

DC Design Studio Mechanisms

Torso Erector (un-assembled)

Thank you for purchasing a DC Torso Erector. As you know the mechanism has been constructed using professional pneumatic parts in conjunction with a 100% welded steel frame and heavy duty hardware.



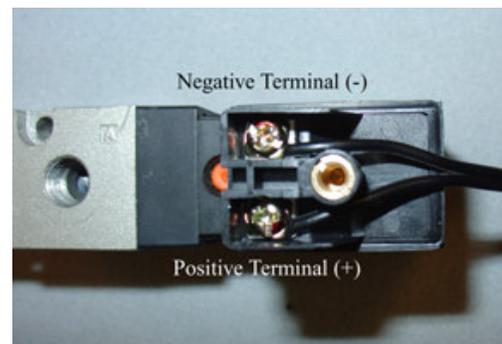
Disclaimer: Upon purchase of this mechanism, operator takes full responsibility for its use as well as the safety of the people around it. Failure to take precaution, modify, or use outside the operating guidelines, is dangerous and is highly discouraged. Taking the proper precaution and using this mechanism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

Although all of our complete mechanisms ship “ready to run” these instructions will provide you with a bit of background knowledge into pneumatics and their setup.

To set up the DC torso erector, the first step will be to setup the pneumatic valve. Take the supplied power supply and strip off approximately ½” of the protective shielding from the exposed wire ends. Once stripped, twist the bare wire to avoid stray wires. Next take your valve and remove the tensioning nut and remove the terminal shroud. Next run your stripped wires through the tensioner nut opening and into the terminal housing. Your setup should look exactly the same as the picture to the right. The valve pictured to the right is a 24V SMC 3100 series valve; the valve shipped with your erector may vary slightly.



Once you have the wiring in position, you will attach the positive wire (white strip along protective shielding) and attach it inside terminal #1, and tighten screw. Once tightened into the correct terminal and there are no stray wires, attach the negative wire into the negative terminal post (#2).



With both wires secured, and no wires straying away from their post, you can now re-apply the valve’s terminal cover, and secure it with the cover screw. Next re-insert the wire tensioner and screw it in to secure the wire from being pulled from the valve.

With the valve hooked up, test it out by applying power. The orange light should light up and a clicking noise should also be heard. If this does not happen, go back to the previous steps, and resolve the problem. All valves are tested before shipping, so a fault in the valve should not occur.

With the valve tested, it is time to setup the pneumatic lines. To do so first take your cylinder and thread in the supplied 5/32" push in fittings into ports on the cylinder. They should go in very easily and be tightened by hand before using any mechanical force. With the fittings inserted, tighten them approximately 4 turns to ensure an air tight seal. Also thread in the cylinder clevis lock nut and lastly the clevis. Do not tighten.

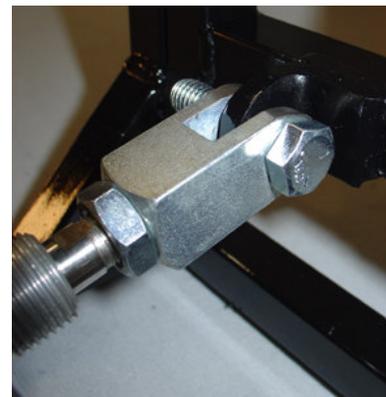


Do the same with the valve. The valve has five ports (threaded holes). The "P" port stands for pressure which is the air in port, which will be directly hooked up to your air supply (compressor) The "P" port will use a 1/4" airline fitting, and the remaining ports will use 5/32" (the same as the cylinder). Use the same method of tightening these fittings as mentioned above.



On the left and right sides of the pressure in port, there are two more ports. These are the exhaust ports, which the air leaving the valve (upon triggering) exits/exhausts. These do not need to be touched, but if you feel the valve is too loud upon triggering, air exhaust mufflers are available. On the opposite side of the pressure port, there are the two final ports. These are you're "A" and "B" ports which will be hooked up into your cylinder. The "A" port is the common flow port which will be connected to the base end of the cylinder and the "B" port will be connected to the cylinder shaft end of the cylinder. Your mechanism may have been shipped with different air line diameters; this was done to slow the return/retraction of the mechanism.

With the fittings secured, you can now mount the valve to the mechanism. This is optional. To mount the valve, take the two 10/32" screws and run them through the valve body mounting holes and into the two threaded holes on the mechanism. Make sure the outlet ports are facing in, and the supply pressure port is facing outwards. This will save some tubing and look cleaner.



With the valve attached, you can now mount the cylinder into the mechanism using the 3/8" bolts and nylon insert lock nuts. Mount the cylinder's clevis with the rounded ends pointing upwards and the mounting plate in-between the clevis arms.

Next mount the cylinder base to the mechanism with another 3/8" bolt and lock nut, but do not over tighten. You want the bolt to be secure but not so tight that it restricts movement. This will cause the mechanism to not function properly.

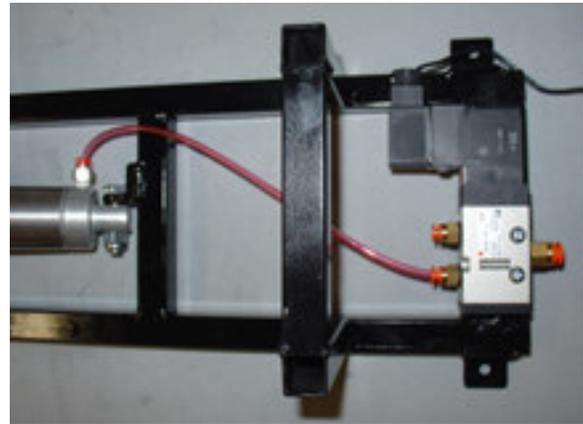
You can now adjust the cylinder and clevis to allow the upper mechanism arm to lower but not slam into the frame stop.

To do so unscrew the cylinder shaft from the clevis until your left with approximately a 1/8" gap between the upper arm and the frame stop (see picture to the right). With the spacing correct, tighten the clevis bolt down onto the clevis. This will prevent the cylinder rod from loosening or tightening, causing the mechanism to not function or not function properly.



With the cylinder and valve attached to the mechanism, you are now ready to run the airline tubing. Start with the base port which will be the extend port, but since this mechanism is used with the cylinder backwards the "A" port and base port of the cylinder will lower the torso. The "A" port

also will have a constant flow of air (until power is applied) so the body will stay in a retracted position until power is applied. To connect the tubing, simply cut the end of the tubing so it is a clean 90 degree cut, and push it into the fitting on the base of the cylinder until it stops. Give the tubing a little tug to make sure it is securely seated. To remove the tubing, push the retaining rim of the fitting inwards, while pulling on the tubing. It should pop right out.



With the first tubing line hooked up, run the line from the cylinder back to the valve and cut it off but leave some slack to allow for non-crimped bends as well as some movement. Next insert the tubing into the "A" port on the valve. Your return plumbing is done. Now do the same with the second line, but this time you will put an in-line flow control between the valve and the cylinder with the larger arrow pointing towards the cylinder. See picture.



Your pneumatic setup should look like the picture to the right.

The in-line flow control will restrict the amount of air flowing into the cylinder, in turn slowing the extension of the cylinder and lowering of the torso platform. To adjust the speed, loosen the retaining nut, and turn the cap screw clockwise to slow, and counter clockwise to speed up. The slowest setting should be used to prevent damage to the mechanism, cylinder, and your prop.



With the valve and cylinder connected, the last step in the pneumatic plumbing is to run the supply line (P Port). To do so, simply take the remaining 1/4" airline fitting (1/4" NPT threads) and connect it to your air compressors 1/4" NPT female threaded fitting (not supplied). Next take

the length of ¼” tubing and connect one end into the “P” port fitting, and the second (with the ¼” NPT push in fitting) into your ¼” NPT female compressor fitting.

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) into a secure surface (ie. wooden coffin, table, sheet of ½” 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 carefully add air pressure (40-60PSI recommended). The mechanism should stay retracted. If it does not, make sure power is not supplied, and if it still does not retract switch the ports on the valve (should not happen if these instructions were followed).

Once the mechanism is working properly it is now time to apply the bucky torso. To do so you will need to make a few minor modifications to his spine. The first modification is to straighten the spine so it lays flat. The easiest way I have found to do this 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.

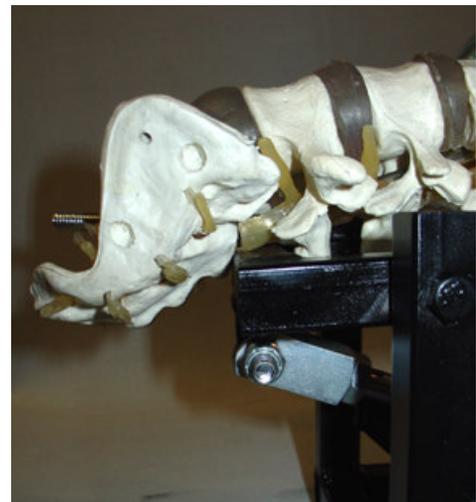


The second modification is to the tail bone. The lower region needs to be removed. This can be done with a hack saw or other hand saw, unless you want to use a cut off wheel on hand grinder which is fast and easy (recommended, but wear eye, ear, and respiratory protection)

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 to the right) 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 the two 4” U-bolts 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.

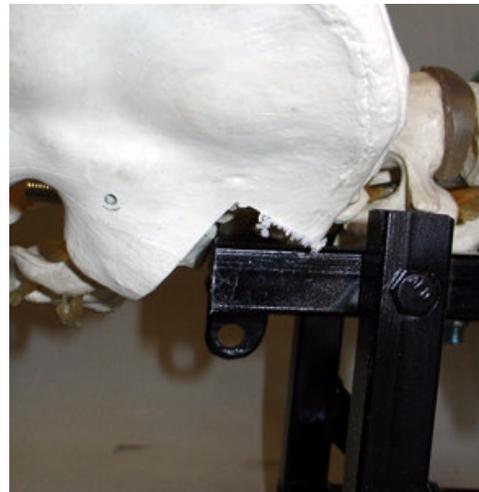
With the arms and hands securely fastened to the body, you should once again be left with a prop that has no free movement.

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, 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. Test the movement once again (with the mechanism secured) and enjoy.

In regards to displaying your pop up prop, never use this mechanism at more than 60-80PSI. Doing so will cause faster movement in both directions as well as possibly seriously hurting an innocent viewer. Also never use this mechanism in close vicinity (arms reach) of viewers.

Lastly, for personal safety never adjust any pneumatic prop with the air hooked up. It is a potential accident that can be easily avoided.

Please be safe and enjoy.

If you have any questions on these instructions or this props operation, please contact DC Design Studio at www.dccpropshop.com, brent@deviousconcoctions or via snail mail at:

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Thanks again for your purchase and enjoy.