

. Remove parts

First remove your valve system, unscrew the power tube tip with a coin and take out all the parts from inside the power tube. Put them together with the bolt in a bag and save them. If you ever have problems you can switch back.

. Install backing washer

While referring to the LVL 10 parts diagram, first place the backing washer (1) into the bottom of the power tube. Make sure it's sitting flat on the bottom. It's made from delrin and should go in a little tight and stay there. This washer prevents the new smaller o-ring from getting pushed into the air chamber.

. O-ring inside carrier

Pick up one of the brass o-ring carriers (4) and push a power tube o-ring (2) into the end that does not have a tapered hole. It should not go in one side and either slide in or press to the correct side. There are 5 carriers supplied with your kit, each one is a little bigger than the next. They each have small grooves on the outside to help you tell them apart. The more grooves the larger the carrier.

. Tune the carrier to the bolt and o-ring

Each batch of o-rings is a little different than the last. In order to compensate for this we need to find the proper size carrier. The idea is to get a good seal with as little friction as possible. Take the carrier with the o-ring installed and push it o-ring first onto the pin sticking out the back of the bolt. If it pushes on too hard then go to a larger carrier, if it slides freely on the pin then go one smaller. The proper fit should be just snug.

. Install the o-ring carrier

Pick up one of the brass o-ring carriers (4) and push a power tube o-ring (2) into the end that does not have a tapered hole. It should not go in one side and either slide in or press to the correct side. There are 5 carriers supplied with your kit, each one is a little bigger than the next. They each have small grooves on the outside to help you tell them apart. The more grooves the larger the carrier.

. Install the power tube tip

Next install the new power tube tip (7) it should already have the power tube tip o-ring installed from the factory (6). These new tips have wrench flats to tighten the tips. DO NOT OVERTIGHTEN!! Notice that we did NOT put in the shims (5) at this time.

. Test the o-ring carrier

Now slide on your new Superbolt II with your original main spring (not one of the new ones) then reassemble the valve into the marker. Gas the marker up as see if it leaks. If it does leak use your finger or a squeegee to push the front face of the bolt around while its leaking. If the leak changes tone then it's most likely the wrong o-ring carrier (4) and you have to go to the next one tighter. If it doesn't leak you have the right carrier and can proceed to the next step.

. Shim adjustments

Put a squeegee right in front of the bolt and pull the trigger. With very little clearance between the bolt and squeegee you will notice that the bolt comes forward and just stops on the squeegee. Then nothing else happens. Pulling the trigger does nothing to reset the bolt. In order to get the bolt to reset when it pinches a ball, we have to let the air out of the air chamber. The shims (5) control where in the forward stroke the air chamber starts venting. It works a lot like the spacers in the original Mags. We left them out before so you could tell the difference between a carrier leak and a shim leak.

Remove the power tube tip (7) and drop in two shims (5). Make SURE they are sitting flat in the bottom of the power tube before you screw the power tube tip on otherwise you will bend them up. Bent shims are useless and you will have to buy more. Reassemble the valve system as before using the original main spring and new Superbolt. Now when you air up the marker it should not leak but when you do the squeegee test you will notice that the air starts venting when the Superbolt moves forward. If you keep adding shims eventually the bolt will just leak all the time. For most people two shims work just fine. If you find that when you pinch a ball the marker locks up and does not reset then add another shim.

. Main spring tuning

You are almost finished now. You have probably noticed that when you used the original main spring the bolt came forward with less force than usual but still had enough to hop a ball. The pin in the middle of the bolt is called the Power Piston, it acts like a cork to seal the air chamber. Just like a cork, it's being pushed out by the air pressure but the seal holds it in. When you fire the marker, the bolt is getting pushed out by the air chamber pressure but the mainspring is pushing BACK against the bolt at the same time. The level 10 modification reduces the size of the "cork" so the main spring has an easier time holding it back. If you put a big enough main spring on the bolt and it will not fire at all!!

The last thing to do is find the right main spring that pushes back hard enough on the bolt but not so hard that the marker does not fire. The right main spring will depend on many things such as what velocity you are shooting, what barrel you are using, the size of your paint etc. Start with the longest mainspring (9) from the LVL10 kit, assemble the valve with it and gas the marker up. Try firing, if it doesn't fire, turn up the velocity until it does. Turning up the velocity is normal for Level 10 tuning it does not mean anything is wrong. If the marker starts venting out the back or the velocity is too high when it does start firing then the main spring is too long.

Switch to the next shorter main spring. There are three mainsprings supplied in your kit. For the AO beta testers we have cut one coil off the longest main spring to make a "middle" spring. This spring looks funny on one end like it's missing a coil (because it is) put that end on the bolt first so the good end is sticking out. In our experience either the longest or the middle main springs make the Level 10 config work on all the markers we have tested. If you need to shoot 250 fps for indoor you need to go back to the original main spring.

0. Fine tuning

For most people the setup outlined above will make every paintball day a great experience. For those looking to get maximum anti chop with fragile tourney paint we offer the following suggestions. The o-ring friction can be used to additionally slow the bolt down. By going to the next smaller carrier you add an additional layer of protection at the expense of risking bolt stick. You must keep your marker oiled daily to keep it working reliably. The long mainspring can be trimmed to further fine tune the performance. The best performance comes when the marker just starts firing at 270 fps and works reliably at 290 fps.

The penalty for over tuning is the fact that the marker may occasionally refuse to fire. This is because the main spring combined with the power tube o-ring has too much friction to let the bolt go forward. Try at your own risk.

That's it! Your new Level 10 marker is ready to go!!

AGD Level 10 Parts

Parts List

1. Backing washer
2. Power tube o-ring
3. Carrier o-ring
4. Carrier
5. Shims
6. Power tube o-ring
7. Power tube tip
- 8 Superbolt
9. Main spring

