

SMITH MANUFACTURING GROUP

RP46 belt feeder Owners' manual

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Warnings and things to know before you shoot.

These are some of the things that we noticed or discovered during the manufacturing or testing of the belt feeder that we thought you needed to know.

Certain jams that may result in accidental discharge

If you are using your top cover on a fully automatic weapon, please be aware of this. In the instance of a stoppage, please verify that the charging handle is pulled all the way to the rear insuring that the carrier is captured by the sear BEFORE you open the top cover to inspect the stoppage. If this is not done, we have had a round be in the fire position in the feeder device, but the bolt was sticking back preventing the continued fire and once the spring tension provided by the cartridge depressor in the top cover was removed by opening the top cover, it allowed the bolt to go into battery and fire the round. So also make sure the bore is pointed down range at all times.

Be aware of where your hands and fingers are!

Since this is an add-on, it has some close proximities to things that may injure the user if you are not aware of it.

- When closing the top cover, watch for pinch points.
- When charging the weapon, make sure not to drag your knuckles against the feed tray or get them pinched between the charging handle and the actuator arm.

New sight picture

We noticed while reproducing this feeder device that the original line-of-sight path for the open sights, was partially obstructed by the top cover. You can see in the examples

below of the original versus ours and the sight picture is roughly the same.



You can mitigate this a bit by raising the rear aperture to the 300 meter setting and then raise your front sight post to match.

Shutting the top cover

When closing your top cover, do not slam it shut. Doing so will damage your belt feeder device latch and finish. You **MUST** push the latch as you press down on the cover to get it to pop into place.

Loading your PKM belt for use

Though it is not required, it is highly recommended that you acquire a belt loader. It's much easier on your fingers and results in a more consistently loaded belt. A belt loaded by hand, may have variances in where the round sits in the belt loops causes stoppages during firing.

New belts vs old belts

Like most things new and used, belts have a tendency to get looser over time vs the new belt provided. Therefore, the new belt may require a higher gas setting to work smoothly. Always use the lowest gas setting that works, but just know that the new belts are tighter and take more force to strip rounds out of the belt. This may be countered in part, by spraying a small amount of lube on the inside of the belt links prior to loading rounds into the links.

Removing your barrel with belt feeder attached

Due to the variance in barrel jackets and re-welds versus new receivers, if you wish to remove your barrel while the belt feeder is attached to your gun, it may be necessary to pinch in the front latches when pulling the barrel out and when re-installing it. Otherwise the barrel lock threads may hang up on the latch tips.

Gas booster and gas settings

Booster cone

You may try the high gas setting on your rifle with no booster and just your flash hider. Some guns may have enough energy to properly actuate the belt feeder.

However, if your gun does not work without a booster, please thread on the booster provided all of the way. Please at this time, also turn your gas down to low to start.

Gas settings

Once you have the booster installed and the gas turned down to the lowest settings, try a loaded belt. If the gun does not fully cycle, increase the gas setting until it does. Only increase the gas setting until you get proper function with the least amount of gas possible.

Under-gassed

If you do not have enough gas, the belt feeder may only partially cycle, causing a stoppage. Below, is an example of the most common stoppage caused by not having enough gas:



The cartridge is pulled from the belt, and the belt is advanced but the action did not come far enough to the rear to place the extracted round into position to be feed into the chamber.

Over-gassing

Over-gassing the setup can cause premature failure of parts in the belt feeder and in the gun itself as well as malfunctions that may be similar to under-gassing.

Carbon build-up and soot

We found that the original RP46 got an upgraded gas system for a reason. The original gas system that was on the DP28's and the DPM's, wasn't always enough to actuate the belt feed device and perform all of the functions that the gun required. This is the reason that, in order for the end user to use this on an un-modified gun, you usually need the booster. That said, this puts a lot of back-pressure and gases into the action(not unlike a suppressor). This causes you to need to clean and lube your gun more often to keep carbon and soot from affecting the performance of the rifle itself. This also means that if you are using cheap/corrosive ammo, that you will need to clean your gun and belt feeder THOROUGHLY with a solvent that stops the corrosive salts from causing rust.

Installation & removal of the device from your firearm.

Installing belt feeder device on your firearm

Step 1) Make sure that your firearm is unloaded! Also, make sure your bolt carrier group is in the forward/closed position.

Step 2) While pinching the front latches, push the front tab under the mag catch on the barrel shroud.



Step 3) Now start pulling the charging handle to the rear until the actuator arm lines up with the charging handle, then set the feeder device down over the charging handle. Once this is down you can let the charging handle go back forward.



Step 4) Push the rear of the belt feeder device down until the rear mag catch snaps over the rear catch on the base of the belt feeder.



Step 5) Push carry handle to the left to clear sight picture.

Your belt feeder is now installed.

Removing the belt feeder device from your firearm

Step 1) Insure that the firearm is empty, first by working the charging handle back and forth a couple of times, then double check by opening your top cover, and pulling the charging handle to the rear to visually inspect that the chamber is indeed empty.

Step 2) Close top cover and place carry handle in vertical position.

Step 3) Pull the rear mag release on the rear sight base of your firearm to release the base of the belt feeder.



Step 4) While lifting slightly, pull the charging handle to the rear until the handle clears the actuator arm slot and pull up on the belt feeder to come off of the charging handle. Then pull charging handle to the rear to totally clear actuator arm and hold it to the rear.



Step 5) Now pinch the front latches while also gripping the carry handle...



Then lift up and back towards you a bit, and it should come off the rest of the way easily.



Release the charging handle and now your firearm is once again ready to accept magazines instead.

Ways & means of loading/un-loading the device

Once your belt feed device is installed, as explained in the previous chapter, you have a couple of options on how to load the belts and make ready to fire the firearm.

Option 1) Using the pull tab/starter tab on the loaded belt, insert the tab from the right side of the closed top cover and pull it through the device until it stops firmly against the first round in the belt.



Release the belt. Pull the charging handle all the way to the rear and release. This will advance the belt and allow the first round to be grabbed by the cartridge strippers on the actuator. Pull the charging handle all the way to the rear, and release again to chamber the first round. It is now ready to fire.

Option 2) Push the carry-handle to the left, and open the top cover all the way. Lay the first round in the belt, with the starter tab to the left, into the cartridge stripper on the actuator.



Close the top cover. Now pull the charging handle all the way to the rear and release. Now the first round has been chambered.

Unloading) Unloading for both options, is the same. Once you have stopped firing the weapon, keep the muzzle pointed down range in a safe direction, and do as follows:

Step 1) Push carry handle all the way to the left, and open the top cover

Step 2) Remove belt if it is still present

Step 3) With the top cover still open, pull charging handle all the way to the rear and visually check that the chamber is empty and that no cartridges are present to be chambered. If a round is present that was not extracted and ejected at this point, remove it now.



Step 4) Release charging handle and you may now close the top cover.

Your firearm should now be clear and safe to store, carry, or remove the belt feeder device.

Shooting with the belt feeder

Once your belt feed device is installed and loaded, you are ready to shoot.

While this may seem the most obvious and easy part, there are things to consider.

While the gas setting you end up with that operates the firearm and belt feeder correctly will pull a loaded belt from a table top the gun is sitting on or a can beside the gun, it most likely, will **NOT** allow you to go full Rambo and pull a 100round belt while standing and still operate properly. Some guns will work this way, but with the booster and the weight of the loaded belt plus the semi-auto fire control group to operate, it is unlikely that it will work this way.

Be mindful of the belt as it works its way into the device to insure that it doesn't get caught on the table you are using or anything else that might hinder the pulling action of the device on the belt during operation.

If you have a stoppage during firing, please refer to the "**Warnings and things to know before you shoot**" section or the "**Troubleshooting**" chapter before assuming anything.

Clearing Jams & Making the Device Safe

Clearing Jams

If for some reason, you have a stoppage or jam, please follow these steps to clear your weapon before continuing.

Step 1) Point muzzle in a safe direction downrange.

Step 2) **Full autos only! If using semi-auto, proceed to step 3.** Make sure to pull charging handle all the way to the rear to insure the sear has caught the bolt carrier!

Step 3) Open top cover and remove belt.

Step 4) Inspect belt feeder device for live rounds and remove any you see.

Step 5) Double check that chamber is clear by pulling charging handle all the way to the rear and visually looking into the chamber to insure that it is indeed empty.

Step 6) After clearing all cartridges from device, if device appears clean and lubricated and there are no obvious signs of damage to parts, you may load and make ready to shoot once again.

Making the Device Safe

Follow steps 1 - 5 of the "**Clearing Jams**" section of this chapter, and if the firearm and belt feed device are indeed empty of all live ammunition cartridges, then the device/firearm have been made "safe". It is strongly advised that the muzzle be left pointed downrange at all times even when made "safe" for added safety.

Breakdown and Cleaning of the Device

Breakdown/Field Stripping Device for Cleaning, Lubrication and Parts Maintenance

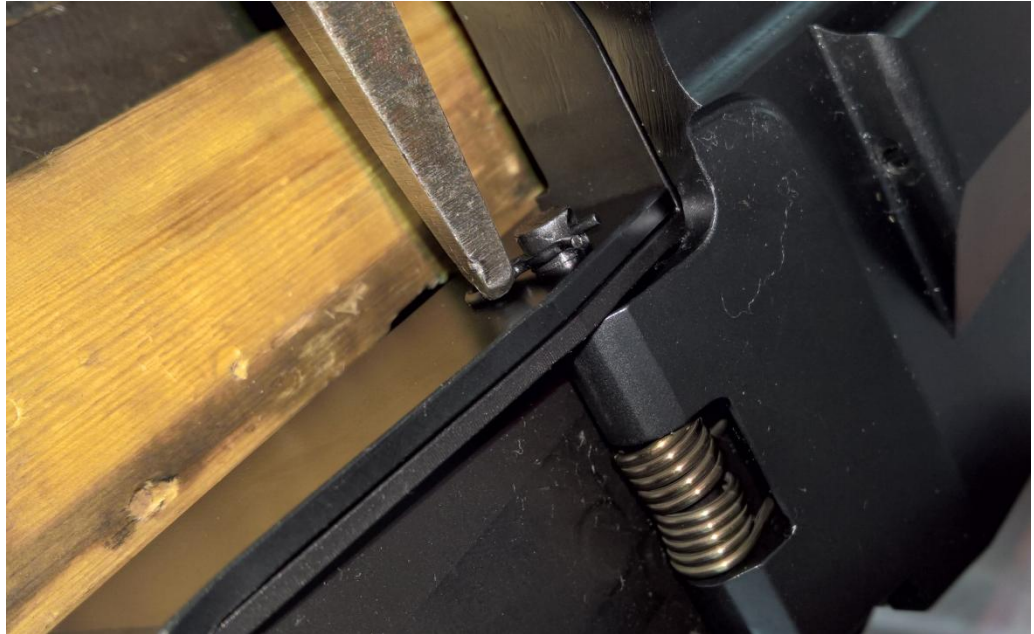
There comes a time when all mechanical devices must be cleaned and lubed or maintenance done. Here are the steps to disassemble your belt feeder and then reassemble it after parts are clean. To aid in this breakdown, we have employed the use of a bench vise with soft wooden jaws to hold the device to make it easier to hold. You may supplement the wooden jaws for rubber/plastic jaws. It is NOT recommended that you use the bare steel or aluminum jaws on any vise as this may mar the finish or cause physical damage to the device.

Step 1) Following all clearing procedures, remove device from firearm.

Step 2) Put the actuator to the forward most position and grasp the actuator arm in the vise as shown so that the end of the cartridge chute is against the side of the wooden jaws:



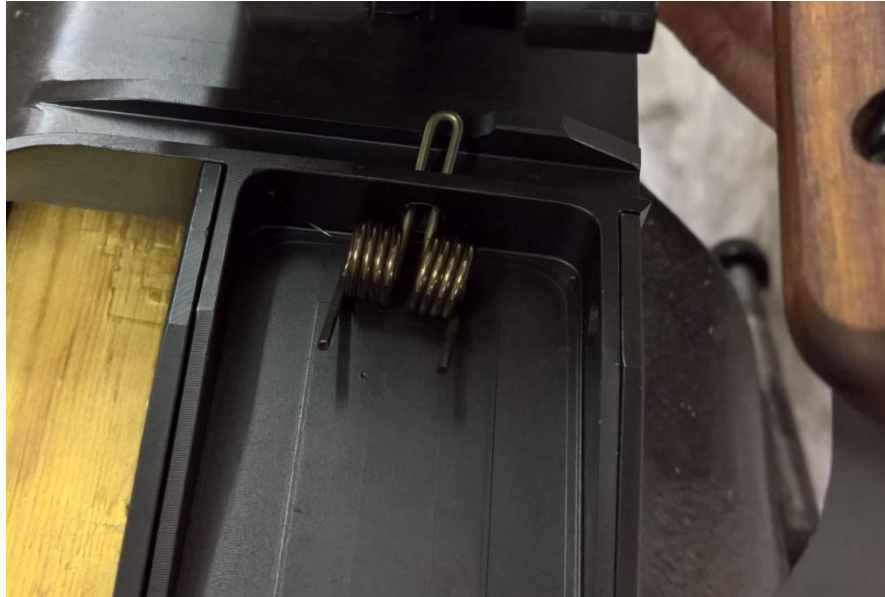
Step 3) Using needle-nosed pliers, remove the hairpin that retains the top cover pivot pin:



Step 4) Open the top cover. Then, use your thumb to start the pivot pin out by pushing on the end the hairpin was in and then pulling on the emerging head of the pin. Support the top cover during this step as this will detach it from the device. **Note:** As this pin is removed the top cover spring will come loose and may jump out.



Be sure to recover the top cover spring once the pivot pin is removed:



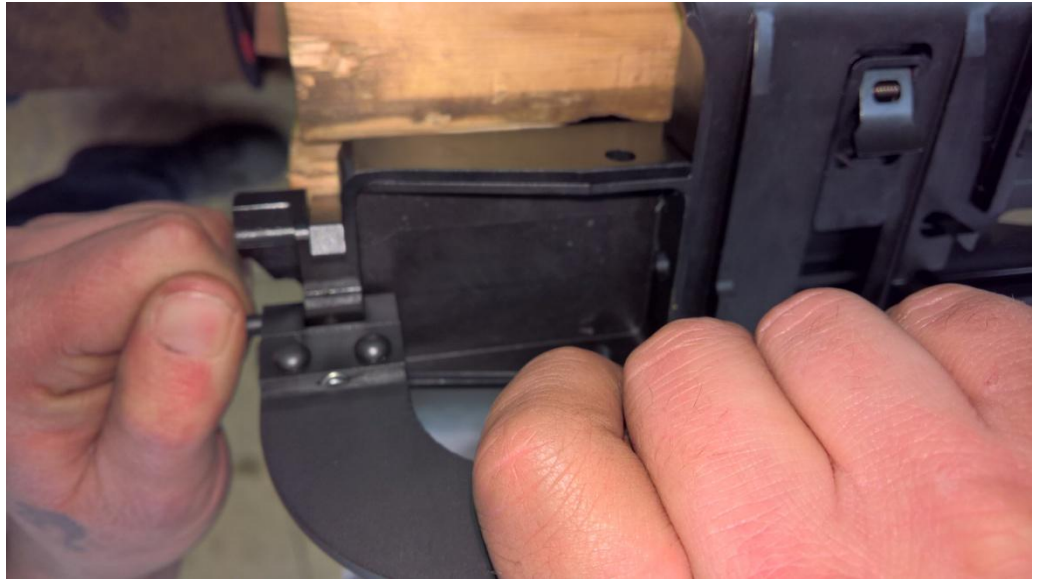
Step 5) With the top cover removed, use the needle-nosed pliers again, to remove the hairpin that retains the carry handle pivot pin:



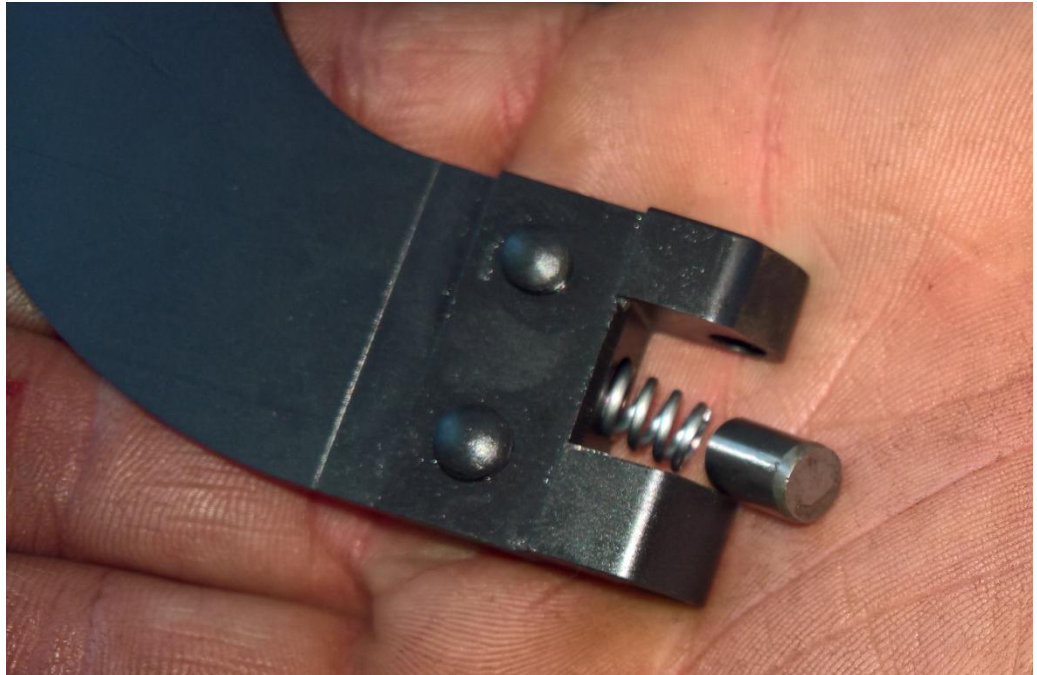
Step 6) Using a 5/32" or smaller punch, tap out the pin from the rear until it can be grasped by hand:



Step 7) While holding the carry handle firmly, pull the pin out completely:



Step 8) The carry handle is now free and be sure to remove carefully to avoid dropping the location stop plunger and spring out of the carry handle yoke:



Step 9) Now you can lift the feed tray straight up and out of the base:



Step 10) If you have vised the unit, at this point you may take it out of the vise. With the actuator all the way forward, it can be lifted up and out of the base:



Step 11) The last thing to remove, is the feed pawl assembly. It slides out to the left and falls out of the bottom of the feed tray.



Wipe down all parts with a clean rag and use the gun lube of your choice to lightly lubricate all of the parts.

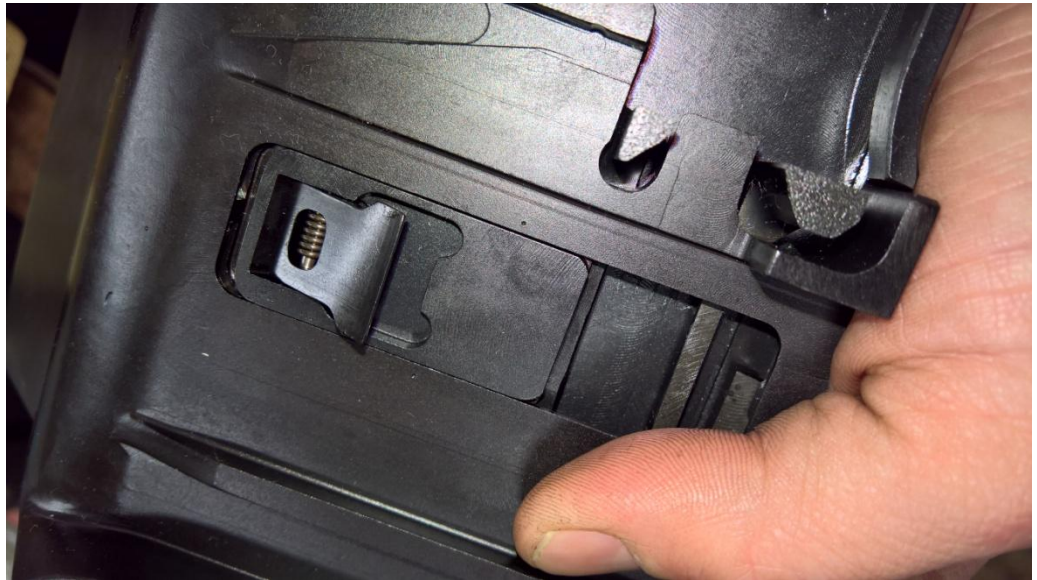
Once you are done cleaning and lubricating, reassembly is for the most part, the reverse of disassembly minus a couple of points.

While reinstalling the feed tray, the feed pawl assembly will be all the way to the right side of its track and the actuator all the way forward. With the feed tray down in position, it will be necessary to push the feed pawl assembly to the left until it settles into the cam track on the actuator plate as shown:

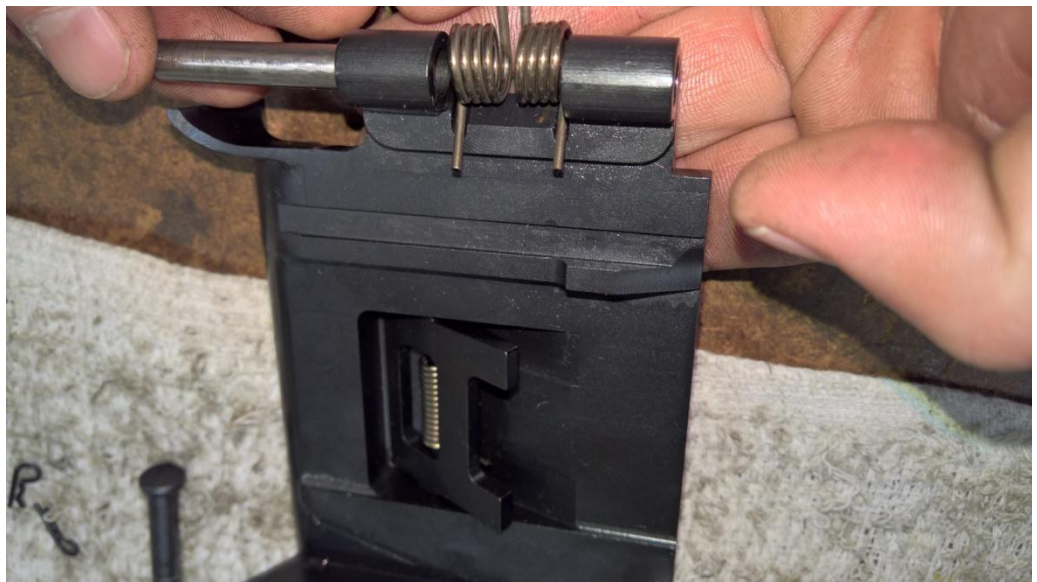
Not in the cam track:



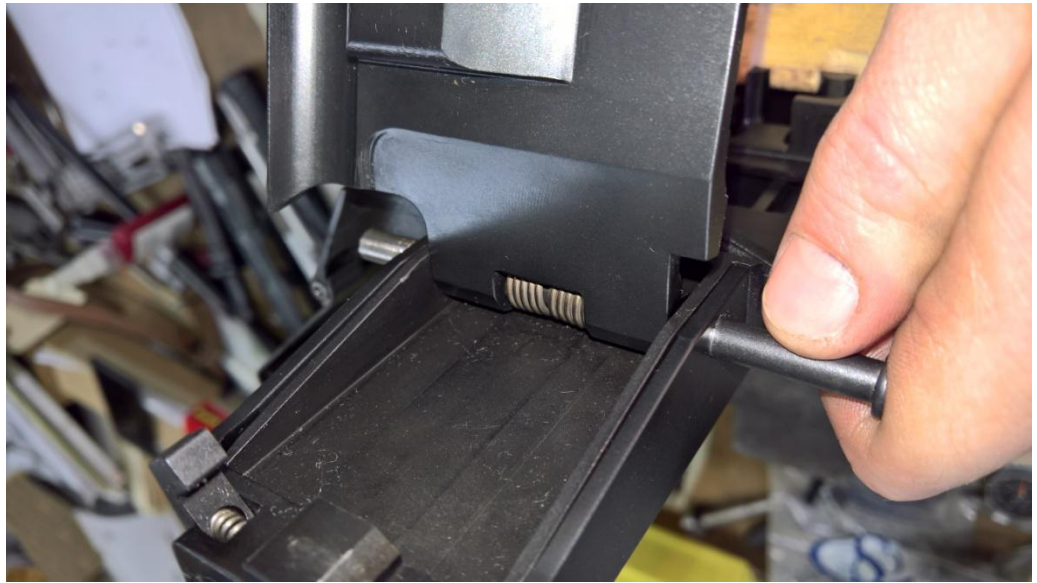
In the cam track:



Next thing is that while reinstalling the top cover and its' spring, it is best to use a guide pin to keep the spring in position while installing the hinge pin as shown:







Once you have reassembled the unit, function test it by working the actuator back and forth to verify that nothing is bound up.

Lightly lubricate the outside of the device for rust protection and it should now be ready for storage.

Troubleshooting

| Problem | Cause | Remedy |
|---|---|--|
| Device fails to complete the feed cycle or fully feeds and chambers round but hammer is not cocked | Low Gas Device or firearm dirty | Make sure booster is installed and that the gas setting has been adjusted properly Breakdown and clean device and/or firearm |
| Device stops suddenly while firing but everything appears to be correct. | Belt hung up or snagged on itself or something around it | Make sure belt is not impeded from being pulled into the device and that it is not twisted or kinked. |
| Even with gas on high, booster installed and belts lubed, the device fails to fully cycle and function. | Some ammunition is under-powered. | Try different ammunition. ex: different manufacturer and possibly heavier bullet weight. |
| While trying to install the belt using Option 2 , I can't get the top cover to close. | Belted cartridges are not aligned properly | Verify that the rims of the cartridge cases are lined up in the guide tracks in the feed tray and the top cover while closing the top cover. |
| Over time while firing, the recoil seems to be getting heavier and less smooth. | Your parts are getting broke into each other or you've changed over to a heavier bullet weight/higher pressured ammo. | Adjust the gas setting using the gas setting adjustment section of this manual. |
| My sight picture is hard to see. | This belt feed device, like the original, will obstruct the view of your sights set at 100M | We suggest, raise the rear sight aperture to 300M and adjust your front sight post accordingly to get your POI correct again. |
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Parts list and diagram