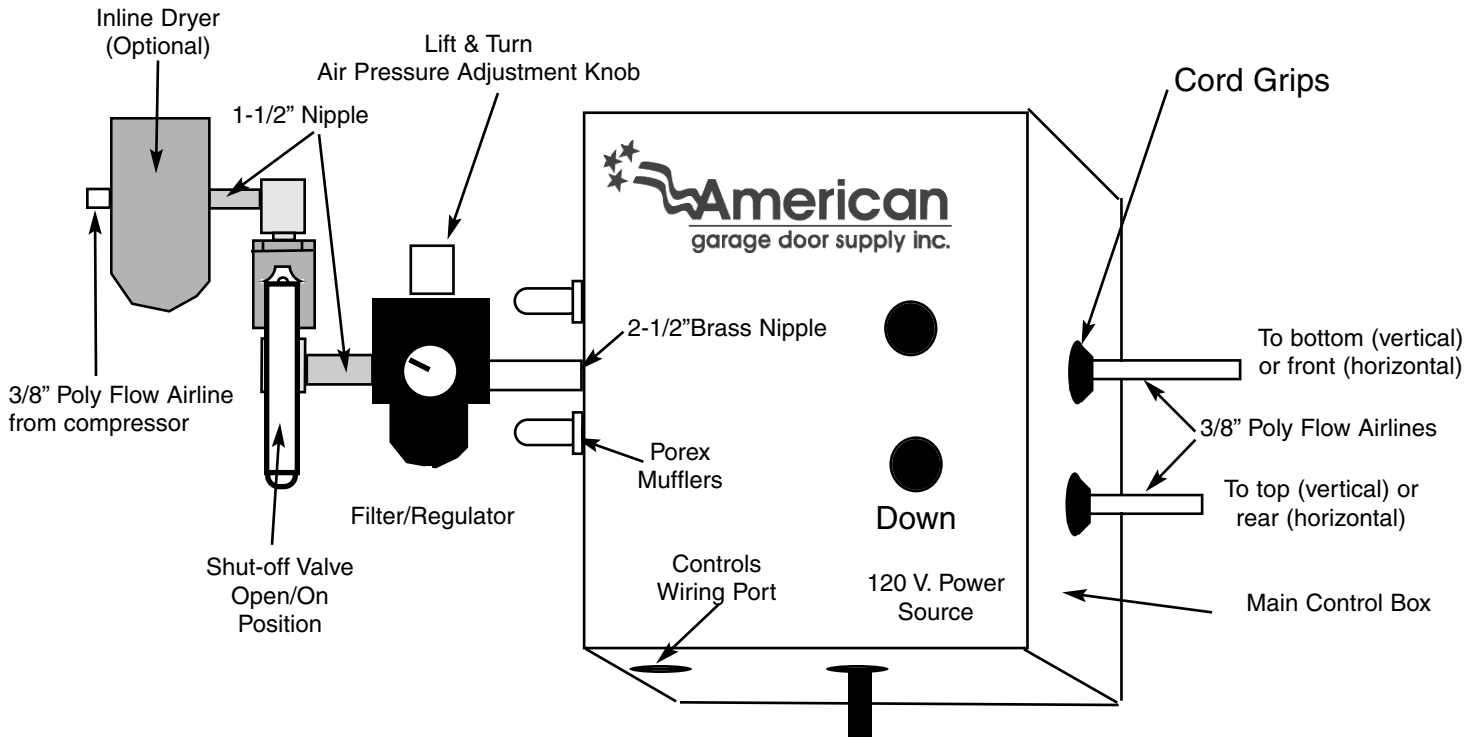
- Wipe down cylinder tube, trolley slide and end caps. Clean thoroughly.
- Inspect Cylinder for any damage. Damage to cylinder tube will result in premature failure.
- Grease trolley slide zerks with 3-4 shots of Magne-Lube or Accro-lube grade 2 HTEP grease.
- Drain water from system.
- Tighten all bolts and fasteners.

Cylinder Parts List

ITEMS WITH * ARE ITEMS IN REPAIR KIT 1750-9080



Typical Control Box Assembly



Typical Material List

Provided Materials

<u>Part Number</u>	<u>Description</u>	<u>Qty</u>
SLE 10/20/etc	Waterproof Control Box	1 ea.
SLFR	Filter Regulator Assembly w/ Dial	1 ea.
SLRF	Nipple 1/4' NPT x 2-1/2"	1 ea.
SLPE	Porex Muffler	2 ea.
SLBV	Shut-off Valve Assembly	1 ea.
	Flow Control Mounting Screws	2 ea.

Options Sold Separately

Inline Dryer with 1-1/2" Nipple
 Photoeye or other Safety Reversing Mechanism
 Timer to Close
 Installation Kits- (3/8" polyflow airline & fittings).
 One Shot Timers
 Relays

Tools Required

Standard Screw Driver
 Phillips Screwdriver
 Hand Wrenches- 1/4", 7/16", 1/2", 9/16", 5/8"
 3/8" Socket Set- 7/16", 1/2", 9/16", 5/8"
 Electric Impact or Drill with 3/8" and 7/16" Sockets, 1/4" drill bit.
 Small Pipe Wrench
 Wire Cutters
 Teflon Tape



Components Identification



Control Box



Filter/Regulator

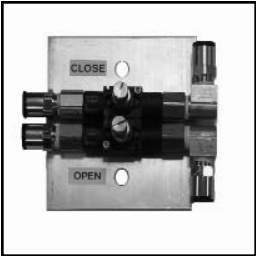


2-1/2" Nipple

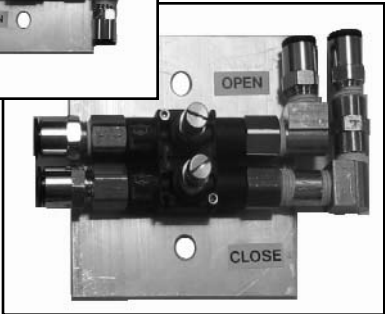


Porex Muffler

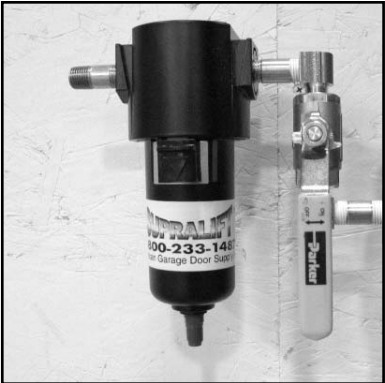
Vertical



Horizontal



Flow Control



Shut-off Valve Assembly and
Inline Dryer (Optional)

Control Box Assembly & Installation

Step 1

Install the two porex mufflers to the top and bottom ports on the left side of the control box. Hand tighten only.

Step 2

Install the filter regulator assembly onto the control box using the 2½" brass nipple. Insert through the middle hole on the left side of the control box and tighten. Use teflon tape on threads. (Figure 1)

Step 3

Install the shut-off valve using the 1-1/2" nipples. For optional inline dryer use additional 1-1/2" nipple. (Figure 1)

Step 4

Mount the control box to the wall or other surface at the desired location.

Step 5

Open the cover of the control box and connect two 3/8" polyflow lines to the two push-in fittings on the valve inside the control box. Plumb through the cord grips located on the right side of the control box to the push-in fittings located on the ends of the cylinder.

Plumb the top airlines from the control box to the bottom of the operator cylinder (vertical mount) or to the end of the cylinder closest to the header (horizontal mount).

Connect the bottom airline on the control box to the top end (vertical) or the back end of cylinder farthest from the header (horizontal). Tighten cord grips on the right side of the control box when complete.

Important!

Control boxes should be used in conjunction with an inline dryer!! See recommendations. We recommended to keep the airlines as short as possible to reduce internal condensation in the airlines. Always install airlines without dips or watertraps.

Step 6

Install the flow control kit to your wall in line with the air lines going from the control box to the cylinder. It is recommended to locate the flow control kit in an area away from the doorway and direct spray. Plumb 3/8" airlines from the ends of the cylinder to the flow control. Plumb lines from flow controls to control box. See plumbing details.

Step 7

Tighten the flow controls (clockwise) completely. Tighten lock nut.

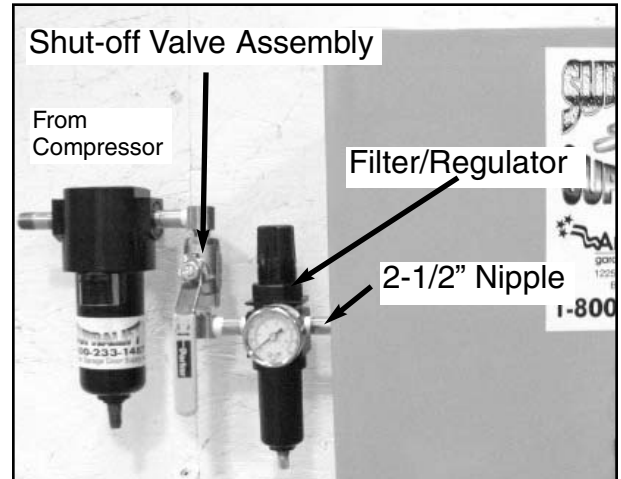


Figure 1

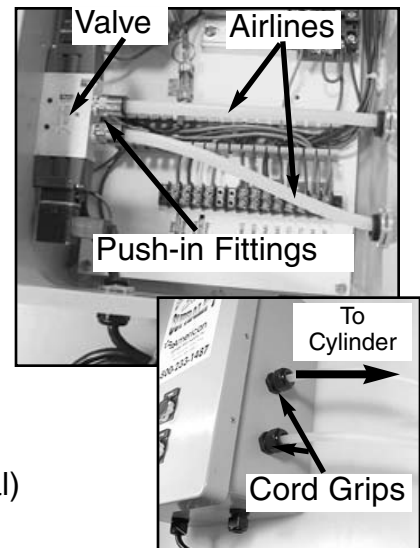


Figure 2

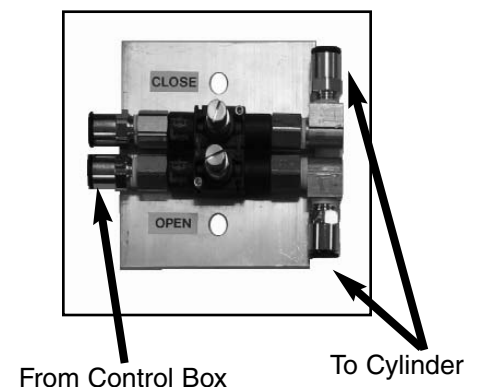


Figure 3

Final Installation & Adjustment

Before Connecting Main Airline from Compressor to Control Box.

Clear main airline from compressor from contamination and debris by slowly opening up valve at compressor and purging line. If new installation, the main airline which may have slag or other contaminant's which could cause damage to the valve and other internal components.

Before hooking up the main airline to the inline dryer (optional) or the shut-off valve. Turn off the shut-off valve by turning the valve lever to 90° to the valve or off.

Caution: If the shut-off valve is in the open position the door will start upward when you apply air pressure to the operator system.

Step 1

Install a 3/8" polyflow airline from your air compressor to the fitting on the shut-off valve.

Step 2

Back off the filter regulator by pulling up on the adjustment knob on top of regulator and turn counter clockwise until it stops. Open shut-off valve (inline with valve) Turn the regulator adjustment knob in slowly until it reaches approximately 60-PSI (Recommended air pressure between 60-PSI and 100 PSI).

Step 3

Plug in 110 volt power cord located on the bottom of the control box.

This should be connected to a grounded receptacle only!!!

Step 4

Adjust flow controls by starting with flow controls completely closed (Clockwise) with the locknut loose. Open each flow control valve approximately 5 complete turns (Counterclockwise). Cycle the door by pushing the open and close buttons located on the control box. While cycling the door open and closed continue to turn the flow control valves until the door opens and closes smoothly at the top and bottom of each cycle.

For additional tuning, adjust flow controls and air pressure at the regulator until door operates to your desired speed and smoothness.

Note: Each flow control valve will control the speed of it's direction. Tighten lock nut located on flow control when adjusted completely.

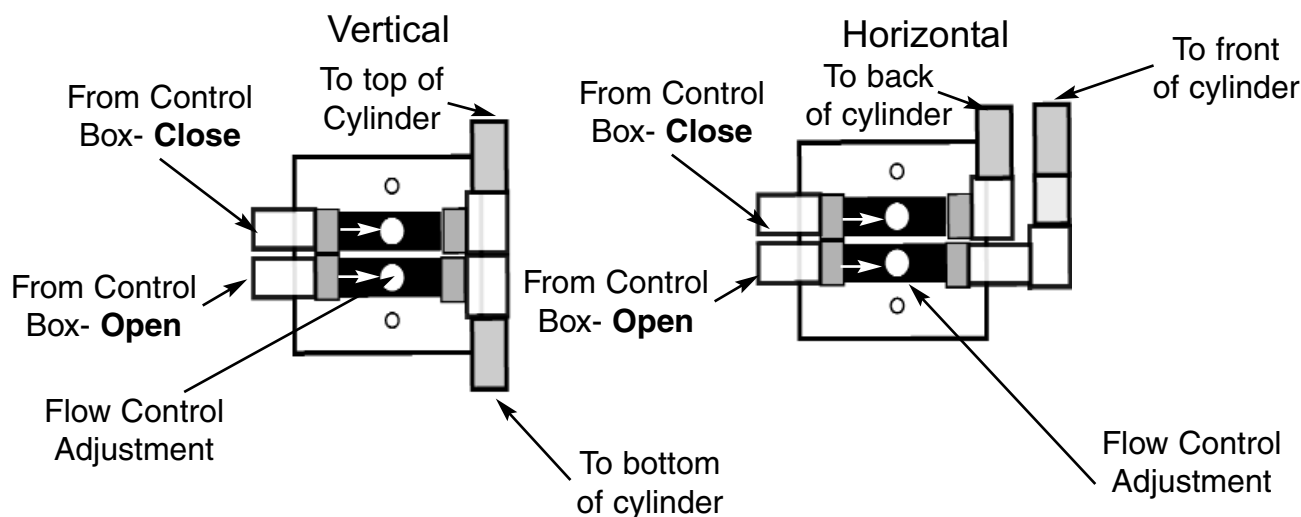
For complete explanation of how the flow control works, see next page.

Step 5

For Horizontal Mounted Models- Operate door up and down and adjust operator arm assembly, traveler/arm assembly connection and the door bracket connection until the final closing position of the door to completely seals on the bottom while minimizing pressure on the doors' top section.

For Vertically Mounted Models- Operate door up and down and adjust door/trolley brackets and cushioning spring assembly so that the door runs up and down smoothly and door closes and stops at your desired positions.

How the Flow Control Assembly Works



The flow control valve meters the volume of air escaping from the end of the cylinder as the piston is being pushed towards it. Closing the valves will slow the travel speed of the door. The check ball in each valve allows each side of the cylinder to breathe freely as the piston is pushing air out the non-pressurized end.

Caution!!

The Numax operator is capable of opening and closing the door at very high speeds. Recommended door travel speed is 1 to 1-1/2 feet per second. (example: 10' high door= 7 seconds) Excessive door travel speed will increase the chances for malfunction of your door or the operator to occur which could result in injury or damage to persons or property.

Step 6

Wire in loop detectors, pushbuttons, photoeyes and other controls or accessories as required. Plug in time and/or photoeye amplifier. Photoeye sockets are previously installed for your convenience.

For wiring information, please see wiring diagrams.

Attention!!!

Our control boxes are configured for momentary dry contact signaling only.

For easy tie-in to carwash and other equipment use the following components.

Signal from Equipment

24 VAC Pulse

110 VAC Pulse

24 VAC Continuous

110 VAC Continuous

Type of Component

24 VAC Relay

110 VAC Relay

24 VAC One Shot Timer

110 VAC One Shot Timer

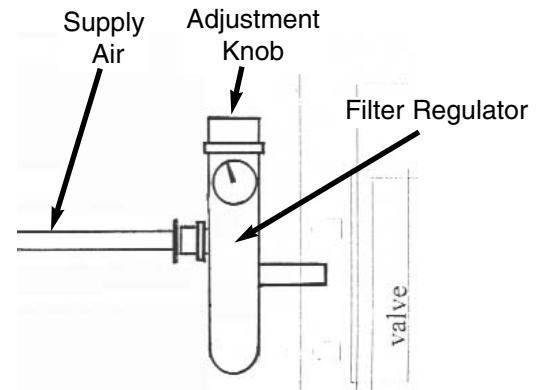
MAINTENANCE AND ADJUSTMENT

Keep the door tracks, torsion springs, track rollers and shaft bearings lubricated monthly. Tighten track bolts holding operator to its supports periodically as well as checking tightness of the bolts holding the operator track bracket and top plate. Check to ensure correct plumbness with torsion shaft and sprocket.

There are three main adjustments to be made on a Numax operator.

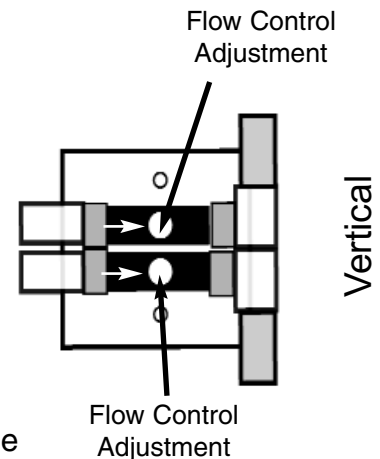
1. Air Filter - Regulator

The combination filter/regulator assembly controls the air pressure to both cylinders. It may be adjusted by pulling the knob up and turning clockwise or counter-clockwise (Clockwise to increase PSI, **60 - 100 PSI recommended**). Heavier doors may need to have the pressure increased, but if you must exceed 100 PSI you probably have a door problem. Replacing the filter in the regulator is recommended every 6 months.



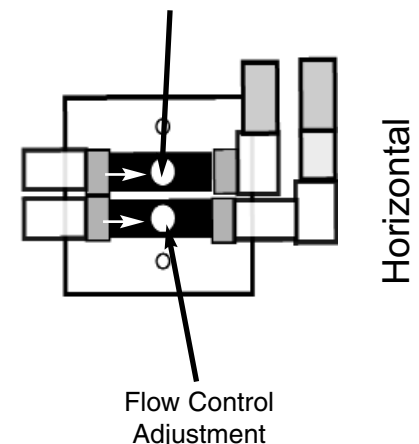
2. Door Speed

The air-powered operator is designed to start slow, move rapidly through the middle range of operation, and slow to a gentle close. Decreasing the air pressure coming into the operator as described in the above air filter - regulator adjustment can control the doors intermediate speed. The stopping speed is controlled by the flow controls located on the flow control kit.



3. Internal Cushion Adjustment

Located on the each end of the cylinder is a brass adjustment screw for the internal cushion. Adjust end cushion by turning the slotted brass screw. Turn clockwise for more cushioning effect on the end of the stroke. Normally only needed on



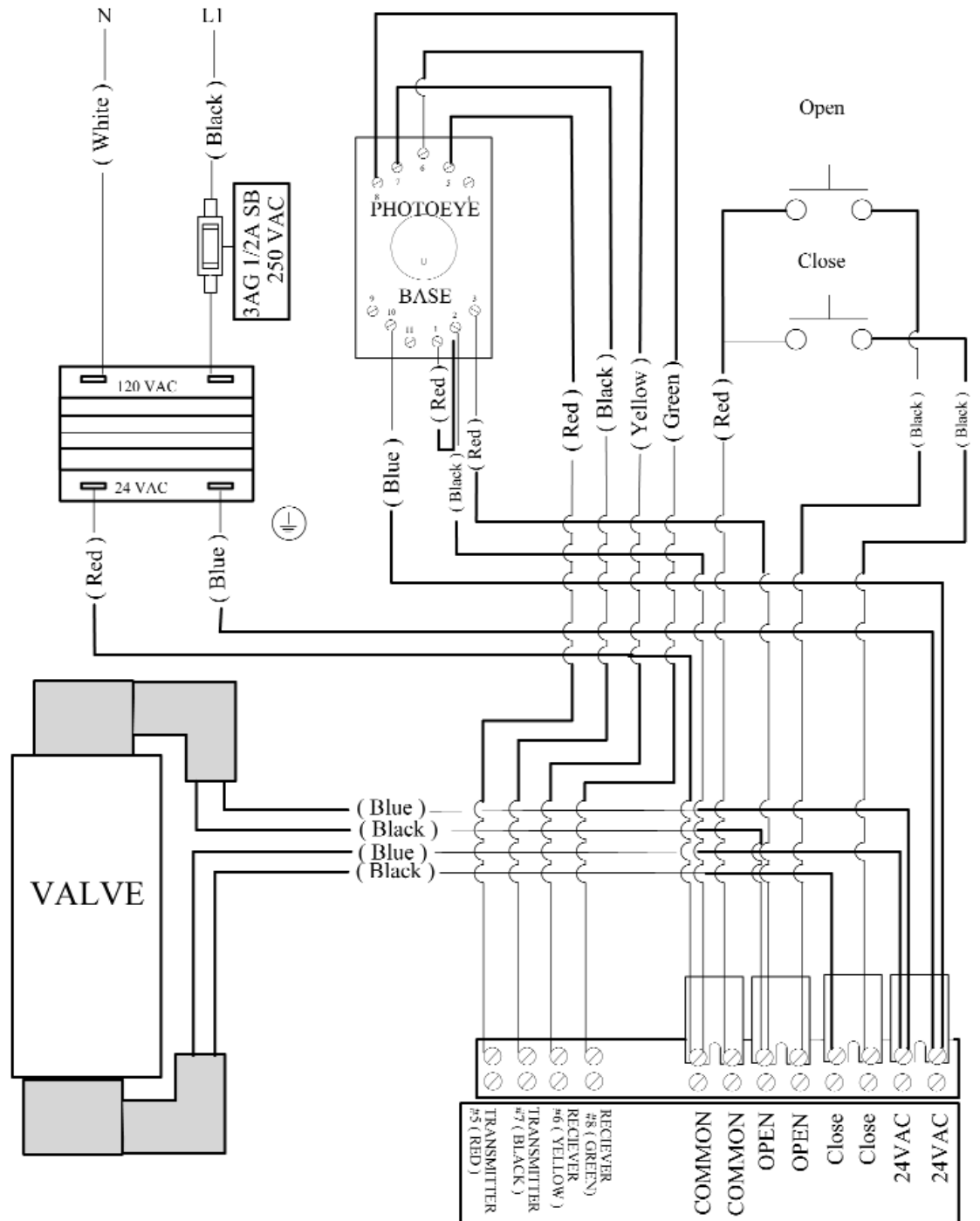
***DO NOT IGNORE YOUR AIR COMPRESSOR!**

Compressing air creates a lot of water. There is a drain at the bottom of your air compressor that should be opened to let water out of your tank. (Daily attention may be required). Automatic drains are available for your compressor as well as in-line air dryer; all you need to do is contact your local compressor dealer. Also available from American Garage Door Supply, Inc. is a large volume water separator for those applications that require much larger water separation.

Control Box Wiring Diagram New Style

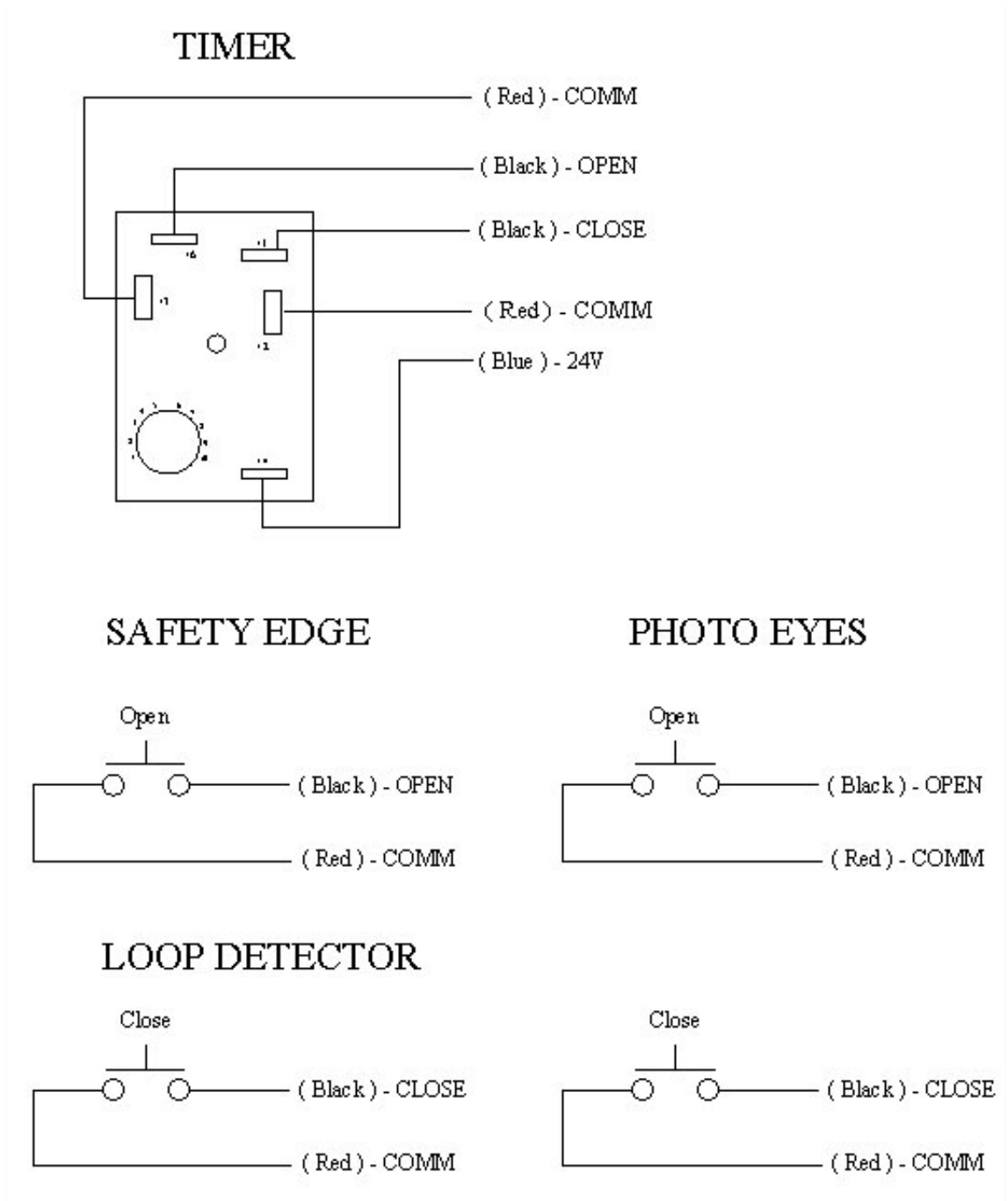
120 VAC
1 Phase (Primary Voltage)
24 VAC (Secondary Voltage)

10-1-06



Control Box Wiring Diagram Optional Controls

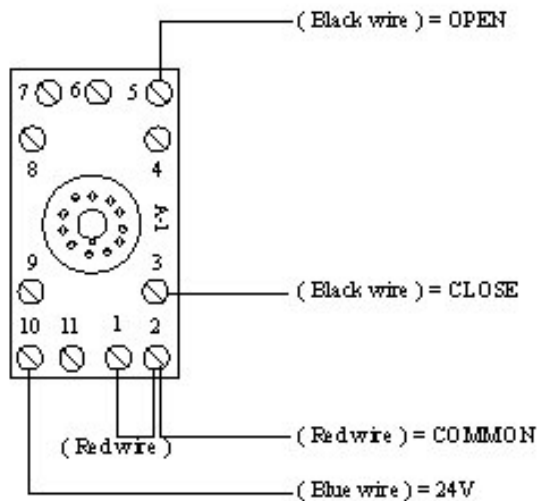
10-1-06



Control Box Wiring Diagram Optional Controls

10-1-06

MACROMATIC TIMER



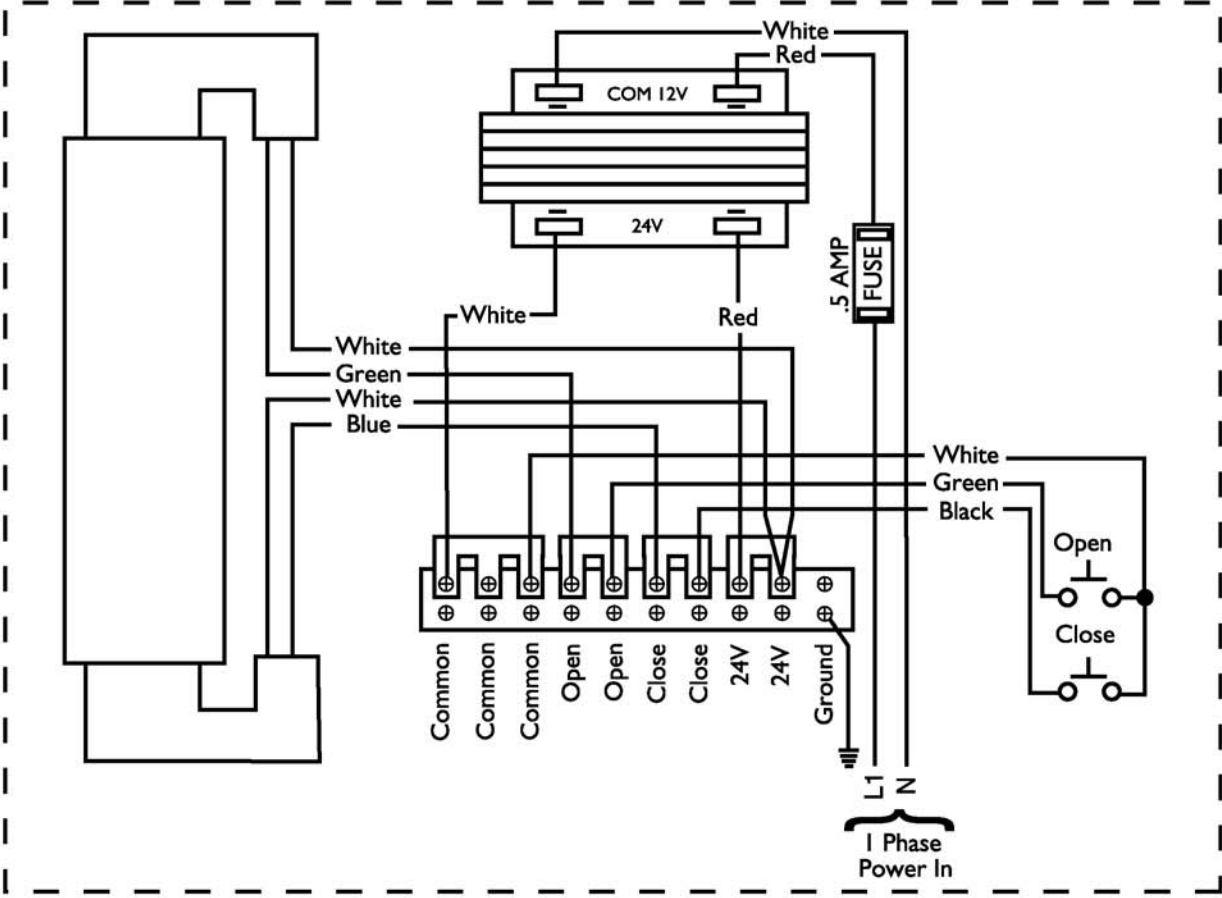
SENTROL MODEL # 2204AU MAGNETIC SWITCH

SWITCH N.C.

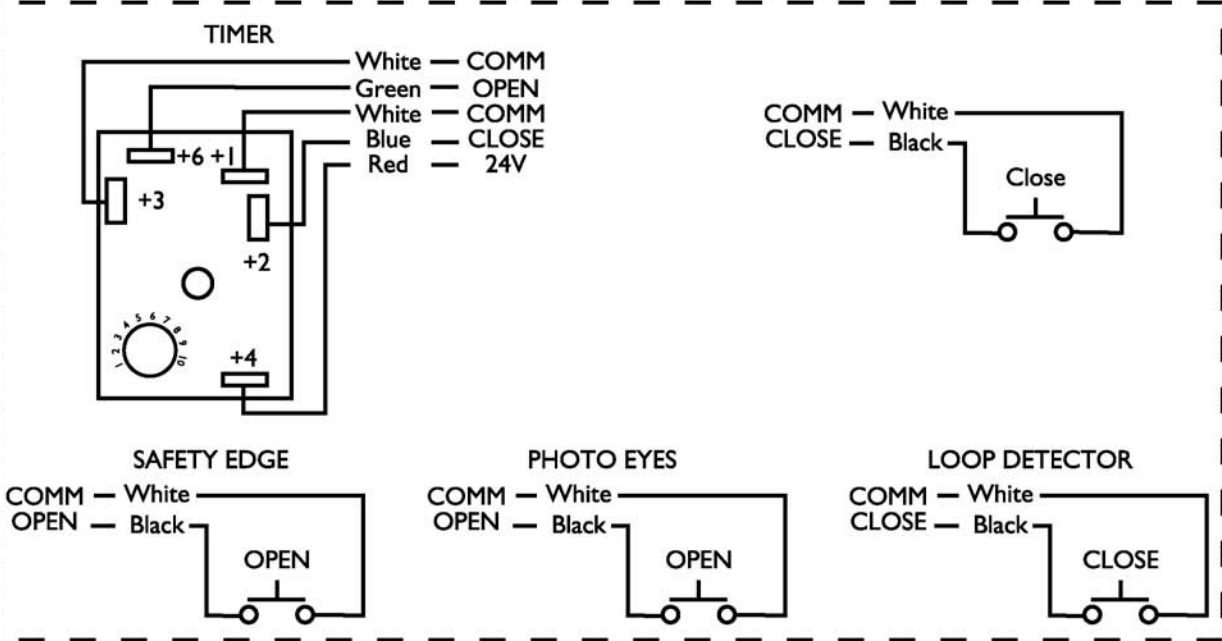


Control Box Wiring Diagram Old Style

10-1-06



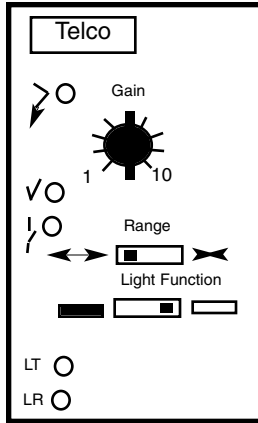
OPTIONAL CONTROLS



Telco Manual Amplifier Photoeye Wiring Diagram

10-1-06

Amplifier
Part # PA11-B302T-05



Range Switch should be set on **Long Range** ↔
Light Function Switch Should be set on **Light** □
(Non-Failsafe Mode)

Wiring Eyes

Wire numbered terminals on contact block to appropriate numbers listed on Receiver, Transmitter and Terminal Strip. Once wired, plug in amplifier to 11 pin socket located on contact block.

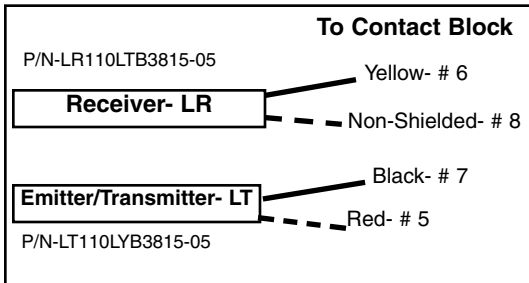
Operation

Adjust gain adjustment on amplifier dial clockwise until green light turns on.

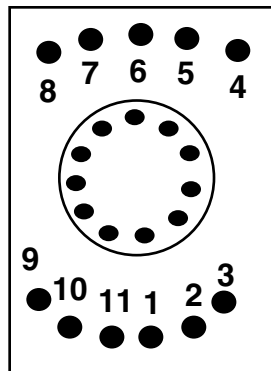
When adjusting, the eyes must be more than 5 feet apart.

Red LR or LT failure LED indicates a sensor failure. The failure can be due to a broken or shorted wiring or a defective sensor. Check wiring and if O.K., change the sensor.

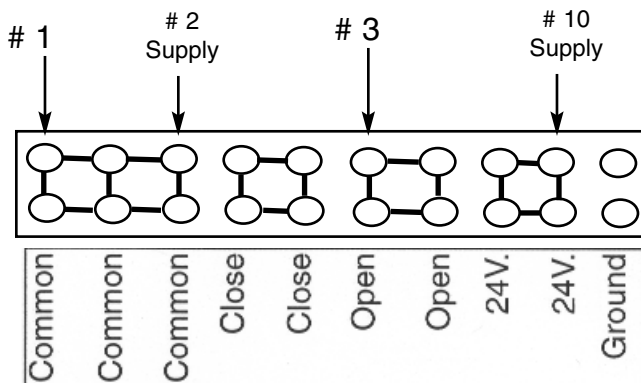
Photoeye Sensors



Contact Block 11 Pin Socket



Operator Terminal Strip



Splicing

If sensor cables need to be lengthened. Splice cables with similar wire type and size. **Example-** Use shielded cable for shielded wire on sensor and use non-shielded wire for non-shielded sensor wire.

Attention!!!

This diagram shows photoeyes wired in non-failsafe mode. If you choose to wire in fail safe mode, wire #4 from the contact block to open on operator terminal strip instead of #3. The light function switch should be set to dark.
Warning: In failsafe mode, if either photoeye or system fails, the door will open automatically.

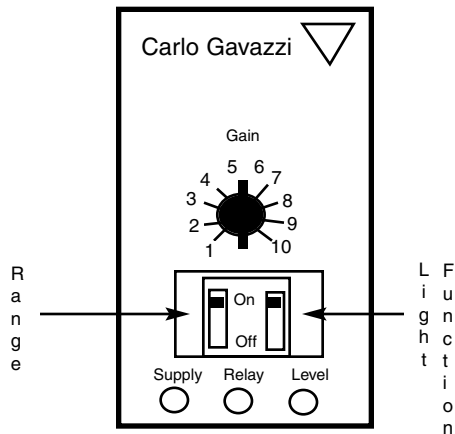

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Note: This wiring Diagram is set up for Supralift & Numax Air-Powered Operators. For Electric Operators, please refer to electrical wiring diagram of your electric operator for terminal strip locations for Open, Common and 24 V. Power.

Carlo Gavazzi Manual Amplifier Photoeye Wiring Diagram- Old Style

Amplifier
Part # S1420156024

10-1-06



Range Switch should be set on 100%- "ON"
Light Function Switch Should be set on Dark- "ON"
(Failsafe Mode)

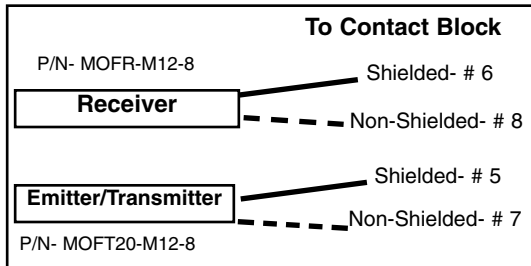
Wiring Eyes

Wire numbered terminals on contact block to appropriate numbers listed on Receiver, Transmitter and Terminal Strip. Once wired, plug in amplifier to 11 pin socket located on contact block.

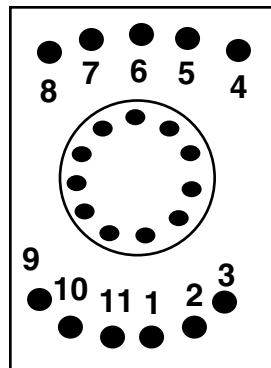
Operation

Adjust gain adjustment dial on amplifier clockwise until yellow level light turns on. When adjusting, photoeyes must be more than 5 feet apart.

Photoeye Sensors



Contact Block 11 Pin Socket



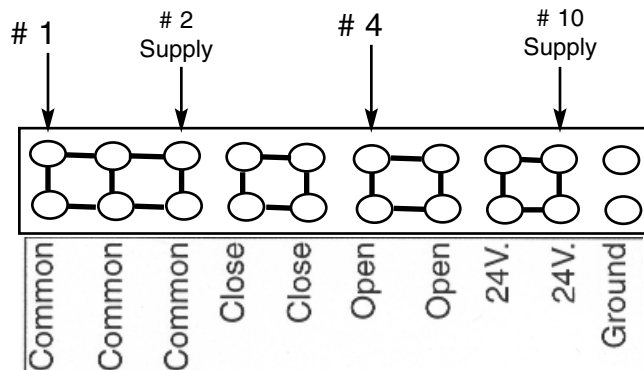
Splicing

If sensor cables need to be lengthened. Splice cables with similar wire type and size. **Example-** Use shielded cable for shielded wire on sensor and use non-shielded wire for non-shielded sensor wire.

Attention!!!

This diagram shows photoeyes wired in fail safe mode, if either photoeye or system fails, the door will open. If you choose not to wire in fail safe mode, wire # 3 from the contact block to open on operator terminal strip instead of #4. The #1 dipswitch should be set to off.

Operator Terminal Strip



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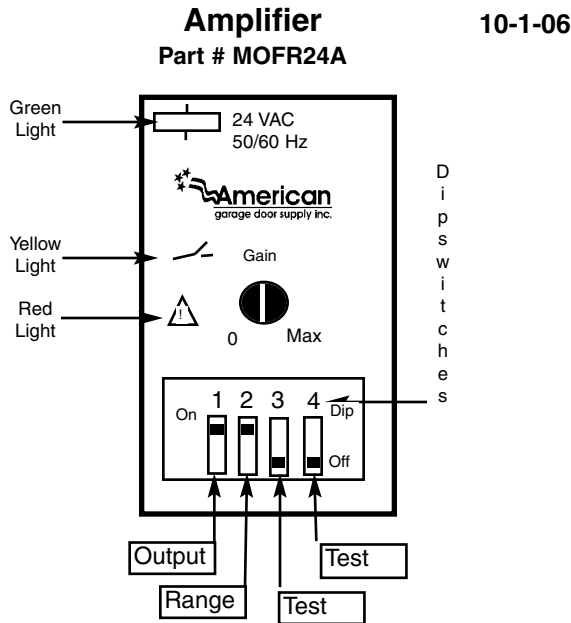
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Note: This wiring Diagram is set up for Supralift & Numax Air-Powered Operators. For Electric Operators, please refer to electrical wiring diagram of your electric operator for terminal strip locations for Open, Common and 24 V. Power.

Carlo Gavazzi Manual Amplifier Photoeye

With Self Diagnostics

Wiring Diagram



Wiring Eyes

Wire numbered terminals on contact block to appropriate numbers listed on Receiver, Transmitter and Terminal Strip. Once wired, plug in amplifier to 11 pin socket located on contact block.

Operation

Power Up: Green light on upper left hand corner should be on. Turn gain up until yellow light turns on

When adjusting, photoeyes must be more than 5 feet apart.

Non-Failsafe Operation Dipswitch Setting: #1 Up/break, #2 Up/100% Range, #3 Down, #4 Down.

Testing

Transmitter Eye- Flip dipswitch # 3 Up. Yellow & red light flash simultaneously 3 times. If yellow light stays on transmitter is o.k. If red light stays on transmitter is faulty.

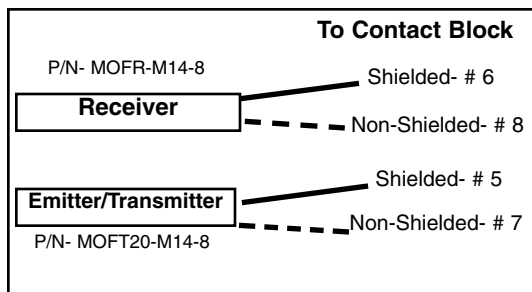
Receiver Eye- Flip dipswitch # 4 up. Use same testing as transmitter eye.

Amplifier- Flip dipswitch # 3 and # 4 Up. Red and yellow light flash alternately. If yellow light stays on Amplifier is o.k. If red light stays on amplifier is faulty.

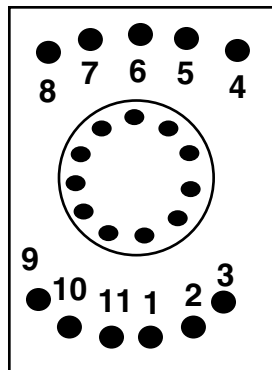
Splicing

If sensor cables need to be lengthened. Splice cables with similar wire type and size. **Example-** Use shielded cable for shielded wire on sensor and use non-shielded wire for non-shielded sensor wire.

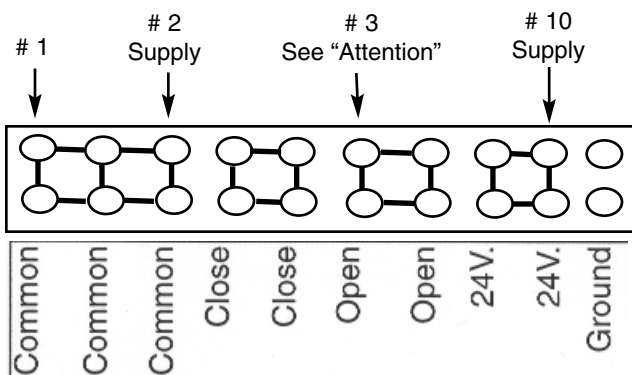
Photoeye Sensors



Contact Block 11 Pin Socket



Operator Terminal Strip



Attention

This diagram shows photoeyes wired in non-failsafe mode. If you choose to wire in fail safe mode, wire #4 from the contact block to open on operator terminal strip instead of #3. The #1 dipswitch should be set to down/make.

Warning: In failsafe mode, if either photoeye or system fails, the door will open automatically.



Note: This wiring Diagram is set up for Supralift & Numax Air-Powered Operators. For Electric Operators, please refer to electrical wiring diagram of your electric operator for terminal strip locations for Open, Common and 24 V. Power.

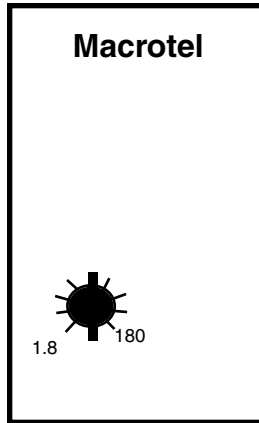
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Macrotel Timer Wiring Diagram

10-1-06

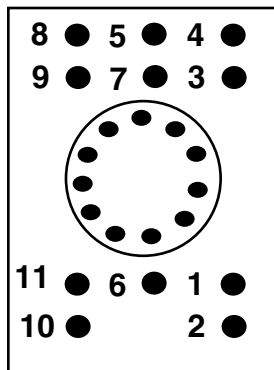
Timer



Wiring Contact Block

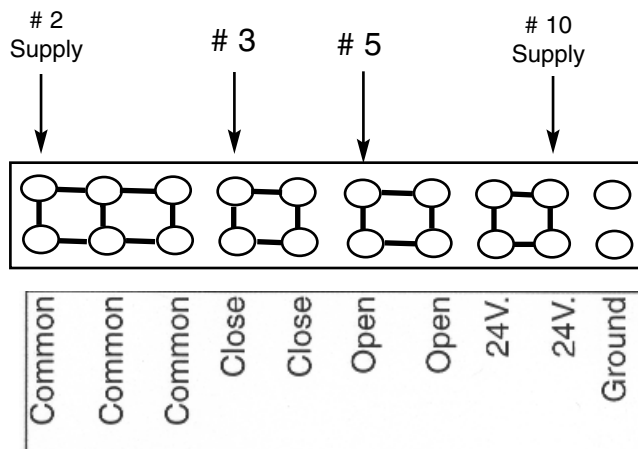
Place jumper wire between # 1 and # 2 on Contact block.
Wire from contact block to opener terminal strip to coincide with diagram below.

Contact Block 11 Pin Socket



Adjusting Timer

Adjust time adjustment on timer amplifier dial clockwise or counterclockwise to adjust time.




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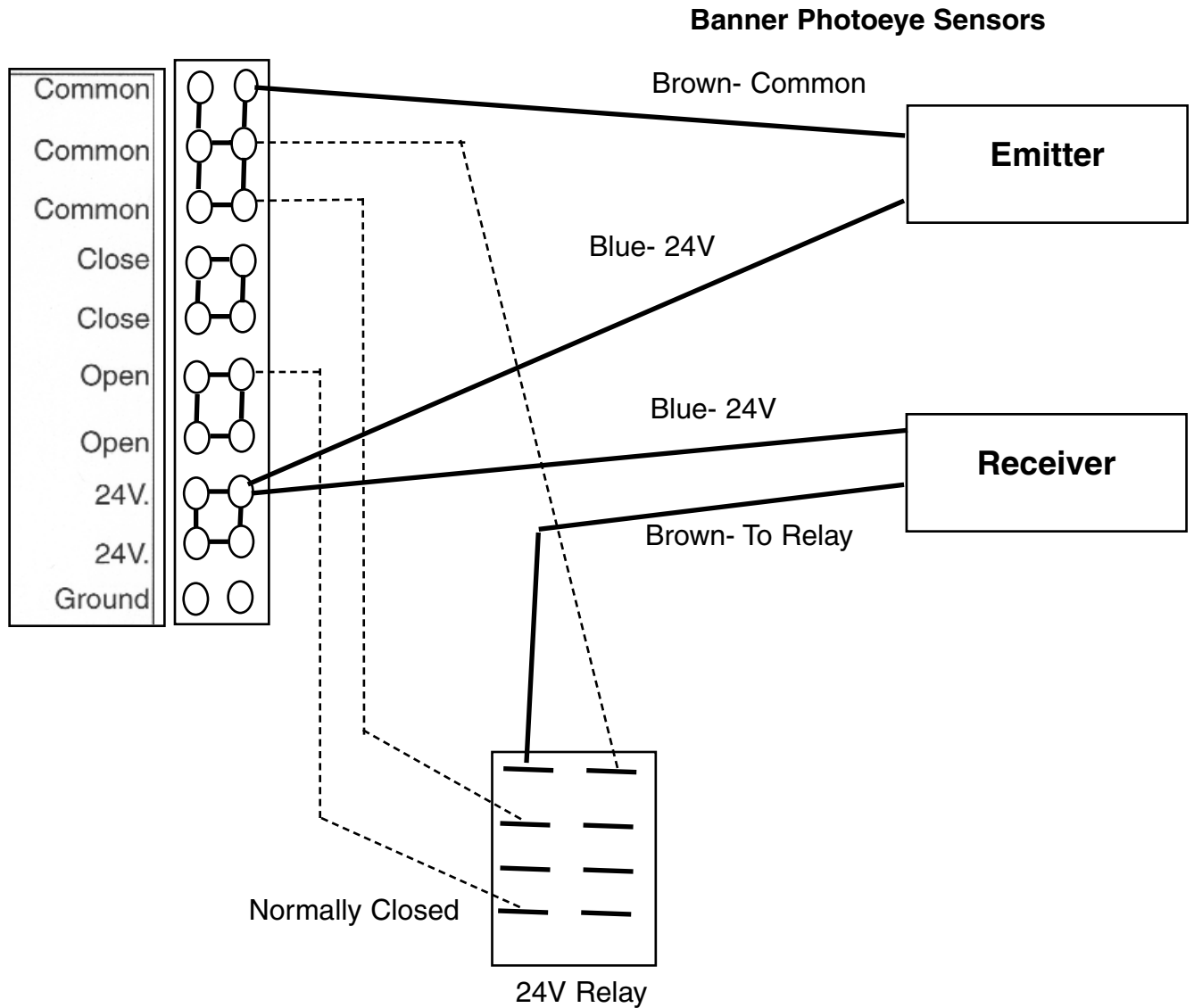
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Note: This wiring Diagram is set up for Supralift & Numax Air-Powered Operators only.

Banner- 24 VAC Wiring Diagram

10-1-06



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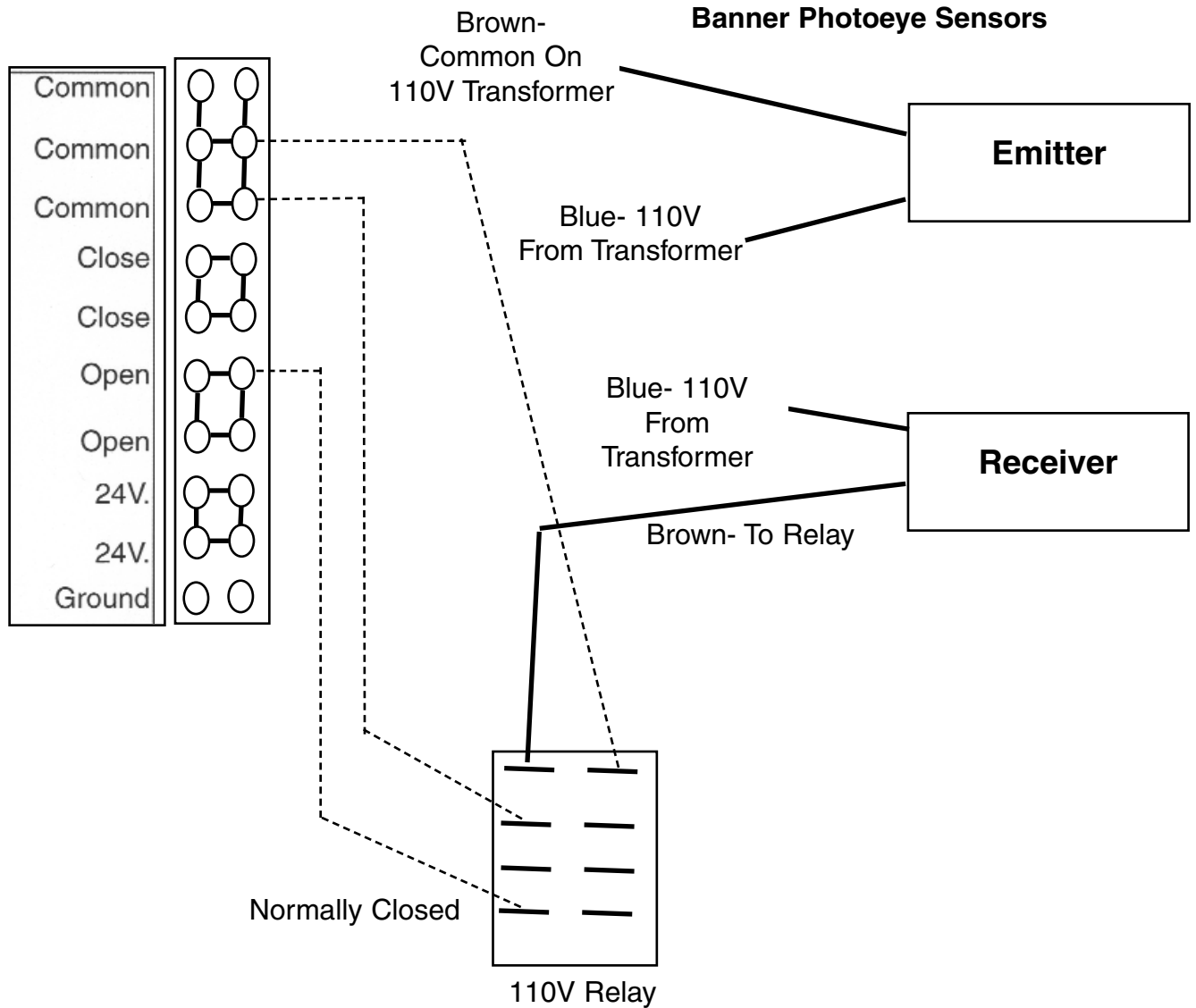
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Note: This wiring Diagram is set up for Supralift & Numax Air-Powered Operators only.

Banner- 110 VAC Wiring Diagram

10-1-06



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Note: This wiring Diagram is set up for Supralift & Numax Air-Powered Operators only.

Wiring Magnetic Switch with Safety Reverse Converter (SRC)

(For photoeyes, bottom edges, etc.)

10-1-06

The Magnetic Limit Switch is wired inline with either one of the two wires coming from the obstruction sensor (photoeye, bottom edge, etc.)

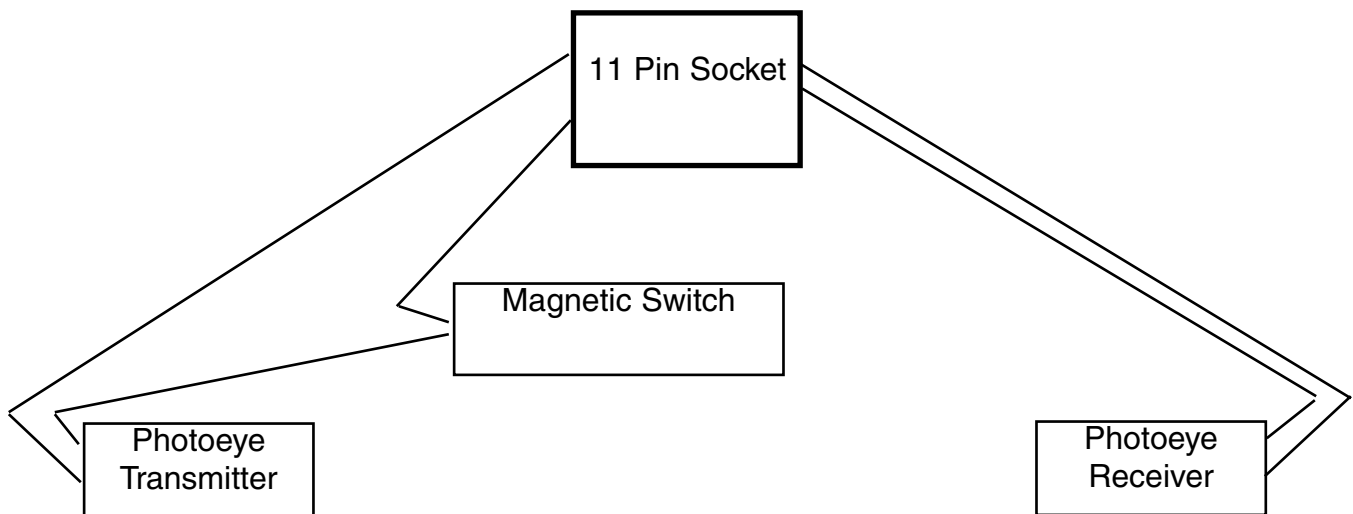
Place the Magnetic switch at a convenient location (usually at the top of the door and the adjoining wall)

Note: The magnet should be within 1/2" of the sensor when the door is in the closed position.

The magnetic switch has 3 wires: Black-common; Green-normally open; Red- normally closed. You want this switch to be normally closed so use the Black and Red.

If you have questions, please call the factory at **1-800-233-1487**

Example




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