

Luxe Eigenbolt Manual



Intro

The Lurker Eigenbolt for the Luxe paintball marker is designed to provide maximum efficiency and performance. This part may be used either as a drop in to improve shot quality, or with a spring-modified bolt guide for full benefit. Affordable bolt guide modification is available through Lurker (contact shipping@lurkerpaintball.com). It is compatible with all Luxe parts, but due to variations in manufacturing we cannot guarantee performance with all aftermarket parts.

Principle of Operation

As originally unique in the Eigenbolt for the Shocker, the Luxe gains its efficiency advantage using two main features. First, once the bolt has reached nearly full forward, the QEV's at the rear of the bolt vent the pressure pushing the bolt forward. At the same time, the smaller diameter section of the bolt in front of the bolt sail o-ring unseats from the rearmost inner can o-ring to "steal" some air from the input to the can, and use that air to very quickly re-cock the bolt to a position where the main valve is closed. This saves a small amount of pressure in the can, which can be used on the next shot, resulting in improved efficiency. In combination with the spring mod to eliminate FSDO, this is the ultimate bolt for the Luxe platform.

O-ring Fitting:

In addition, friction in the bolt kit must be as low as possible. We will do this by finding the best fitting o-rings for your bolt assembly. Extra buna o-rings are provided, but any appropriate o-ring will do. Keep in mind some o-ring materials tend to run large (HNBR, Urethane), and so might create excess friction.

The following is a tutorial on how to find the best fitting o-rings for your bolt.

To test your tolerances, take the bolt assembly out of the gun. If a spring is installed, unscrew the can and remove the spring. At this point you will want to move the bolt back and forth in the can (while it is lubed). If the two pieces don't slide very easily your o-rings tolerances are too tight.

BE CAREFUL TO DO THIS IN A DIRECTION THAT WON'T RESULT IN A SCRATCHED BOLT - It's a good rule of thumb that if you place your bolt in the can and snap your wrist

forward, the bolt should be able to slide forward significantly. Next put the bolt on the guide. Your o-rings should be loose enough that a gentle shake allows the bolt to slide off the guide.

If your tolerances aren't like this you should find the o-rings that are the cause of the excess friction and replace them. Regardless of the size listed, due to variability in manufacturing they are all a little different.

The most important O-ring is the rearmost inner ring in the can. We are now recommending a harder O-ring in this position, because any o-ring extrusion can block off the "recock" flow that makes the bolt reset quickly. Softer o-rings and especially tighter o-rings in this position can limit the recock flow and prevent the bolt from resetting quickly. This o-ring should be evaluated alone, first, to have the most information about its condition.

Next, fit the sail o-ring. Remove all the o-rings inside the can, and let the bolt slide in the can on the bolt sail o-ring. If the bolt can't fall out of the can by gravity, it is too tight and you need to find a better fitting o-ring. The best way to do this is to take all of your 16/70s and place them on a completely round pen that they can hang off of. If you look very closely while they are hanging side by side you will see that some are slightly smaller than the others. Take the smallest one and place it on the bolt. Then repeat the tolerance test. Be sure there is some resistance, if it falls straight out of the sleeve without *any* resistance it may be too loose to seal. Next, use the same technique on the bolt guide.

For the can you will want to find the larger o-rings using the pen technique. Replace them one-by-one, sliding the bolt into the can after you install each to check that none of them add much resistance.

It is possible that the tolerances will be too loose and cause a leak or pneumatic lockout, so keep that in mind. If this occurs, you may need to find slightly tighter o-rings, but this is not common on the Luxe platform. Continue this process until you find the best fitting combination.

Once you have your o-rings picked out and installed go ahead and replace the spring, lube the bolt assembly with appropriate grease such as Dow 33 or Lurker Lube and reassemble your bolt kit. Next, install the bolt assembly in the gun.

Dynamic O-Rings

Position	Size	Material	Notes
Bolt Guide (2)	013	70 Duro Buna/Polyurethane	Low friction, stock OK
Inner Can, Front 2	017	70 Duro Buna/Polyurethane	Low friction, stock OK
Inner Can, Rearmost	017	75 Duro Viton	Low friction
Inner Back Cap	017	70 Duro Buna/Polyurethane	Must Seal, or can cause puffing.
Bolt Sail	016	70 Duro Buna/Polyurethane	Low Friction.

Tuning:

From here go to a chronograph with air and paint. With dwell at stock (~18), chrono to your desired velocity. Now decrease your dwell until the velocity begins to decrease. When you notice the velocity drop 15 fps or more for more than 3 shots, stop and increase your dwell by 2-3 ms. Now chrono the marker using the regulator to reach the desired velocity. I typically use the FSDO setting on the board at 20s in order to combat FSDO. 2ms additional dwell should be sufficient for FSDO protection.

The bolt should be able to operate at a **dwell around 10ms** with all orings properly fit and not leaking.

Once you have a baseline setting, it's encouraged that you experiment with different setting to find the lowest possible dwell and pressure combination to shoot your desired velocity. If you prefer a smoother shot you will want a slightly higher dwell with lower pressure. If you want maximum efficiency you will want the lowest dwell possible.

Feathertouch/Rear Manifold:

User results suggest the **FT manifold out makes for a more efficient shot**. FT in may be more efficient on paint.

Running without the feathertouch screw may result in easier tuning for efficiency, because the rearmost inner can o-ring can be run the loosest in this case (leaks are more easily tolerated.). If the Feathertouch screw is OUT, the rear manifold should be restrictive in order to slow the bolt speed, both forward and back.

With the Feathertouch screw in, users will probably find a slightly less restrictive manifold setting to be desirable in order to run lower dwells. **Best results have generally been obtained with the manifold at the flush setting.**

Spring

Whatever your spring and bolt bumper setup, check that it moves smoothly on the guide without any friction or binding. Lubing the spring lightly is recommended. Lurker Paintball offers a spring modification for stock boltguides. Contact Shipping@lurkerpaintball.com for details.

Because the bolt gains efficiency by returning backwards quickly, a lighter spring can result in the bolt. A "Rhino Lite" Spring is part of the upgrades package.

Rear Bolt Bumper

The stock o-ring bumper should be adequate, but check to ensure there is no binding and the initial bolt position seems correct in the breech. We have purchased some off the shelf bumpers that should allow the tuning of this aspect, that are available on request.

Bolt Guide length adjustment

A 1mm o-ring around the threads of the bolt can shift the position of the bolt guide o-rings forward, making the valving event even shorter and crisper, which can further improve efficiency.

Volume in the Can

Because the Luxe Eigenbolt uses the HPR input air to reset the bolt, rather than the main can air, at higher pressures the bolt will be more efficient. Shortening the valve lift by spacing out the bolt guide, but increasing volume is the optimum theoretical method to balance the operating pressure, smoothness, and efficiency.

Polish Accelerated Break in:

To break in o-rings to a perfect seal, apply some metal polish to the rings you're interested in. Then, cycle the parts back and forth by hand while twisting, for 2-5 minutes. The polish will turn black with the excess material ground out from the ring. It is crucial to then carefully remove the o-rings and wash both the rings and the parts thoroughly with soap and water. Lightly lube the o-ring grooves, and reinstall the shaved/polished rings. Lubricate as normal.

Free Updates From Lurker:

If you purchased a bolt upon release, you may be missing some parts that are now included – You are entitled to these for free. Contact us for shipping arrangements.

Bolt Bumper options

Hard Viton 017 O-ring – For Rearmost Can position

Lighter Spring (“Rhino Lite”)

14mm ID x 1mm CS Oring – palce on bolt guide threads for spacing

Trouble Shooting:

Bolt sticks forward, inconsistency issues - Check for spring binding on both ends of the bolt travel. Make sure the rear inner can o-ring or bolt guide isn't catching as the bolt tries to return.

Other Inconsistency – Ensure the bolt guide bumper is installed. A thicker rear bolt bumper to replace a worn stock may help the bolt's initial position and improve consistency.

Bolt puffs and won't cycle when firing - Verify your o-ring tolerances aren't too loose or too tight, make sure your bolt guide bumper is installed and intact, make sure bolt guide is all the way in, check for spring binding. Most often, this is the internal o-ring in the rear cap.

Poor efficiency - Make sure your o-ring tolerances are good, verify that the hole in the back of the guide is not plugged, make sure your SFT o-ring seals around the front of the bolt properly. Underbore your paint. Ensure you're using a harder o-ring material in the rearmost can position.