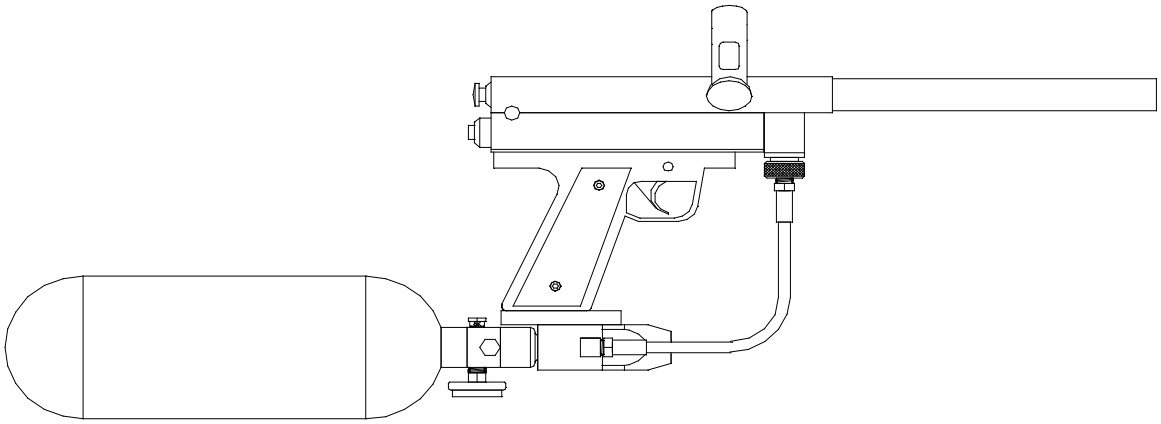
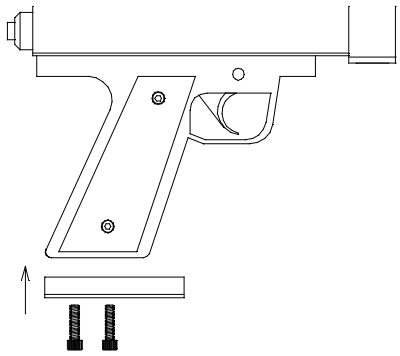
THOR

SECOND STAGE REGULATOR

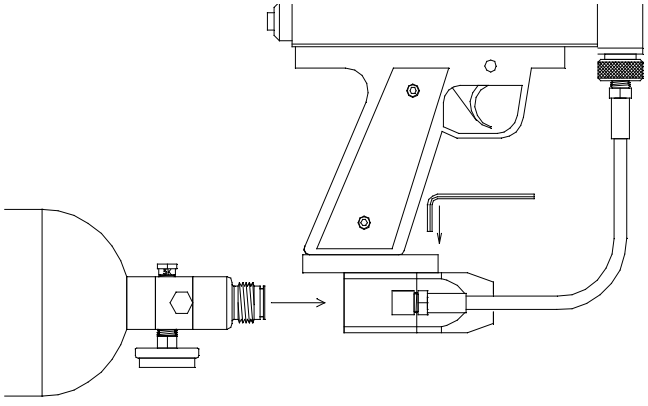


The THOR is a High Performance Second Stage Regulator that has been specifically designed to operate in conjunction with a preset primary regulator. This combination of a Preset Primary and an Adjustable Secondary provides the consistent, unvarying gas pressure and high flow demanded by the Pro Level Player.

INSTALLATION



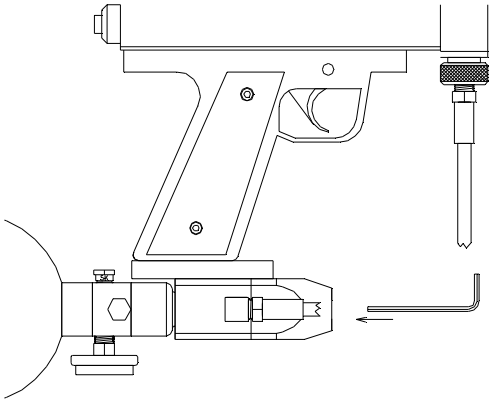
The installation of the THOR is similar to the physical installation of any "Bottom Line" type of N2/HPA system. The THOR mounts using a standard dovetail mount, and the first step is to attach the mounting rail to the airgun. The basic mounting rail assumes the standard two hole pattern which uses two 10-32 threaded holes, spaced 3/4" on center. If your airgun does not have this bolt pattern, contact your local store or airsmith for the proper adapter. The THOR is also compatible with any of the aftermarket mounting systems that offer the standard dovetail mount.



Once the mounting rail has been mounted, the THOR can be secured to the rail. Once the desired position is found, the THOR is locked in position using a 3/32" Allen wrench in the set screw in the mounting rail, as shown on the right. Now is also the best time to make your gas connections to the airgun. The THOR has two 1/8 NPT output ports, so you can set up your output connection and output pressure gauge for either right or left hand orientation. If you are not using quick disconnects, it will be much easier to thread all hoses and fittings into place before sliding the THOR onto the mounting rail. Now is also a good time to check your Preset Regulator's gauge and fitting orientation. Gauge and Fill Fitting position will vary from Preset to Preset, once they are screwed into the THOR, and this may affect your final positioning of the system on the mounting rail.

ADJUSTING THE THOR'S OUTPUT PRESSURE

The output pressure is adjusted by inserting a 1/8" Allen wrench into the front of the regulator and turning. Turning the wrench clockwise will increase the output pressure, and turning it counterclockwise will decrease the pressure. When turning the pressure down, always remember to cycle the airgun as you make the adjustment. This releases the gas trapped in hose and fittings, so that you can get an accurate pressure indication.

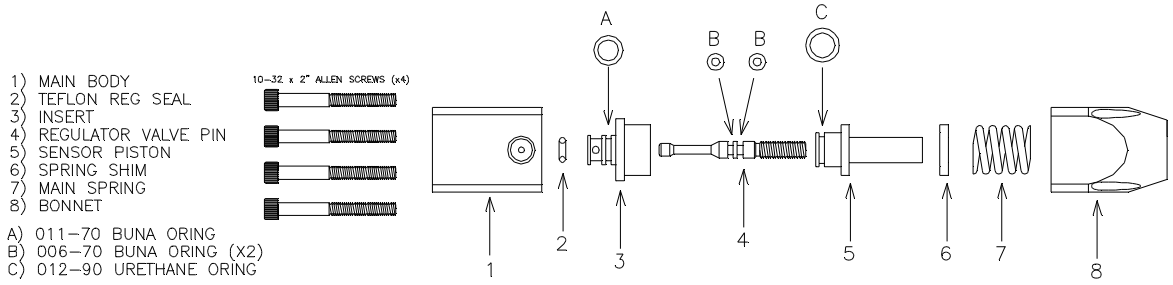


The THOR comes from the factory configured to operate efficiently in the 300 to 600 psi range. If output pressures lower than 300 psi are required, remove the Mainspring Shim. (See the Exploded Diagram) This is done by removing the four 10-32 Allen screws, and removing the bonnet. Once this shim is removed, and the THOR is reassembled, you will be able to set for output pressures as low as 100 psi. You must be aware, however, that with this shim removed you will only be able to adjust up to approximately 500 psi before the safety venting occurs.

If output pressures over 600 psi are required, insert the second shim that is supplied in the parts kit. This will move the adjustment range up to the 400 to 850 psi range.

SERVICING THE THOR

The THOR has been designed to be completely serviceable by the end-user. A complete rebuild consists of replacing three "o" rings, and the teflon reg seal.



TO DISASSEMBLE

1) Remove the four allen screws that hold the Bonnet to the Main Body.
2) Remove the Bonnet, Main Spring, and the Spring Shim.
3) Grasp the piston, and pull. The entire internal part set should come out of the Main Body.
4) Slide the Teflon Reg Seal off over the end of the Regulator Valve Pin.
5) Pull the Piston & Regulator Valve Pin assembly out of the insert.
6) Screw the Regulator Valve Pin out of the Piston.

You have now completely disassembled your THOR. Inspect all parts for unusual wear, and clean thoroughly. Replace the "o" rings on the Insert, Piston, and Regulator Valve Pin. Once that has been done, you are ready to reassemble.

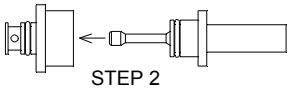
TO REASSEMBLE

1) Screw the Regulator Valve Pin into the Piston.

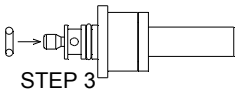
2) Apply a small amount of lubricant to the Piston "O" ring, and push Piston & Regulator Valve Pin assembly into the insert.


STEP 1

3) Apply a small amount of lubricant to the protruding end of the Regulator Valve Pin, and carefully push the new Teflon Reg Seal completely over the end of the Regulator Valve Pin. This sealing ring MUST be past the enlarged end of the Regulator Valve Pin before it is inserted into the main body. If necessary, turn the Regulator Valve Pin out a couple of turns to make sure the Teflon Reg Seal is free.


STEP 2

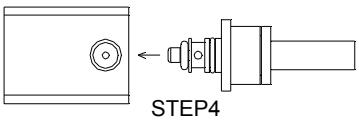
4) Push the entire Insert/Piston assembly into the Main Body.


STEP 3

5) Replace the Spring Shim (if used) and the Main Spring.

6) Replace the Bonnet, and LOOSELY replace the four Allen Screws.

7) In a "crosswise" pattern, tighten the four screws evenly.


STEP4

Contact Tech Support at 1-800-579-1633 or email at pureenergy@pminetwork.com.

TECHNICAL INFO

INPUT PRESSURE: Your THOR was designed to accept input pressures in the 500 to 1200 PSI range from the primary regulator. This in no way implies a safety problem if this pressure is exceeded. It simply means that because of internal dimensions and spring rates, the THOR will operate most efficiently if the input pressure is maintained within those bounds.

OUTPUT PRESSURE: As it comes from the factory, your THOR is configured to allow the output pressure to be adjusted anywhere between 300 and 600 PSI. If output pressures lower than 300 PSI are required, the user simply removes the Spring Shim from under the Mainspring (see the exploded diagram). Removing this shim will allow the THOR to be adjusted anywhere within the 100 to 400 PSI range. If higher pressures are required, inserting the second shim will allow adjustment up to 850 PSI.

Please note that in order to provide it's designed level of flow and response, the THOR requires an input pressure that is at least 100 PSI higher than the setting for the output pressure.

BREAK-IN PERIOD: It will take 250 to 500 shots before the "O" rings and Reg Seat have "bedded in", and the unit displays it's full accuracy and consistency.

TOP PERFORMANCE: The combination of a Preset Primary Regulator and the THOR gives the Pro Level player true dual stage regulation. Response curve caused velocity variations are a thing of the past. With the THOR, if you walk on to the field shooting 295 FPS, you can be sure you will walk off with the same 295.

SAFETY SYSTEM: The THOR incorporates a positive safety system that makes use of the normal travel of the sensor piston. If seal damage or contamination cause a failure to seal, the excess pressure causes the sensor piston to move past it's normal travel range, which allows the piston "O" ring to "un-shroud" , and allow the gas to vent to atmosphere. This reliable and positive safety system ensures that your airgun will not be exposed to excess pressure levels.

POSITIVE VALVE CLOSURE: One of the most remarkable features of the THOR is the fact that it's control valve is positively opened **AND** closed by the sensor piston. This feature, which is unique in the Paintball industry, means fast, crisp response, and the ability to tolerate minor contamination that would shut down more conventional regulators.

USER FRIENDLY: The THOR is, as far as we know, the only N2/HPA regulator that was designed to be completely serviceable by the end user. Any player who is capable of maintaining his or her airgun can deal with all of the THOR's service and maintenance requirements.