

Double Action

"Easy Gentleman" Door Operator Installation Instructions

SAFETY

THE EASY GENTLEMAN IS A LOW ENERGY DOOR OPENER. PROPERLY ADJUSTED, THIS OPENER WILL NOT BREAK THE SKIN OF AN APPLE CLOSED IN THE DOOR. AN OPENING DOOR SHOULD BE EASY TO STOP WITH YOUR LITTLE FINGER. EXCESSIVE OPENING SPEED OR POWER WILL DAMAGE THE "GENTLEMAN" AND THE DOOR COMPONENTS. THESE ADJUSTMENTS CANNOT BE MADE AT THE FACTORY AND ARE YOUR RESPONSIBILITY.

NOTE: BEFORE INSTALLING THE OPENER, THE DOOR MUST FUNCTION MANUALLY WITHOUT ANY BINDING, SAGGING, LOOSE OR DAMAGED HINGES. REPAIR ANY PROBLEMS BEFORE CONTINUING WITH THIS INSTALLATION.

WE ALSO RECOMMEND:

- INSTALL A MANUAL DEADBOLT ON THE DOOR FOR ADDED SECURITY.
- SHUT OFF AIR SUPPLY AND UNPLUG THE REMOTE MODULE WHEN YOU WILL BE AWAY FROM THE HOUSE FOR AN EXTENDED PERIOD OF TIME.

PLANNING THE INSTALLATION

The Easy Gentleman opener is straightforward to install and adjust; this document covers the overall installation. Below is a very basic diagram of your installation. (Figure 1)

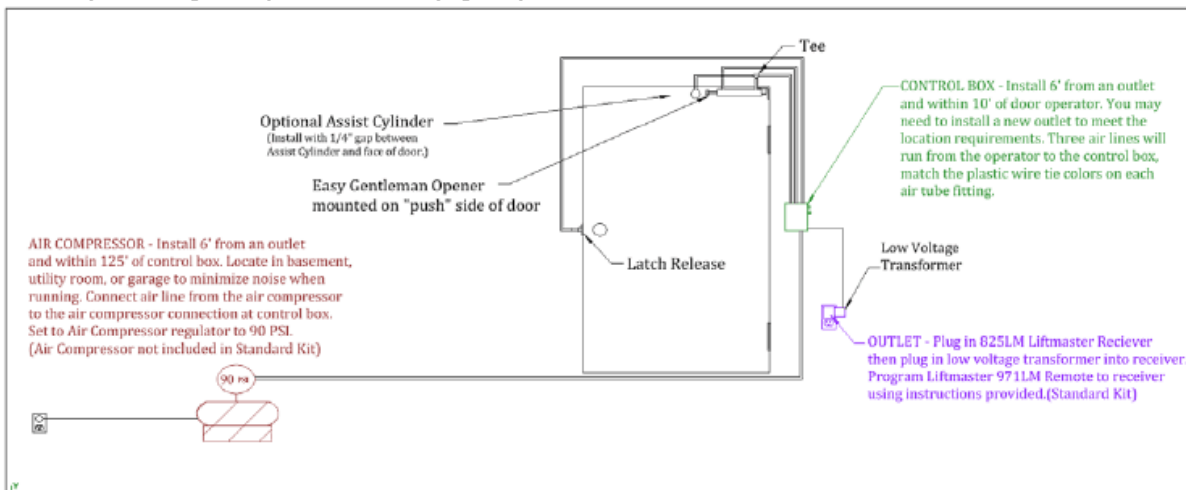


Figure 1

INTRODUCTION

This product is designed to unlatch and open residential doors remotely while maintaining normal operation. This system allows the door, the door components and the lock and existing key to continue to function manually without fear of damage to any of the components in the opening system.

GENERAL INFORMATION

This opener is pneumatic and requires an air compressor (not included) that will sustain 90-100 PSI of air pressure. Multiple openers can operate from a single compressor. If there is an existing system, it may be used if it meets the above criteria.

A small and quiet air compressor located in a remote location is desired. (Basement or Garage) We can recommend a unit based on your installation, please contact GDA if you need assistance.

The Easy Gentleman is comprised of many precision pneumatic controls and requires a clean source of air with minimal moisture. Draining the air compressor tank periodically is essential to eliminate moisture in the compressed air.

1. LOCATING THE AIR COMPRESSOR

The air compressor can be located anywhere up to 125 feet from the opener when only using 5/32 inch tubing. If it is further away than this, a ¼ inch header line will need to be run. The tubing run from the compressor can be either in or out of a conduit; the tubing is durable nylon and can work in any setting or environment.

NOTE: DURING INSTALLATION, DO NOT KINK, PINCH OR CRUSH TUBING.

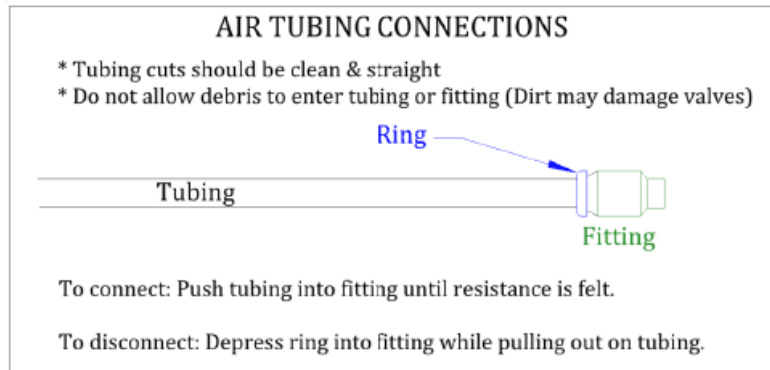


Figure 2

2. CONTROLLING THE OPENER

The switch or controls for your opener may or may not have a timing feature, but most all of the systems send an electric signal to a low voltage electric solenoid. When activated, the solenoid allows compressed air to operate the opener.

Unless you are adapting the opener controls to your own system, our control systems are plug-and-play and do not require an electrician.

Mount the receiver and control box close to the door and in an accessible place for setup and adjustment. You may conceal it behind a panel or mount in a nearby closet, but you will need to see the door while adjusting the controls.

3. LATCH RELEASE - Separate instructions are packaged with the Latch Release.

A small black plug is included to insert into Latch Release fitting if you are not utilizing the Latch Release option.

4. INSTALL DOOR STOP

CAUTION: IF THE DOOR IS ALLOWED TO SWING PAST 90 DEGREES, THE OPENING CYLINDER WILL BE DAMAGED!

If the door meets a perpendicular wall and stops with a bumper before 90 degrees, no further action is needed. Otherwise, a hinge pin mounted door stop is included. Install the door stop and adjust to stop the door at slightly less than 90 degrees.

5. INSTALLATION HARDWARE

Included with the opener you will find mounting hardware for either wood or metal. The self-tapping screws will work for wood and residential metal doors. Installing the opener on a commercial metal door or jamb requires machine threads (10-32) be tapped into the metal. Use a #21 (0.159") drill bit and then tap thread 10-32. Your local hardware store should stock the thread tap with proper size drill bit as a set.

GENERAL INFORMATION:

To determine if the cylinder is attached to its bracket in the correct set of holes for your door, hold the bracket and cylinder assembly in the upper corner farthest from the door knob on the push side of the door. The cylinder end brackets must be mounted in the set of 2 holes farthest from the door. These brackets have a straight side and an angled side. (Figure 4) The straight side must face the door. If a correction is necessary, remove the two # 10 machine screws and reinstall the bracket as illustrated.

You may need to modify door stop moulding to properly install the bracket. For example if your door uses a nailed in place door stop moulding, a small section will have to be removed to allow the mounting bracket to mount closer to the door. Alternately, the bracket itself can be cut to allow the proper distance.

6. OPENING CYLINDER

BRACKET END: Locating the rear pivot point for the cylinder is very important to insure proper operation. The dimensions are critical to enable the door to open 90 degrees. Note that the cylinder mounting bracket is drilled to accommodate both right and left hand doors. Note the installation landmarks in Figure 3 and reference instructions according to hinge type.

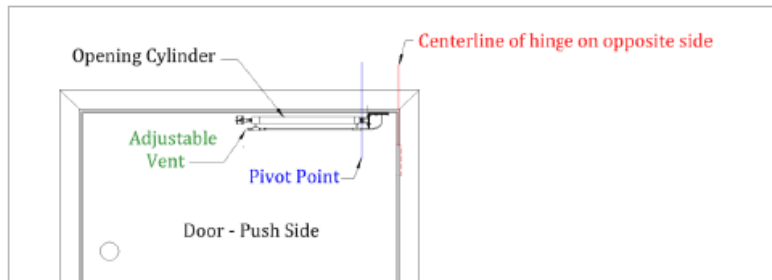


Figure 3

STANDARD HINGES:

NOTE: When installing the cylinder bracket on a metal door or frame, coat the machine threads with a thread locking compound (Loctite) to prevent screws from loosening.

The pivot point is the key to properly installing the mount; the following instructions are for standard hinges:

1. Open door 90 degrees
2. Measure $4 \frac{3}{4}$ " from the edge of the door, parallel to the hinge side of the jamb, and make a mark
3. From that mark, measure $4 \frac{5}{8}$ " parallel to the jamb header and mark the pivot point
4. Remove cylinder and pin from mounting bracket
5. Using a #2 Phillips head screwdriver, place the screw driver through the bracket pivot point and place tip of screwdriver on the pivot point mark on header.
6. Install bracket, parallel to door, while maintaining the correct pivot point position with screwdriver.

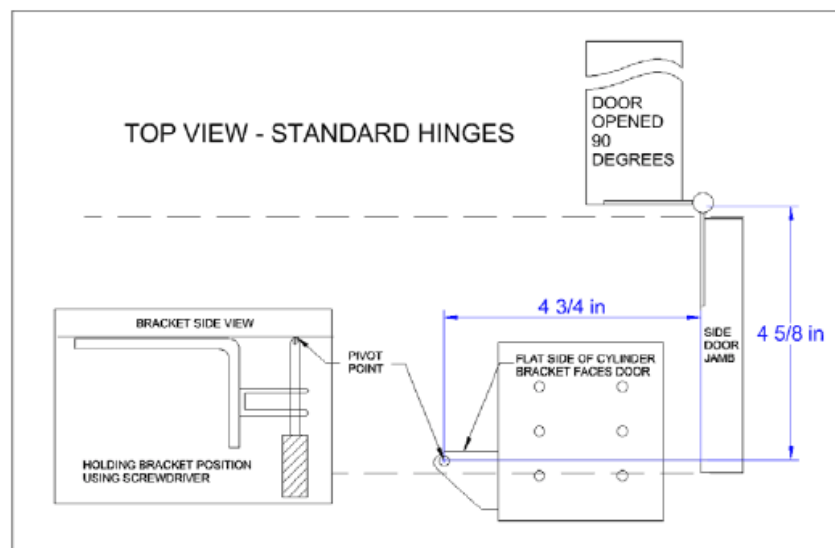


Figure 4

OFFSET HINGES:

Disability Systems, Inc. 1-877-258-7423 <http://www.disabilitysystems.com>

Offset hinges (Figure 4A) offer a special modification that permits a door to open entirely outside its frame. The purpose of this is to allow a wider opening for wheelchairs. If these hinges are used, the mounting bracket must be reversed as shown in Figure 4A in order to compensate for moving the pivot point closer to the side jamb. Here again the bracket will work with both left and right hand doors.

If offset hinges are used, we **STRONGLY RECOMMEND** that the optional assist cylinder be used. This is to compensate for the fact that offset hinges bend more when the opening cycle is initiated.

The pivot point position requires measuring from the hinge pin itself and interpreting the location:

1. Move the cylinder mounting bracket to the inside of the main bracket as shown in Figure 4A.
2. Close the door while standing on the "pull side" of the door.
3. Measure $4\frac{5}{8}$ " from the hinge pin, parallel to the door and make a mark on the jamb header.
4. Open door and from that mark, measure $4\frac{3}{4}$ " parallel to the side jamb mark the pivot point.
5. Remove cylinder and pin from mounting bracket.
6. Using a #2 Phillips head screwdriver, place the screw driver through the bracket pivot point and place tip of screwdriver on the pivot point mark on header.
7. Install bracket, parallel to door, while maintaining the correct pivot point position with screwdriver.

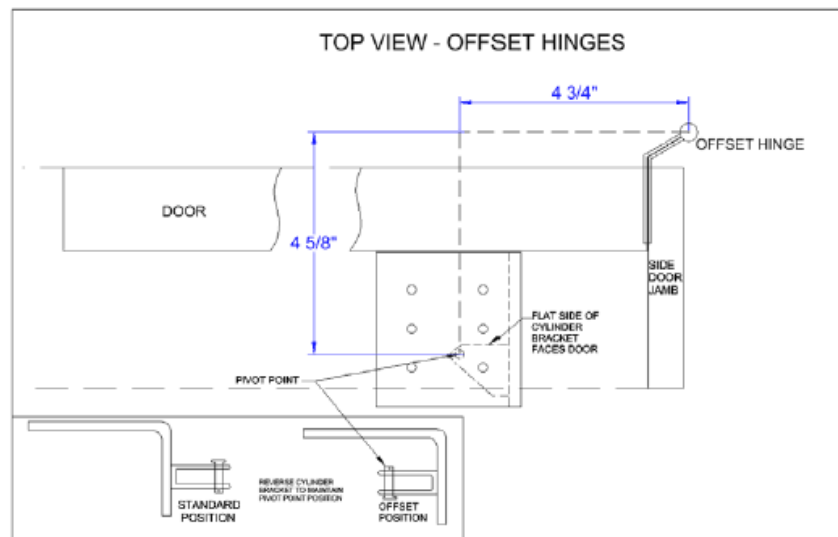


Figure 4A

CLEVIS END OF CYLINDER:

To determine the location of the clevis end brackets the pivot end bracket must be attached to the door frame and the cylinder installed on pivot end bracket with the cylinder rod retracted into the cylinder. Pull the cylinder rod out about 3/8" for clearance, the door must be fully closed, and the cylinder itself held parallel to the door jamb above. While holding the clevis brackets against the face of the door, mark the location of one screw hole. Next, holding the bracket on the screw mark, open the door to check for 90 degrees of opening.

Note that some adjustment is possible after installation by screwing the operating rod in or out of the clevis. Remove the plastic film to expose the adhesive tape between these brackets and the face of the door. This will make this attachment much stronger especially if your door is of hollow construction where only two of the mounting screws will bed firmly in wood.

7. FINISHING UP

Cut and make tubing connections as in figure 2, be careful not to kink tubing at any point. The ideal installation is to conceal the tubing in the wall, always pressure check tubing before closing walls.

If surface mounted installation is required, run tubing in the most inconspicuous places such as along baseboards and in the corner where the door molding meets the wall. A product sold in electrical supply called "wire mold" can be used to conceal the most conspicuous runs.

REMOTE CONTROLS (Standard Unit)

Follow instructions on Liftmaster Plug-In module to install and program to remote package for proper programming of Liftmaster Plug In receiver to install, simply plug our unit into the receiver and plug the receiver into any 110 VAC outlet.

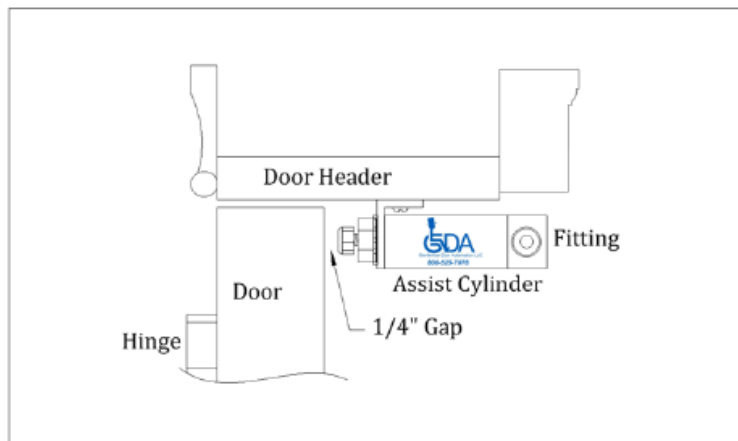
OPTIONAL ASSIST CYLINDER:

Figure 5

This device is used to overcome the holding power of magnetic weather seals, stack pressure, and/or the weight of a heavy door. It mounts on the same side as the opening cylinder, close to the center of the door or within 1 inch of the cylinder bracket. Mount the cylinder securely to the door jamb or stop molding with a 1/4" gap between plunger and door face. (Figure 5) You may reverse the bracket on the cylinder if needed.

The self-tapping screws will work for wood & composite jambs. Installing the assist cylinder on a commercial metal jamb requires machine threads (10-32) be tapped into the metal. Use a #21 (0.159") drill bit and then tap thread 10-32. Your local hardware store should stock the thread tap with proper size drill bit as a set.

Connect with tubing and Tee included with Assist Cylinder as shown in Figure 2.

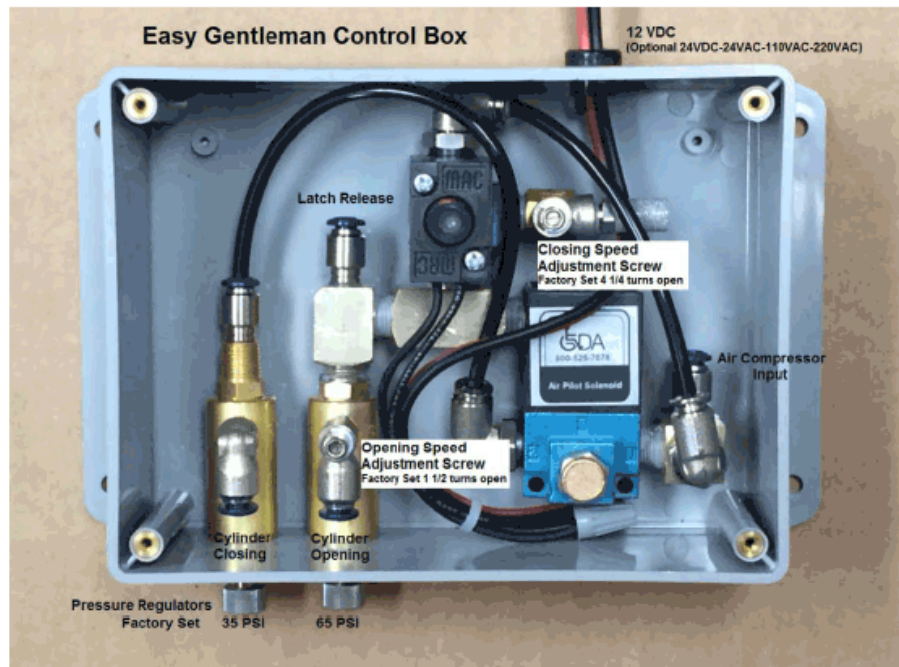


Figure 6

The unit is preset at the factory (Figure 6); prior to making any adjustments cycle the unit to judge whether further adjustments are needed. Keep track of any adjustments you make so you can back track if necessary.

The factory pressure settings for each regulator are shown in Figure 5. To measure the pressures you must activate the control box with a gauge in each port. We offer a gauge set designed specifically for this purpose, please call to order.

Follow the directions below carefully to understand the unit and make adjustments as needed.

ADJUSTMENT:

There are a total of four possible adjusting points on the control unit, three of which have a direct effect on each other. The sequence in which these adjustments are made is therefore very important. Supply pressure from the compressor should be set to 90 psi minimum.

The instructions below assume the regulators are unscrewed to zero pressure at the start.

Adjustment of opening and closing forces:

- Step 1: Activate the system using the remote or the manual override. (if equipped)
- Step 2: Increase the pressure at the opening regulator until the door starts to open
- Step 3: Increase the pressure at the closing regulator until the door starts to close.
- Step 4: Slowly increase the pressure at the opening regulator until the door will move to the fully open position.

NOTE: At this point both sides of the cylinder are under pressure but the opening side pressure is somewhat higher, causing the door to open. When this pressure is allowed to decrease to the point where the closing pressure is the greater of the two, the door will close.

Adjustment of stopping sensitivity:

- Step 5: Deactivate the system. This will allow air to slowly vent at the throttle valve mounted on port # 3 of the opening solenoid valve. (Closing Speed Adjustment Screw) This air must vent fast enough to allow the door to close, but not so fast as to allow the residual pressure in the cylinder and lines to drop below the point required to hold open the closing pilot valve (it requires 10 psi). Make adjustments until the closing door will close at least to the point where the latch touches the strike plate. NOTE: Don't worry if the door closes but does not latch; that is the next step.

Adjustment of latching force:

NOTE: For purposes of understanding the operation of the system, assume the following conditions are true:

- When held open, the pressure supplied to the opening side is 31 psi.
- When open, the pressure supplied to the closing side is 20 psi.
- The differential of 11 psi is being used to open and hold open the door

The closing pilot valve will remain open, supplying 20 psi, as long as the air pressure being exerted in the opening side remains above 10 psi. When the system is deactivated, air is permitted to vent at a controlled rate and slowly lowers the pressure on the opening side. The door will close as the 20 psi closing pressure becomes larger than the diminishing pressure on the opening side. The closing motion of the door itself continually supplies more air to vent, holding the pilot valve open. If the closing motion of the door is stopped, for any reason, including latching, the supply of air that is being vented will be cut off and the pressure on the opening side will drop. When this pressure drops below 10 psi, the pilot valve will close and the entire system will be deactivated. At this point, the maximum closing pressure being supplied is 10 psi; the 20 psi closing pressure minus the 10 psi being used to hold open the pilot valve.

To increase the latching force, increase the pressure on both the opening and closing regulators about ¼ turn. Repeat step 5 if necessary.

NOTE: In this new model, the opening pressure has been increased 5 psi to 36 psi and the closing pressure has also been increased 5 psi to 25 psi. Notice that we have the same differential of 11 psi needed to open the door. At the point where the door stops, the latching force, this differential is now 15 psi; the 25 psi closing pressure minus the same 10 psi required to operate the closing pilot valve.

CAUTION: Do not increase the latching force any more than necessary. This action also increases the force that will be required to stop a moving door if an object or person is encountered.

Adjustment of opening speed:

Opening or closing of the throttle valve connected to Opening Cylinder Regulator will speed up or slow down the opening speed. This will have no effect on the previous adjustments.

Adjustment of the closing speed:

Slightly opening the throttle valve mounted into port 3 of the solenoid valve will permit air to escape more quickly, thereby permitting the door to close faster. Obviously, do not allow air to escape too quickly as the 10 psi closing pressure must be maintained.

To depend on the speed of a closing door, or momentum, to accomplish the latching is crude and dangerous. It does not take advantage of the elegance of this system. This is the fun part of the job, so don't be afraid to try different settings. You can always go back to the initial settings. The goal is to get the entire system to operate perfectly using the lowest possible pressure settings.

LEAK CHECK:

After the tubing is connected and the system is operational, check all of the fittings for leaks. Dilute bubble soap or dish washing soap will immediately show any leaks in an activated system by "blowing bubbles". Tighten any fittings that leak and push in hard on any tubing connections that leak. A leak free system will minimize the amount of time the compressor needs to run, prolonging the life of the motor.

MAINTENANCE:

The wireless remote does require fresh batteries to maintain maximum range. If after a period of time the door fails to close completely, coat the strike plate and latch with a water resistant lubricant such as Vaseline or car wax. Friction points such as the hinges and clevis should receive a drop of machine oil about once a year. This system may be used to hold the door open for moderate periods of time without incurring any problems. As electricity is being used while the door is open it is not recommended that this device be used to hold doors open for long periods. The manual emergency button, on 110 VAC solenoids, can be used to hold the door open without using power.

Thank you for purchasing the "Easy Gentleman Door" Operator!