

DC Design Studio, LLC - Torso Erector 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 Torso Erector. As you hopefully can notice this mechanism has been professionally constructed using industry grade pneumatic components in conjunction with a 100% welded steel frame and heavy duty hardware.

With the pneumatic plumbing complete, you can now secure the mechanism using all four of the mounting plates and heavy duty wood screws or bolts (preferred) with 1/4" diameter fender washers into a secure surface (ie. wooden coffin, table, sheet of 1/2" or thicker wood, etc.). The mechanism must be secured down for proper use as well as safety. If the mechanism is not secured down, it will easily flip forward towards your viewers possibly causing harm to them or your prop as well as ruining the effect.



With the mechanism secured the next step will be to connect your female threaded (1/4" NPT thread) air compressor coupler. This will be the male portion that matches your current air compressor configuration and is not included. To connect, thread your female air compressor coupler onto the included push-in-fitting (located on the coil of tubing attached to the "P" port on the valve); tighten (see picture on right). Once secure, carefully add air pressure (40-60PSI recommended). The mechanism should stay retracted and no air leaks should be present. If it does not, make sure power is not applied, and if it still is in the upright position switch the ports on the valve.



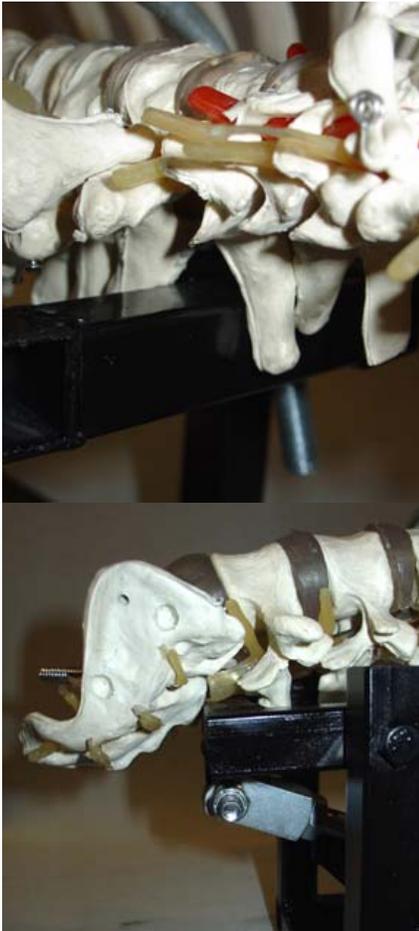
Once the mechanism is working properly it is now time to apply the bucky torso (you may want to remove the mounting screws for easier access). To do so you will need to make a few minor modifications to the skeleton spine. The first modification is to straighten the spine so it lays flat. The easiest way I have found to do so is to lay the bucky in its back, and using something to balance your weight on, step on the mid section. If you are comfortable with removing the bent bar and



replacing it with a new straight bar, that works even better but is very time consuming.

The second modification is to the tail bone. The lower region needs to be removed. This can be done with a hack saw or other hand saw, unless you want to use a cut off wheel on hand grinder which is fast and easy (recommended, but wear eye, ear, and respiratory protection)

With the spine straightened and the tail bone removed, lay the bucky on its back with the tailbone on the cylinder end of the platform with the first vertebrae on the inside edge of the platform (see picture below) and the 3rd (from the top) and the 4th vertebrae separated by the top platform bar (see picture below, left).



Once you have the spine in place, take two 4" U-bolts (not included) and slide them over the spine above the holes in the torso platform. They will need to be secured tightly to prevent the body from shifting during use. Secure them by adding a couple of 3/8" washers to the threads, then tightening the 3/8" nylon lock nut. Make sure to tighten the bolts evenly jumping from one bolt to another to keep the spine from buckling and shifting. With the bolts all secured down, the spine should have no movement at all and be one with the frame.

With the torso securely fastened, you are just about done. The last step is to attach the arms so that they will not flail upon triggering. The best and easiest way I have found to do this is to use white/natural tie wraps (approx. 1/4" wide) and fast setting epoxy. If you are planning on corpsing this guy/girl (which is HIGHLY recommended) you can skip the epoxy step since the latex and cheesecloth corpsing will act as glue and not only hold the corpse together, but also prevent it from breaking (as we all know, buckys do not stand up to a lot of abuse for long).

To prevent flailing, first choose a pose for the arms. I advise a burial pose with the hands crossed over the chest plate. With the arms in place, begin securing the hands, forearms and upper arms to the chest/ribs with the tie wraps. Where the bones come into contact with another bone, add a dab of glue just incase the tie wrap loosens or breaks.

With the arms and hands securely fastened to the body, you should once again be left with a prop that has no free movement.

With the arms attached, the final steps are to mount the skull which uses the original mounting hardware that was supplied, and the hip bones and legs.



To attach the skull, simply run the spinal bars threaded ends through the skull and secure with the nut. I advise switching the “hanging bolt” with a nylon lock nut. Tighten this bolt as well as the tailbone bolt so the entire spine and the head are secure with no free movement.

For the hip bones, you will once again need to make some modifications to the hips to allow the frame to lie inside. To do so set the hips back into their original setting, and mark off the areas that the frame hits and prevents.

Cut these off using a hack saw or disk grinder (see picture to right), and remount the hips using the original mounting hardware. Once the hips are in place, you can remount the legs using the original hardware. I don’t advise using the legs especially if they are not exposed. They will move quite a bit during firing, so their placement will be different and un-natural. This is entirely up to you, but the torso erector was designed to not use the legs, but accommodate them.



With the head and hips attached, your torso erector and bucky torso is now a complete prop and you’re ready to go. Re-secure the mechanism and add approximately 40-60PSI. Test the movement and adjust the speed by loosening or tightening the flow controls (see picture on right). If the mechanism does not lift at 60PSI with the flow control on the lift side all the way UNSCREWED, increase the PSI until you reach the desired speed.



In regards to displaying your prop, never use this mechanism at more than 120PSI.

We recommend 80PSI which will prolong the lifter and prop life 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 a prop when pressure is applied. It is a potential accident that can be easily avoided.

Maintenance:

It is recommended to oil the cylinder rod periodically with pneumatic tool oil, and store the lifter/prop in a dry area. Also check the nuts and bolts to ensure they are just tight enough to not spin freely, but do move easily with a wrench. Greasing the nuts, bolts and bearings is also highly recommended.

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.dcpops.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.dcpops.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.dcpops.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.

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