DETERRENCE DISPENCED

AND

THE GATALOG

PRESENTS

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Author of this document: ImmortalRevolt

Introduction

The PARTISAN-9 is a firearm inspired by the FGC-9. It uses an internal recoil system that enables it to use a low profile upper receiver and removes the need for the fixed buffer tube. It has a folding stock with a built in separate buffer weight and a bolt that partially reciprocates into the stock when firing.
NEVER fire the PARTISAN-9 with the stock folded, the stock needs to be deployed for the buffer system to work.
The upper uses a new type of front lug that locks into the lower and solves the issue with broken front lugs that the previous guns in this family have suffered from since the Shuty AP9.

It has a hollow charging handle with a magnetic retaining system and a M3 all-thread rod that goes through the whole upper assembly. From the barrel retainer to the endcap, clamping the whole upper assembly together for increased durability.
The barrel uses an anti-rotation system that prevents the barrel from rotating when installing and removing a suppressor.

The PARTISAN-9 is designed to be equipped with a ported 5.4inch(137mm) barrel and an integral telescopic reflex suppressor that is specifically designed to reduce 124gr supersonic ammo to subsonic velocity without sacrificing ballistics too much and with no negative effects on accuracy.
The PARTISAN-9 can also be built without the integral suppressor using a standard non-ported 4.5inch (114mm) barrel or even longer barrels like the 7.9inch (201mm).
The ported barrel uses fifteen 2.5mm(2.3mm optionally) ports that are located within the rifling grooves approximately two inches after the chamber and reduces the velocity with about 80-100FPS which is enough to get 124gr bullets reliably down to subsonic speeds.
This is a lot different to let's say the MP5SD which is massively over ported, too close to the chamber and will drop over 200FPS off +P+ and 9x19mm NATO loads.

Like the FGC-9 barrels the PARTISAN-9 barrel is fully DIY and the ports are drilled using a special JIG that times the ports to the rifling to keep the accuracy the same as a non-ported barrel.
MK1 and MK2 barrels (ECM v1.0 to v2.1) are also fully compatible with the PARTISAN-9 but headspacing should be checked and adjusted if necessary due to the use of the new bolt.

Making the ported barrel and the integral suppressor is described separately in the V3 ECM Tutorial documentation!

There are five different barrel retainers for the PARTISAN-9 and also a pistol brace and a cheekpad for the imperial version that can be used instead of the butt stock.

The available barrel retainers are:

The SD barrel retainer - The one that's featured in this manual, it does support retaining of the folded stock.
The Long SD retainer – Same as the SD but longer, does support retaining of the folded stock.
The Plain barrel retainer - A plain barrel retainer with straight sides, does support retaining of the folded stock.
The Brace barrel retainer – A barrel retainer that does support retaining the folded pistol brace or cheekpad.
The Rail barrel retainer – A barrel retainer with a side rail, does NOT support retaining of the stock, brace or cheekpad.

Credits

Special thanks to Ivan the Troll, JStark1809 and 3socksandcrocs for the work on the MK2 which is the firearm that the PARTISAN-9 was inspired by, as well as the beta testers of the PARTISAN-9. In particular Guerillafighter who printed all prototype pieces instantly without question and helped with instant feedback as well as Broletariat and Potadoze who was the first beta testers to fire the PARTISAN-9.

Huge thanks to the designers whose creations inspired and influenced the PARTISAN-9, in particular Derwood for coming up with the Shuty AP9 design, which the FGC-9 MkI and FGC-9 MkII core mechanisms are based on. As well as to Noketchup, who designed the FGC-22 which was a big part of the inspiration which lead to the PARTISAN-9.

Massive thanks to Cskeju for recognizing electro chemical machining as a way to make rifled barrels long before 3D printing was a thing for the common man, and to Jeffrod and Ivan the Troll for developing this method further. This is the foundation that makes all of this possible.

Credits to Mussy for the “HD Light Stock” which the PARTISAN-9 side folding stock is based on.

Credits to Danny Meatball for the “DMB 9x19mm Glock Magazine” which the PARTISAN-9 uses.

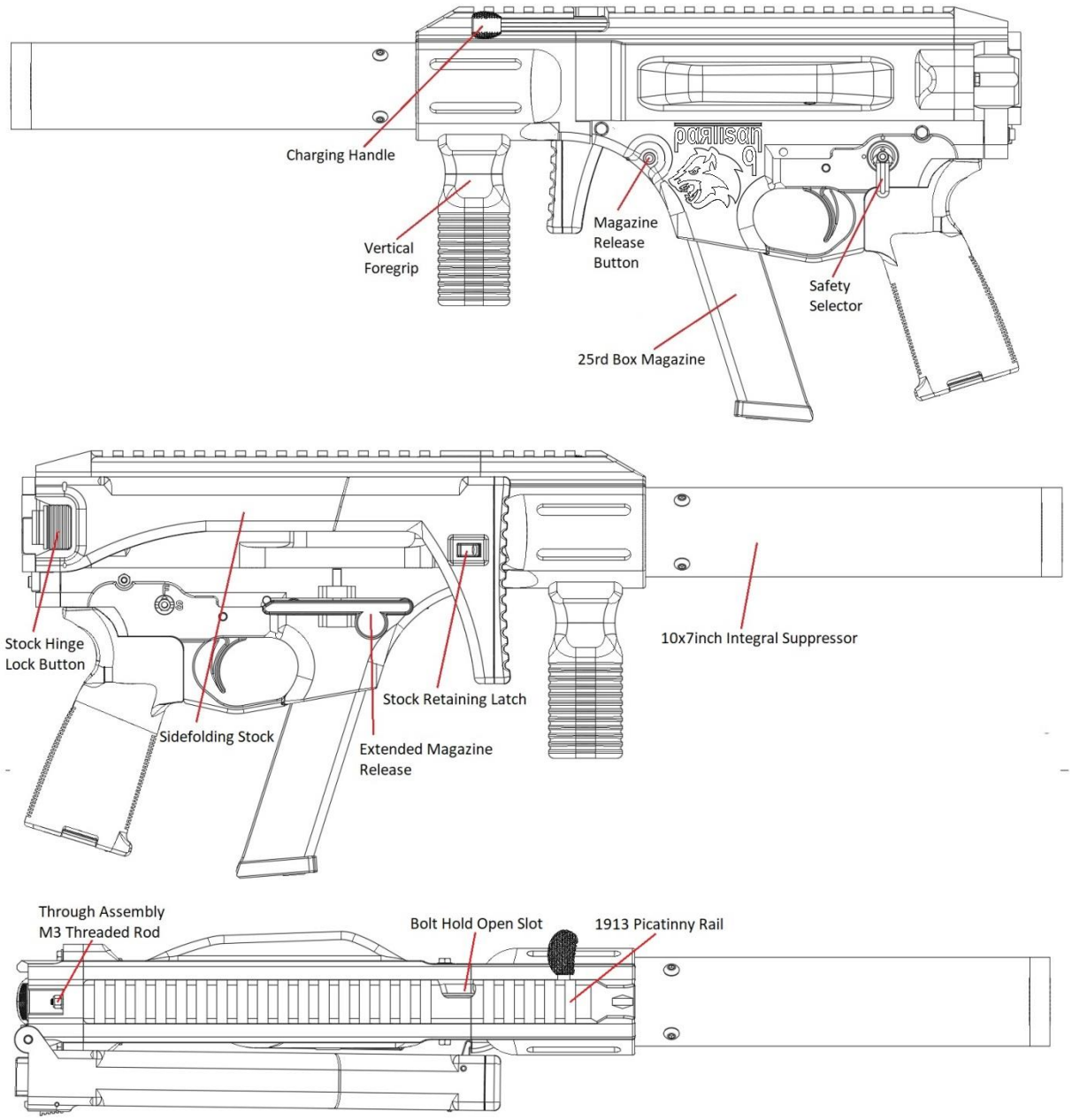
SAFETY ADVISORY

NEVER FIRE THE PARTISAN-9 WITH THE STOCK FOLDED
NEVER FIRE THE PARTISAN-9 WITHOUT THE SUPPRESSOR (if you use the ported barrel)
NEVER LEAVE OR CARRY THE PARTISAN-9 COCKED (Unless it has a metal fire control group)

When firing your PARTISAN-9 always take proper safety precautions! Wear safety glasses, hearing protection, and keep your hands away from the ejection port and muzzle.
Don’t use damaged or defective ammo. Always inspect your ammo before loading it into your PARTISAN-9.
The PARTISAN-9 is a safe and reliable firearm only when made properly with the specifications and instructions that are detailed in this guide.
Do not use out of spec components and materials in your PARTISAN-9.
It’s important to realize that the PARTISAN-9 is an improvised firearm. Thus, it lacks some of the safety features that modern firearms have in trade-off for easier manufacture by individuals that lack the access to advanced tools and firearm fabrication skills.
To eliminate potential issues right from the beginning, thoroughly read this guide multiple times and build the PARTISAN-9 as described, do not change specifications or divert from the instructions.
It’s utmost critical to understand the shortcomings of this improvised design and how to ensure safe and reliable function regardless of the lack of modern safety features.

Content

Technical specifications



PARTISAN-9

Type: PCC (Pistol Caliber Carbine)
Designer: ImmortalRevolt
Designed: 2021-2022
Weight(unloaded): 2.3kg
Length: 310mm with a 114mm barrel and stock folded (UNSUPPRESSED)
Barrel length: 114mm, 137mm, 163mm or 201mm
Caliber: 9x19mm LUGER
Action: Closed bolt straight blowback
Feed system: 3D printed 25 round box magazine, 33 rounds with OEM Glock magazine.

3D printing

If you have never used a 3D-printer before and/or have never owned one refer to appropriate guides for beginners that include recommendations on what 3D printer to buy and further relevant information:
- https://www.youtube.com/watch?v=JTN6jtB5mqk
- https://www.enblocpress.com/guide/
- https://ctrlpew.com/the-complete-getting-started-guide/

Once you've figured out how to print basic things that you can download from sites like thingiverse.com , you can go ahead.
The next pages contain the general suggested settings for your printed parts. You can deviate from these settings based on your 3D-printer, consistency of PLA+ filament and general experience with 3D-printing.
These settings were optimized for the Creality Ender 3 printer in combination with the use of the Cura slicer program.
The PARTISAN-9 was designed to be printed in PLA+. Printing it in a material other than this could result in an unreliable, fragile or unsafe firearm. Consider this a warning!
Only use other materials if you know exactly what you are doing!

Suggested print settings

Use these settings for best durability, fit and visual appearance. A glass build plate it highly recommended, flexible build plates will create problems with warping and with tall prints moving during printing due to flex in the build plate. Do not use too many walls, infill when correctly printed will always be stronger than walls and using too many walls will cause the print to be slightly off dimensionally and parts will not fit.
Three walls are perfect as it will allow for the maximum amount of infill without the risk of the infill showing through the outside wall. Use Esun PLA+ and print at 225C temperature.
Use 55C build plate temperature for the first layer and 50C for the rest of the print. Printing with a too hot build plate will soften the base of the print and allow it to flex, warp and even sag slightly from its own weight as the first few layers can compress over time.
Flow rate may need to be adjusted for different colours and printers, its best to keep it at 100% in the slicer and instead adjust the flow in the printers tune menu as the part is printing. This will give you better control and a more linear change in flow. I usually end up at 97% for most parts on my Ender-3.

To get the best adhesion on the glass build plate, mix 30% PVA based white wood glue with 70% water and apply it to the room temperatured bed, use a small piece of a sponge and rub the mix on the smooth side of the glass build plate. It might act like water on wax, forming droplets at first but after rubbing it in for a while it will start to cover the bed. Wipe off the excess and let it dry then apply one more coat.
You have to let the bed cool completely before attempting to remove the prints from the bed, otherwise you will rip chunks out of the glass bed.
Use a stove cleaning razor scraper to remove the prints from the bed and BE CAREFULL not to cut yourself!
If you use a brim make sure to lift the brim all around the print to release the vacuum under the brim before trying to remove the print.
The included print removing tool that came with your printer will not work with this adhesion method.
Always save the sliced g-code to the computer first and then copy it to the SD card. Never save it directly to the SD card from CURA as there is a risk that the g-code gets corrupted. Try to stay away from using support blockers as there is a bug that can create printing artifacts in the layers at the level of the blocker.
There is no need to use support blockers for any part of the PARTISAN-9.
These settings are the recommended settings for CURA on a stock ender 3 but most of the settings should work on any printer. If you suffer from weird clogs or under extrusion first check if your extruder arm is cracked, If it's not cracked check out the image describing the creality hotend spring MOD and enjoy clog free printing.

All stl files are correctly oriented, do not change the orientation of the parts.
Enable ALL settings in CURA, Expert mode!

Layer height - 0.16mm
Initial layer height - 0.24mm
Line width - 0.4mm
Wall line count - 3
Outer wall wipe distance - 0.4mm
Optimize wall printing order – YES
Compensate inner wall overlaps – YES
Fill gaps between walls - everywhere
Filter out tiny gaps - YES
Print thin walls - YES
Z seam alignment - user specified
Z seam position - back left
Seam corner preference - smart hiding
Top surface skin layers - 1
Top layers - 3
Bottom layers – 3
Top/bottom pattern - lines
Top/bottom line directions - [45,90,135,180]
Skin overlap percentage - 30%
Skin overlap - 0.12mm
Infill density – 99% or 100%
Infill pattern – lines
Connect infill lines - YES
Infill line directions - [45,90,135,180]
Infill overlap percentage - 30%
Infill overlap - 0.12mm
Printing temperature – 225C
Build plate temp - 50C
Initial build plate temp - 55C
Flow - 100% (Adjust on the printer if necessary)
Support flow - 95%
Print speed Walls - 30mm/s
Print speed top/bottom - 40mm
Print speed infill - 40mm/s
Print speed Skin - 25mm/s
Print speed Initial - 20mm/s
Print speed Supports - 60mm/s
Travel speed – 150 to 200mm/s
Enable print cooling Fan – YES
Fan speed – 70 to 90%
MAX fan speed – 85 to 100%
Initial fan speed - 0%
Support overhang angle - 70%
Support pattern - zig zag
Connect support zig zags - YES
Support brim - YES
Support brim width - 3mm
Support Z distance - 0.16mm
Support x/y distance - 0.7mm
Support interface - DISABLED!!!
Fan speed override –YES
Support skin fan speed – 80 to 100%
Nr of slower layers - 1
Enable Acceleration – YES
Print acceleration - 300mm/s
Travel acceleration - 1000mm/ s
Enable Jerk – YES(Set Print Jerk to 8)
Enable retraction - YES
Retract at layer change - YES
Retraction amount – 5,5mm
Retraction speed - 45mm/s
Retraction extra Prime amount - 0.02mm3
Retraction MIN travel - 1.5mm
Z hop when retracted – DISABLE!!!

Part Specific print settings

Barrel retainer, Endcap, Buttpad, Pistol brace, Cheekpad, Magazine base plate - Use supports everywhere and skirt.

Lower, Upper - Use supports everywhere and a 4mm brim.

Pistol grip - Use supports to build plate and a 4mm brim.

Bolt, Folder button, Magazine follower - Use 30% support density, supports to build plate and skirt.

Hammer, Trigger, Disconnector – Use 103% flow rate, 30% support density, supports everywhere and skirt.

Feed ramp, Ejector, Magazine catch bar, Selector drum, Folder hook, Fore grip, Pistol grip lid, Charging handle, Magazine locking tab, Endcap shims - Use no supports and skirt.

Brass catcher, Suppressor rear cap, Fire selector lever - Use supports to build plate and skirt.

Mag catch button - Use supports to build plate, skirt, 0.4mm support x/y distance, support wall line count 2. Print two buttons to get enough time for the plastic to cool in between the layers.

Stock body - Use 85 degrees support overhang angle!!! Supports everywhere and skirt.
Magazine body – Use 0.42mm line width, no supports, 6mm brim and un-check the box “brim only on outside”.

Bill of materials

Flat bar stock.

50cm length of 20x12mm cold rolled flat bar stock.

1/2 x 3/4" and 7/16 x 3/4" bar for the Imperial version.

(s235j or s355j steel are good choices as it's easy to weld)

20cm length of 18mm steel rod. (11/16 inch rod for the Imperial version)

50cm length of 4mm steel rod. (stainless is recommended)

25cm length of 2mm piano wire or rod.
25cm length of 1.6mm piano wire or rod.

50cm length of M3 all-thread rod.

1X – 6mm OD, 4mm ID (1/4 OD, 3/16 ID) stainless steel barbed T-fitting. (Brewery supplies)

This has to be the kind of T-fitting you buy from brewery suppliers!
Because it has to be food safe by law the fittings are TIG welded with stainless filler rod and are extremly durable.
Ebay, Amazon and Aliexpress will not have the correct ones, they are brazed or cast in a central hub.

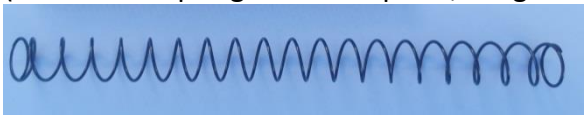
1X – 1.5mm allen driver replacement shank. (get a few spares)

1X - 5x10mm cylinder magnet.

1X - Small recoil spring.
0.65mm wire diameter, 4.70mm ID, 6mm OD, 203mm in length, 90 coils. (cut from a longer spring)
(Alternative spring from aliexpress, Length 300mm, OD 6mm, wire diameter 0.7mm)

1X - Big recoil spring.
0.90mm wire diameter, 6.20mm ID, 8mm OD, 145mm in length, 65 coils. (cut from a longer spring)
(Alternative spring from aliexpress, Length 300mm, OD 8mm, wire diameter 0.9mm)

1X - Buffer weight return spring.
1.0mm to 1.25mm wire diameter, 17mm OD, 130mm in length, 13 coils. (cut from a longer spring)
(Alternative spring from aliexpress, Length 305mm, OD 16mm, wire diameter 1.0mm)



1X - Firing pin spring.
0.35mm wire diameter, 4.5mm OD, 23mm in length, 11 coils. (ballpoint pen spring)

1X - Side folder button spring.
0.7mm wire diameter, 6.5mm OD, 25mm in length, 10 coils. (hand soap dispenser spring)

1X - Side folder retaining hook spring.
0.5mm wire diameter, 4.5mm OD, 15mm in length, 8 coils.

Socket head screws.

1X - M3x30mm
4X - M3x20mm
2X - m3x16mm
2X - M3x5mm
1X - M4x12mm or 8-36x1/2"

Hex head bolts.

1X - M5x8mm(or longer, cut to length)
6X - M3x40mm

Washers & nuts.

6X - M3 nuts.

1X - M3 nylock nut.

5X - M3 small diameter washer (3.2x7mm).

6X - M3 big diameter washer (3.2x9mm).

Shaft collars.

3X - 28x16x12mm shaft collar.

1X - 7x5x3mm shaft collar.

1X - M6x12mm cup point set screw.

5X - M3 Ruthex threaded brass insert.

ESUN PLA+ 1.75mm 3D printing filament. (you need two 1kg spools)

1X - AR15 lower parts kit from Aliexpress.

Glock magazine springs from Aliexpress. (or a complete OEM 33rd Glock magazine)

Needed tools and supplies

Digital calipers.

Vice.

Electric drill.

Dremel tool. (with cutting disc and basic accessories)

Metal file.

Needle file set.

Sandpaper. (80 and 120grit regular, 180 and 240grit wet & dry)

1.5mm, 2mm, 2.5mm, 3mm, 4mm and 5mm allen key.

6mm socket, extension and driver.

Hacksaw with a good metal blade.

Flathead screw drivers, micro, small, medium.

Needle-nose pliers.

Side cutters or wire cutters.

Safety glasses.

Soldering iron.

E6013 welding electrodes.

Stick welding machine.

Welding helmet. (OPTIONAL, doubled up sunglasses will work but it’s not safe)

Slag hammer. (OPTIONAL, you can use any kind of hammer)

2X - Welding grips. (OPTIONAL, only needed if you don’t want to weld directly in the vice)

Cutting fluid for drilling and tapping holes. (motor oil will work)

Ballistol universal oil.

JB weld metal epoxy.

Loctite thread locker. (BLUE, non-permanent)

Drill bits. (at least HSS-G grade)

2X - 2mm or 2.1mm or #45 drill, 85mm or longer
1X - 3.0mm
1X - 3.2mm
1X - 3.5mm
1X - 4.0mm
1X - 5.5mm
1X - 6mm
1X - 8mm
1x - 9.5mm

1X - M4 or 8-36 Threading tap.

1X - Threading tap handle compatible with m4 taps.

Recommended accessories

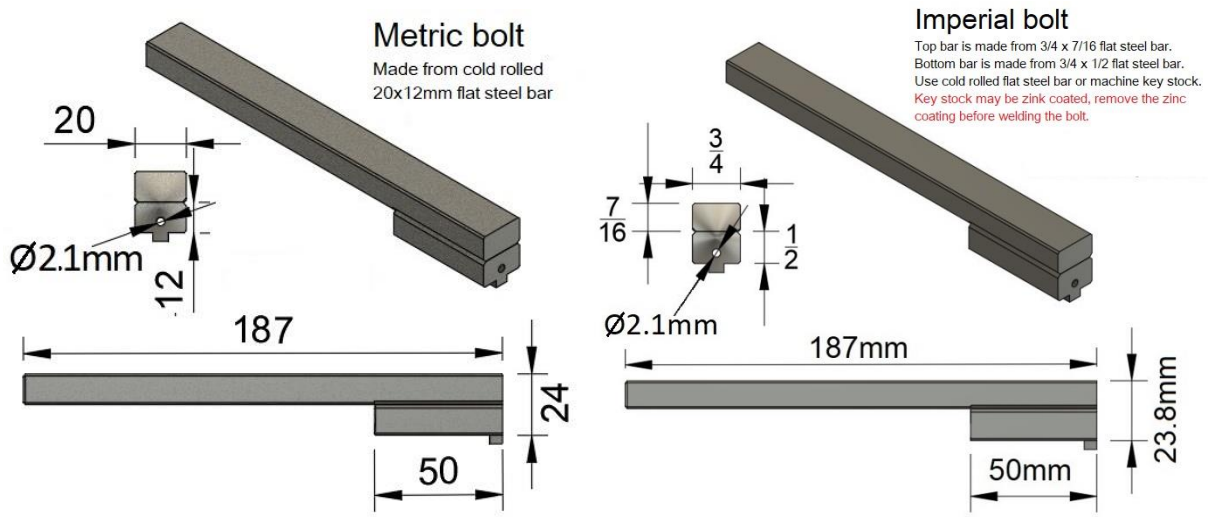
Cleaning kit.

Red dot sight (some cheap Chinese copies will hold zero).

Cheap “Daniel Defence” raised iron sights clones.

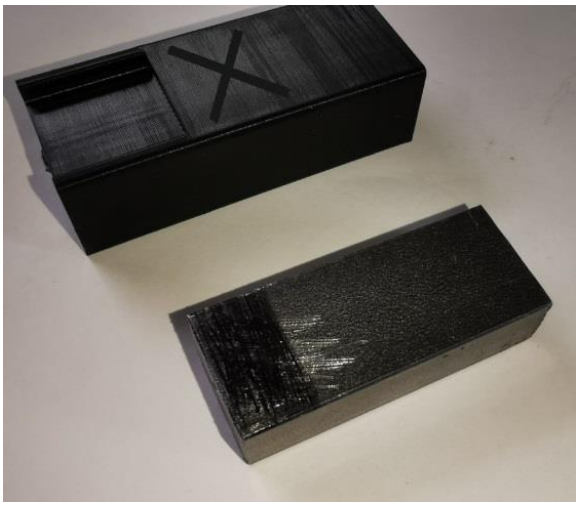
9x19mm Bore sight laser (allows zeroing the sight without firing the gun).

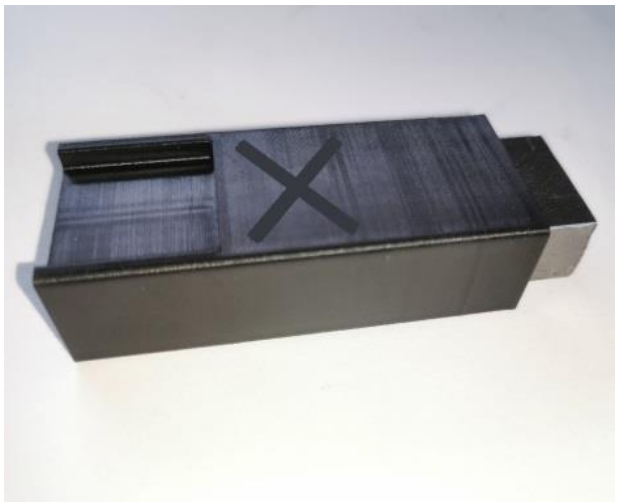
Making the bolt



Start by cutting the 20x12mm steel bar into the required lengths, you need one 187mm long piece and one 50mm long piece. You can use a hacksaw but take care to make straight cuts so you don't have to file the bars as much to get them straight.

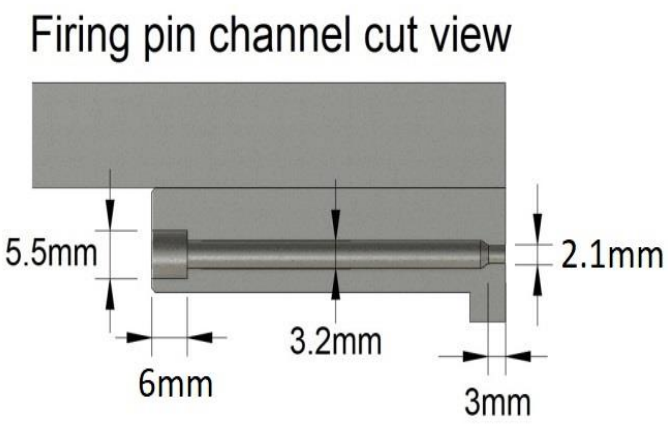
File the straightest end of the 50mm bolt piece as straight as possible and chamfer the edges around the end slightly so it fits easier into the bolt drilling JIG.
Then mark the bottom of the 50mm bolt piece on the straightest end by scratching the location where the cartridge pickup is going to be welded to with a file (notice the marked black area on the 50mm bolt piece in the picture below).
Insert the 50mm bolt piece into the drilling JIG so the area that you have marked is facing the X on the JIG, make sure the bolt piece is fully seated in the JIG.



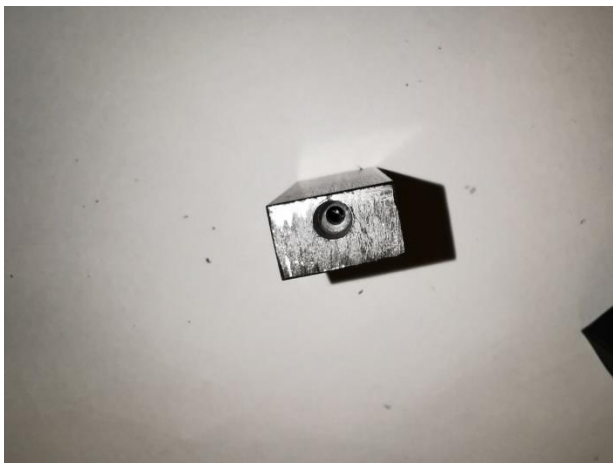


Clamp the bolt piece in the vice by the exposed section and drill the firing pin hole with the 2.1mm or #45 extra long drill bit. If you could not find a 2.1mm drill bit you can instead use a 2mm drill bit but it has to be 85mm long or more. NEVER use a bigger drill than specified, if you do your gun will suffer from severe and frequent primer ruptures!!
Drill slowly (around 300 RPM) and pull out the drill bit from the JIG frequently to clean off the metal chips and dip the drill bit in oil, failing to do this will destroy both the JIG and the drill very fast.
Don't push the drill as you can bend or snap the drill bit, only use light pressure when drilling.
Drill as deep as you can reach with the drill bit, then remove the jig and continue to drill without the JIG until the drill bit comes out the other side of the bolt piece.

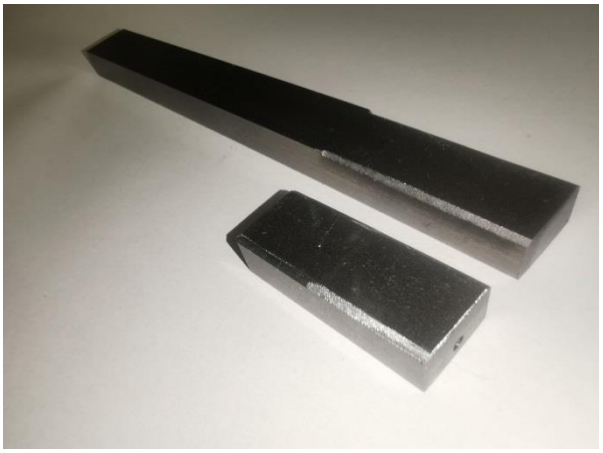
Turn the bolt piece around in the vice so you can drill it from the opposite side (backside of the bolt).
If you did not mark the bolt and by mistake drill from the same side as you did with the jig your firing pin channel will be miss-aligned and your bolt will be un-usable.
Mark the 3.2mm drill bit with tape to limit the drilling depth to 47mm.
Apply light pressure on the drill and try to hold it as straight as possible, then start to drill into the firing pin channel.
Drill approximately 10mm deep at a time and inspect the hole with a flashlight to make sure that the 3.2mm hole is concentric to the 2.1mm hole. By drilling only 10mm at a time you can tilt the drill bit to compensate for the hole not being drilled straight and concentric. Repeat until the tape reaches the back face of the bolt.
It's VERY important to get the hole concentric, otherwise the firing pin will bind and the bolt might be un-usable.
Clean out the chips from the firing pin hole and insert the 1.5mm allen driver shank to check for binding.
The shank should be able to move it in and out freely and be able to spin in the hole without any binding.
If the firing pin is binding you might be able to fix it by using a round 3mm needle file to carefully file the firing pin channel from the back of the bolt.
You have now created a firing pin channel that is 3.2mm in diameter from the back and then tapers down to 2.1mm a few mm from the bolt face. The small firing pin opening in the bolt face makes punctured or ruptured primers very unlikely to happen and will greatly increase the reliability and durability of the firearm.

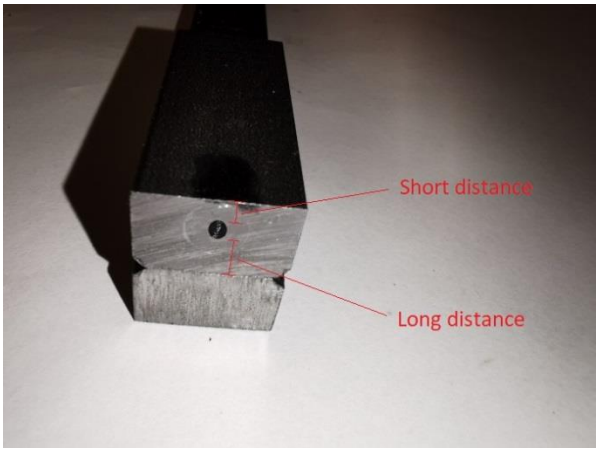


Drill a 6mm deep and 5.5mm diameter hole in the firing pin channel from the backside of the bolt. Use light pressure on the drill and take care so the hole is drilled straight and centered in the firing pin channel.
The reason to drill this hole is to create a pocket which the firing pin spring can compress into so it does not get mangled and destroyed between the firing pin collar and the back of the bolt.
This also allows for the use of an inertia firing pin instead of a direct contact firing pin. An inertia firing pin is preferred as it's both safer and more reliable.



File 1.5mm chamfers on the underside of the 187mm bolt bar, make the chamfers 50mm long. Do the same on the top side of the 50mm bottom bolt bar, the top side is the side that's further away from the firing pin channel.
Put the 187mm bar on a straight surface with the chamfers pointing upwards, then put the 50mm bar on top of the long bar with the chamfers pointing down. Use something straight like a piece of leftover bar stock to align the bolt face and the sides of the bolt pieces.
Make sure that the 50mm bolt piece is orientated with the small side of the firing pin hole forward and away from the 187mm bolt piece (notice the right picture below).
Clamp the bolt together hard and double check that it's still aligned correctly, I usually just clamp it directly in the vice and weld it while it's clamped in the vice.





Before you start welding on the bolt it's a good idea to warm up the welding electrode on a piece of scrap steel, this make starting the weld on the bolt easier with less risk of making a mess. This is also a good time to adjust the amperage of the welder, start low and raise it until you are able to lay down a weld bead on the scrap piece of bar slowly without having the welding electrode sticking, stop burning or burning too fast for the speed you are welding at. Your welding speed should be around 5mm to 7mm per second.
Watch these videos before you start welding.
https://www.youtube.com/watch?v=PpJQtv-wGl4
https://www.youtube.com/watch?v=TwCxsMOoahM

Weld the top bar to the bottom bar by running the electrode at a 30 to 40 degree angle within the groove created by the chamfers.
Start from the back of the bolt and drag the electrode until it starts welding, then instantly move the electrode back again (while still holding the arc so it does not stop welding) to the back end of the bolt and then start moving slowly towards the front of the bolt. Keep moving forward slowly so the groove gets filled and once you reach the end of the bolt change direction and run the electrode backwards a few mm then stop and lift the electrode from the bolt.
By doing this you don't create an ugly crater at the end of the weld. Now do the other side of the bolt. Don't remove the clamps until both sides are welded. If you weld directly in the vice be quick when you flip the bolt around in the vise to weld the other side.

Now use your welder to build up metal for the pickup on the bolt. Adjust the Amp dial on the welder to use around 25% less amperage than you needed to weld the bolt bars. Use short bursts (one second) and let the blob cool for one second in between the bursts. Make the blob much wider and taller than you think it needs to be and also try to build some material forward past the bolt face as well.
Keep in mind that a lot of the material is slag and that the actual weld is much smaller than the blob, it's easier to file material off than to add material afterwards so don't make the blob too small.

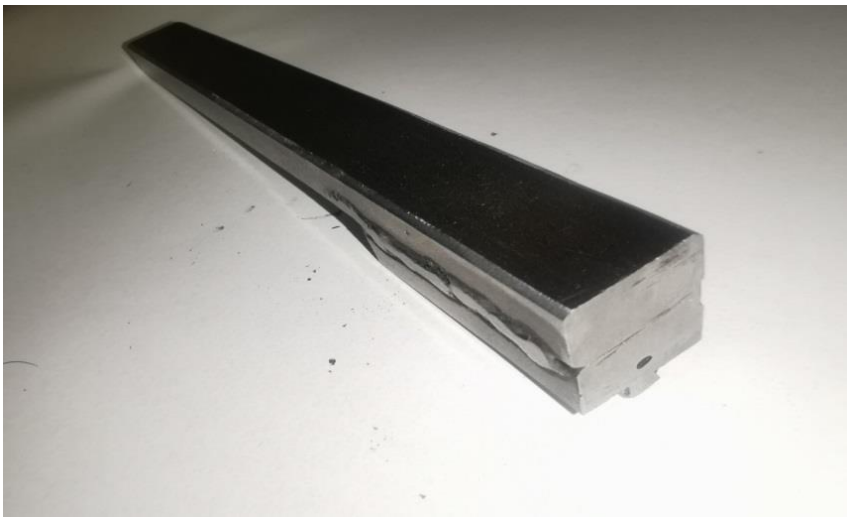
Remove the slag with a hammer and a wire brush, and then file off the weld splatter and the high spots of the welds on the side of the bolt with a coarse file. You do not need to file the welds completely flush with the bolt as there are recesses in the bolt housing for the welds to protrude slightly.
Chamfer all edges of the bolt slightly and test fit the bolt in the bolt housing, the top bolt bar might need bigger chamfers to fit. Keep filing down the welds until the bolt fits in the bolt housing.

Use a file and the bolt housing as a guide for shaping the blob into a square cartridge pickup that fits in the pickup slot in the bolt housing. Once it fits keep filing material off the back of the pickup until the bolt face can sit flush with the face of the bolt housing.

It's absolutely essential that the face of the bolt and pickup is smooth and free of any scars, deep "toolmarks" or other imperfections. Otherwise the rim of the cartridge will stick in those imperfections and cause feeding issues.

Use a file to file the bolt face smooth, make sure you hold the file straight so the bolt face does not become angled. The critical area is the pickup and the bottom bolt bar. The top bolt bar does not affect feeding.

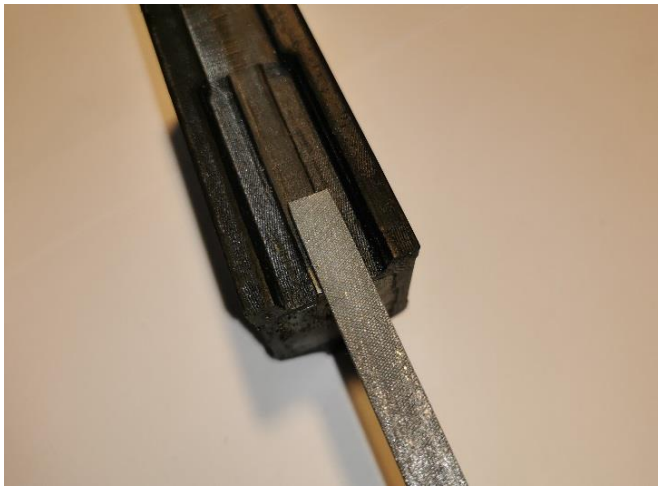
Use a coarse file to scratch all surfaces on the bolt which will be in contact with the glue so the glue adheres better to the bolt. Do this to the sides and bottom of the bolt but leave the top of the bolt smooth.
Clean out any metal chips out of the firing pin channel with alcohol and use the allen driver shank to check that it does not bind in the firing pin channel.



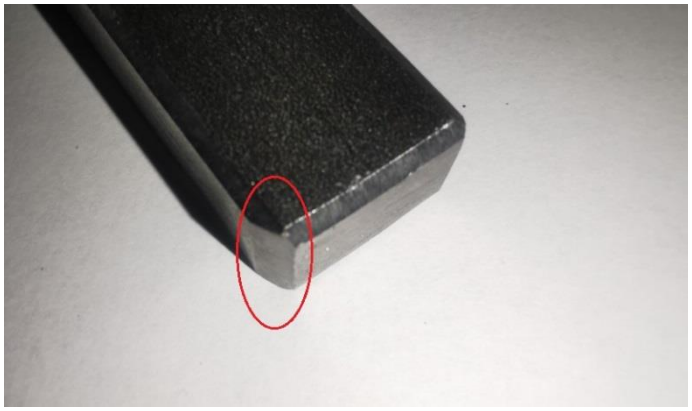
Clean the bolt and the inside of the bolt housing with alcohol and mix up a generous amount of JB weld. Apply the JB weld to the sides and bottom of the bolt. It's okay to get some JB weld on the top of the bolt just slightly past the chamfers but take care not to get any JB weld on the bottom of the top bolt bar, in the channel for the recoil spring and on the backside of the lower bolt piece where the firing pin hole is located.
Work fast and push the bolt into the bolt housing and wipe away the JB weld that squeezes out around the bolt housing as you push it in.

When the bolt is a few mm from being fully seated in the bolt housing, wipe of the JB weld and push the bolt face against a straight surface as hard as you can until the bolt face is flush with the bolt housing.
Use a rag and some alcohol to clean the JB weld of the bolt and the bolt face and make sure that the bolt is still flush with the bolt housing and that the firing pin channel is free of any JB weld, then set it aside to cure for at least 2 hours.

Clamp the bolt upside down in the vise by the top bolt bar and use a flat needle file to file down the height of the pickup until its flush in height and width with printed pickup ridge on the underside of the bolt housing.

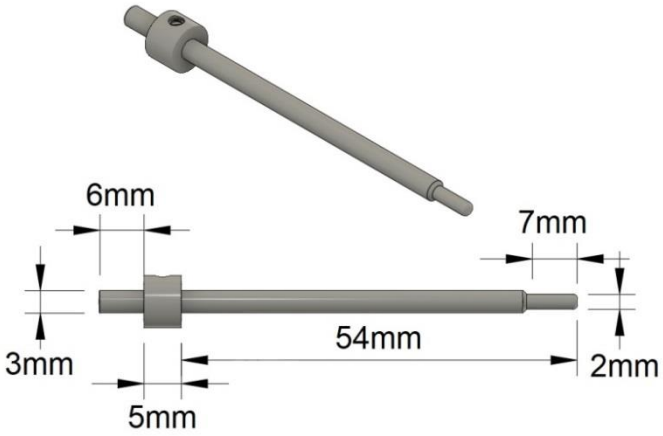


Reposition the bolt in the wise so it's orientated in its natural position with the top bar up and file a 3mm long chamfer on the left rear corner(when looking from behind the bolt) of the top bolt bar. This chamfer is made so the button for folding the stock clears the bolt when the button is fully depressed.



Place a sheet of 120grit sandpaper on a flat surface and place the bolt on its side on the sandpaper. Push down on the bolt so the rails on the side of the bolt housing makes full contact with the sandpaper and lightly sand the bolt housing rails , repeat on the other side and on the bottom of the bolt as well.
Two or three strokes on each side is enough, you just want to smooth out the layer lines so the bolt runs smoother in the upper. The bolt is now finished.

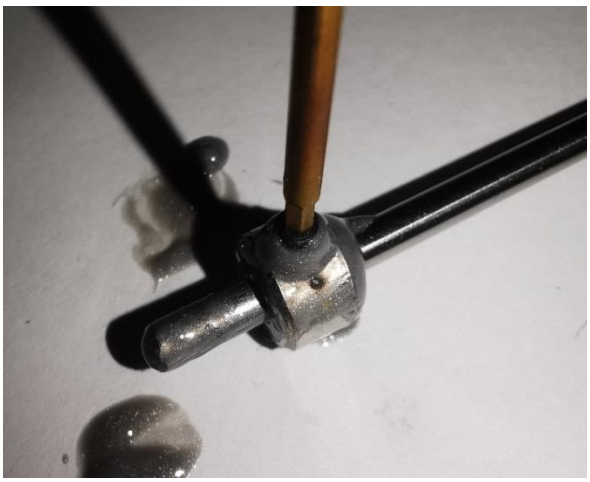
Making the firing pin



Start by cutting the 2mm diameter section of the allen driver shank so its 7mm long with your dremel cutting disc. Measure and mark the shank 56mm in from the side that you cut and use your dremel to make an indent on the mark, the indent only needs to be about 1mm deep and 2mm wide.

Remove the set screw from the 7x5x3mm shaft collar and make sure that the collar can slide onto the shank, then slide it off again and clean the shank and collar with alcohol.
Mix up a small amount of JB weld and apply it to the shank around and inside the indent. Add some JB weld in the center hole and in the threaded hole of the collar.

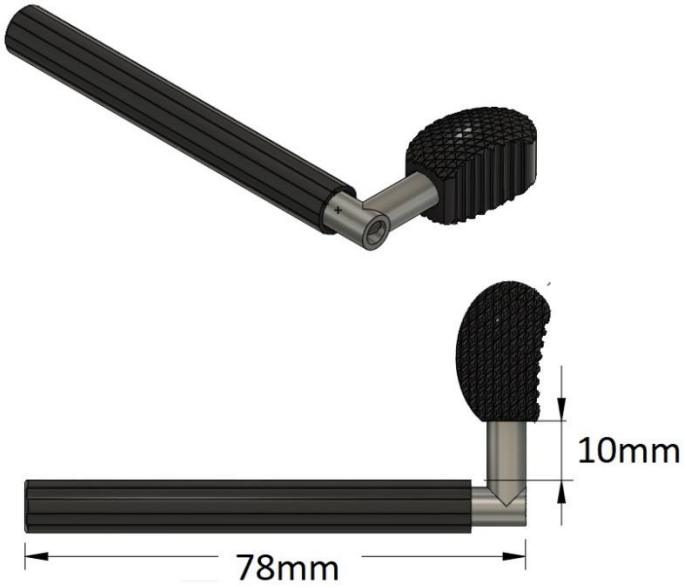
Slide the collar onto the shank and position it approximately at the location of the indent, then add some JB weld on the set screw. Install the set screw one full turn into the collar.



Tighten the set screw until it bottoms out against the shank, then loosen it 1/4 of a turn and try to spin the shank. If the shank can spin it means that the setscrew is not in the indent.
Keep tightening and loosening the set screw while slowly turning shank until the set screw is able turn further down than before, this means that the setscrew is located in the indent.
Fully torque down the set screw and clean off all excess JB weld from the firing pin.

Mark the firing pin 6mm from behind the collar and cut it off with the dremel, don't cut it too short.
Measure the firing pin from the front of the collar to the tip and make sure it's close to 54mm long. If not use your dremel to shorten the tip of the firing pin until it's 54mm.
Round the tip of the firing pin by installing it as deep as possible in the chuck of your electric drill so you can spin it while dragging the tip against the 180grit wet & dry sandpaper, make sure that the tip of the firing pin spins straight and true in the chuck.
Place the sandpaper on the floor and spin the drill on the highest speed setting, then run the firing pin tip against the sandpaper with an almost horizontal angle and reduce the angle towards vertical gradually in a curved motion as you drag the tip over the sandpaper. Repeat until the firing pin tip is nicely rounded.
Set the firing pin aside and let the JB weld cure.

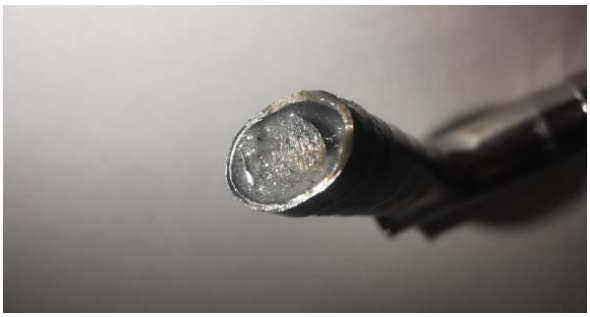
Making the charging handle



Grab the 6mm OD / 4mm ID stainless barbed T-fitting and put the "leg" of the T in the vice. Use the vice to squeeze the leg slightly into an oval shape.
Now use a hacksaw and cut one of the "arms" off the T-fitting.



Cut a 20mm long piece of 4mm non-stainless rod (it has to be magnetic). Remove the supports from the hole in the charging handle knob and test fit the knob onto the oval shaped leg, if it does not fit you can heat the fitting slightly and try again. Once a good fit is achieved remove the knob and mix up some JB weld.
Add some glue inside the oval leg and on the 4mm rod and insert it into the oval leg, make sure it does not protrude all the way through to the "arm" as the hole in the fitting must be clear for the M3 all-thread to later pass through the charging handle.
If it does protrude, use something to push it back into the oval leg and clean out any JB weld that gets into the "arm" of the fitting.
Set the charging handle aside and let the JB weld cure for 20 minutes.



Add some JB weld to the hole in the charging handle knob and on the outside of the oval leg then install the knob in the orientation shown in the picture to the right. You want the distance from the knob to the "arm" to be 10mm or more as illustrated by the red arrow. Let the JB weld cure for 30 minutes.

Sand the charging handle bushing with some sandpaper until it fits and moves inside the charging handle channel in the barrel retainer without any friction or binding. Mix up some JB weld and apply it inside the large diameter hole in the bushing and also on the "arm" of the T-fitting.
Install the fitting into the bushing and wipe off any excess glue. Quickly before the glue gets too hard, clean out the hole in the charging handle with a 4mm rod, dowel or similar so the charging handle later can slide freely on the M3 all-thread rod.
Take care not to push the T-fitting out of the bushing while cleaning out the hole. Measure the charging handle length and make sure it's 78mm long. Let the JB weld cure for 12 hours before attempting to use it.
Your charging handle is now finished.

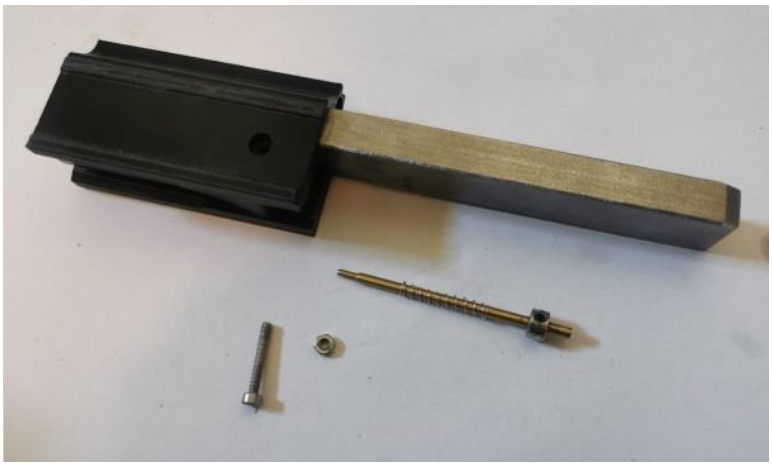
Making the guide rod and all-thread rod

Cut a 273mm length of m3 all-thread rod and chamfer both ends, chucking the all-thread rod in the electric drill and running the end against a file while supporting the rod in between your fingers works great.
Apply some JB weld to one end of the rod and inside the two m3 nuts than install the nuts on the all-thread rod and torque them together against each other so the flats on the nuts lines up perfectly, try to have the rod sticking out 1mm past the outer nut.
Wipe off the excess glue of and let it cure.

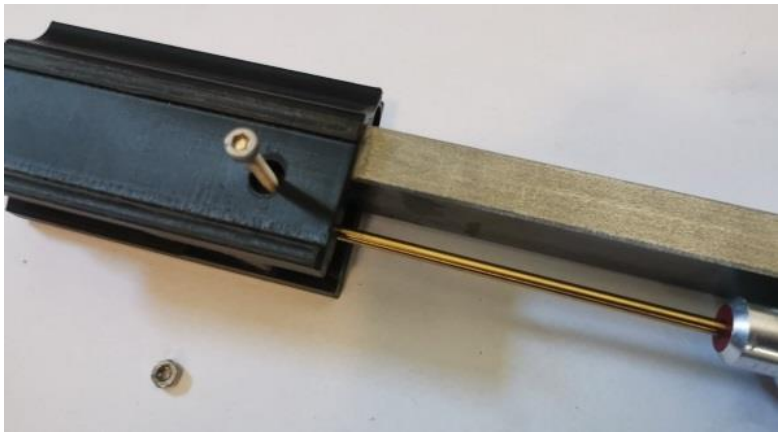
Cut a 171mm length of the 4mm stainless rod and chamfer both ends, you want at least 1mm chamfers so the rod seats in the holes of the upper receiver and end cap easier.

Installing the firing pin

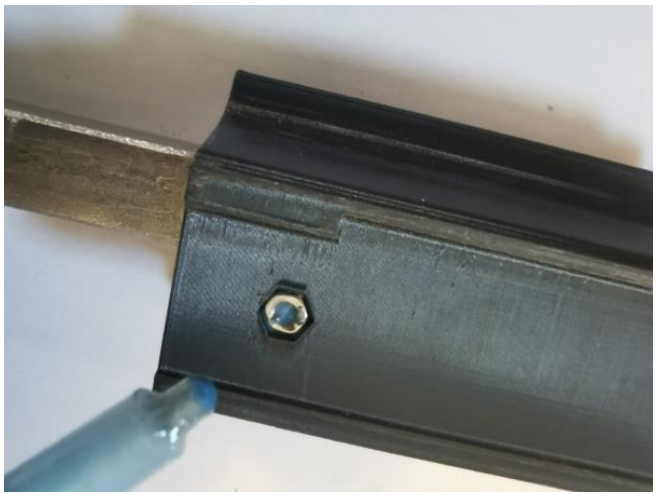
Use a full length 4.5mm diameter ballpoint pen spring as the firing pin spring. Slide the spring over the firing pin.



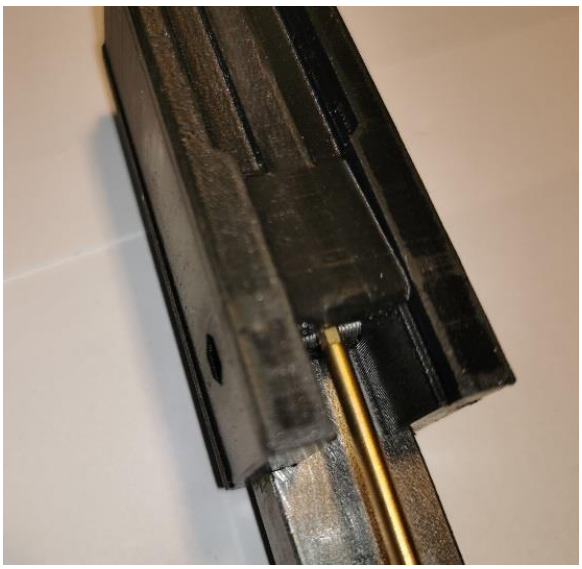
Install the firing pin in the bolt and use a screwdriver to fully depress the firing pin while inserting the m3x20mm socket head screw through the bolt housing from the side with the round hole.

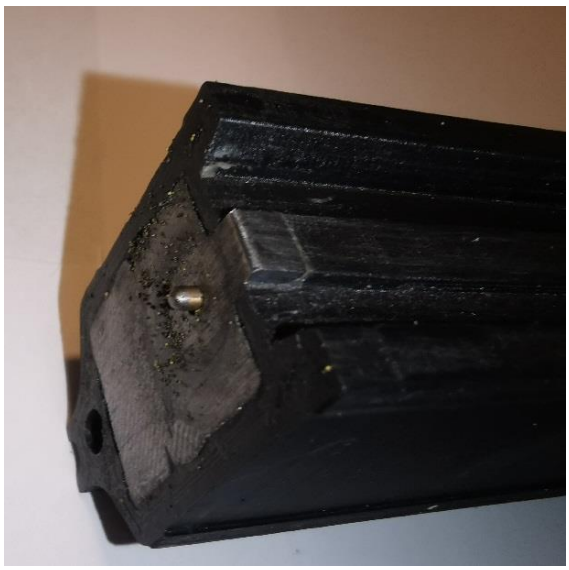


Install the M3 nut in the hex shaped hole on the bolt housing and apply a drop of Loctite inside the threads of the nut then tighten the m3x20mm screw, half a turn past snug is good.



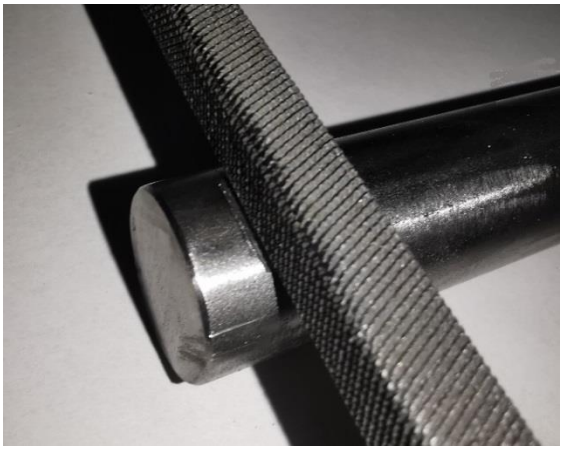
Because the PARTISAN-9 uses an inertia firing pin, the firing pin protrusion should not matter as long as it protrudes 1.5mm or more from the bolt face when fully depressed.
Use an allen key or a screwdriver to press on the back of the firing pin until it bottoms out in the bolt, then measure how far the firing pin is protruding from the bolt face.
Make sure that the firing pin protrusion is 1.5mm or more. Even if it would protrude as much as 5mm it's not an issue and because it's an inertia firing pin, this is normal.





Making the buffer weight

Cut a 105mm long piece of the 18mm steel rod and mark it at 90 and 100mm from one of the ends.
Use a square file to file a flat surface in between the marks, the flat only needs to be around 1mm deep.



Make a mark in the center of the flat area (95mm from the furthest end of the rod) and drill a 3.5mm hole through the 18mm rod. Try to drill the hole as straight as possible and centered in the flat, however it's not very important to get it perfect.

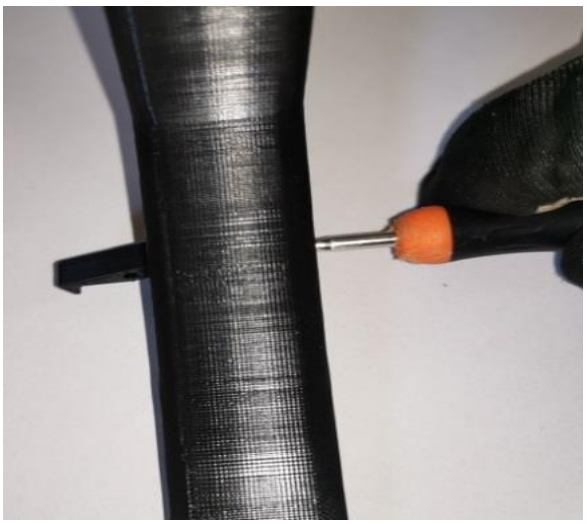
Insert the M4 or 8-36 threading tap in the tapping handle and carefully tap threads in the hole, use lots of oil and go slow. When you start to feel resistance while turning the tap, back the tap out half a turn for each quarter turn you cut to break up the metal chips. Be very careful not to break the tap off in the hole. If the tap feels like it stuck, back it off and try again!! Once the threads on the tap are 1mm from being fully threaded into the hole, back the tap out and remove it. File away the flash/burrs from the exit hole on the opposite side of the 18mm rod from the flat. Getting the hole drilled and tapped straight is not very important, it will work fine even if it's not straight. Just do your best.

Chamfer the end of the rod closest to the tapped hole slightly, a 0.5mm chamfer is enough.
Make a bigger chamfer on the end of the rod that is furthest away from the tapped hole, you want around 2mm of chamfer on this end. Refer to the Buffer weight drawing on the page 28 if anything is unclear.
You can use an angel grinder or a belt sander to make the chamfers by spinning the rod with your hand against the grinder/sander but it's also possible to do it by hand with a file.
Your buffer weight is now completed.

Assembling the folding stock

Start by removing the supports from the holes in the back plate and butt pad body as well as the supports inside the retaining hook pocket by punching out the support from the small side of the pocket with a rod or punch.
Slightly sand the gluing surfaces of both parts and install the alignment studs in the butt pad body. Now test fit the back plate and make sure it can fully mate against the butt pad body.
Remove the back plate and apply some glue to the butt pad body then reinstall the back plate and set it aside butt down to cure.
You can wrap some rubber bands around the butt pad to hold the parts together as the glue cures.

Install the 4.5x15mm spring in the butt pad retaining hook pocket and use a small flat tip screwdriver to push the spring down into the spring recess hole from the big opening side while inserting the retaining hook from the small opening side with the point of the hook facing outwards and towards the butt pads end plate. Remove the screwdriver and make sure that the spring snaps into the spring recess in the retaining hook.

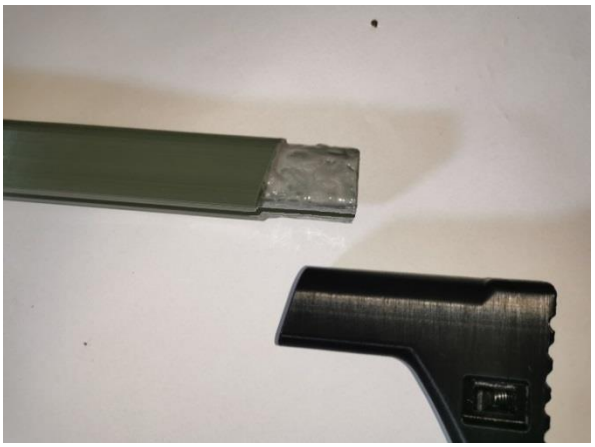


Install the 2x44mm pin (cut from 2mm piano wire) through the hole on top of the butt pad.
Make sure that the hook is oriented the correct way and that it moves freely under spring tension then fully seat the pin and add a drop of glue in the hole on top of the pin to lock it in place.

If you need to remove the retaining hook in the future you can push out the pin through the small hole on the underside of the butt pad with a 1mm diameter piano wire or punch.

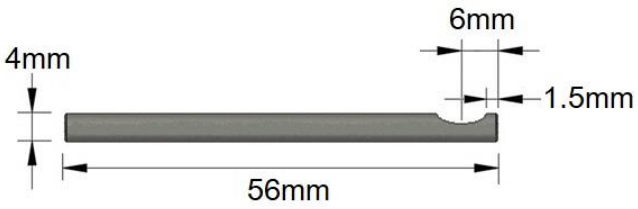
Remove the supports from the flange at the rear of the stock body, from the fold button pocket and from the sides inside the stock. Install the 6.5x25mm spring in the hole and the 1.6x32mm pin (cut from 1.6mm piano wire) for the button partially. Now install the button and seat the pin fully.
After making sure that the button moves freely and does not bind, apply a drop of glue in the hole on top of the pin to lock it in place.
If you need to remove the button in the future you can push out the pin through the small hole on the underside of the stock with a 1mm diameter piano wire or punch.

Mix up some JB weld and spread it around the flange of the stock body, then install the butt pad over the flange. Set the butt pad down on the floor and press down on the stock so the parts slide together completely. Clean all excess glue off with a rag and alcohol. Make sure no glue is inside the slot in the stock/butt pad.
Set the stock aside and let the JB weld cure for at least two hours.



Take the 17x130mm buffer weight return spring and install it into the stock. If you cut it from a longer spring make sure to install it with the cut side first towards the butt pad. Install the buffer weight in the stock with the drilled and tapped side first, facing the butt pad.
Push the buffer weight in with your finger and rotate it until it's oriented with the drilled and tapped hole facing the slot in the stock, then install the M4x12mm or 8-36x1/2" socket head screw into the buffer weight through the slot.
The screw secures the buffer weight in the stock when it's folded and makes sure the sheer line between the bolt and the buffer weight is where it's supposed to be so the stock can be folded and unfolded.

Cut a 58mm long piece of the 4mm stainless rod and use the curved needle file to file a half moon shaped notch in the rod centered around 6mm from one of the ends. The notch needs to have a radius a little bigger than a small diameter M3 washer and should be filed to a depth of around 1.5mm.
File the end of the rod so it's about 1.5mm long from the edge of the notch and chamfer the end. File the rod down from the other end until its 56mm in total length and chamfer this end too slightly.
Your hinge pin is now completed.



Remove the supports from the endcap, don't forget the supports inside the lockup for the stock button. Use a 4mm drill or reamer to ream out the hole for the hinge pin in both the stock and the endcap.
Install the stock into the endcap and push the hinge pin through the hinge from the top of the stock, orient the hinge pin so the notch in the pin faces the screw hole in the endcap.
Place two small diameter M3 washers on the M3x8mm screw and install the screw in the hole on the endcap so the washers locks into the notch of the hinge pin which prevents the pin from coming out.
The washers should not press tight on the hinge pin, if they do you need to make the notch in the pin slightly bigger.
There should be a small amount of play between the washers and the hinge pin, the hinge pin should be able to turn and move up and down slightly.

Preparing the FCG

It's highly recommended to use a metal FCG for your PARTISAN-9, it will always be safer than the 3D printed option. If you are using the printed FCG, never carry it or store it with the hammer cocked!

Remove the supports from the disconnector by pushing a small flathead screwdriver through the support and pry it lose. Now get in under the supports and keep prying until all supports are removed.

Remove the supports from the trigger by grabbing the supports with pliers and breaking them clean off.
Use the small flathead screwdriver to get under the supports in the disconnector channel in the trigger and pry the supports lose, make sure you remove the supports in the disconnector spring pocket too.
Use the pliers to break the supports lose from the hammer and the flathead screwdriver to remove the supports inside the bolt/screw pocket in the hammer.



Place some 120grit sandpaper on a straight surface with a 90 degree edge, line up the sandpaper with the edge.
Place the disconnector on the sandpaper and do a few passes to smooth out the surface on the side that had the supports, three passes is probably all you need.
Use a 4mm reamer or drill and carefully ream out the holes for the pins in the disconnector, hammer and trigger as well as the disconnector spring pocket inside the trigger.




Cut the threads of the M5 bolt down to 8mm in length with a hacksaw and then use the saw to cut a 1.5mm deep slot into the head of the bolt.
Insert the head of the bolt the chuck of the electric drill and use a file to chamfer the edge of the threads.
Switch the bolt around in the chuck so the head of the bolt sticks out and use the file to turn down the hex shaped head into a round head with a diameter of 7.8mm.




Mix up a small amount of JB weld and apply it in the hole for the M5 bolt in the hammer and onto the threads of the bolt, use a flathead screw driver to install the bolt in the hammer until it's flush with the face of the hammer. The slot of the bolt should be vertical to prevent it from snagging on the firing pin when the gun cycles. Let the JB weld cure for one hour.
Use the sandpaper setup that you used for the disconnector but with 80grit sandpaper and sand down the bumps on the side of the hammer where you glued in the M5 bolt until they are flush with the sides of the hammer.



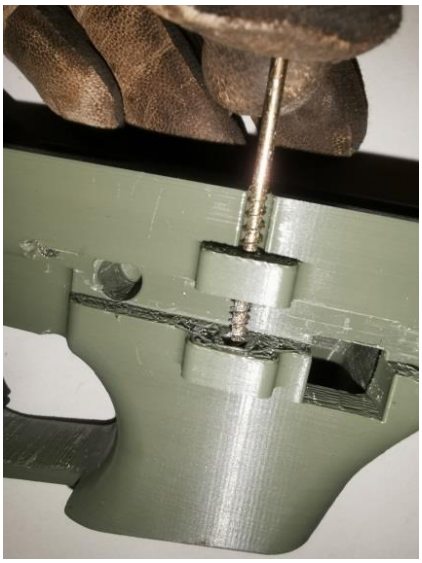

Cut a 12mm long piece of 4mm diameter steel rod (or any other material rod) and chamfer both ends, this will be used as a temporary installation pin to simplify the installation of the trigger and disconnector in the lower.
Install the disconnector spring with the large side down in the trigger and make sure it's fully seated in the spring pocket at the bottom of the disconnector channel in the trigger. Install the trigger spring and the hammer spring in the same orientation as showed in the pictures.
Install the disconnector in the trigger and insert the 4x12mm pin and center it so it does not protrude out the trigger studs.


Remove the supports from the selector lever and ream out the hole in the selector lever and drum with a 3mm reamer or drill. Install the selector lever to the drum. Mix up a small amount of JB weld and apply some in the threads of the M3x30mm screw.
Insert the screw through the selector lever and then through the drum in the same orientation as shown in the pictures below.
Add some more JB weld to the threads then install a small M3 washer (3.2x7mm) and a m3 nut. Tighten the nut until it's just bottoms out, no more and then apply some more JB weld over the nut.
Wipe of any excessive JB weld on the Selector and set it aside for 5 hours to cure.

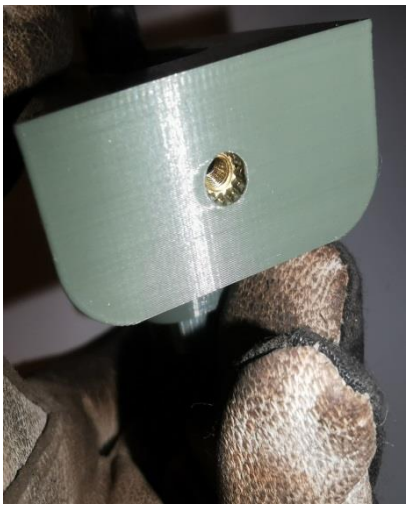


Assembling the lower

Some of pictures are taken from the FGC-9 MK2 manual, the FGC-9 MK2 lower and parts are not compatible with the PARTISAN-9, however the installation of the parts are identical.
Remove all supports from the lower receiver, refer to the video in the media folder. The support stuck in the bottom of the mag catch bar mounting lug can be removed by threading a small diameter wood screw into the support and pulling it out.

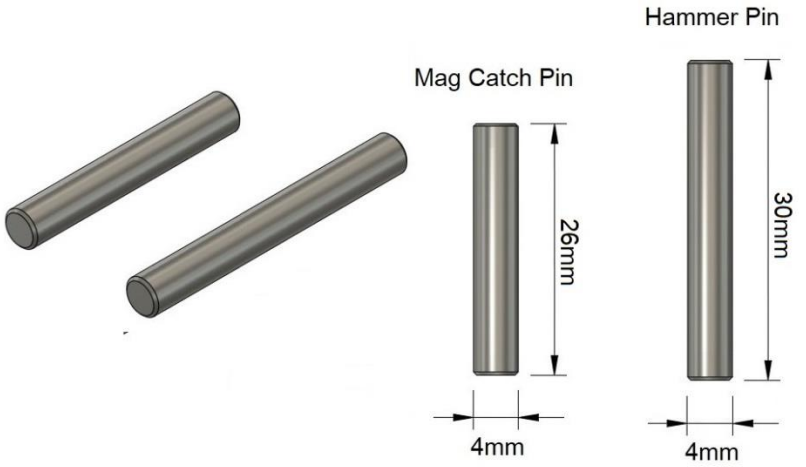


Set your soldering iron to around 250 degrees C and pre-seat a M3 threaded brass inserts in the hole at the back of the lower by hand.
Once the soldering iron has reached the set temperature, clean any old solder off the tip and use the soldering iron to seat the insert to a depth of around 3mm below the surface of the plastic.
Make sure the insert is straight and concentric in the hole, if not you can heat the insert again and use a long M3 screw partially threaded into the inserts to pull it straight while the insert is still hot.
Seating the insert deep like this will greatly increase the force required to pull it out of the plastic as material will flow in behind the insert and lock it in place.

Use a 4mm reamer or drill to carefully ream out the holes for the trigger pin, hammer pin and magazine catch bar pin. Ream out the holes for the upper receiver screws with a 3mm reamer or drill.
Use a 6mm reamer/drill and ream out the stepped hole for the mag button from the left side of the lower and then an 8mm reamer/drill to ream it out from the right side, making sure to not ream/drill into the step.
Ream out the hole for the mag catch spring with the 8mm reamer/drill.
Use a 9.5mm drill to carefully ream out the selector hole.


Cut a 26mm long and a 30mm long piece from the 4mm steel rod and chamfer both ends of the rods. The 26mm long pin is the magazine catch bar pin and the 30mm long pin is the hammer pin.

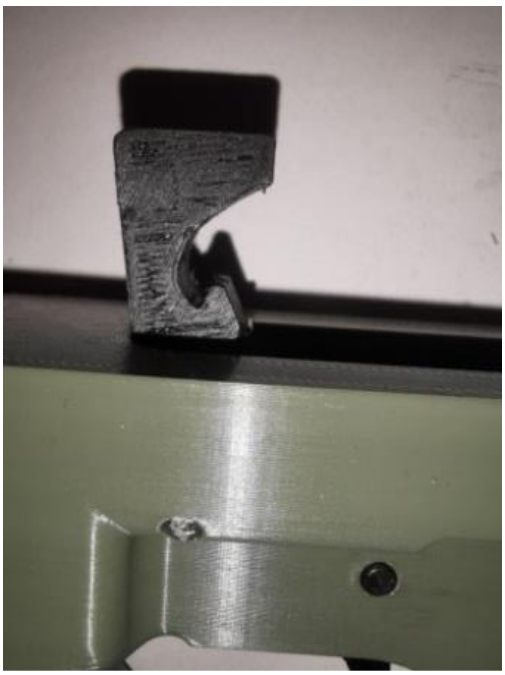


Insert the pre-assembled trigger unit into the lower with the legs of the trigger spring located forward.

Look through the trigger pin hole in the lower and line up hole in the trigger assembly with the hole in the lower, then push the trigger pin (the 4x22mm pin with grooves from the aliexpress AR15 lower parts kit) through the lower until its flush and the temporary installation pin falls out other side.

Insert the hammer in the lower with the spring legs tensioned backwards and resting against the grooves in the trigger pin then put tension on the hammer and push it forward and down.

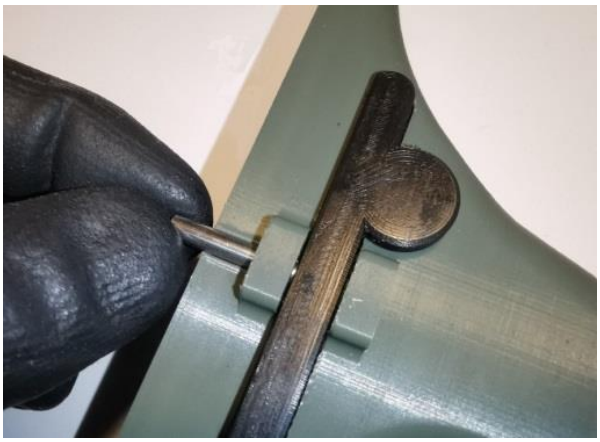
Hold the hammer so it's vertical and line up the hole in the hammer with the hole in the lower and push the 4x30mm hammer pin through until it's flush.



Cock the hammer and install the selector from the left side of the lower in the same orientation as the picture below shows. Make sure the selector turns without too much friction. If it's too tight carefully sand the selector drum with some 120grit sandpaper wrapped around a file.

Spray some ballistol or other non-petroleum based oil into the trigger, disconnector, hammer and selector. Install the magazine release button in the stepped hole with the small diameter section of the button first and then install the magazine release spring from the aliexpress AR15 lower parts kit into the spring pocket.

Install the magazine catch bar in the lower and hold it in against the spring pressure. Install the 4x26mm pin through the mag catch mounting lug and make sure it's fully seated.



If you need to remove the magazine catch bar in the future you can push out the pin through the small hole on the underside of the mounting lug with a 1mm diameter piano wire or punch.

NEVER release the hammer without cushioning it with your hand when the lower is not installed to the upper, the hammer will snap in half on impact with the lower.
Never leave the hammer cocked for a long period of time if you are using the printed FCG, it will break due to the combination of spring pressure and creep in the plastic.

Remove the supports on the pistol grip and install a M6 star locking washer over the m6x25mm screw. Insert the selector detent with the pointy end first into the hole in the lower and insert the detent spring in the pistol grip.
Filing the sharp point of the detent down slightly with a file can help if the selector is stiff and hard to operate.
Fully seat the pistol grip in the lower and install the M6 screw inside the grip with a long 5mm allen key or allen head screw driver. Make sure the grip is held down completely by the screw but don't over tighten the screw as it strips out the plastic threads in the lower receiver easily.

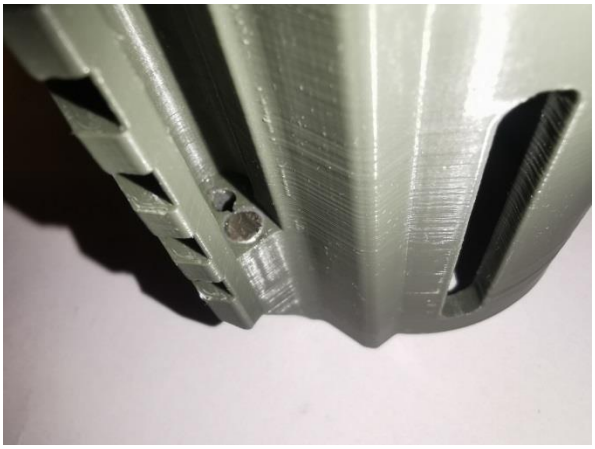


Place the feed ramp in its slot and install an M3x16mm screw through the hole on the underside of the lower.
Push down on the feed ramp hard from the top while tightening the screw, tighten it 1/4 of a turn past snug.

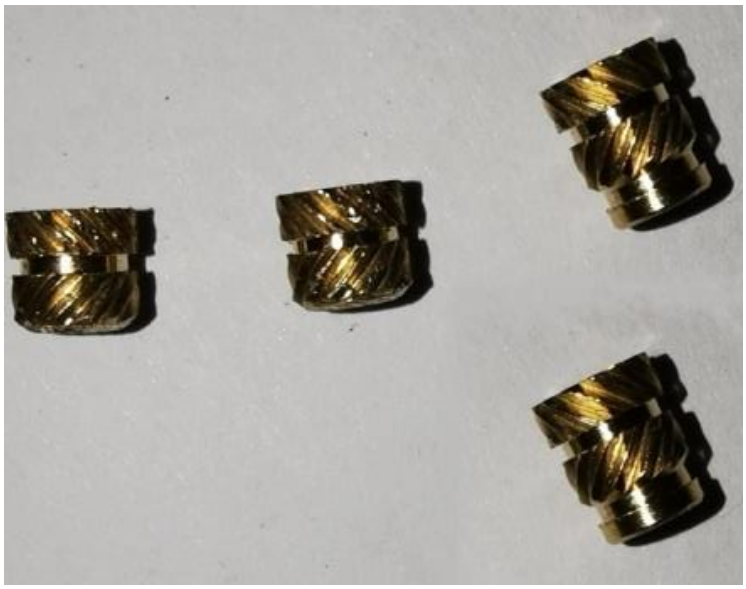


Preparing the upper assembly

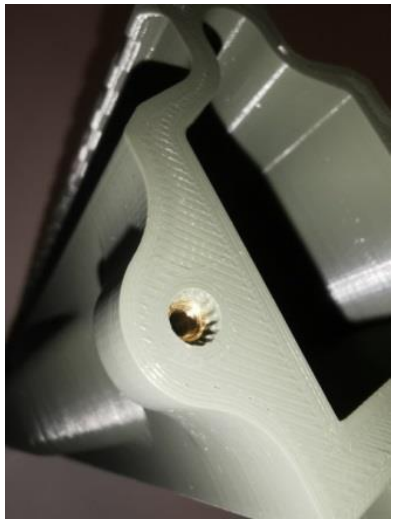
Remove all supports from the barrel retainer, refer to the video in the media folder. Mix up a small amount of JB weld and apply it in the hole for the charging handle retaining magnet.
Stick the 5x10mm magnet to the small flat tip screwdriver and apply some JB weld on the magnet and push the magnet into the hole in the barrel retainer. Wrap some cloth around the screwdriver and clean all excess glue out of the channel with alcohol, also make sure to clean the hole for the M3 all-thread next to the magnet by pushing a piece of scrap M3 all-thread rod or similar through the hole.
Set the barrel retainer aside nose down so the magnet does not fall out and let the JB weld cure for 2 hours.



Remove all supports from the upper receiver, refer to the video in the media folder.
Insert one of the brass inserts in the chuck of your electric drill and use a file to shorten it to 4mm in length then chamfer the edge slightly, repeat for one more brass insert. The two shortened inserts are used for the brass catcher mounting points next to the ejection port.



Set your soldering iron to around 250 degrees C and pre-seat two unmodified brass inserts in the holes at the back of the upper by hand.
Once the soldering iron has reached the set temperature, use the soldering iron to seat the inserts to a depth of around 3mm. Make sure the inserts are straight and concentric in the holes.
Now melt in the short modified inserts in the holes for the brass catcher, they will sit about flush with the upper receiver wall when fully seated.

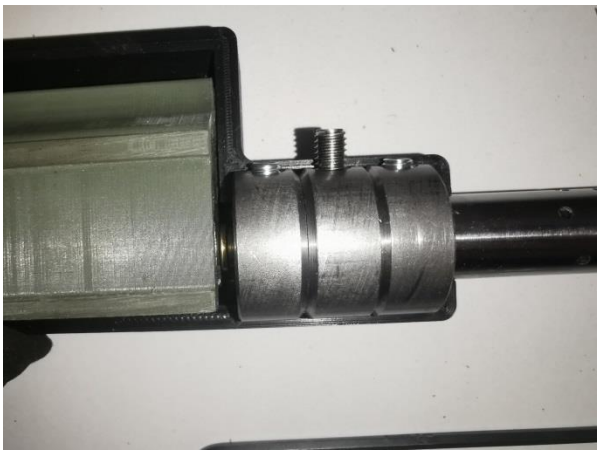

Place the ejector in the ejector slot and hold it so the hole in the ejector lines up with the hole in the upper and install an M3x16mm screw. Tighten the screw until it's snug then back it out half a turn.



Installing the barrel

Back the setscrews out on two of the 28x16x12mm shaft collars and replace the setscrew on the third one with an M6x12mm cup point setscrew. Slide the three shaft collars onto the chamber end of the barrel, the one with the longer setscrew should be in the middle.
To set headspace correctly and accurately the shaft collars must slide on the barrel with not a lot of friction, if they don't refer to the instructions on page 46.
The FGC-9 MK2 headspacing jig is compatible with the PARTISAN-9 so if you already have it you don't need to print the PARTISAN-9 version of the jig.

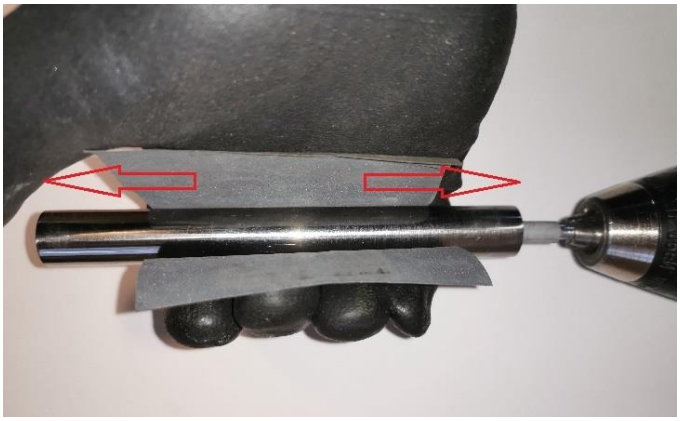
Insert a live unfired cartridge into the chamber and make sure it's fully chambered by pressing it in with your finger as hard as you can, then install the barrel into the headspacing jig.
Place the bolt in the headspacing jig and push the barrel a few mm back then carefully knock the barrel forward with the bolt until the bolt face touches the wall of the jig.
Press the bolt forward against the wall of the jig and the barrel against the bolt while making sure that both the barrel and bolt are straight in the jig and not angled. You want the bolt to have contact with both the wall of the jig and the base of the cartridge at the same time.

Hold everything still so nothing moves and carefully torque down the setscrews on the shaft collars with a 4mm allen key a bit past finger tight. Remove the barrel from the jig and fully tighten the setscrews, you want to tighten them pretty hard but careful so you don't snap the allen key.

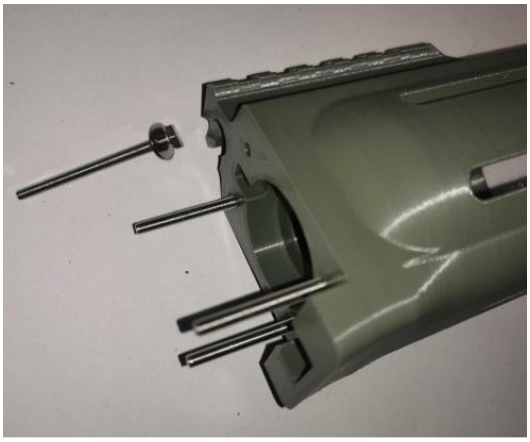

If the shaft collars do not fit over the barrel or if they are very tight you will need to sand the barrel slightly.
You can use an 8mm concrete expander and cut the screw head off, then mount the screw in the chuck of your electric drill.
Insert the plastic expander 3/4 into the bore of the barrel, then hold the expander with your fingers by the part that protrudes out the barrel and thread in the screw until the yaws of the chuck butts up against the expander.

Hold a piece of 240 grit wet dry sandpaper in your hand and squeeze it around the barrel while spinning the drill and moving the barrel back and forth.
Be careful so the barrel does not grab one of the ends of the sandpaper and starts wrapping it around the barrel along with your hand.
Stop when all three shaft collars fits over the chamber end of the barrel.



Insert the barrel into the upper and locate the long setscrew of the middle shaft collar into the anti-rotation pocket.

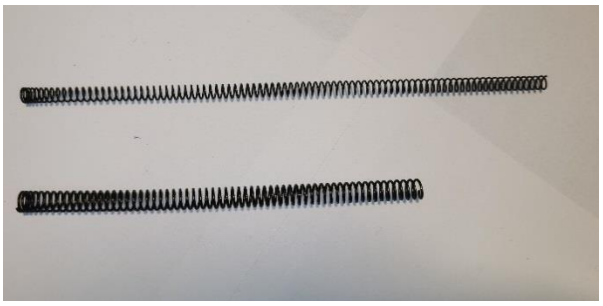
Slide a large diameter M3 washer(3.2x9mm) over each of the four M3x40mm barrel retainer screws and insert the screws in the barrel retainer, then insert the charging handle in the channel of the barrel retainer.



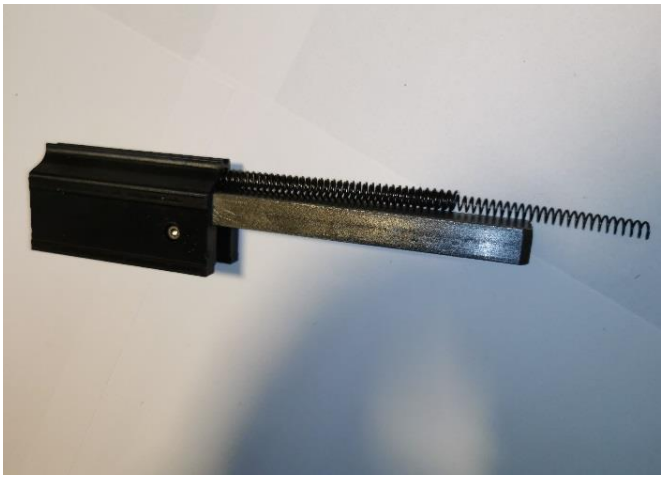
Slide the barrel retainer over the barrel and seat it against the upper.
Thread the barrel retainer screws into the upper but don't fully tighten them yet. Because of the friction from the screws threading into the upper, the plastic around the screws will heat up a lot and get soft. If you fully tighten the screws before the plastic has cooled down you will strip out the holes in the upper.
Also the lower will be harder to install if the barrel retainer screws are fully tightened.
Applying some ballistol oil inside the holes for the barrel retainer screws in the upper can help to keep the plastic cool and prevent stripping of the plastic threads.

Installing the bolt and recoil assembly

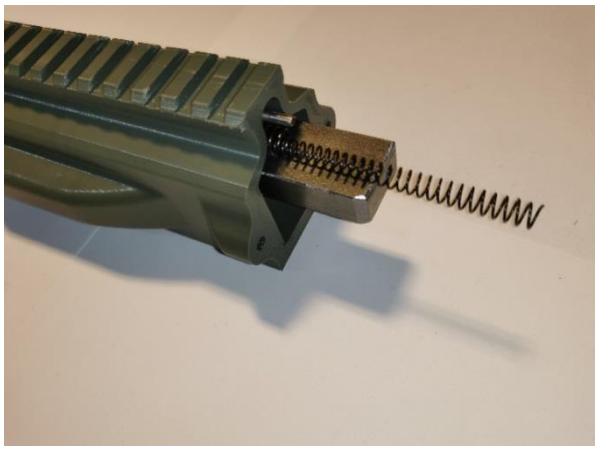
Insert the small recoil spring inside the big recoil spring with the uncut ends facing the same direction and lining up.



Install the recoil springs together into the bolt with the uncut ends facing forward into the bolt housing.

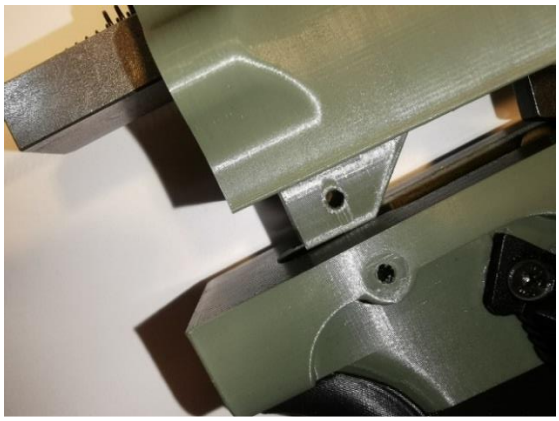


Hold the ejector out in the activated position with your finger through the ejection port while inserting the bolt in the upper and push the bolt all the way forward. Once the bolt is installed take care when handling the upper so the bolt does not fall back out.



Installing the lower

Cock the hammer and set the selector to the safe position, then take the upper and seat it in the lower by lining up the special front lug with the lug recesses in the lower and the rear lug in the FCG pocket, then press the upper down so it locks in place. Make sure that the upper is fully seated in the lower and that the holes for the screws in the lower lines up with the holes in the upper.
Set the safety selector to the fire position and pull the trigger to release the hammer, the hammer will prevent the bolt from falling out of the upper.

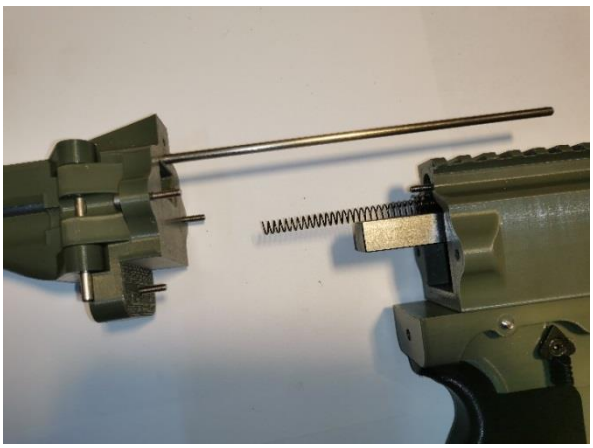



Install the two M3x40mm screws from the left side of the lower and the small diameter m3 washers (3.2x7mm) and M3 nuts on the right side. Hold the screw head from rotating and tighten the nuts 1/4 turn past snug.


Now go back and tighten the barrel retainer screws in a cross pattern, first snug them up and then fully tighten them half a turn past snug.


Installing the folding stock

Install a 3.2x7mm washer over each of the three M3x20mm screws and then insert the screws in the endcap.
Install the 4mm guide rod into the blind hole in the endcap.
Insert the guide rod inside the recoil springs and push the endcap against the upper while making sure that the guide rod gets seated in the blind hole in the front of the upper as well.




Install the three M3x20mm screws in the endcap but do not fully tighten them yet.

Install the threaded M3 all-thread rod through the hex shaped hole in the barrel retainer until the end of the all-thread exits out the hole in the endcap.

Use any suitable tool to push on the all-thread from the barrel retainer side so it does not fall out and then install a 3.2x9mm washer over the all-thread rod on endcap side of the gun. Install a M3 nut on the all-thread rod but do not fully tighten it yet.

Now fully tighten the left and right M3x20mm screws that you installed in the endcap earlier but leave the bottom screw loose. Tighten the M3 nut on the all-thread rod 1/4 of a turn past snug and then install a M3 nylock nut against the regular M3 nut on the all-thread rod.

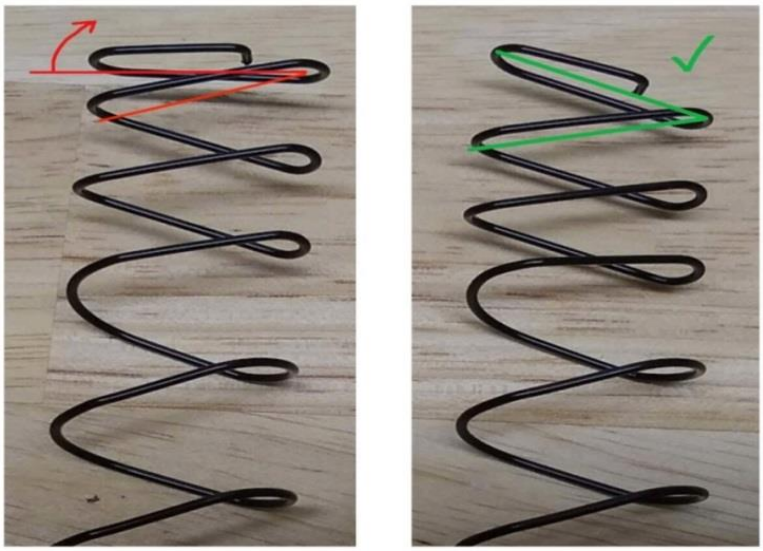
Visually inspect if there is a gap between the back of the lower and the endcap. If not, tighten the bottom m3x20mm screw. If there is a gap print the shims that are in the “Endcap Shims” folder.
Remove the bottom screw and test fit the shims until you find one that’s a bit tight to install but still fits without the need to loosen the other screws.
Install the shim and then re-install the bottom m3x20mm screw and fully tighten it.
Don’t skip this step if there is a gap, it decreases the strain on the upper receiver lugs when the bolt impacts the breech face and increases durability of your PARTISAN-9 even further.

Preparing the magazine spring

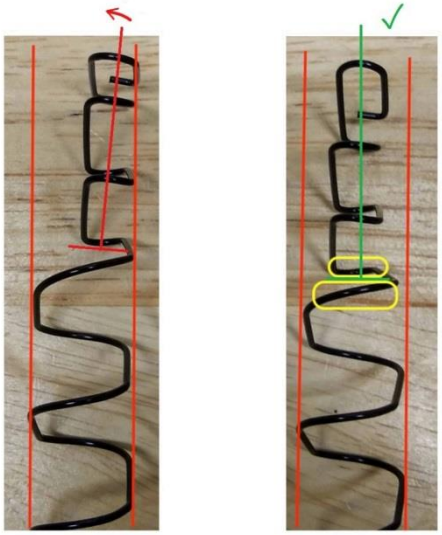
It's highly recommended to use an OEM Glock 25rd or 33rd magazine for your PARTISAN-9, Glock factory magazines are very reliable and reasonably priced and will always be better than any 3D printed option.

The PARTISAN-9 uses a custom 25 round version of the DMB 9x19mm Glock magazine which is the most reliable 3D printed 9x19mm Glock magazine available.

(Text and pictures by BoostWillis)
Start by removing the brim from the magazine body and the supports from the follower. Now we need to modify the Chinese Glock magazine spring.
Instead of leaving the top of the spring flat like in the picture on the left, bend the top coil slightly with your pliers upward to match the pitch of the coils below it like shown in the right picture.



As you can see from the red guide lines, the spring in its unmodified state on the left has a bias toward one side. Refer to the marked yellow boxes for where to bend the spring with your pliers to correct it.
You want the top narrower coils to be centered on top of the spring.



Now follow Danny Meatball's magazine instructions which you can find in the documentation folder and finish the magazine assembly.

If you are building the PARTISAN-9 without the integral suppressor the firearm is now finished.

Don’t fire your PARTISAN-9 until 24 hours has passed since you last glued something.

Before operating the gun you need to oil some parts or it will be very hard to rack the bolt.
Oil the charging handle, the bolt and the buffer weight with plenty of Ballistol oil.

Testing cartridge feeding

To make sure that your firearm functions properly when it comes to the bolt picking up cartridges from the magazine and putting them into the chamber each time the bolt comes forward, you need to test this before trying to fire your PARTISAN-9 with live ammo.
Follow the steps to complete this test to see if your PARTISAN-9 is functioning correctly.
If any of the 10 cartridges fail to properly go into chamber, you need to fix the causing issues before you fire real ammo, otherwise your PARTISAN-9 won’t function reliably.

MAKE SURE YOUR PARTISAN-9 HAS NO FIRING PIN IN THE BOLT BEFORE PERFORMING THE CARTRIDGE FEED TESTING!!

Lock the bolt back with the charging handle, load 10 cartridges into the magazine and insert it in your PARTISAN-9.

Look into the ejection port to ensure that the magazine is properly in place with the cartridge sitting properly at the top of the magazine than slap the charging handle to close the bolt.

Look at the ejection port to see whether the bolt is fully closed and that you don’t see the cartridge being wedged.
If the bolt is closed and all you can see through your ejection port is the side of your bolt, you can continue with the next steps.

Remove the magazine and lock the bolt open by using the charging handle, make sure you keep the muzzle pointed downwards while doing this.

Now check whether the cartridge sits properly inside the chamber. Tip your PARTISAN-9 upwards and pull the charging handle back halfway. If your chamber is made well, your cartridge should fall out with by itself or with a little manipulation by pulling lightly on the rim of the cartridge with a screwdriver.
If you need to use the screwdriver to pry the cartridge out of the chamber with force, the chamber is too tight and your gun will likely have extraction/ejection problems.

After you have removed the cartridge, repeat the steps for the rest of your cartridges in your magazine.
Only after you have made sure that your PARTISAN-9 has reliably put each of the 10 cartridges successfully into the chamber, should you consider going ahead with the next test of your PARTISAN-9.

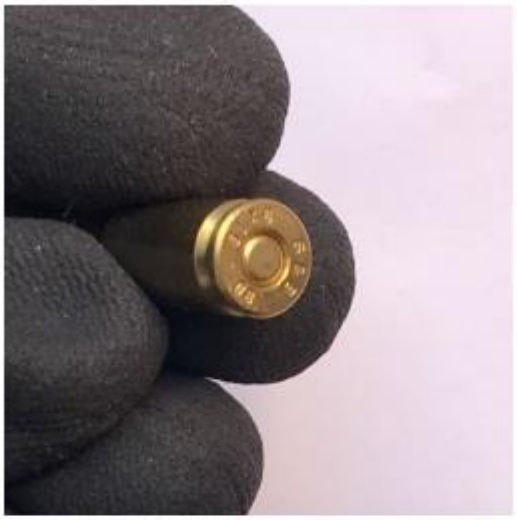
If your PARTISAN-9 has feeding issues, start by making sure the bolt runs smooth in the upper and doesn’t bind.
Next check that the feed ramp is undamaged and then retry the feeding test with a different magazine.
Also make sure there is no warping in the lower receiver, even just a slightly warped lower receiver can cause feeding issues. If your lower is warped, level the bed on the printer and increase the room temperature in the room where your printer is, then print a new lower receiver with an 8mm brim to enhance bed adhesion.

Primer testing

To make sure your firing mechanism works well without having to fire live ammo, you can fire empty cases with live primers.
If you don't have empty cases and live primers to assemble, you can take apart cartridges with a bullet puller, they are available on Ebay, Amazon and Aliexpress.

Make absolutely sure you have NO BULLET and NO POWDER in your cases. Make 10 primed cases and load one of them into the chamber by hand. Scrunch up some kitchen towel paper into a ball and hold it against the muzzle then fire the gun. Extract the fired case and repeat the primer test firing with the other 9 cases.
Make sure all of the primers fire and then clean the barrel.

Empty Case with no Bullet!



Only primer! No bullet or powder

Insert manually into chamber

Pressing paper towels against muzzle to muffle the sound

Inspect the primers to see if the firing pin is hitting them dead center which it should.
If any of them didn't fire, you need to investigate the causes for your firing mechanism not being able to reliably set off primers. Check if the dent created by the firing pin hitting the primer is centered in the primer. It should be dead center or at least very close to being centered.

The left picture shows cases that have off centered primer strikes, the gun might fire but it's going to be unreliable as some primers will take 2 or 3 strikes to fire. Any worse than this and the gun will not fire at all.

The right pictures shows perfectly centered primer strikes, the gun should fire the primers every time reliably.

If your PARTISAN-9 hits the primers off center and does not set them of reliably the only fix is to build a new bolt and take extra care when drilling the firing pin channel.
If it hits the primers dead center but still does not fire the primer your issue is likely binding of the firing pin. Use a round 3mm needle file to carefully file the firing pin channel from the back of the bolt after you removed the firing pin. Clean and oil the firing pin channel and firing pin thoroughly before you reassemble the bolt.

Another reason this could happen is if the firing pin does not protrude far enough out from the bolt face when it's hit by the hammer, perform the test described on page 28 to see if the firing pin protrude far enough.