

DC Design Studio, LLC – Air Cannon Setup and Use Instructions

Disclaimer: Upon purchase of this mechanism, operator takes full responsibility for its use as well as the safety of the people around and or exposed to it. Failure to take precautions, attempt structural modifications, or use outside the operating guidelines is dangerous and is highly discouraged. Taking the proper precaution and using this mechanism within the scope it was designed will give you years of worry free use.



Thank you for purchasing a DC Air Cannon. As you can hopefully notice this mechanism has been professionally constructed using industry grade pneumatic components in conjunction with a 100% welded steel frame and heavy duty hardware.

The Air Cannon was designed to be used as a startle prop providing a very loud and large volume of air; running through a resonator to increase the decibel level.

This prop is extremely effective, as well as dangerous. Precautions should be taken to ensure that it is not fired directly at your viewers, and never above their shin level. Actors/operators' that will be subjected to the constant noise level are advised to wear the appropriate hearing and eye protection.



Since the cannon ships complete and tested with all pneumatic plumbing, the first step in setting up the cannon is to secure it to a baseboard and/or weight it down with sandbags or steel weights. The cannon is large and powerful, so securely mounting it is extremely important. To do so run a 1/4" screw or lag bolt through each mounting tab into your floor or if using a baseboard, use 1/4" bolts with lock nuts. The mechanism must be secured to the floor for proper use as well as safety. If the cannon is not secured down, it will attempt to flip backward causing harm to the operator, viewer or surrounding area. It also creates a dangerous safety hazard for your viewers.

With the cannon secured you are ready to connect your air source. To do so thread your female threaded 1/4" NPT air compressor coupler to the included push-in-fitting (located on the coil of tubing attached to the "P" port on the valve); tighten. Once secure, carefully add air pressure (40-60 test pressure recommended). The mechanism should begin filling with air for approximately 1 minute, then stop; no air leaks should be heard. If leaks are heard, disconnect the



air supply (the cannon will fire at this point automatically) and allow the cannon to drain. If the leak is heard at the tubing, push the tubing further into the fittings and or tighten the fitting a 1/2 turn (or possibly more – but DO NOT OVERTIGHTEN). Re-connect your air source and re-test.

Now test the cannon by adding power, depressing the included hand held trigger. The cannon should fire and scare the hell out of everyone around it. Allow the cannon to refill for 1-2 minutes before re-firing.

Rarely a pressure difference occurs where the cannon's tank pressure is greater than the air supply. If this happens, the cannons valve will fire, releasing air out of the valve, but not the cannon. To fix this, remove the air supply (the cannon should fire at this point), allow the cannon to completely drain, then refill and resume scaring.

In regards to displaying your cannon, never use this mechanism at more than 120PSI. We recommend 80PSI which will prolong the prop and avoid possibly hurting an innocent viewer. Also never use this mechanism in close vicinity (arms reach) of viewers. All of our pneumatic parts are rated to 120PSI, adding more will cause them to fail and begin leaking air or possibly a release of the tubing (never try and “catch” a loose/whipping pressurized airline).

Lastly, for personal safety never stand over or in front of a prop when pressure is applied. It is a potential accident that can be easily avoided.

Maintenance:

It is recommended to drain the cannon of any residual water that may have accumulated throughout the seasonal use (this moisture is created by the heat of your air compressor, and travels as mist through the airlines before collecting in the cylinder). To do so, make sure the air supply is not connected and there is no air pressure in the tank. Once the air pressure has been drained unscrew the upper cannon portion from the tank. Be careful not to apply pressure to the resonator, or damage may occur. Invert the cannon and let the water drip out and dry before reconnection – It's advisable to store your cannon with the tank and mechanics separated. Re-apply new Teflon tape to threads prior to reconnection.

Lastly oil the valve periodically with pneumatic tool oil, and store the cannon in a dry area. To oil the valve, remove the flexible 1/4” tubing from the “P” port on the valve, and drip in 5-6 drops of oil.

To remove the airline, evenly press in the colored retaining ring inwards (towards the threads) and gently pull on the tubing. It should release easily.

Be sure to check the mounting bolts to ensure they are secure before use.

Wiring in a controller:

Basic setup and integration of a “non-wired” manual trigger - (ie power cord or X-10 system):

By far the easiest (and cheapest) way to activate the valve setup is to manually plug in the power supply to a household wall receptacle. As mentioned above adding 110V to the power supply will switch the valves airflow, and extend the cylinder.

Many people do not want to manually plug in a power supply for each activation, so the next easiest option is to integrate a wireless 120V appliance/light controller (available at www.dcprops.com). For about \$40 you can wirelessly turn on and off the lifter from up to 40' away. For this setup, please follow the manufacturer's instructions for setup and triggering.

Basic setup and integration of a Push Button Trigger: (available at www.dcprops.com)

If you are using a low voltage 12-24V valve and manual triggering is preferred, a push button trigger is a great solution. To connect this type of triggering device first ensure the power supply is unplugged and had not been plugged in for at least 10 minutes; the power supply holds power, and if it is or was recently plugged in, there is a possible shock hazard.

With the power supply un-energized, take the power cord (running from the power supply to the valve) and separate (spilt apart) the two wires about a foot from the power supply. As a precaution, all wiring should be kept as far from the valve and water as possible. Once split you should be left with a solid black wire and a black wire with a white stripe.

The black wire with the white stripe is the constant and you won't touch that one. The solid black wire needs to be cut and the shielding stripped about 3/8 of an inch on each cut end. With both ends stripped, now you can connect the push button's trigger.

In the case of a DC hand held trigger (WARNING - Only use hand held triggers with 12-24V DC setups, never integrate a hand held trigger into a 110V setup!), you will want to connect the wire coming from the power supply to the red wire, and the other cut side (the wire that's running to the valve) to the black wire. We strongly recommend soldering these connections, then covering all of the bare wire with heat shrink tubing and or wrapping with electrical tape.

With those connected, you have created a normally open circuit (switch that closes the connection turning on the valve) when the button is depressed.



Basic setup and integration of a “relayed” animation controller:

These instructions are for wiring a “relayed” controller, such as an Animation Maestro (available at www.dcprops.com). The manufacturer’s instructions supersede these instructions, so read and follow those instructions and precautions prior to wiring.

To connect a “common” relayed controller first ensure the power supply is un-energized and take the power cord that is running from the power supply to the valve and separate (spilt apart) the two wires about a foot from the power supply. As a precaution, all wiring should be kept as far from the valve and water as possible.

Once split you should be left with a solid black wire and a black wire with a white stripe. The black wire with the white stripe is the constant and you won’t touch that one. The solid black wire needs to be cut and the shielding stripped about 1/4 of an inch on each cut end. With both ends stripped, now you can connect the first (common) wire coming from the power supply into the “C” (constant) terminal. Next connect the wire running to the valve on the lifter into the “N/O” (normally open) terminal.



This will complete the circuit, and the controller will “close” the circuitry loop, per your program using a PIR (passive infrared) sensor, push button trigger, or switch mat (only connect ONE trigger at a time!).

Basic setup and integration of a “powered” animation controller:

These instructions are for wiring a “powered” controller, such as a Prop 1 micro controller or Sprawling Delusions Keybanger (using a 12V-24V main power supply, with 12V-24V output).

This setup uses the power supply from the controller to power the valve, so in this setup you will want to cut the power supply off about 18” away from the power supply. Keep the power supply for future use, or for powering the controller.

With the power supply removed, separate (spilt apart) the two wires you just cut about 3” and strip approximately ¼” off each end. As a precaution, all wiring should be kept as far from the valve and water as possible. Once split you should be left with a solid black wire and a black wire with a white stripe.

The black wire with the white stripe is the constant and will need to be connected into the “V+” or “POS” terminal. The solid black wire will need to be connected into one of the “N/O” (normally open) terminals.

This will complete the circuit, and the program you enter into the controller, will control the opening and closing of the circuit (ie start and stop of the lift).

Suggested Animation controllers:

- Animation Maestro: great for triggering 1 item, extremely easy setup and real-time programming. Available from **www.dcprops.com**.
- Animation Maestro 2: Great for triggering two items with real-time programming (ie spitter and a pneumatic solenoid valve). Available from **www.dcprops.com**.
- SD Keybanger Lite: Great for triggering up to 2 items with extremely easy setup and real-time programming. Available from **www.dcprops.com**.
- SD Keybanger: Great for triggering up to 6 items with extremely easy setup and real-time programming. Available from **www.dcprops.com**.
- Basic Wireless Remote control: Extremely easy to use and wireless up to 40'. Available from **www.dcprops.com**.
- Prop 1 Microcontroller: Great for triggering multiple items (up to 8), requires programming knowledge. Available from **www.dcprops.com**.

Please be safe and enjoy.

If you have any questions on these instructions or this props operation, please contact DC Design Studio at **support@dcprops.com**.

Thanks again for your purchase and enjoy.

DC Design Studio
P.O. Box 132
Mountain View, CA 94042
650-962-9254
www.dcprops.com