

## **GRT-4G tune supplement**

**NOTE: If you have the Generation-II Gamo action, (with two cross pins) you will need to make a tool to compress the spring or IGT (gas ram) enough to take the pressure off of the front cross pin to remove the pin.**

**OK..... Hear this right up front. I do not sell parts or lubes** but they can be ordered from Jim Maccari. See the info at the bottom.

Now that you have the trigger housing out, it would be a very good time to turn your Gamo into a much better shooting and more enjoyable gun. It doesn't take a rocket scientist to do a little tune work on your Gamo and with a little time and patience and for the price of the lubes, spring and a seal, you can turn your gun into a much improved shooter. Keep in mind that almost every gun that is assembled from Gamo or any of its clones, the piston seal will be damaged during assembly. With that said, let's see if you want to continue.

Here we go:

Break the barrel and maneuver the cocking arm extension (the cocking shoe) out of the piston and receiver cocking slot.

Remove the spring and piston from the action. Now wipe the seal clean and look for any cuts, chips or abrasions.

### **The receiver**

We are going start by working on the receiver. This is probably the most critical part of the airgun and great attention should be applied here. It is time consuming and takes a little patience but well worth the time and effort.

First we need to remove all of the rough edges in the stamped out areas. That is the areas where all of the stamped out slots and holes are. We want to file or sand these areas so that there is a slight bevel and that there are no sharp edges. This applies all the way from the rear of the action to the front of the cocking slot. You can do this using 440 grit Silicone Carbide sandpaper (wet or dry paper) available at any hardware store. You can also use a Dremel tool or the equivalent with the right attachments if care is taken. The best stone to use for this is the Blue Colored chain saw stone made by Dremel and available at Lowes and Home Depot.

Deburr the edges of the stamped areas both on the inside and outside as well as the surfaces in the rounded corners. The reasoning here is two fold: 1-a much smoother mechanical operation and 2- if installing a new seal, it will help to prevent damaging it when installing the piston. Smooth out the cocking slot surfaces using a file or Dremel tool.

The next thing is to take some 440 paper and sand the inside of the chamber from the top to the compression chamber to the bottom of the cocking slot. Do this with an up and down or in and out motion. To do this, use a piece of wooden dowel with a slit in it and 440 paper cut about 2 inches wide and a drill, honed it out some in a circular mode. Not a lot, just enough to break up the vertical scratches some. After you are done with this stage, wash it out to remove all of the grit and crud we

have broken loose. I used just plain dish washing detergent and hot water, and then rinse it several times with just hot water.

Now you can move down to the compression chamber area of the receiver. That is the part of the chamber below the long cocking slot. For this area, I use a three point Brake Cylinder Hone with preferably 220 stones. Do not use anything above 400 grit stones as you do not want a highly polished surface in this area.

Hones are inexpensive and do a great job. If you have a mechanic friend he will probably have one as they are a pretty common tool. Keep in mind if you purchase one that they come in both 2 stone and 3 stone. You will want to use the three stone if possible as it will have three points of contact in the cylinder and it will provide a more even machining and be much easier to control.

You will have to make an extension so that it will reach the bottom. I made mine from PVC tubing for a toilet or sink water inlet. Less than a buck. Chuck this into an electric drill, using a soapy water solution as a lubricant, hone the compression area in an up and down manner to create a cross hatch pattern at a low speed. It will be a lot easier to control the hone at a lower speed. This cross hatch pattern provides for a better uniform sealing surface and even lubrication for the seal and piston. Be careful not to back the hone out to far when it is turning, because the hone will catch in the long cocking slot and will undoubtedly break the stone.

After finishing the honing, **wash out the receiver thoroughly with soap and water**, rinsing well. I strongly suggest that you do not clean it out with any solvents or petroleum products of any kind. Using a clean white cotton rag, (and compressed air if you have it) wipe out all of the moisture and any remaining particulates. When it's clean inside, the white rag should be as clean when you take it out as when you put it in. Keep in mind, when you install the piston, any foreign matter will be pushed down into the compression chamber as you install the piston with the seal, including any grit, filings and dirt that can damage the seal.

### **The piston**

Now to the piston...I suggest installing a new Apex seal, but if it looks good, ok. That's up to you.

If replacing the seal, pry it off with a small screw driver. Apply the same methods as used on the receiver for deburring and sanding surfaces inside and out on the piston, paying attention to the long slot and the notch at the rear. Assuming you are replacing the seal, polish the area where the rear of the seal seats against the front of the piston and the beveled area in the center that hold the seal in using first 220 grit paper then 400 grit paper.

Do the same thing to the outside of the piston using 220 grit removing any sharp edges. Also, with a file or Dremel tool, smooth the surface of the piston cocking slot. **DO NOT** polish the outside of the piston smooth as you want it to retain and hold lubes later. Scrape or clean out any residue inside and at the bottom of the piston. Wash out with soap and water and dry thoroughly inside and out.

### **The Spring**

Whether you are replacing the spring or reusing your old spring, using first 220 grit, then 400 grit paper, polish the ends of the spring to a smooth finish on a flat surface. Be sure to remove the sharp edges where the spring ends have been cut. The logic here is that as the spring is being compressed

when cocking and decompressed when fired, the spring will be twisting and untwisting on the bases that it sets, both at the top and bottom (or at the point of least resistance). This will reduce friction at those points, especially when lubed later. Wash the spring good using mineral spirits or paint thinner to remove any grease or oils, then wash thoroughly with soap and water then dry.

### **Tophat (Sometimes called the bottom spring guide)**

The tophat (sometimes called the lower spring guide), is not actually a spring guide but also a weight. However, it does perform the principles of a spring guide in a sense and does help to keep the spring somewhat centered at that point.

If you are going to use your stock tophat, lightly sand the outer surfaces. Polish the face and spring seat surface. Use 220 then 440 grit on a flat surface to polish the face of the tophat.

The logic here is that the face of the tophat gets either Moly lubed or tarred and this face makes contact with the inside bottom of the piston. These polished surfaces help to reduce spring torque.

### **Spring Guide**

Not much here with the new style spring guide and is now part of the trigger block. Just wipe it clean and rid it of any residue. Apply a little Moly the length on the guide up to where the spring seats.

### **Cocking arm and cocking foot**

On the cocking foot on the end of the cocking arm extension, clean off all of the rough edges to a smooth finish, removing all of the burrs from the front part that goes up into the receiver that compresses the spring (the cocking foot) with a fine file if necessary, then 220 paper. **Be careful not to file too much**, just enough to be able to clean up any sharp edges and roughness.

### **The Barrel**

First, do a through cleaning (strip cleaning) of the barrel by using a nylon barrel brush and GooGone, moving back and forth the full length of the barrel several times. Then I run some patches through it. Do this several times alternating back and forth until the final patch was clean on the final pass. Note: Strip cleaning needs to be done very seldom and usually after every 5000 pellets or so. Clean the barrel only when really needed as it takes a long time (sometimes as much as 100 shots or so) to “re-season” a barrel. Normal cleaning would be using patches and GooGone only and then only if needed.

### **OK...We're ready for assembly.**

Assembly is pretty much straight forward, or should I say backwards from the disassembly as directed above. What I am going to do is direct attention to lubing during assembly. I cannot express to you the importance of not over lubing. DO NOT OVER LUBE. In the case of springer's, it is best to under lube than over lube. No dieseling, longer seal life and a far better shooting gun over all.

Install the seal on the piston using a real thin coat of lube on the face of the piston where the seal seats. (I do mean fine, just a film). On the inside surface of the seal (the tapered part in the center), apply a

film of lube. Now work the seal onto the piston as if you were putting a tire on a rim. It will go with some effort. If the seal is hard going on, put it in some hot water for a few minutes to make it more pliable. Once the seal is installed on the piston, hold the seal and turn the piston back and forth several times to seat the seal.

Now, with the seal installed on the piston, apply a thin film of the grease around the outer edge of the seal (the sealing rim or edge). Again, a very thin film. Set this aside for the moment.

Take the receiver and again apply a fine coat of silicone or SuperLube w/ PTFE (a fine coat of Moly will work but you can expect some detonation for the first few shots) to the inside of the tube distributing it uniformly the whole length. I used a clean rag and dowel to spread it around, and then I used another clean rag to make sure there was no excess. Remember, it doesn't take much, just a film.

Now we are ready to assemble the receiver and piston. Care must be taken here so as not to damage the seal during assembly. First apply a thin, again thin coat of Moly grease (remember, a little moly goes a long way) to the outside of the piston. Carefully insert the seal end of the piston into the receiver making sure to align the long slot on the piston with the long slot (cocking slot) on the receiver. It doesn't have to be exact, just somewhat close. You can center it after it is installed all the way in. Carefully compress the seal into the chamber at the edges of the stamped out areas as it is going in. This was the reason for sanding down those inner stamped areas, no sharp edges to damage the seal during installation as well as smoother operation. Installing the piston may be tight, especially with a new seal. I use a 3/4 inch piece of dowel inside the piston and carefully push it in. Tap it down in until it reaches home. Ok...the hard part is done.

Now lightly lube the tophat with Moly all over including on the face. A little, and I do mean little extra can go on the face as this will assist in providing future lubrication for the piston and seal. Drop the tophat into the piston with the stem facing out or toward the opening.

Take the top spring guide and apply a thin coat of Moly to the outside surface. Now comes the dirty part, but remember, ya only gotta do it once.

Take the Maccari Heavy Tar and coat the outside of the spring. How much is a question of debate. The objective of the Heavy Tar is to reduce or eliminate the heavy spring twang and shock. Too much, and it will slow down the velocity, too little, and you lose smoothness that you want to acquire and still have some spring shock and twang. I hold the spring on end and coat the outside being careful not to get much on the inside. I applied a liberal amount but was careful not to over do it. I suggest applying the tar to the spring as if you were spreading butter on an ear of corn (a bit stringy from coil to coil), from the bottom of the spring up about  $\frac{3}{4}$  of the length of the spring. **Note:** the end not tarred will go towards the trigger when installed) Add a little Moly on the spring ends that you polished.

Install the spring and trigger assembly into the receiver and using your spring compressor reassemble installing the trigger block assembly as you go.

For guns using the Gamo updated modular trigger.....Reinstall the trigger assembly by assembling it in the reverse of the disassembly in the instructions above.

Put a little drop of oil on the cocking linkage pivot points and the breech break pivot

With the breech open, apply just a little Moly on the lockup pins. This can be either chisel or a straight pin. It is where the barrel locks up and holds it in place.

When installing the Cocking Arm Extension and cocking foot, apply some Moly on the edge of the long cocking slot and the cocking foot that you filed and cleaned. Also, apply a little Moly on each side of the bear trap link slots and on the little post that the roller sets on. Some have a pin and roller on each side.

Reinstall the stock.

#### **NOTES:..>>>>>>>>>>**

Always be sure that you have a pellet in the chamber when shooting the gun. Do not “dry fire” it. When you cock the rifle the first few times, the seal may squeal at you (especially a new seal). That’s ok.

### **LocTite**

And now for the final step. Make sure that you are satisfied with your results before advancing to the next step. That’s why we just put some rounds through the gun.

There are a several reasons for gun inaccuracy, especially with a scope. One of the major contributors of this is a tendency of the stock mounting screws to loosen over time. Those are the two screws at the front of the stock and the screw that sets behind the trigger. The shock and recoil will most certainly cause these screws to loosen after a period of time and you won’t even notice it. You may not even feel it trying to wiggle it with your hands.

The solution (and preventative measure) is securing these screws with LocTite. It can be purchased anywhere and is inexpensive. **You want LocTite Blue.** It is the medium grade. **Do Not Use The Red.** Red LocTite can be difficult if you need to remove the screws.

Thoroughly clean the screw threads and the threads they screw into using fingernail polish remover or alcohol. Now reinstall the stock and apply the LocTite to the screw threads taking care to put it only on the threads. Read the application instructions on the tube. It only takes a couple of drops. Once applied, let it set for a day or so.

When completing this project, the change should be remarkable. It should be a smooth shooting gun, little vibration and much quieter.

#### **Parts needed:**

Jim Maccari has a tune kit at a cost of \$49.00 that supplies all that you need for the above tune. In all the years that I tuned guns, I used only Maccari springs, seals and lubes if available. He provides nothing but the best. Click the link below.

<http://www.airrifleheadquarters.com/catalog/item/251488/7718385.htm>

Maccari: <http://www.airguns.citymax.com/page/page/251327.htm>

Maccari Parts for Gamo

Spring: E-3650 **Prod. Code: E3650** (this is a drop in spring)  
Apex Seal: **Prod. Code: APV 65798**  
Heavy Tar: **Prod. Code: LHT432**  
Moly Paste: **Prod. Code: MM657**

You can of course piece them out and it is a little cheaper but remember that the lubes are very important and can make all the difference in the world when it comes to the end results.