

STEP 1



Putting together the actuator. Take some snap ring pliers and remove the snap ring from the MPA-3. With the snap ring removed, take out the washer, spring and derlin plunger and set them aside. Note, in this picture, the piece between the white derlin plunger and the spring is the riv-nut used to make the piston in step 2. The screw to the far right of the washer is part of the piston too.



As you can see in this picture, I needed to trim the excess stuff off the MPA-3. When you do this, you want to get as close to the snap ring groove as possible but **BE SURE NOT TO TRIM TOO MUCH**. If you do, you will take away the groove that holds the snap ring in and then your screwed. The best way to do this is trim a good portion of the actuator off, then put the snap ring in, and then grind down close to the snap ring. This will ensure the snap ring holds everything in and the actuator is the smallest it can be.

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Now, you have to drill a hole where the arrow is pointing. This will be for either a QEV or a barb, however route you choose to go. For me, I went with a QEV. So I drilled a hole with a size appropriate for a 10-32 tap. When I drilled the hole, I put the 10-32 plug in the back of the MPA-3 so that I could drill into it a little. This picture → shows what I'm talking about. I also ground out around the hole so that when I threaded in the QEV, the QEV faced the appropriate way.



Now, on both sides of the MPA-3, grind it down a little so that it will fit into the frame. Doing it this way is much easier than grinding the frame. You only have to take off just a little from both sides. You can see the MPA-3 side ground down a little in this picture.



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Onto Step 2...

STEP 2



Now it's onto making the piston. Cut the head/disc part off the riv-nut and glue the other side to the derlin plunger. I used 2-part epoxy to glue it in. DO NOT loctite the screw into the riv-nut yet.



In fact, take the screw and set it off to the side for

now. Once the glue is dry, assemble the MPA-3 back together making sure all the innards are assembled in the correct order. If you forgot, refer to the first picture in step 1. Be sure to clean out the inside of the MPA-3 so it is free of all metal shavings from the drilling process before you reassemble it. You may also want to put a little bit of gun oil on the plunger and inside MPA-3 for the o-rings sake....

Now the actuator is all done...

STEP 3

For my mod, I used Rouge's Chimera frame. It has TONS of room and makes this mod MUCH easier in terms of assembling. If you are wondering where to get a Chimera frame, go to www.themagsmith.com and Rouge will hook you up....



The only grinding you have to do is indicated in the picture. The frame has this ledge that goes across, and it gets in the way of the QEV. Now if you decide to go the "NO QEV" route, you may not even need to grind this area. Note where the MPA-3 is in relation to the frame, this is where you want to permanently mount it in the frame.



STEP 4

Mounting the Fabco MSV-1 and MPA-3. The Chimera frame is good because you can use the micro switch mount used for the intelli feed to mount the MSV-1. The nut and screw used to mount the MSV-1 is a 6-32 screw and nut. The metal rod to the right of the MSV-1 is an ordinary nail I used as a means of activating the MSV-1. Notice the flat part of the nail is going to go



against the MSV-1 button.

The hole where the arrow is pointing is where I mount the MSV-1. Remove the front part of the trigger guard, as depicted. At this time also, removed the trigger. Get a punch and hammer and punch out the trigger hinge pin and remove the trigger. By removing the front part of the trigger guard, I am gaining access to the part behind the trigger so I can drill a hole straight back to the MSV-1 for the nail.



Mount the MSV-1 as depicted and line it up how it is permanently going to stay. You can really wrench down on 6-32 nut and the MSV-1 won't move. Once you are content with the position of the MSV-1, eyeball the location of the activator pin on the MSV-1 and where it would be right

behind the trigger and mark it. Notice the nail going thru the frame →

Be sure to repeat the "eyeball" step by looking down on the frame. ←



You will then have a mark on the frame, just behind the trigger,

where to drill a hole straight back to where the MSV-1 is located. The nail uses this hole. If your hole is off a little, don't worry. Remember,

the big flat part of the nail goes against the activator pin and that will allow room for error. Once the nail is in place, I mark the part of the nail where it is sticking out behind the trigger I want to trim down so that the trigger is close to the frame.

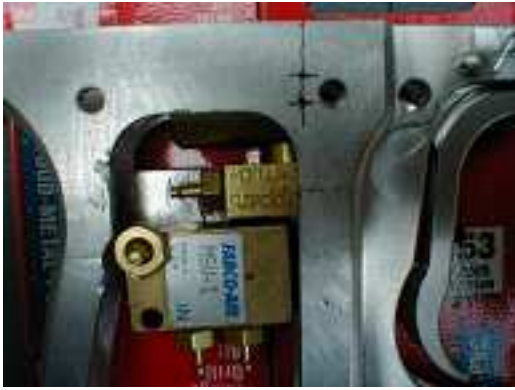


Now I need to mount the MPA-3. First, temporarily place the actuator in the location you are permanently going to mount it. You now need to verify it's a good location in the frame. Remove the trigger rod and clasp from your sear and mount your frame to your marker, ensuring your MPA-3 doesn't move from its intended location in the frame. Gas up your marker and ensure the MPA-3 doesn't inhibit the forward movement of the sear. In fact, make sure there is plenty of room between the sear and MPA-3 because the piston screw you set aside will take up some of that room. Once you have confirmed that the MPA-3 will not inhibit the forward

With the marker gassed up, there is a little room between sear and actuator



movement of the sear, remove the frame and prepare to permanently mount the MPA-3.



With the frame removed from the marker and the MPA-3 back in the frame in its intended permanent location, eyeball where to drill into the frame so that the setscrews will be on the “flat” part of the MPA-3. When you drill the holes, continue drilling past the frame and into the MPA-3 just a little. This will create a small recess where the setscrew can hold. For each hole



drilled, tap the hole and put the setscrew in before drilling the next hole and repeat for other holes. This will ensure that all the holes will line up with the associated recess in the MPA-3. It will prevent the MPA-3 from moving while being drilled. In this picture →, notice where the recesses are located on the MPA-3. Don't drill too much into the MPA-3 or else you're screwed!

Step 5:

Put the frame back on the marker and eyeball where the sear is on the back of the trigger frame. What I did was drill a hole in the back of the trigger frame, tapped it, and put a big setscrew in. This setscrew acts as a “sear travel limiter.” It limits the backward movement of the sear, thus increasing cycle speed. Once the hole is tapped, set the setscrew aside for now...

The next step is mounting the LPR. If you want to get this mod up and running now, I would suggest mounting the LPR like I did in my first mod or like THE ELECTRICIAN did. This is by far the EASIEST and FASTEST way. If you would like to consider putting it into the frame, proceed down for more information else skip directly to step 7...



STEP 6



Now comes time to put the LPR into the frame. Another cool thing about the Chimera frame is near the bottom, big holes are there, thus less grinding required. Please note, though, a lot of grinding still needs to be done for the frame to accept the LPR. Play around with different positions of the LPR so that mounting will be feasible. With mine, the best way is pictured. To help limit the grinding, though, I enlarged the holes on the bottom of the frame with a 1/2" drill bit. The fittings I used were a Tee and 90 degree female-to-female fitting. Once you get the LPR to fit inside the frame, all that is left is to set the correct output pressure. Standby on that....



STEP 7

Now we have to put the piston screw into the actuator. Pull the actuator out of the frame if it isn't already, and screw in the piston screw you have held aside, all the way into the actuator. Mount the actuator back into the frame and mount the frame to the gun. Pull the sear full forward and notice if the piston screw inhibits/interferes with the forward movement of the sear. If it does, remove the screw and grind down not the head but the threaded part of the screw until you can pull the sear full forward and have just a TIIIIINNNY bit of room between the sear and the screw. When you got it, loctite the screw into the actuator. Be sure, though, that there is not too much room between the sear and the piston screw or else bad wear might happen.

Now to adjust the output pressure of the LPR, for non-ULT equipped mags, I used a pressure of 70-80psi. For ULT equipped mags I used a pressure of 40-50psi. Of course you will need the pressure gauge mentioned in the parts list. The parts list is in my first thread. If you don't have a pressure gauge, don't worry. First, back the LPR setscrew out all the way so that its output PSI is ZERO. Rig up your trigger frame and mount it onto the gun. Gas up the marker and the trigger frame. Now slowly start increasing the output pressure of the LPR and at the same time start pulling the trigger. When the gun starts firing, you have reached the minimum pressure requirement. Turn the LPR setscrew about a 1/4" more so you have positive pressure and

actuation of sear. Presto, LPR pressure is set. One note, though, you may want to put Teflon tape around the LPR setscrew. I had a problem with the setscrew always backing out, thus lowering the output pressure past the minimum pressure requirement. This was a result of the vibrations caused by rapid firing.

Now you have to configure the setscrew you set aside in Step 5. With the marker already firing, screw in the setscrew so that it pushes the sear all the way forward. At this point, if you were to pull the trigger, the gun wouldn't fire because the setscrew is preventing the sear from moving backwards. Slowly start backing off the setscrew and at the same time start pulling the trigger. You will reach a point where the setscrew allows the sear to travel far enough to fire the marker. At this point, back the setscrew out just a TIIIIINNNY bit more and loctite it into place.

STEP 8

Clean up your mod and ensure the 3-way, actuator, and LPR are secure. You may want to put trigger stops, refer to BAD_DOG on this subject.

Here's a link: www.automags.org/forums/showthread.php?t=136646



END NOTES

Notice that I used the top hole in the MSV-1 when mounting it to the frame. This positions the nail at a certain location on the trigger. This location is a little too low because the trigger pull is a little heavier. I can still walk and rip on it and to me it's ok, but for the general public it might not be ok. If you can, use the bottom hole on the MSV-1 when mounting it to the frame. It will bring up the location of the nail behind the trigger and lighten the pull. Remember, the higher up the nail is on the trigger, the lighter the pull. Also, use the trigger stops to limit the trigger travel to the bare minimum. You will be VERY please on how short the trigger pull is when using the FABCO MSV-1.

For a listing of all the parts used in this mod, click this link...

<http://www.automags.org/forums/showthread.php?t=167983>

One last note, this information was given to you as a VERY GENERAL guide to help you with your own pneumatic trigger mod. It is in no way a concrete guide. YOU ARE SOLEY RESPONSIBLE AND THE FINAL AUTHORITY when it comes modifying your gun. In no way am I responsible if you mess up your gun. Take your time and thoroughly plan out what you are going to do before doing it. Good luck...

Finished Product

