HUMA-AIR.COM

Market Leader In Accuracy

Welcome to Huma-Air. We design and manufacture brand- and model specific precision regulators for PCP air rifles.

By using only the highest quality materials such as aircraft grade aluminum, aluminum-bronze, chrome-moly steel and precision belleville springs, our ultra-compact regulators are high performing with less than 1% fluctuation.

Regulator installation guide AEA Challenger Bullpup Bigbore

For adjustment tips, frequently asked questions and a complete list of installation manuals and instructions on how to adjust your Huma-Air regulator

https:/www.huma-air.com/Fitting-instructions

Or go there directly by scanning the QR code

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Before you you start, realize this;

- Working on a high pressure rifle could potentially be harmful or lethal to you or bystanders if you do not know what you are doing.
- The pictures of the rifleparts in this manual are universal and mend as an example to explain the working principle. They might not be equal to the parts in your rifle.
- Do not attempt to install this regulator yourself if you do not have a clear understanding of how these pcp rifles and regulators work.
- Do not attempt to install this regulator if you are not skilled to work on an airrifle; contact your local gunsmith to do the fitting.
- Installation and operation is done completely at your own risk.
- Installing this regulator might void your rifle's factory warranty.
- Your rifle may never be filled higher in pressure as stated in your rifle's manual.
- Do not attempt to fit this regulator in another rifle as mentioned in our order conformation.
- These regulators are not suitable to use as a CO2 to HPA conversion, this could potentially be harmful or lethal to you or bystanders.
- We cannot be held liable for any accidents in relation to this regulator and its installation.

Before you start, make sure that the rifle is unloaded, remove the magazine and make absolutely sure ALL the air is drained from the pressure tube. If there is a pressure gauge, it will give you just an indication. Dry fire the rifle or follow the manufactures instructions and double check to make sure all the air is out of the rifle

If the regulator is fitted and there is no output pressure after filling the pressure tube, something might be wrong causing the airflow to block totally.

Please beware even though there is no output pressure, the pressure tube is fully charged with high pressure air!!
If you are not able to relieve the pressure of the pressure tube according to the manufacture instructions or by dry firing the rifle then:

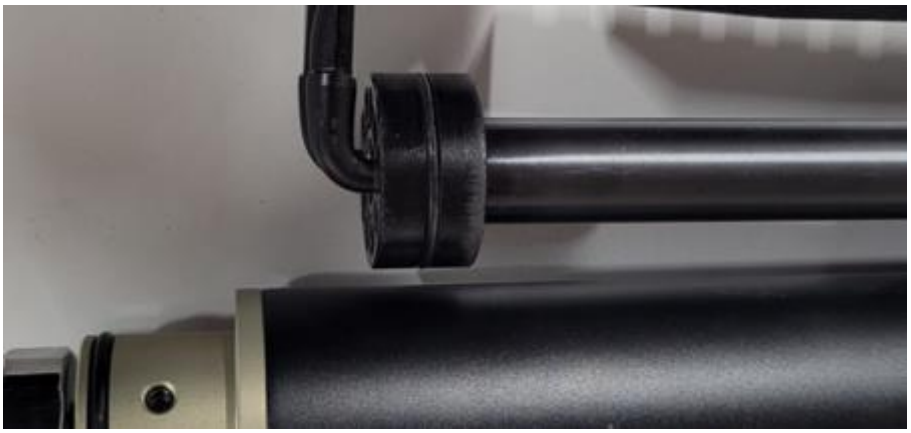
Contact a professional gunsmith to retrieve a solution!

- **DO NOT try to unscrew or to open the pressure tube in any way.**
- **DO NOT try to pierce/drill or to use force to open the pressure tube or unscrew parts in an attempt to relieve the blocked pressure.**
- **These actions can cause serious injury or death to you or bystanders**

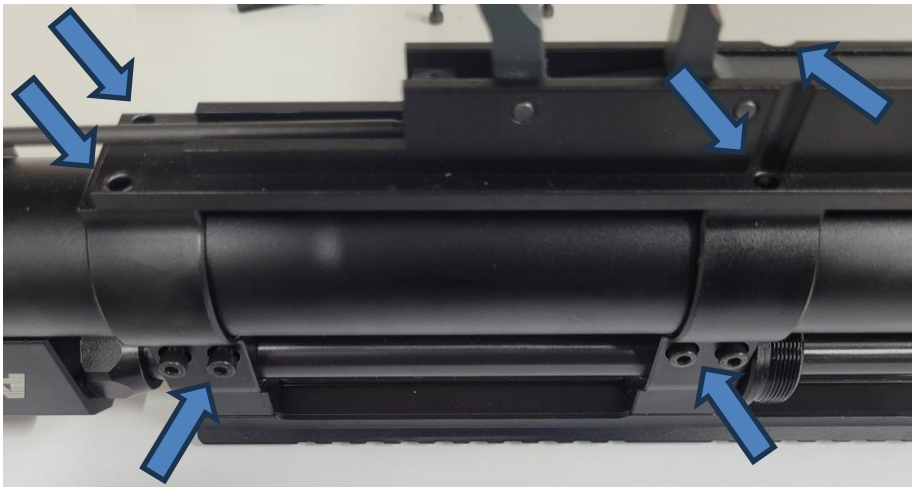
Drain the pressure tube/air cylinder completely by dry firing or according to the manufactures instructions.

In our case the gun could be drained using the small screw in the fill side of the gun, it is covered by the cap. Please note that venting the gun from this side only works when no regulator is installed. When the regulator is installed the gun needs to be fired empty

Unscrew the shroud from the gun and remove the centering ring from the front of the barrel



Now unscrew the trigger mechanism from the two barrel clamps and loosen the 4 screws that hold the clamps to the barrel and airtube.

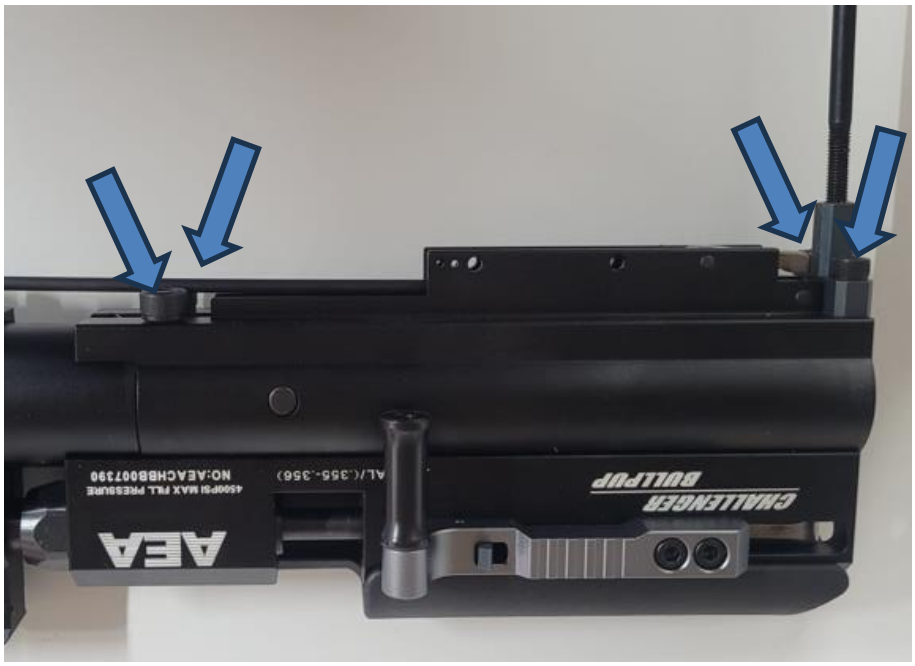


Before sliding of the clamp/toprail subassembly you will need to measure it’s distance relative to the breechblock. In our case this was ±19mm

No slide of the comple subassembly

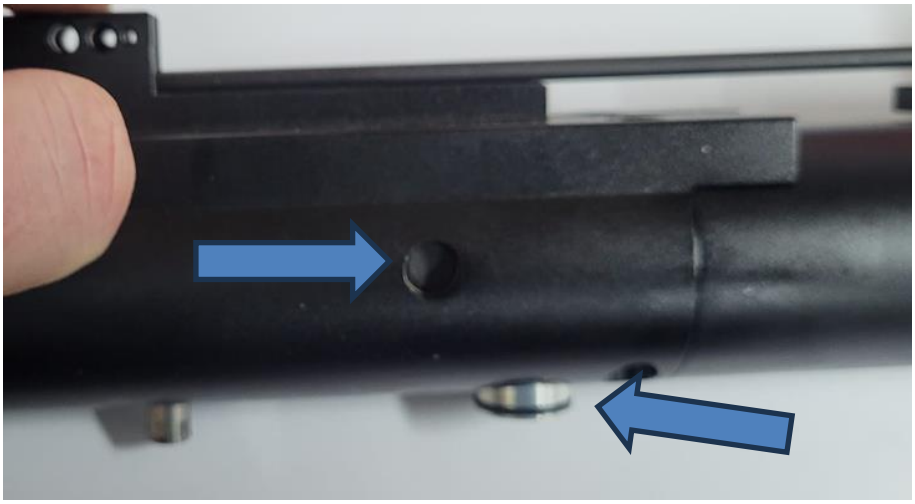
Then focus your attention to the back part of the trigger

Unscrew the 4 screws holding the back trigger part.



Now you can remove the complete trigger assembly and breechblock/barrel from the tube

Remove the transferport and the steel crospin holding the hammerhousing to the valvehousing



After that you can separate the tube from the hammer housing.

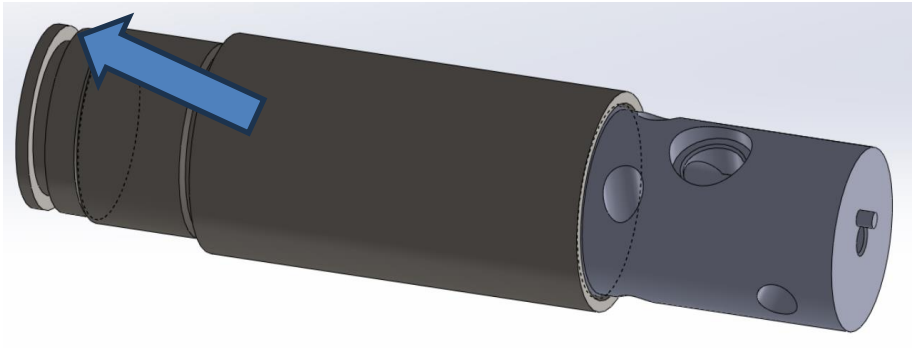
Before unscrewing the valvehousing be sure to check the valvehousing stickout from the tube. In our case ±51mm.

Unscrew the valve body from the pressure tube/air cylinder,

Now AEA has two types of valves in the challenger. One is the one shown above. The other is a type of balanced valve. It looks like the picture below. The regulator set is designed to be used with both valves

Now screw in the valve body in to the supplied cylinder extension. Before you do so apply some pure silicone grease to the orings.

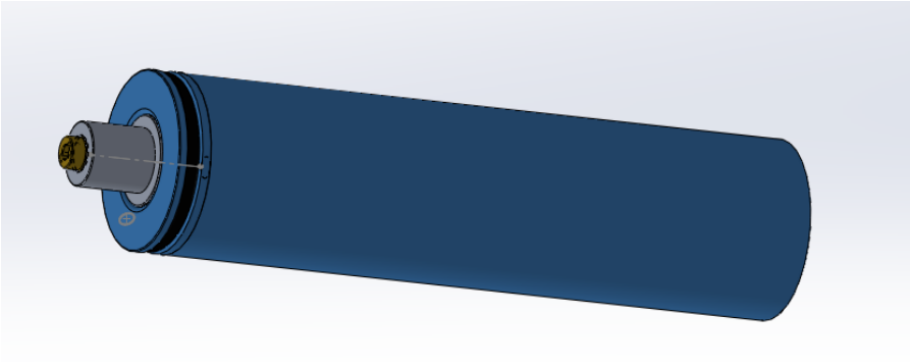
After that is will look like this. Please note the extension tube is supplied with an oring in case you ever want to run the gun with just the extra extension volume but without the regulator. But when using the regulator you will need to remove the oring from the tube and store it somewhere for future use.



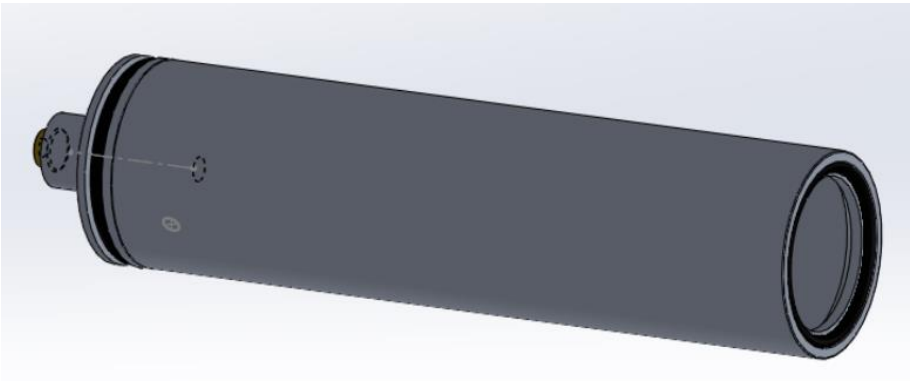
Now prepare the regulator by setting it to your desired pressure and inserting it to the plenum tube. Then grease up all the orings and insert it in the tube as far as to expose some threads. Please make sure face sealing oring in the plenum is inserted correctly.

Instructions on setting your regulator can be found here:

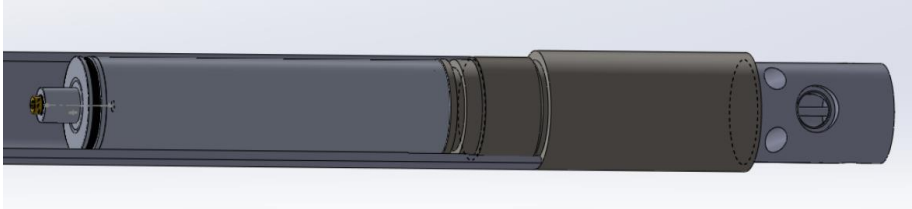
https://huma-air.com/app/uploads/2024/01/how-to-adjust-the-regulator-pressure.pdf



Use some silicone grease to “glue” in the face sealing oring



Now screw in the extension tube+valvehousing on the air tube. Leave a small space between the extension tube and the airtube to get a path for the atmospheric pressure to reach the regulator (a papers width will suffice). The whole assembly will look like this



Now close the air bleed screw on the front fill cap, and check of the hammerhousing can be mounted to the valvehousing using the steel crosspin. If this all checks out you can slowly charge the cylinder to check for leaks.

If no leaks are encountered you can commence to reassemble the gun in reverse order.

Our advice for adjusting the pelletspeed.

If you follow these steps you will have pretty much a optimal balance between air-usage and shotcount.

Remember the regulator will determine the maximum pelletspeed.

- Fill the rilfe with air.
- Turn in hammerspring to the maximum tension.
- Do some shots and measure the pelletspeed.
- If the speed is near to what you want then continue. If not, see below.

If you get way to much speed, then lower the reg pressure a bit.

If you do not get enough pelletspeed then increase the reg pressure a bit.

You can in- or decrease it by setting the screw on top of the regulator according to the pressure scale.

- Turn back the hammerspring tension and shoot and measure the speed. Keep doing this until you see the pelletspeed decreasing.
- Now you should have a pretty well balance.

After fitting the regulator, most type of rifle’s won’t need the factory hammer guide/weight anymore.
You can also experiment with removing weight to reduce air consumption.