The Gatalog Presents:

The “Cobra_40”

S&W SD40 and SW40

Assembly Guide

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Section I: Introduction

In 1999, Smith & Wesson introduced the SW40VE and SW9VE, otherwise known as the 2nd gen Sigmas. Years ago, I bought a cheap S&W SW40VE in 40 S&W. It has a terrible trigger, but the trigger is acceptable after polishing the sear and upgrading the springs. In 2012, SD series came out and improved upon the SW series.

FreeMenDontAsk (FMDA) released his frame for the S&W SD9 in 2020. Since I had a number of magazines for my SW40, I decided to pick up an SD40 parts kit with the intention of doing my own design remix. I designed my remix, printed my frame, and discovered that the 40-cal magazines are much wider than the 9mm magazines.

If one were to modify the FMDA frame to accept the wider mag bodies, the frame would be too thin and fail. Using FMDA's trigger geometry, I decided to design a wider frame to accept the 40-cal mags and handle the additional recoil. Thank you to all the Beta testers who helped me prove this out, notably users theprintN00b93 and 1stDisciple.

Vinh Nguyen then did us the further service of developing an SW9 frame, which he released in late 2021. Using his rear sear pocket and rail geometry, I am able to offer an SW40 frame as well for those who bought one mistakenly believing they could be built on the SD9 frame.

I hope you find this release useful and that you enjoy my Cobra design. If it's not your thing, I've included a plain frame for your own remixing. I love to see build pics pop up in r/fosscad or on RocketChat, so please share the signal!

-Ty

Section II: Tools and Shopping List

To assemble this firearm, you will need the following tools:

- Punch set (recommend flat and for roll pins)
- Set of fine files
- Flat Head Screwdriver
- Hammer
- Recommend mini pick tools like this one: https://www.harborfreight.com/mini-pick-and-hook-set-63697.html

Section III: Parts Kit Checklist

You will need the following parts.

PARTS

A complete parts kit should include the following:

- Slide assembly with barrel and recoil spring
- Trigger assembly with trigger bar and trigger return spring
- Slide lock lever
- Trigger Pin (Solid, has notches for return spring and slide lock lever)
- Rear sear pin:
    - Solid for SW40
    - Roll pin for SD40
- Magazine release and spring
    - Note that a lot of the used parts kits on eBay are missing the mag release spring
- Rear sear housing
- Takedown bar
- Takedown bar retention spring

RAILS

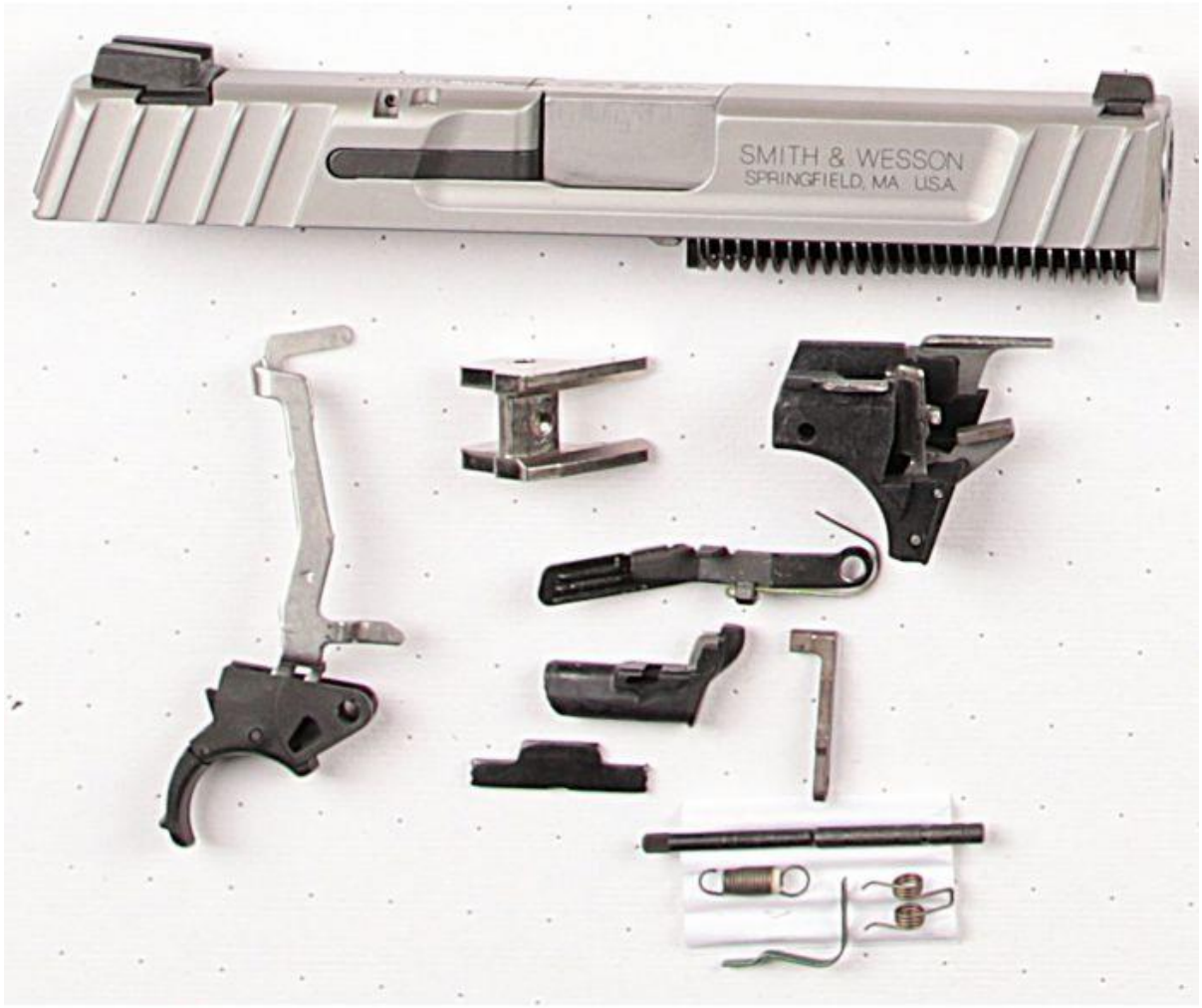
- Front rail module (SD9/SW9 rails are compatible with the SD40/SW40)
- Front rail pin
- Rear rail plates (if building an SW40)

MAGAZINES

- SW40 and SD40 magazines are interchangeable, only difference being the follower color and baseplate shape.

USING 40-CAL GLOCK MAGS?

- Check out Vinh's SW9 - 3D Printable SW9 Frame or FMDA's SD9 Glock Frame on the Gatalog. Their Glock mag versions should work for you, depending on if you're using an SD or SW kit.



Section IV: Print Settings

FILAMENT

Quality PLA+, such as eSun. I like Duramic PLA+.

INFILL

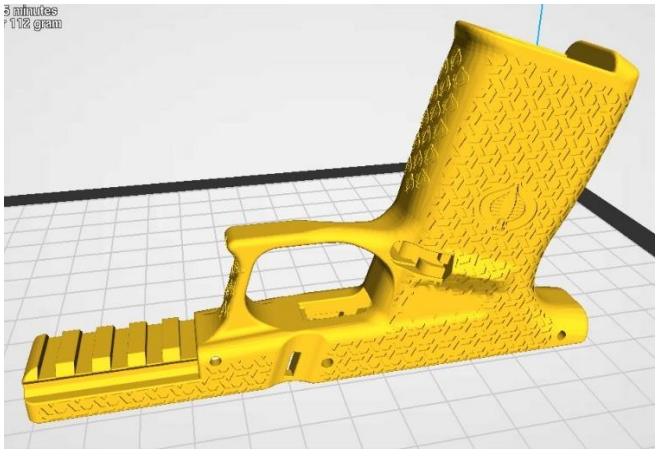
100%

WALLS

With a 0.4 nozzle, I printed mine at 3.2mm wall thickness

PRINT ORIENATION

My most successful print orientation is rails up, at 20°. Others have had success with the rail down orientation, but I've found that even minor rail warp will create issues with the trigger reset.

OR


Section IV: Assembly

SAFETY FIRST

Putting a gun together is no joke. Firearms are dangerous tools that must be treated with care and respect. You are responsible for your safety, and those surrounding you when you work with or operate firearms. Fellow developers or engineers cannot be responsible or liable for what you do or don't do.

As a general reminder, here are some rules to keep in mind:

1. Always treat a gun as if it is loaded. Remove the magazine and check the chamber yourself to verify the gun is unloaded.
2. Keep your firearm always pointed in a safe direction. Never point your gun at anything you don't intend to destroy.
3. Be aware of what is in front and behind of your target.

But specifically, for working on your firearm, you should remember the following too:

1. Keep live ammo away. Use snap caps or dummy rounds to verify function of your firearm. Never keep live ammo around your workspace, and certainly never mix them with your dummy ammo.
2. A clean gun is a safe gun. Never leave your firearms uncared for to foul or dirty up. Debris can cause malfunctions, which can be dangerous.
3. Always read and follow directions. Don't ignore a warning or follow instructions out of order.
4. Use prudent judgement. If something doesn't add up- use common sense. Stop, inspect, and re-evaluate your previous actions and procedures.

I made a detailed assembly video that you can watch here.

(SD40 Assembly Guide @ TyrannicalTy on Odysee)

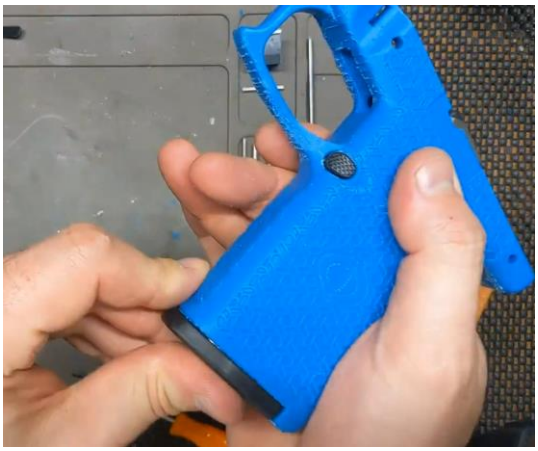
Step 1: Test Fit Magazine Release Button once your cleaned up your frame. File your frame as needed so that it moves in and out with little resistance.

Step 2: Install the Magazine Release Spring. Make sure the fat end goes in towards the bottom of the grip. Insert from the top using long needle-nose pliers.

Hint: It's easier to install without the mag release button in place.

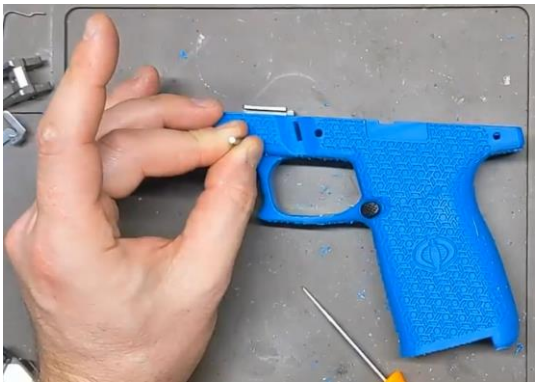
Step 3: Install the Magazine Release Button. Using a pick or hook, pull the mag release spring into it's slot in the mag release button.

Step 4: Test Magazine Retention and Ejection. Grab a magazine, make sure it locks in and ejects freely.



Step 5: Install Front Rail Block. Make sure holes are aligned and then drive in the front rail block retaining pin.

Hint: Make sure pin sticks out evenly on both sides of the rail block, so that it engages the frame equally on both sides.

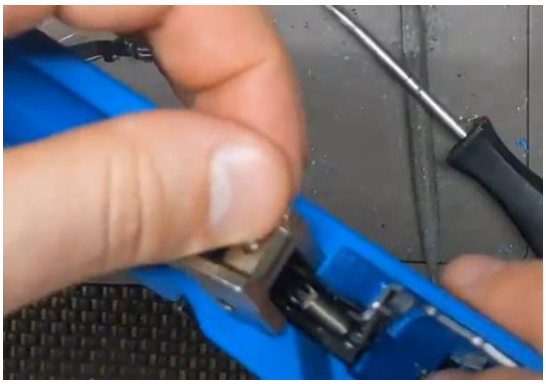


Step 6: Install Takedown Bar and Spring. First, insert the spring into the pocket. The straight section goes into the pocket. Depressing the spring with a screwdriver, slide the takedown bar thru the slots in the frame.

Hint: Make the takedown bar is in the correct orientation. The notch engages with a matching notch on the barrel, and the notch in the bar should be facing towards the rear.

Step 7: Drop In the Trigger Assembly. Make sure trigger reset spring is installed correctly and resting forward, atop the trigger. For spring orientation, the foam insert should be at the front, and the curly tail at the rear, connected to the trigger bar, should point upwards.

Step 8: Install Locking Block, which will now capture the trigger assembly in place.



Step 9: Install Slide Catch Lever. Slide in to the notch on the lefthand side of the trigger.

Step 10: Install Trigger Pin. Note the notch orientation and install as shown from the right-hand side of the frame.

Hint: This is the trickiest part of the assembly. Use a pick tool to ensure hole alignment, as the pin has to go through the frame, the locking block, the trigger, the reset spring, and the take-down lever.

Step 11: Install Rear Sear Housing. For the SD40, the rear rails are part of this housing. Visually check hole alignment where the rear pin will go.

(SW40 ONLY – Also insert the rear rail pieces)

Step 12: Test Trigger Bar Linkage. Confirm that it moves without binding, engages the sear disconnect, and returns to home position. Also check the trigger safety.

Step 13: Install Sear Housing Roll Pin.

Step 14: Assemble Slide to Frame

Function Check: Cobra Out!

Section VI: Troubleshooting

You may encounter certain problems with your firearm either during usage or assembly.

• The trigger is atrocious and stiff. There is no audible or tactile reset.

    o I’m sorry. That’s how it is on the SW. On the SD, less so…

• Takedown lever keeps falling out the side.

    o Did you bend out the spring enough? The spring should be taut and aggressively pushing the takedown lever upwards.

• My trigger is "dead" when I try to pull it. There is tension when I pull back indicating that the sear and striker is interfacing, but the striker ultimately never slips.

    o I've only seen this on some rear sear cages. You will need a rotary tool with a sanding bit to use on the sear housing. Begin by taking off a few thousandths of an inch at the top tip of the sear (NOT THE STRIKER) perpendicular to the frame, re-assembling the slide, and trying your trigger again. Repeat this process until you have a successful strike.

• Why is it that my trigger isn't resetting? It's like it's binding or scraping on something.

    o I found this happens when the sear and trigger bar are bone dry. Drop a dab of gun oil where the two parts interfaces in the sear housing and try to get a reset again.

• My striker is stuck- how do I get it to “fire”?

    o If your trigger is "dead" after cocking, you will need to manually disengage the sear with a thin punch or screwdriver coming into the rear of the frame where the slide and frame meet.