

# OWNER'S MANUAL AND INSTALLATION GUIDE

## AIR POWERED DOOR OPERATOR



MANUFACTURED BY:    DISTRIBUTED BY:

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SERIAL # \_\_\_\_\_

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# INSTALLATION GUIDE

## AIR OPERATOR

This is an installation guide for the Air Powered Operator manufactured by Airlift Doors Incorporated. It is intended as a general guideline to a normal installation and should special problems arise we suggest you contact the Airlift Door Factory Service Department or your local dealer for specific advice.

### NECESSARY TOOLS TO INSTALL THIS OPERATOR ARE:

Drill with a 1/4 " drill bit (to drill mounting holes in the operator bracket and door track)

1/4 " Allen Wrench Set (to attach the collars to the piston rod and chain)

5/32" Allen Wrench (to tighten the sprocket to the door shaft)

Vise Grips (to pinch spring clamps to door cables)

C-Clamp Vise-Grip (to hold the operator bracket to the track while drilling)

7/16" Open end wrench (to tighten bolts holding the operator to the door track)

1 Standard Flat screwdriver

1/2 " Open end wrench (to tighten turnbuckles)

9/16" Open end wrench (for brass fittings)

**\*\*Supplies needed for this installation and not included with the kit\*\***

Bell / Thermostat wire for wiring controls

3/8" Poly flow air line

Fasteners to mount controls to walls

## INSTALLATION OF THE AIR OPERATOR

- 1). With the door closed, check all of the door rollers to see that they spin freely in the door track. If not, the door is binding and you must loosen the door track until all the rollers spin freely.
- 2). Adjust the door springs to balance the door. The door is properly balanced when it can be easily lifted without falling or rising. If the door is not properly balanced the operator may not function properly. Many problems blamed on operators are really caused by binding or improperly balanced doors. USE EXTREME CAUTION EWHEN WINDING SPRINGS AS THEY ARE UNDER EXTREME TENSION. IT IS SAFEST TO CALL YOUR LOCAL DOOR COMPANY!!
- 3). On a standard radius set up, raise the rear end of the door track so the door has a slight forward and down pitch when resting in a fully open position. This will help maintain cable tension.
- 4). If your door has standard radius tracking and you are opening it to its full height, we recommend that you install cable springs on your door cables. They have to be ordered with your door order as they are not standard. With the door in the open position, attach the cable springs to the door cable on each side. The bottom of the spring should be attached to the cable just above the bracket where the cable mounts on the door. This is done with a vise grip to pinch the clamp around the cable and the spring. The spring should be stretched 15 to 20 inches and fastened to the cable using cable stops. DO NOT DISCONNECT THE CABLE FROM THE DOOR!
- 5). Place the supplied sprocket on the door shaft. It may go on either way as long as the center of the teeth is 2-3/4" from the side of the shaft bearing. On a door with a solid shaft it will use the 1/4th key way. On a door with a hollow shaft, it should be drilled and pinned with 1/4" roll pin or a 1/4" hardened bolt and nut.
- 6). Thread one aluminum chain color on the chain, making sure that the round portion of the collar is facing out to accept the piston rod. Thread the chain through the chain roller on the top of the opener and put the second aluminum collar on the chain. Again check to make certain it's facing in the right direction. Fasten the turnbuckle to the chain using master links supplied to make the chain into one continuous link.
- 7). With the door closed, hang the operator from the sprocket with the turnbuckle on the side closest to the wall. The bottom portion of the turnbuckle should be level with the top of the piston rod, all the way down into the cylinder.
- 8). To mount the operator to the track, extend one of the piston rods at least two feet. Move the operator in or out from the wall so the piston rod is parallel with the chain and then fasten the operator to the track using a C-Clamp or similar device. Drill 1/4" holes through the operator brackets and the door track.
- 9). Slide the 1/4" garage door track bolt through the holes you just drilled. The head of the bolts must be in the track. Fasten by putting the 1/4" nuts on the operator bracket side.
- 10). Tighten the turnbuckle so the chain is snug and has no play in it. DO NOT over tighten. Screw the lock nut to the turnbuckle to prevent it from turning.

- 11). With the door all the way to the floor, push the back piston rod (the one closest to the wall), all the way down into the air cylinder. Slide the aluminum chain collar onto the piston rod shaft. Do not tighten the collar to the shaft at this point. Position the chain so the bottom portion of the turnbuckle is about level with the top of the piston rod. Raise the piston rod about 1/2" from the bottom-out position and with about 1/2" of the piston rod extending through the aluminum collar, tighten the chain to the piston rod by turning the set screw in the collar with a 1/4" Allen wrench.
- 12). Tighten as much as possible, as the pressure of the set screw on the chain bends the interior of the collar to create pressure on the piston rod. Your close door limit position is now set and will keep enough pressure on the door to ensure a proper seal.
- 13). Raise the door manually to the desired open height. This may be a fully open position or the customer may desire to stop the door at a position less than fully open. The desired open height may vary without affecting the operator performance. Push the front piston rod (the one furthest from the wall), all the way to the bottom of the air tube. Slide the collar onto the piston rod shaft leaving a 1/2" of the rod extending through the collar. Fasten the chain to the collar, and collar to the piston rod shaft. This is your open limit position.

**\*\*CAUTION\*\***

**AFTER AIR PRESSURE IS CONNECTED TO THE OPERATOR THE DOOR MAY BE ACTIVATED BY ANY SIGNAL. NEVER WORK ON A DOOR WITHOUT DISCONNECTING THE AIR SOURCE. SIMPLY UNPLUGGING THE CONTROL BOX FROM THE 120 VOLT OUTLET IS NOT SUFFICIENT, THE AIR COMPRESSOR TANK HAS A SUFFICIENT AMOUNT OF AIR IN IT TO OPEN AND CLOSE THE DOOR!**

FOR ELECTRIC CONTROLS

- 14). On an Automatic Car Wash Bay, we recommend that the control box be mounted as close to the operator as possible. The control box is also mounted as close to the equipment room as possible to keep the wiring and plumbing to a minimum. On a Self Serve Car Wash Bay, we recommend the valve box be mounted high enough off the floor or even placed in the equipment room, so people walking near the door can't mess with it. The controls to open and close the door can be then placed anywhere in the bay and wired back to the control box. Do not plug the valve box into the 120 volt outlet at this time.
- 15). To wire the valve box, you may use common bell wire or thermostat wire as these wires only carry 24vac. For a simple installation with button controls 18 ga., 3 strand wires are sufficient.
- 16). The next step is to wire in your control device. This may be a two or three button station, a hose switch, an electric eye, etc. See the attached schematic for general instructions or read the manufacturer's instructions that come with your control. On buttons that are furnished by Airlift Doors simply connect the up button to open on the valve box, the down button to close on the valve box, and the common to common.
- 17). To connect the air lines from the valve box to the operator, run 3/8" polyflow line from the front air cylinder (the one farthest from the wall) of the operator to the top air fitting on the side of the valve box. Now run another air line from the other air fitting on the side of the valve box to the back air cylinder. (the one closest to the wall). If the door operates just the opposite of what your controls say, simply reverse the air hoses coming from the valve to the operator.

- 18). Plug the control box into the 120 volt outlet. To test the door and operator, follow the procedures recommended in steps 22-24,
- 19). A quick check to determine if your operator is working correctly is to simply push the open/close buttons on the outside of the control box. If this does not work check the 120 volt power supply, and also check the gauge on your air filter regulator. The standard air pressure should be between 60 to 90PSI.

#### FOR HAND VALVES ONLY

- 20). Mount the hand valve in place or position as specified by your customer (not to exceed 20 feet from the operator). If you must mount this hand valve more than 20 feet from the operator, please call the factory for advice. Run an air line from the compressor or the nearest air source to the pressure regulator on the hand valve using 3/8" polyflow line. This polyflow line connects to the hand valve on the fitting marked "in" using the furnished brass push fitting.
- 21). Using the 3/8" polyflow line, run air line from the top fitting on the hand valve to the front cylinder (the one farthest from the wall) of the operator. Now run another polyflow line from the lower fitting on the hand valve to the back air cylinder. (the one closest to the wall)
- 22). To adjust air pressure, close the door and put the hand valve in the "up" position. Turn the adjustment knob on top of the regulator an additional one half turn past this point. This is your recommended pressure setting and will normally vary between 60 psi to 90 psi, depending upon the weight of the door.
- 23). If the door slows too soon when opening, loosen the airflow control screw, located at the bottom of the up cylinder furthest from the wall. If the door does not slow down fast enough when opening (door slams or bangs into upper limit), tighten this airflow control screw.
- 24). If the door slows too soon or slams on the down cycle, follow procedure 23 except the airflow control screw is on the down cylinder of the operator, which is the cylinder closes to the wall

## HOW AN AIR OPERATOR WORKS

An Air Operator is simply two air powered pistons mounted to a door track. Its piston rods are connected to a chain that turns a sprocket on the door shaft, causing the door to open and close. Either a manual or electric valve allows air into the top of one cylinder pushing the piston down. The piston rod is connected to a chain which turns the sprocket mounted on the door shaft, causing the door to open and pulls the adjoining piston rod up.

Air is exhausted through a small bleed hole on the side of the cylinder and through an adjustable exhaust on the bottom of the tube. These dual exhaust ports allow a rapid travel of the door through a majority of its cycle, but slows the door to gentle stop in both the up and down cycle.

The air operator is a patented system that is designed for high usage doors. It accelerates and decelerates the door through gentle air pressure and doesn't jar the door with instant start and stop.

An air powered door operator can be used with any manufacturer's door. They are especially adapted for sliding doors and high lift door application. On a very light door with standard radius track or low head room track there are a variety of options available to prevent cable jumping. Ask your dealer or call the factory if you have this type of application.

Automatic oilers are available as an option should you not want to oil the operators manually. The main advantage of the automatic oiler is a visual check will let you know if you need to add oil.

Every operator has an air-filter regulator with it. The regulator controls the air pressure to the operator and the filter automatically eliminates water in the air line.

The valve can be either manually or electrically operated. The manual valves are especially suitable for explosion proof application, as no electric circuits are involved.

With the electric version, you may use many types of actuators or safety devices in the control circuit. Examples are 1, 2 and 3 button stations, hose switches, electric eyes, magnetic loops, timers, height limits, pull cords, remote radios, etc.

Noise mufflers are available as an option, but many people prefer to allow the noise of the exhausting air to act as a warning that the door is moving.

Slide locks are available as a locking device, but most installations simply leave the air pressure ON which holds the door down and seals it to the floor.

Quick dump valves are used if the regulator valves are mounted a long distance away from the operator. They exhaust air at the operator and allow the door to respond faster.

## **SPECIFICATIONS AND ORDERING DATA**

### **General Specifications- Air Powered Operator**

One Air Powered Operator, consisting of two, 2-1/2" aluminum cylinders and stainless steel piston rods. They are designed to open and close a door 2.5 feet per second. The operator will have a #41 chain connecting to the piston rods and to a sprocket mounted on the door shaft. The Air Operator uses 2/3rds of a cubic foot per cycle, 1 cycle is equal to 1 open and 1 close of the garage door.

### **Electric Controls and/or Sliding Door Operators**

Power and Air requirements are a minimum, 90 PSI air supply and a 120 volt water proof outlet. All control circuits are a 24 volt AC, for safe operation. Electric controls include, 1 (NEMA-4) Rated 2 button control, with a standard 24 volt, 2-position valve, and 1 Air filter regulator.

### **Manual Controls**

Manual controls are recommended for an explosion proof application. Power requirements are simply a 90 PSI air supply, no electric controls or circuits are used. Controls consist of a manually switched hand valve and one air filter regulator. An automatic oiler can also be added to this application.

### **Ordering Data**

Specify type of controls, door height, and cable drum size. This enables us to ship the correct size sprocket with your air operator. For doors over 190 square feet, you may need DUAL operators. For slider applications please specify door size.

# MAINTENANCE AND ADJUSTMENT GUIDE

## Lubrication

### A. Operators

Air operators have pistons that occasionally need oil. A special 10 weight non-detergent oil can be used for this purpose. Oiling the piston is accomplished in one of two ways.

1. Automatic oilers are placed in the air line between the air regulator and the valves; they dispense oil into the cylinder with each door cycle. The oiler is adjustable by a small screw on top of the oiler. Turning the screw clockwise toward the minus (-) sign decreases flow of oil. Turning the screw counterclockwise towards the plus (+) sign increases the flow of oil. Most people set this to use too much oil, so make sure you set this to use about one drop of oil for every 10 to 15 cycles of your door.

2. Manually oiling the door is another method of insuring that oil is getting into the piston. There is no air pressure to this cylinder. Squirt about 8 inches of oil into the airline using an oil can, reconnect the air line to the cylinder and cycle the door. This will cause the oil to be drawn into the cylinder. Repeat this procedure for the other cylinder making sure that its piston rod is in the up position before disconnecting the air line.

### B. Doors

Keep the door tracks, torsion springs, track rollers, shaft bearing and chain connecting the operator to the door shaft, lubricated on a monthly basis. Door track can use regular weight oil or J-B 80 lubricant. This product not only lubricates, but also has a penetrating quality that frees rusted parts. A common cause of a jerky door operator is rusty door springs that bind when the coils try to turn.

### C. Air Compressors

**DON'T 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 is required). There is a combination Filter-Regulator with all of our units that automatically drains water from the air lines, but it is not designed to handle large volumes of water. Automatic drains are available for your compressor as well as in-line Air Dryers; all you need to do is contact your local compressor dealer.

## Adjustments

There are only three adjustments to be made on an air powered operator.

### 1. Chain Tensioner (Turnbuckle)

The chain on the operator has a turnbuckle which is used to install and tighten the chain. It is also used when you want to disconnect the operator from the door shafts. As the chain stretches with age this turnbuckle may be tightened. **DO NOT OVER TIGHTEN!** Over tightening will cause early bearing failure on the door. The chain only needs to be tightened enough to keep it from overlapping its own links.

### 2. Air Filter- Regulator

The combination Air-Filter Regulator controls the air pressure to both cylinders. It may be adjusted by turning the black knob on top of the regulator. Some models may have knob locking ring that may have to be lifted to turn the knob. This regulator is normally set at about 65 PSI and increasing the pressure will increase the door speed. Some heavy doors may need to have the pressure increased, but if you must exceed 90 PSI you probably have a door problem

### 3. 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. The door's intermediate speed can be controlled by lessening the air pressure coming into the operator as described in Step 2 of the adjustments. The stopping speed is controlled by the needle valve on the bottom of the cylinder that adjusts the air flow of the exhausting air.

**\*Caution\*** Do not remove this needle valve as there are two adjacent holes in the bottom cap and only one is threaded. Screwing the needle valve in the wrong hole will ruin the cap.

If the door stops too soon coming down, loosen the needle valve on the bottom of the rear cylinder (closest to the wall) slightly. If the door slams to the floor, tighten this same needle valve slightly. If the door stops too soon at the top or slams into the top position, the adjustment is the needle valve on the bottom of the front cylinder (farthest from the wall). Either loosen or tighten it slightly. Just a small adjustment is necessary, test the door and keep adjusting the needle valve until the door operates satisfactorily.

Limited

# Ten Year Warranty Certificate

## Original Air Powered Opener

### Ten Year Warranty

Airlift Doors, Inc. warrants to the original purchaser or original user that all Original Air Powered Openers sold by Airlift Doors, Inc. and all parts thereof are free from defects in material or workmanship under normal use and service. The company's sole obligation under this warranty shall be limited to furnishing replacement parts for F.O.B. Minneapolis, Minnesota for 120 Months from date of initial shipment by Airlift Doors, Inc.

This warranty is void if the product warranted has been damaged by accident, abuse, misuse or neglect, improper installation or service, unauthorized modifications, misapplication or other use not arising out of defects in material and workmanship

Warranty redemption requires verification of original purchase date and completion in full of return goods form. Returns are only accepted when return authorization number has been provided by Airlift Doors, Inc. before product is returned.

### General Conditions

The warranties set out in this certificate are the exclusive remedy of the original owner or user in lieu of all other warranties written, oral or implied (including any warranty or merchantability or fitness for the purpose) and all other obligations or liabilities on the part of the Company, and the Company neither assumes nor authorizes any person to assume for it any other obligation or liability in connection with the sale, installation or use of the Original Air Powered Opener or any parts thereof.

The Company will not be responsible for labor or shipping and handling charges for the analysis of a defective condition or for the replacement and installation of defective parts.

The warranties herein shall be null and void if the Original Air Powered Opener is not installed by a competent contractor and/or if Original Air Powered Opener is not installed according to Company instructions.

The warranties herein shall be null and void if the Original Air Powered Opener is subjected to misuse, negligence, accident, or physical damage.

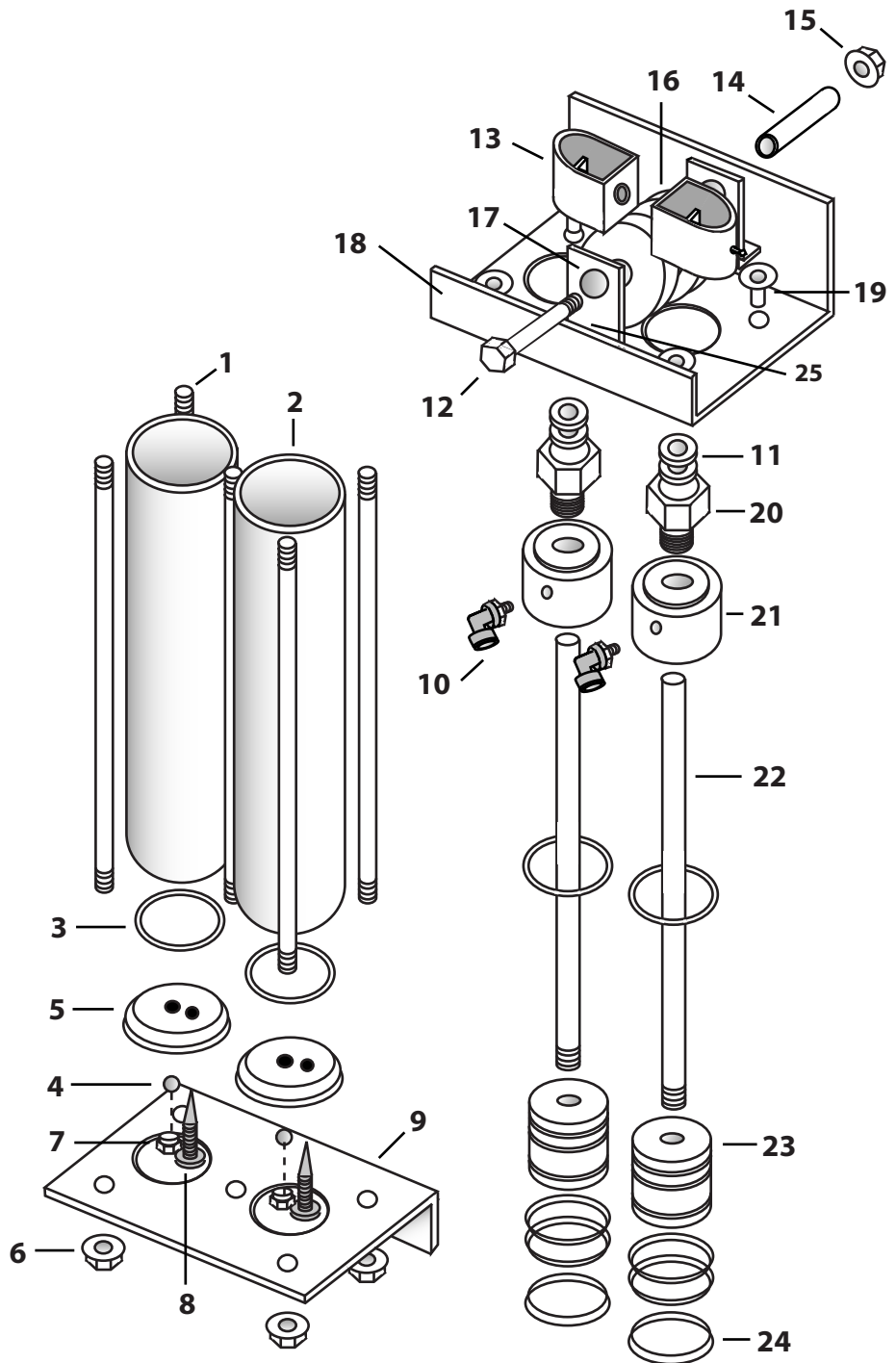
Written permission is required for the return of any parts or equipment and any such return must be made on the basis of transportation charges prepaid.

**Airlift Doors, Inc.**  
**4700 Osseo Road**  
**Minneapolis, MN 55430**

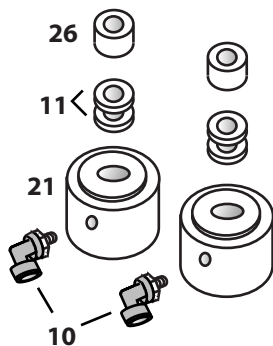
## PARTS LIST

#	DESC.	PART #
1	RETAINING ROD	25000
2	ALUM.TUBE	20000
3	O-RING	50511
4	CHECK BALL	22004
5	BOTTOM CAP	22001
6	1/4" NUT	29003
7	BREATHER VENT	22003
8	METERING SCREW	22002
9	BOTTOM MTG BRACKET	24001
10	3/8X1/8 SW AIR FITTING	35007
11	PISTON ROD SEAL	50515
12	CHAIN GUIDE BOLT	24515
13	PISTON ROD COLLAR	23005
14	COLLAR SLEEVE	23007
15	1/4" LOCK NUT	29001
16	CHAIN ROLLER	24511
17	CHAIN GUIDE BRACKET	24513
18	TOP MTG. BRACKET	24003
19	RETAINING ROD NUT	25001
20	TOP CAP BRASS NUT	210BF
21	TOP CAP	21000
22	PISTON ROD	23000
23	PISTON BODY	23001
24	U-CUP SEAL	50513
25	BRACKET BOLT	29007
26	SEAL RETAINER	50516

# AIRLIFT DOORS STANDARD AIR OPERATOR PARTS DIAGRAM



### ALTERNATE TOP CAP ASSEMBLY FOR OLD STYLE OPERATORS



**AIRLIFT DOORS, INC.**  
**4700 OSSEO RD.**  
**MINNEAPOLIS, MN 55430**  
**612-529-1000**

# TROUBLESHOOTING GUIDE

The first step in trouble shooting an Air Operator is isolating the problem. This portion of our manual is to assist you in doing that by a simple step by step method of locating the problem area.

There are five possible sources of trouble for an air powered door operator

1. Air Supply
2. Door and Hardware
3. Air Operator
4. Air Valve
5. Any Signal Devices (buttons, eyes, loops, remotes, etc...)

**Step 1**  
Alternately press the open and close buttons. You should hear a burst of air each time. This means that valve is actuating. If you don't hear a burst of air, check the air pressure gauge on the regulator. It should read between 60-90 PSI. If there is no pressure, check the air line for freezing and compressor for proper function.

**Step 2**  
If there is pressure to the regulator, check for air leaks around the operator top and bottom caps. If there is air leaking when the door is stationary, see Seal Kit Repair Procedure. If there are no air leaks, go onto step 3.

**Step 3**  
A burst of air indicates the operator is trying to open the door, and everything up to the operator is working. Visually inspect the door for jumped cables, broken springs; chain collar disconnected from piston rod, sprocket slipping on shaft etc... If everything appears to be correct, relieve pressure from cylinders by turning the black knob on top of regulator counter-clockwise.  
With the door in the up position, manually pull the door down. If the door is in the down position we do not recommend you attempt to push door up as this will jump cables. Disconnect the operator by turning the chain tensioned until you are able to remove the chain from the sprocket. After disconnecting the chain the door should move freely up and down. IF it does not, the problem is isolated to the door.  
Remember where each piston rod is, in relationship to the chain turnbuckle. When you reassemble, the piston rods must be put back in their original position or the door will not be set properly. Try moving the door manually, if it won't move the problem is in the door. If the door moves freely we have eliminated the door as the trouble area. Move to step 4.

**Step 4**  
Disconnect the two poly flow airlines leading to the top of the cylinders. With the pistons disconnected from the chain, grasp each piston rod and try moving the piston rod up and down manually. **DO NOT USE A VISE GRIP OR ANY OTHER PLIERS AS THIS WILL SCORE THE PISTON ROD AND CAUSE YOUR SEALS TO LEAK!**

They have to exhaust air as they move, so they won't move rapidly. If either piston will not move all the way up or down, you have a problem within the cylinder and it must be disassembled. To do this the entire operator must be removed from the door track, the retaining rods removed and the top and bottoms caps removed. (See the attached Seal Kit Repair Procedure) If both pistons move all the way up and down, reconnect the chain remembering to have the pistons and chain turnbuckle in exactly the same position as when you took them off. Once again move the door up and down manually, **DO THIS VERY SLOWLY AS YOU ARE EXHAUSTING AIR THROUGH THE CYLINDERS. IF YOU PROCEED TOO FAST THE DOOR CABLES MAY GO SLACK AND JUMP OFF THE DOOR DRUMS.** If the door travels freely we can eliminate the door cylinder as a trouble source. Go to step 5.

### Step 5

Connect the air hoses back to the cylinders, turn the air pressure back up to 60 PSI and try the OPEN and CLOSE buttons again. If you hear a burst of air and the door won't move, you probably missed something on the first 4 steps. GO BACK AND REPEAT THEM.

### Step 6

If you do not hear a burst of air and you do have air pressure to the gauge, the problem has to be in the air valves or the signal device. Ninety percent of the time it's the signal device, which may be a two or three button station, an air hose, a timer, a loop detector, and electric eye, a coin box, etc... The problem becomes greater when several of these are hooked to the same operator. To isolate the problem take all of the wires off of the OPEN, CLOSE and COMMON. Jumper a wire between OPEN and COMMON the door should go up. Jumper the wire between CLOSE and COMMON, the door should go DOWN. If this works the problem is in the signal senders, go to STEP #7. If this does not work the problem is in the valve box. Call us for a replacement.

### Step 7

To isolate which signal input is faulty, connect one of them at a time back into the system. If you only have a single two or three button station it's a simple job to check it out. Remove the cover from the control station; disconnect the wire to the UP button and short it to the common wire, the door should go UP.

Repeat this with the DOWN button, the door should go down. If this fails to move the door the problem is not in the button, but in the wiring between the button and the electronic control box. If you have multiple signal inputs it gets more involved. Connect each input to the system separately and activate that system. If it works go on to the next signal input.

Eventually you should find out which signal system is faulty. Your dealer has wiring diagrams to help assist you with signal sending devices.

### Conclusion

If you have gone through all of these steps, and are still having problems the telephone number of both the factory and your dealer are printed on the front of this OWNER'S MANUAL. When you call them, please make sure you have this trouble shooting guide available, as we will be referring to it as we assist you over the telephone.

## SEAL KIT REPAIR PROCEDURES FOR THE AIR OPERATOR

### Tools and Materials Needed

Seal Kit, rags, 10 weight non-detergent oil, screw driver, 7/16" and 9/16" wrenches, vise grip pliers, a hammer, and an Allen wrench set.

If the door is not moving and air is leaking from the bottom of the cylinder you must replace the U-Cup seals. If the air is leaking from the top of the operator you need to replace the piston rod seals.

### To Replace U-Cup Seals

1. Close the door.
2. Turn off the air to the air powered operator
3. Note the front piston is extended and the rear piston is down. When you remount the operator put it back in the same position.
4. Disconnect the air lines from the air powered operator
5. To remove the operator from the track, unscrew the two bolts holding the bracket to track and take the chain off the sprocket.
6. Unscrew the retaining rods (Usually 5 rods that are the length of the cylinder)
7. Remove the pistons from the cylinders by pushing down on the piston rods, forcing the bottom cap out of the cylinder. Clean the inside of the cylinder by pushing lightly oiled rags through it with the end of the piston rod.
8. Remove the old U-Cup seals on the pistons and clean the piston thoroughly
9. Put new U-Cup seals on the pistons
10. Put everything back together again. When tightening the retaining rods, do it evenly as if you were tightening the lug nuts on your cars wheel. Install the operator back on the track remembering to extend the front piston rod and have the rear rod a 1/2" from bottoming out.

### To Replace Piston Rod Seals

1. Same as steps 1-7 above
2. Remove the top cap from the operator by tapping it off the operator and sliding off the piston rod.
3. Put the top cap in a vise with the seal retainer facing down. Insert a screw driver in the middle hold and tap it with a hammer until the seal retainer and two seals come out.
4. Replace with new piston rod seals using the old seal retainer. Put the cap back on the piston rod and insert in the cylinder.
5. Same as Step 10 above.

## Piston Replacement

When replacing the old style (2-ring) piston with the new style (3-ring) piston, follow the steps 1-7 in the seal kit replacement procedure. When you get to step #8 and #9 you will not be replacing the U-Cup seals but will be replacing the entire piston.

1. Place the piston rod in a vise. Remove the piston from the rod and discard
2. Hand turn the new piston on the piston rod as tightly as possible. Do not use a wrench or tool on the piston which could scratch the surface.
3. Take the piston rod from the vise and check to see if the vise left any scratches on the piston rod. If so, they must be filed smooth
4. Put everything back together

## CABLE JUMPING

The most common problem with an overhead door operator that uses the door shaft to open the door is, cable jumping. A shaft type operator depends on gravity to bring the door down. If the shaft starts unwinding the drum and the door doesn't move, the cable will form a loop on the drum and can come off the drum.

This can be caused by suddenly reversing the direction if the door, the door freezing in the up position, or the door hitting something before the door is fully closed, the door will usually be stuck in the partially open position. The best way to put this cable back on the drum is to lower the door until it is several inches off the floor. Use a vise grip, clamped under a roller; this will keep the door from moving.

You may also use a wooden block to keep the door off of the floor. Back wind the shaft just enough to get the cable back on the drum.

**NEVER** loosen the torsion springs and **NEVER** remove the cable from the drum!

There can be several hundred pounds of tension on this cable and severe bodily injury can occur.

Call your garage door and operator dealer if you can not easily get the cable back on the drum. We do have several available options that solve cable jumping problems. We have listed them in order of cost (some cost nothing) because it's seldom you have to use all of them.

## **CABLE JUMPING CONTIUED...**

### **1. Raise the track**

Raise the rear of the horizontal track several inches. This will give the door a slight downward incline and help it to get started down.

### **2. Don't open the door all the way**

Do not open the door to its maximum height. This will conserve heat and act as if the door had high lift tracking. The top limit is easily adjusted by changing the connection point where the operator is attached to the chain.

### **3. Lower the air pressure**

Lower the air pressure to the operator. The door won't operate as fast and the shock of the instant reverse of the door won't loosen the cables.

### **4. Balance the door**

Balance the door by checking the spring tension or by adding or subtracting from the counter weight system. A door that runs too fast will contribute to cable jumping on the upward cycle.

### **5. Cable Springs**

We supply a spring that attaches to the door cable, to keep tension on the cable if your door isn't moving as fast as the cable. It clamps directly to the door cable down by the bottom door fixtures.

### **6. Pusher springs**

There are pusher springs that mount to the horizontal door tracking, available from us and most door companies. If the door sticks in the horizontal position these springs will give it an initial shove to get started.

### **7. Flow control noise mufflers**

This flow control muffler directly controls the exhausting air from your air valve. It has been very successful in controlling the Air powered operator. Direct manipulation of the exhausting air is by far the best and easiest approach to this problem. They are available in both 1/4" and 1/8" sizes to fit all of the controls available.

**Thank you for purchasing the Air Powered Door Operator. We appreciate your business and will do everything in our power to keep you happy with your operator.**