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Trouble shooting Guide

* All of the guns are tested and chronographed before being boxed. Our testing procedure checks for not only function, but operating pressures and valving adjustments. The guns were tested for operating pressures that range from 1200 PSI to 450 PSI.

* A large factor in the operation of the guns is temperature, because of CO₂. At temperatures less than 45 degrees fahrenheit I do suggest using a siphon tank. As you know, CO₂ is very temperature sensitive. Some examples of temperature and pressure, at 50 degrees fahrenheit a full tank of CO₂ will generate approx. 500-550 PSI, at 65 degrees fahrenheit the pressure generated is approx 700 PSI, at 80 degrees fahrenheit the pressure generated is approx 850. Now then, if a regular tank or a anti-siphon tank are being used as the gun is shooting in cool weather, the tank will start to frost taking the internal temperature of the gun, tank, gas, and liquid down, to possibly under the ability of generating 450 PSI causing the operator to feel the need to open up both of the air screws and crank in the main spring adjustment all of the way taking the gun so far out of adjustment that it will not work at all. In winter, cold or wet weather this is more than often the scenerio. Normally with a siphon tank in these conditions the problem and cure is just the opposite.

* **The tuning of these guns is the most mis-understood problem. The air screws on the side of the gun marked RECOCK and VELOCITY are air jet type screws that are used in conjunction with each other to provide a balance of expelled gas to perform both actions. The main spring adjustment in the back of the gun is used primarily as your main adjustment for velocity, or how long the valve pin will be depressed to allow the amount of gas desired to perform all of the necessary functions to be released. The screw on the side of the gun marked VELOCITY works best in the range from 1 to 4 turns. This is checked as stated in the manual. The screw on the side of the gun marked RECOCK works best in the range of 3/4 to 1&1/4 of a turn out from all of the way in. Although it has been found that in some instances the gun under CO₂ gas power (not a siphon tank) the RECOCK screw has been opened up to 1&1/4 turns without adverse effects on the parts of the gun. Try 7/8 to 1&1/4 turns of the RECOCK and 2&1/2 to 3&1/2 turns only of the VELOCITY screws on your guns if you are using regular or anti-siphon tanks. Using 16 to 20 OZ tanks also helps the chill down effects. Remotes and expansion chambers are also good things for the semi-guns of today. The other option is the use of a siphon tank, but with the use of siphon tanks the tuning of the gun changes. Understand the tuning is different between regular and anti-siphon tanks then it is with a siphon tank. On the recocking of the gun, too much gas has the same effect as not enough gas to recock the gun.**

* Paintballs do create a bit of back-pressure, so, yes the gun acts differently with paintballs.

* The differences between using the VTS and the back-bottle are adapter are slight but different. Using the VTS would probably be your most consistant in the verticle position (straight down). The VTS used horizontaly (under the barrel) is probably the most problematic. Why? The tank has aprox 60% liquid in it when it is full, and as explained previously the gun operates differently on liquid than on gas. In the horizontal position, shooting straight (flat trajectory) the valve will fill with liquid for the first 50-100 shots then change to gas only in the valve chamber, until you point the barrel up, then the valve fills with liquid again. Point the barrel down and the gun will then have only gas in the valve chamber. In the summer time this may work for a little while but not in the winter. The back-bottle is not as extreme but the effect is similar.

* Lubrication..To much causes the same effect as not enough.

It is easy to over or under tune the gun. Here, we have a simple guideline.

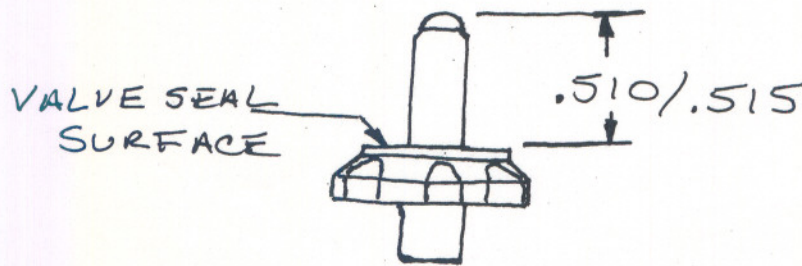
For regular or anti-siphon tanks (remotes and/or expansion chambers): 3 turns for VELOCITY, 7/8 to 1 turn for RECOCK, main spring flush to 3 turns. All velocity changes are done with the main spring screw. Do not use below 45 degrees fahrenheit.

For siphon tanks: 2 to 3 turns for VELOCITY, 0 to 1/4 turns on the RECOCK (shut-off, turned all the way in), main spring flush. Most of the time we end up cutting 2 to 3 coils off of the main spring to get the velocity to come down. Siphon tanks may be used to below freezing temperatures.

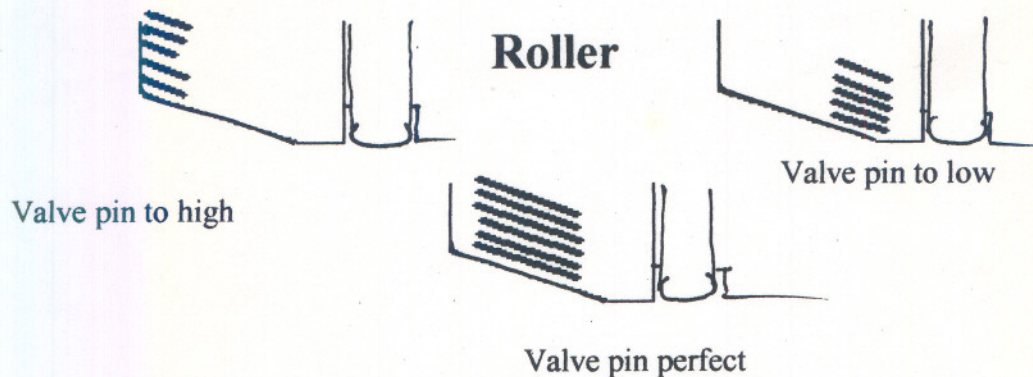
As you can see, the tuning differences between gas and liquid are quite opposite. It is important to tune for one way. Do not configure the gun so that it will not tune for consistancy.

Additional trouble-shooting guide

Valve Pin height : the valve-seal in relation to the top of the ball is critical. This establishes where the valve pin makes contact with the roller. If the valve pin is too high the hammer will just fall forward and stop, if it is too low it will not be depressed far enough to release enough gas to shoot or re-cock the gun. The height of the valve pin can be measured with a dial caliper and should be measured from the tip of the ball down to the face of the valve seal surface, the measurement should read between .510 and .515. To adjust the height you can tighten or loosen the valve seal cup on the valve pin thereby adjusting the height.



Another way to tell how the valve pin is making contact with roller is to actually look at the marks made by the valve pin on the roller.



The teflon o'ring on the hammer is match polished to each upper receiver.