

# HUMA-AIR

*Market Leader In Accuracy*

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

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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 Air venturi Avenge-X**



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



**Before 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 air rifle; 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**

## Removing the stock

Unscrew the countersunk screw on either side of the stock using a 3mm hex key



Now unscrew the M4 screw in the front in the piece of picatinny rail using a 3mm hex key



Lastly remove the 2 M5 bolts adjacent the triggerguard using a 4mm allen key

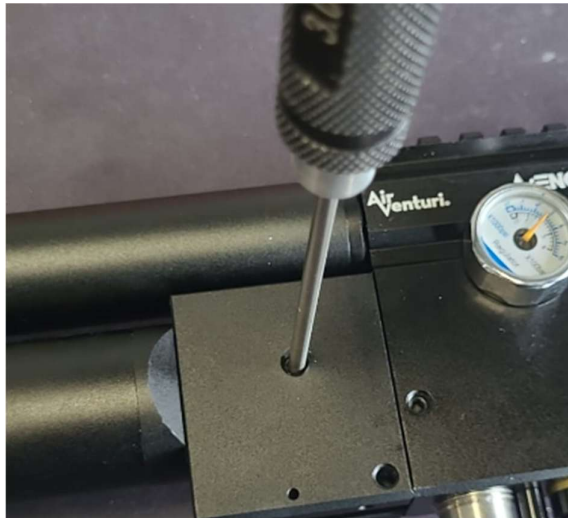


## Draining the rifle of air and installation of the HuMa-Air regulator.

With the stock removed you can slide the barrelband to the front until it clears the tube and twist it out of the way



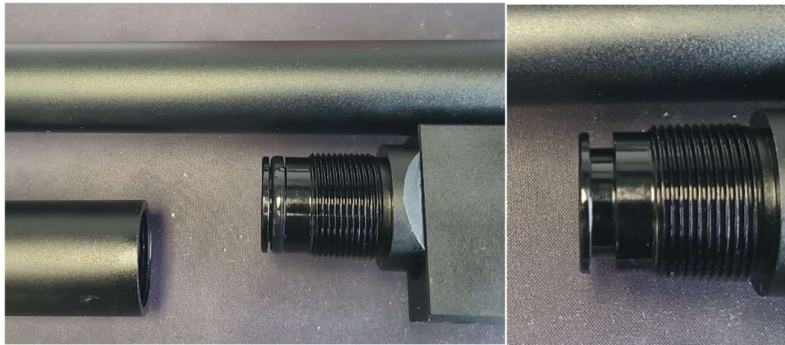
Now you can use a 3mm allen key to open up the drain screw to depressurize the rifle



At this moment double check that the rifle is fully drained from air and close the drain screw. Now you can fully turn out the OEM regulator adjuster to bypass the factory regulator. Screw it out until it hits the stop bolt.



Unscrew the tube from the adapter, and remove the oring..



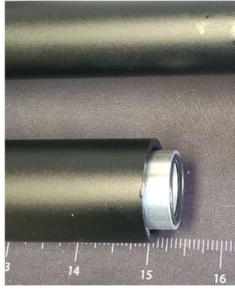
Assemble the regulator and grease up all the orings. This is also the moment you need to set regulator pressure. Use this guide to do so

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

We will come back to that later on in this manual.



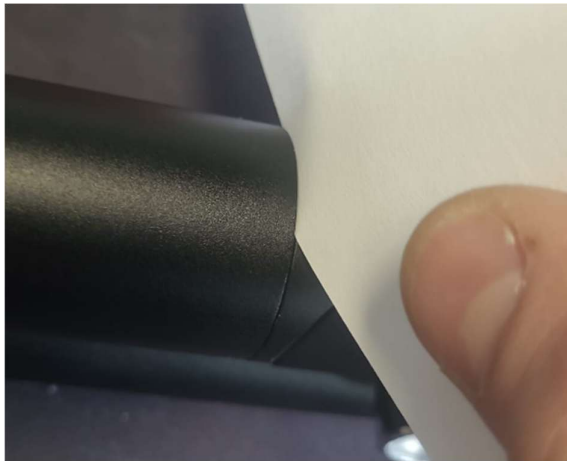
Lubricate the first 7cm of the tube to help inserting the regulator in the tube. You can now slide in the regulator.



It is important for atmospheric pressure to reach the breatherhole of the regulator. This can be done in two ways.

### **Method 1:**

Screw the valve body into the pressure tube, then back it off a tiny bit (the thickness of a piece of paper). This allows the regulator to vent, which allows it to operate normally.



Now slowly fill the pressure tube and check for leaks,

Once you are sure it is not leaking, screw the pressure tube/air cylinder back into the action,

*If you notice the power spikes every few shots or a climbing speed in your shotstring it means that the regulator is not venting/breathing enough/properly. Check that the threads of the pressure tube and valve body are clean and free of grease, also make sure the valve body is not screwed too tightly into the air cylinder.*

*If this does not cure the problem then proceed to method 2 below.*

### **Method 2**

This method is more reliable than method 1 because it allows the regulator to vent/breathe better,

There are no adverse structural changes made to the air cylinder and the rifle can be put back to standard after this modification.

Screw the cylinder into the action and make a note of the bottom of the air cylinder,

Remove the cylinder again and mark the bottom of the pressure tube and the valve casing with a pin/scraper, as shown below.



Make sure the pressure tube/air cylinder is completely empty,

Remove the valve body from the pressure tube,

Use a small metal file to make a tiny notch in the end/edge of the pressure tube. This does not have to be very big/deep, see pictures below. Just a very tiny notch.



Following your mark on the valve body, file a small groove in the longitudinal direction of the screw-thread of the valve body.

Use the corner of the file to cut a 45 degree/triangular groove in the threads, as shown below,

*Note that the O ring groove does not get damaged by doing this modification.*

The groove should be cut so that no threads are visible in the groove, this will allow the regulator to breath/vent freely. Please note that the endcaps shown in the example below are from different rifles, but the basic principle applies to the average X as well.



**Please note! Due to the location of the regulator the fill pressure gauge will show regulated pressure!!**

### **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 rifle 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.

In our example the avenge-X we used was a .22 With the factory regulator at  $\pm 120$  bar we got about 275m/s with 16gr JSB pellets, and with the regulator around 180bar we got about 285m/s with 25,4gr JSB pellets with the hammerspring set accordingly.

In our example we used a reg pressure of 135bar set on our scalelabel. This gave a steady 283m/s with 18,1gr JSB pellets. Follow the instructions linked below as a guide to setup your gun.

<https://huma-air.com/app/uploads/2024/01/General-airrifle-adjustment-tips.pdf>

If your satisfied with the result you can reassemble the rifle again and enjoy you HuMa-Air regulated avenge-X