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### **Building A 1911 - Part I**

by Mike Watkins

So, you have bought a 1911 frame and slide and you are going to build your own 1911 .45 automatic. Great, but now you are wondering which parts you will need and how to go about getting the pistol finished. As one of Brownells professional Gunsmith Techs " and a member of the Pistolsmithing Guild " I get a lot of questions about the 1911. Over the next couple of issues, I'll be putting together a series on building a 1911 to help you complete your project.

First, you will need to decide what purpose do you intend to use the pistol you are building. This by itself can be a learning experience. Do you want it to be a stock government model, a target pistol, or a concealed carry gun? I would suggest looking at a schematic of a 1911 so that you can see exactly what parts are needed and how they go together. You will be able to see how the parts work together.

On the Brownells web site, you can find [schematics](#) for Colt 1911 pistols that will show you the different configurations of pistol types. From here you can build a complete parts list for the type pistol you want to build.

If you do not yet have a [Brownells catalog](#), be sure to order one. Brownells carries a wide variety of 1911 parts, from stock components to match grade parts. This will allow you to take a look at all your options and determine how much you want to spend and how custom you want your pistol to be.

There are also several books and videos available also you can refer to for information about the 1911 that will help in your project. Jerry Kuhnhausen's book, [The Colt .45 Automatic](#), Ed Brown's [1911 Bench Reference CD-ROM](#), Wilson Combat's [Combat Customizing The 1911 Video Series](#), and AGI's [Video Armorer's Course](#) are several good sources of information.

That may sound like a sales pitch, but these items are meant to inform and help you with your project. Hopefully, these resources will help you avoid costly mistakes, provide you with the information you need, and the Technical Support gang here at Brownells will give you any further advice and assistance you may need.

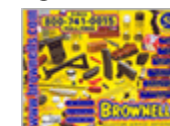
Here is a checklist I used in my shop when talking to a customer about building a custom 1911.

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## Schematics

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1. Decide on the components that will be needed for the purpose of the pistol. Write them down – DON’T rely on your memory!

Now that was simple, wasn’t it? The point is, plan ahead and review your choices to make sure they will be compatible with the type of pistol you want to build.

In my shop, I followed a procedure that I have listed below that helped me assemble a pistol.

1. Decide on the components needed for the purpose of the pistol. Research what is available and any information needed to assemble.
2. Fit slide to frame.
3. Fit barrel and bushing.
4. Machine sight cuts if required and install sights.
5. Fit trigger, hammer and components.
6. Fit grip safety and radius frame if required for a beavertail safety.
7. Fit ejector to frame.
8. Fit thumb safety.
9. Fit firing pin, stop and magazine release.
10. Fit extractor.
11. Function test with dummy rounds.
12. Test fire at range.

This list set out the steps I used to complete a pistol. By following these steps, I made sure that I didn’t overlook anything or leave anything out. (And, I’ll be following these steps in the upcoming articles.)

I have used a Colt schematic from the Brownells website and have chosen the basic parts needed to build a Government 70 series type 1911. In the table below, a variety of stock parts are listed, but I did choose a Storm Lake barrel and bushing, various Ed Brown and Wilson Combat Factory Plus parts, and a Wilson 3-hole match trigger. I will be using these parts in this series. I have long fingers and I like the look of a 3-hole trigger. No sights were chosen as everyone likes something different for the intended application. As mentioned before, the assumption is that you already have your choice of slide and frame. I should mention that if you do not have a quality dial caliper, you should purchase one as this is an invaluable tool.

| PART              | STOCK#                              |
|-------------------|-------------------------------------|
| Barrel            | <u><a href="#">#842-100-045</a></u> |
| Barrel Bushing    | <u><a href="#">#047-000-016</a></u> |
| Barrel Link       | <u><a href="#">#965-142-278</a></u> |
| Barrel Link Pin   | <u><a href="#">#100-000-865</a></u> |
| Disconnecter      | <u><a href="#">#047-000-008</a></u> |
| Ejector           | <u><a href="#">#047-000-001</a></u> |
| Ejector Pin       | <u><a href="#">#100-000-861</a></u> |
| Extractor         | <u><a href="#">#087-130-100</a></u> |
| Firing Pin        | <u><a href="#">#047-000-019</a></u> |
| Firing Pin Spring | <u><a href="#">#100-000-994</a></u> |
| Firing Pin Stop   | <u><a href="#">#560-457-701</a></u> |
| Grip Bushings     | <u><a href="#">#080-568-004</a></u> |
| Grip Safety       | <u><a href="#">#560-453-501</a></u> |
| Grip Screws       | <u><a href="#">#080-569-004</a></u> |
| Grips             | <u><a href="#">#647-025-001</a></u> |
| Guide Rod         | <u><a href="#">#087-882-001</a></u> |
| Guide Rod Plug    | <u><a href="#">#100-000-884</a></u> |

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|                           |                                     |
|---------------------------|-------------------------------------|
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| Hammer Link Pin           | <a href="#"><u>#100-000-864</u></a> |
| Hammer Pin                | <a href="#"><u>#100-000-862</u></a> |
| Hammer Strut              | <a href="#"><u>#560-452-701</u></a> |
| Magazine Catch Lock       | <a href="#"><u>#965-011-153</u></a> |
| Magazine Catch Spring     | <a href="#"><u>#965-011-152</u></a> |
| Magazine Catch/Release    | <a href="#"><u>#078-450-230</u></a> |
| Mainspring                | <a href="#"><u>#965-011-160</u></a> |
| Mainspring Cap            | <a href="#"><u>#965-011-161</u></a> |
| Mainspring Cap Pin        | <a href="#"><u>#965-011-165</u></a> |
| Mainspring Housing        | <a href="#"><u>#087-816-120</u></a> |
| Mainspring Housing Pin    | <a href="#"><u>#965-011-165</u></a> |
| Mainspring Plunger Detent | <a href="#"><u>#965-011-163</u></a> |
| Plunger Spring            | <a href="#"><u>#965-011-330</u></a> |
| Plunger Tube              | <a href="#"><u>#965-011-332</u></a> |
| Recoil Spring             | <a href="#"><u>#969-424-016</u></a> |
| Sear                      | <a href="#"><u>#965-011-310</u></a> |
| Sear Pin                  | <a href="#"><u>#965-011-320</u></a> |
| Sear Spring               | <a href="#"><u>#965-011-290</u></a> |
| Slide Stop                | <a href="#"><u>#296-104-001</u></a> |
| Thumb Safety              | <a href="#"><u>#207-800-430</u></a> |
| Trigger                   | <a href="#"><u>#965-001-045</u></a> |

Next month we tackle slide-to-frame fitting. See you then!

[Building A 1911 - Part II](#)



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Instructional Materials  
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### Building A 1911 - Part II

by Mike Watkins

The last article covered the items you would need to build your 1911-type pistol. If you want a refresher or didn't get a chance to read the article simply go to [Part I](#). This article will cover fitting the slide and frame of your 1911-type pistol.

If you have a slide or frame that is oversize on the rails, you will have to mill or file down the rails so the slide will go on the frame. If they will already go together, you may have purchased a pre-fit slide and frame assembly, so the fit is probably ok. If the components fit together and have a lot of play you may want to tighten the slide and rails on the frame. We will cover both procedures here.



The first step with an oversize slide and frame is to measure the width and height of the rails and grooves on the slide and frame. Write down your measurements, as you will need to refer to them as you proceed. It is easier if you will make a rough drawing of the rails from an end view of the frame and slide. This will allow you to reference the measurements you have made and visually see how they fit together and where material will have to be removed so the slide will go on the frame. Metal may have to be removed from all surfaces or only one.



Use a [Slide / Frame Rail File](#). This file has safe edges and cutting edges on it so you can remove metal only from the surface that requires it. Proceed slowly and check your progress often. File evenly and square to the surface you are working on, you only want to remove enough metal to allow the slide to start on the frame, although it should be a little too tight.



Be sure you clean both frame and slide of all file chips and lube the rails with oil before installing the slide on the frame. This will help prevent galling and sticking the slide on the frame. Tapping the slide on and off with a soft faced hammer will help here. Don't try to go too far or you will stick the slide to the frame and could damage them. This is not the time for a bigger hammer.



Once the slide will go on the frame, slowly continue filing and fitting until you can tap the slide to the rearmost of its travel on the frame. It should not go on hard or bind during its travel, but should be a little tight. This is strictly a hand feel or calibrated eyeball condition that you will have to determine.

Now that the slide will go the frame, lapping them to their final fit is next. I use **Aluminum Oxide Lapping Compounds**, that has 600 and 800 grit compounds in one kit. Start with 600 and finish with the 800 grit, of course. What you want to achieve here is the slide to move freely throughout its travel, smoothly and without any binding. Go slowly and check often, you can lap them so they are too loose. If that happens, you can follow the second part this article to tighten them back up! No play at all, but free travel is what you are looking for. You will have around a .001 of an inch clearance with careful work.



If you have a Milling machine, the procedure is the same, of course, just easier. It's just a motorized file, maybe more accurate discounting human error. So that's what it was when I misread the dial!

If you have started with a slide and frame that fits together but has a lot of play and is going to be a match pistol tightening them to remove excess play will be needed. Take your measurements as before.

On a carry pistol a little play is acceptable and perhaps preferable, your life or someone else's may depend on it. We're striving for 100% reliability in both!

The method I use is to peen or tap down the frame rails first. You will want to hold the frame in a sturdy bench vise with padded jaws and I use a magazine well filler to prevent crushing the frame. I have been using the **Super-Hold Vise Jaw Pads** for years and haven't torn them up yet! I took a piece of Delrin and made a support to go thru the trigger guard to help hold the frame in place.

I then slowly tap them down with a 2oz hammer, with a mirror polished face. I like the **2 oz. Ballpeen Hammer, Model HP2 (56.7 grams)**. Don't tap the rails down where the magazine opening is in the frame. The frame will collapse inward and the magazine won't go in until you file it back open or the rails will crack. Peen the rails down from about 1 inch from the front of the front rails and about 1/2 of an inch forward from the back on the rear part of the frame. As you peen down the rails a wire edge will form on the outside edge of the rails, this will have to be filed off as you proceed. Here again trial fit often and go slow.



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Remember the measurements you took, there are hardened rail spacers you can use during the peen down procedure. You can get the [Brownells 1911 Auto Slide Fitting Bar Set](#), or they are available separately, too. These are held into the groove on the frame as you peen them down and control how far to go. They correlate to those measurements you took. If you need a .115 inch frame groove to make the slide fit tight, just insert the correct spacer and tap away!

You can tighten the slide also; we have the [Power Custom Slide Rail Tool](#).

This is designed to allow you to SLOWLY tighten the slide by squeezing it so it will fit tighter on the frame rails. Here again do not try to squeeze the slide in the area of the ejection port. On the rear of the slide go slowly as the thumb safety notch is prone to cracking or breaking off. I prefer to peen down the frame only to tighten them up and leave the slide alone if I can. Thatâ€™s probably because I have a Colt Gold Cup slide in my work bench drawer with a cracked left rear corner. But I have done a bunch of them.



You are working for just the opposite in the Peen down method versus the oversize component metal removal. But the end result will be the same. When the slide will just go on the frame a little too tight, and then follow the lapping procedure for that smooth travel of the slide without any binding.

Next month weâ€™re on to step #3 â€" barrel and bushing fitting. Thereâ€™s lots more to come and weâ€™ll keep moving until weâ€™ve got a complete pistol!

[Building A 1911 - Part I](#)

[Building A 1911 - Part III](#)



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**Building A 1911 - Part III**

**By: Mike Watkins**

Well, now weâ€™re up to step 3 in our 1911 series, fitting a barrel and bushing to our project 1911. Letâ€™s get started!

The first step is to measure the slide with a Digital Caliper **#539-832-218** or **#606-500-136** to determine the hood length. That dimension is measured from the breech face to the back edge of the upper lug in the top of the slide. Generally that is around 1.314â€•, but every slide is a little different. It should fit tightly against the breech face but not so tightly that it inhibits pistol functioning. Next, the sides of the hood are cut and held square with the slide using a **1911 Auto Barrel Alignment Block**.

You can measure the width of the breech face and transfer that measurement to the hood, then file or mill to the actual width needed. Another way is to hold the barrel squarely in the slide with the Barrel Alignment Block, paint the back of the hood with a black marker and gently tap the barrel against the breech face sides. You will have a mark to go by so you donâ€™t narrow the hood width too much when filing the hood by hand.

Now that the hood is fitted to the correct length and width, you can check to see if the barrel will lock up fully into battery. On match barrels, the rear lug will be oversized on the recess depth so you can fit it to the slide. The rear lug should be lowered until the barrel locks up fully to maximum lug depth. The theory is to center the barrel on the firing pin hole and have .040â€• to .045â€• lug engagement.

I prefer to have 0.45â€• or more lock up. The firing pin can hit a little off center and be just fine. However, that doesnâ€™t mean on the edge of the primer. You can measure the amount of lock-up in several ways. The simplest method is to place the barrel into the slide, make sure it does not touch the breech face and is not seated into the slide lugs. You want to use a loose bushing to support the muzzle end of a standard barrel so you do not have any binding.

If youâ€™re fitting a bull barrel, the O.D. of the barrel must be fit before you can measure lockup. You need to watch for, and prevent, barrel binding or springing as you push the barrel up into place, as they can adversely affect your measurement. Push up on the barrel, and, with a dial caliper, measure the distance from the top of the slide to the top of the barrel hood. Now slide the barrel back and up into the slide lugs and make the same measurement again. The difference between the two measurements will be the amount of engagement or lockup.

There are two approaches to fitting the bottom lugs on a 1911 Auto. You can use a milling machine to cut the bottom barrel lugs, or **Brownells Lug Cutter** thatâ€™s operated by hand. Both work well and it just depends on the pistolsmithâ€™s preference and therefore which procedure should be used. Everyone, through experience, develops their own technique that works for them. Maybe that is where the â€˜magicâ€™ of pistolsmithing comes into play.

I prefer the hand-cut method. This is where the bottom lugs are cut with the barrel installed in the frame. The reasoning comes from having the frame, slide, and barrel all locked into the tolerances it has to operate with. This way the lugs are in direct relationship with the slide stop pin they are going to lockup on. The lugs are then cut square with the slide stop pin even if the hole in the frame is a few thousandths of an inch off center.

Now weâ€™ll cut the barrel lower lugs with the Lug Cutter. Align the barrel square with the Alignment Block and insert a Brownells **Brownells 1911 Auto Barrel Holder** into the slide. Or you can use the self-aligning, **Brownells Barrel Alignment Gauge** by itself to hold the barrel in place while cutting the lower lugs. Remove the alignment block and install the barrel slide assembly onto the frame and cut the lower lugs to lock on the slide stop pin. Be careful you donâ€™t cut too far and take metal off the back of the lugs. You should cut enough metal to allow the thumb safety to go into engagement.

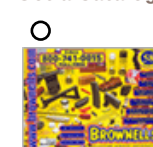
Double check to make sure that after cutting, the disconnecter is properly located into its slide recess as well. If the back of the slide and frame are not flush, you can remove metal later to blend them in. Continuing to cut the lugs to make the slide/

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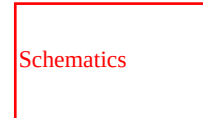


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frame flush at the rear will, most likely, over-cut the lug stopping point where it rests against the slide stop pin.

Remove the cutter and try the fit of the barrel against the slide stop pin. It should be tight and require a little hand fitting and polishing for it to lock and unlock easily. Don't take off too much. The lockup should still be firm, but not binding. The lugs should touch at the back and bottom against the slide stop pin. With that accomplished, measure the distance from the barrel link pin hole to the lugs where they rest on the pin. Choose a link the same distance as measured. Never open up either hole on the link!

Paint the sides of the lower lug feet with a marker and lay the link on the outside of the lugs using a link pin to hold it in place. With a scribe, rotate the link from its position of full lockup to the unlock position, at least a 45° arc. Then scribe that arc on the sides of the lower lug feet which will show where metal needs to be removed from the bottom of both feet of the barrel lug. This will allow the link to swing freely through its movement.

Pre-marking the lugs this way and then removing only that amount of material will prevent the lugs and slide stop pin from bumping at the front of the lugs during its travel, which will affect accuracy and functioning.

The flat on the lugs should be as long as possible to lock on the slide stop pin for the best accuracy. This also delays the unlocking of the barrel for accuracy. I also believe it contributes to less recoil or muzzle flip in a compensated pistol.

With those clearances correct, install the link and pin into the barrel and hand cycle to check functioning. We will assume we have the correct bushing or cone lockup at this point. With the barrel unlocked and the slide back over the hood, you should have at least .005" clearance between the top of the barrel and the slide upper lugs. If not, the back of the barrel lugs could be hitting the frame as the barrel unlocks.

That contact point should be moved back around .005" at a time so the barrel will have clearance to unlock. The sides of the barrel can also bind inside the slide right above the rail groove, so check that also. I remove that contact point from the slide rather than from the barrel if there is any binding.

Check to make sure the barrel is seated fully in the barrel bed on the frame and the bottom of the link is not bottoming out in the frame. When a ramp barrel cut is made, the link slot in the frame should be moved back about .040" to solve that problem. More on ramp cuts later. Now that we have a pistol which cycles without binding, yet locks up like a bank vault, we can proceed to chambering.

Using your digital caliper measure the end of the barrel hood to the case mouth ring in the chamber. Most match barrels are short-chambered and headspace will have to be set with a reamer. Even if the chamber length is correct, which doesn't happen very often, I still run a reamer into the barrel to make sure the chamber diameter is correct. This will also cut the lead-in taper into the lands. You can hand turn the reamer to check this without deepening the chamber. Just proceed carefully and remember the saying "cut a little, check a lot!"

I cut the chamber depth .002" to .005" over SAMMI minimum specifications, depending on caliber, to ensure that lead or fouling build up will not hinder chambering or ejection of a loaded round. Throating the barrel .10" will also help and lowers chamber pressure on the .38 Supers or other hot rounds. From my experience, throating will not adversely affect accuracy. Final dimensions will be up to you, of course.

Machining the frame wasn't addressed. Those dimensions will depend on the type of barrel ramp you have chosen. Consult the dimensions for your Wilson/Nowlin or Clark/Para ramped barrel.

Generally, with the frame level in the milling vise, you will touch the frame rails and then center the cutter in the frame slot. Lower a 3/8" (.375") center cut, end mill down .315" and machine slot through to the magazine well.

If you're fitting a barrel with a Wilson/Nowlin ramp, you will now set the frame up vertically in the milling vise. Use a **Nowlin Frame Bridge Cutter** to move the frame lug slot back about .160". You can determine that amount by measuring from the slide stop pin to the face of the lug slot. Subtract the measurement from .495", and that will give you the depth. Remember to check your barrel specifications!

After the cut for barrel depth has been made, install the frame in the milling vise with the dust shroud pointing upward and the frame rails 45° from vertical. Cut a chamfer about .050" wide at the intersection of those two previous cuts. The edges of that chamfer should be beveled with a needle file, rounding them into a 1/16" radius.

On a Clark/Para ramp, the second cut is measured from the slide stop pin to the face of the lug slot. This cut is made with the frame level in the milling vise and is approximately .260" in length. The Clark ramp cut is rounded at the back of the lugs. Check your barrel again to see what the cut will look like. Remember; go by the specifications that came with your barrel.

Bushing-to-slide fit should be tight and a match bushing will have to be bored or reamed .001" over your barrel diameter. Chamfer the top rear inside and lower front inside of the bushing so the barrel can lock and unlock smoothly. Again, it should not bind or spring back when pushed up into the slide by hand during lockup.

Today's computer machined parts have resulted in tolerances that have increased the potential accuracy of the 1911 Auto design to new levels. Don't get in a hurry, check fit often, and you will have a pistol which is accurate and functions perfectly.

That completes this segment of the 1911 series. In step 4, I'll be installing the sights and machining the slide. I have

chosen the Bo-Mar Rear Sight [Bo-Mar Rear Sight](#) and a [Bo-Mar Front Sight](#) for the pistol. See you next month!

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### Building A 1911 - Part IV Machining the Slide for Sights

By: Mike Watkins

This time weâ€™ll cover the installation of sights on your slide. There are a ton of options from fixed sights to adjustable ones out there. If you are using a slide with fixed sight cuts already in the slide and a stake on or a dovetail front sight, only minor fitting of the sights you have chosen could be required. Some of you may have ordered your slide with a Bo-Mar rear cut and a dovetail front; again only fitting the sights are needed with drilling the elevation screw hole and tapping it for the elevation screw on the rear sight.



Take a look in the latest Brownells Catalog and youâ€™ll find that there are lots of options for fixed sights, night sights, and adjustable sights. For my project, I decided to install a Bo-Mar adjustable sight for the rear and an EGW dovetail front on this pistol.

I know the proper machinist method is to locate zeros with an edge finder and then figure the amount of table movement required for each cut you are doing. I still scribe layout lines on the part and use those as a means to double check my calculations. If the phone rings and you only crank the handle twice instead of the required three, itâ€™s easy to see before you make a cut and ruin a \$200.00 part!

The **Bo-Mar BMCS** will be a Lo-mount installation since I really like these. After shooting pistols with this sight for over 30 years in competition, Iâ€™m quite used to the sight picture. Remember, I said everyone has his or her own preference! These just happen to be mine.

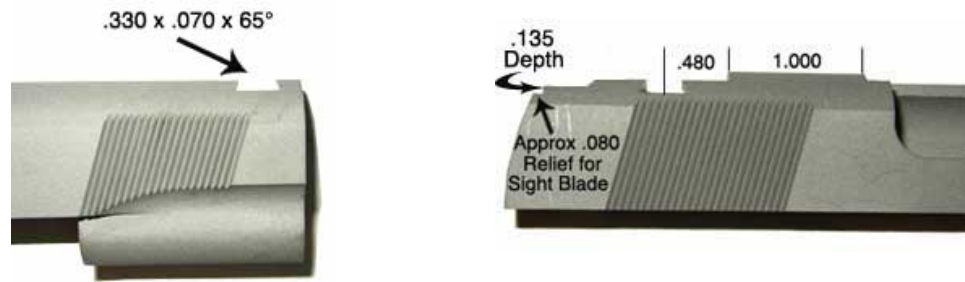
Before machining the slide be sure to measure your BMCS Bo-Mar sight as they vary a little from sight to sight. *You may have to adjust these dimensions for your sight!!*

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Coat the top rear of your slide with layout blue or paint it black with a permanent marker so you can scribe reference lines on it for machining the cuts needed. From the breech face, measure back 1 inch and scribe a line, this will be the forward stop point when you machine the flat on the rear of the slide and remove the factory dovetail. I use a 3/8", 4-flute end mill and just touch the bottom of the original fixed sight dovetail on the rear of the slide. You will then mill a flat the full width of the slide up to the one-inch mark you previously scribed onto the slide. If your slide doesn't have a dovetail in it, lower the end mill down 1/10" for that cut. After that flat is machined, measure from the edge of the one inch mark .480 thousands to the rear of the slide and scribe another mark. This will be the center line for your new dovetail. Use a pointed center finder to locate the center of the spindle to that center line, and lock the mill table down so it won't move.

Remove the center finder and install the correct dovetail cutter for your sight, usually the **Bo-Mar Rear Sight Dovetail Cutter**. Raise the mill table up so the dovetail cutter just touches the slide, move the slide from under the cutter and raise the mill table up approximately 1/10" for the dovetail cut. Again, measure your sight since they do vary some!!

I made a full pass with the dovetail cutter, which made an undersize cut. Then, I measured the width of the sight dovetail and determined how much more will have to be cut to widen the dovetail to fit the sight. I moved the cutter to the rear of the dovetail and made the second cut about .005 thousands of an inch smaller than needed. Next, I tried fitting the sight to the dovetail to see if another cut was required. If all has gone well it should just start into the new dovetail and if it does, use a **Safe Edge Triangle File** for the final fit and to smooth up any machine marks.

With the sight installed in the dovetail, measure and center it from side to side. Mark the center of elevation screw hole. Then lower the sight blade down against the slide and scribe a line around the sides and rear of the sight to locate the sides of the relief pocket for the sight to go down into. You will also scribe a line for the forward edge of the pocket, raise the sight up and then use rear edge of the sight base to locate how far to machine the pocket cut forward. I don't make the circular cut for the windage screw on the right side, just my preference as I think it looks better without that cut and once the windage is set I vary seldom have to readjust for windage.

Remove the sight from the slide and cut out the material for the relief pocket approximately .135 thousands deep with a 1/8 inch 4F End mill. The rear of the slide will also have to be relieved for the sight blade to clear the side shields. This cut will be about .080 thousands forward of the rear edge of the slide. Refer to the drawing.

Now you can center a **# 31 drill** for the elevation screw, with the center mark you made before and drill that hole into the slide. It will be tapped **6/48 TPI** with a taper tap. I drilled that hole through into the firing pin tunnel and then deburred it later on. With this done you can reinstall the rear sight in the slide and check the fit of the sight blade body in the relief pocket.

Now we can cut the dovetail for the front sight, if required. Or, fit the sight to your slide if that cut has already been done. You may have a stake on front and need only to fit the sight tenon to the slide and grind a relief into the inside of the slide where the tenon comes through. This will provide a relief for the tenon to flare out into like a rivet head and better secure the sight. Then, lightly file down that "rivet" to clear the barrel bushing.

For my front sight I have chosen the **EGW Fiber Optic Front Sight**. It comes with two inserts; a green and a red. I like the red insert for my old eyes, better than a new pair of glasses!

This sight is listed to be a .330 X 65 degree dovetail with a thickness of .070 inches; measure the one you have in your hand to be sure. Mine actually measured .3365 inches wide for the dovetail and .0755 inches thick.

Now you will have to determine the centerline for your front sight. With a dial caliber you can measure from the front of the sight blade to the edge of the dovetail. The one I have is .1515 inches and after adding in half of the actual width of the dovetail, for my sight that is .1682 inches. This adds up to a total of .319 inches rearward from the face of the slide. I set my dial calipers to this measurement and held it up to the front sight and gave it the calibrated eyeball to double-check myself. Then, scribe that line on the slide and use a pointed center finder to locate the center of the spindle to that mark.

Install the correct **Dovetail Cutter** (this specific cutter works on my sight) and raise up the mill table for the proper depth, on my sight that is .075 of an inch and machine the dovetail for the front sight. A small triangle needle file will remove tool marks and be used for the final fitting. I will hand fit until the sight will go into the dovetail about a 3/4 of an inch, coat with **Red Loctite**, and tap in with a **Nylon Punch**, once the sight is in place and centered for windage, I can install the red fiber



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optic rod with a touch of superglue and Iâ€™m done. Now we can go to the range and have some fun!

Next time we will cover fitting of the trigger/hammer components, see you then.

[Building A 1911 - Part III](#)

[Building A 1911 - Part V](#)



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### **Building A 1911 - Part V**

By Mike Watkins

If you have been following along it's time for part five, fitting the trigger, sear and hammer components.

The first thing I do is closely examine each part, deburr all holes in the hammer and sear with a small counter sink bit. Then deburr the sharp edges on all parts with a needle file, stone, or 600 grit emery cloth. You will also want to deburr the sear and hammer pin holes in the frame and stone out the trigger track in the frame with a **Brownells trigger track stone**.

I then polish the trigger bow on a hard felt wheel to a mirror finish on the sides and rear of the bow where it contacts the disconnector. I like the triggers with the three holes in the finger piece and counter sink those holes also. It puts a nice shiny bevel on the holes and I think it adds to the look of the Pistol. Then you will want to fit the trigger to the frame, I paint the top and bottom of the finger piece with a black marker and then trial fit it in the frame. The rub marks will show you where to remove material from the finger piece. Do this with a small flat file and check your progress often. When the trigger will go into the frame without binding and moving freely you are done.

I should note here that the instructions for the Brownells/Marvels sear and hammer jig, are included [here](#). It is an excellent fixture and the instructions and illustrations are first rate. If you will refer to them while reading this it will help you along.

There are several good jigs out there to do the sear or hammer on a 1911 now, when I started in 1975 there was the Wilson Freight Co. fixtures. So the method I use does the same thing but in a different way. It's the Old Dog theory, after 30 years I can't change. Besides it works quite well for me.

I use the Wilson sear jig (the **Ed Brown** sear jig is the same) to lightly polish the top of the sear, see figure # 4, you do not want to remove a lot of material here just polish the sear surface smooth with a hard Arkansas stone and then I lightly go over it with a white ceramic stone for a mirror finish.

I have a hard Arkansas bench stone that is about two inches wide and set the sear on it nose down and the flat on the sear against the stone. Then lift the sear up at the back to cut the secondary angle on the nose of the sear. This is a feel or eyeball setting that comes thru experience. The Brownells jig sets this angle for you. See figures six and seven.

You will want to set the secondary relief angle almost as wide as the top engaging surface, stop stoning when it looks right. The top surface should be about .020 of an inch wide, as in figure seven. I use the white ceramic stone and lightly roll it over the sharp edge to just slightly break the edge. Three or four passes of the stone is enough.

Then go back to your hard felt wheel and polish the sides of the sear and the flat where it touches the disconnector. That finishes the sear.

Next I set the hammer in my padded shop vise and with a .018 thousands feeler gauge on the flat in front of the hammer hooks and file down the hooks down until the file touches the feeler gauge. Then use the ceramic stone to polish the tops of the hooks. I use this stone to square the face of the hammer hooks also. See illustration three. Then it's back to the hard felt wheel and polish the sides of the hammer.

I also polish the disconnector now too; remember we deburred all the parts in the first step.

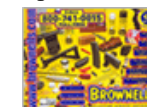
I use a 19 lb mainspring and cut a half of a coil off of both ends and then assemble it into the mainspring housing. On the sear spring I flatten the curve on the bottom almost straight, this lessens the spring tension against the sear. Now hold the sear upright and look at the edge with the 90 degree bend at the top to your left, that leg rests against the sear and should ALWAYS be forward of the other two legs on the sear spring. You can bend the center leg, which rests against the disconnector, and the sear spring leg a little bit to get a lighter pull. But the sear leg should always be in front of the other two! There should also be enough tension on the disconnector to make sure it will always be pushed back up when the gun

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is cycling.

Next time we will fit a beavertail grip safety to the frame, see you then.

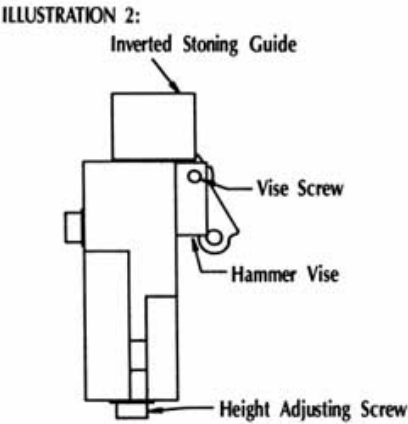
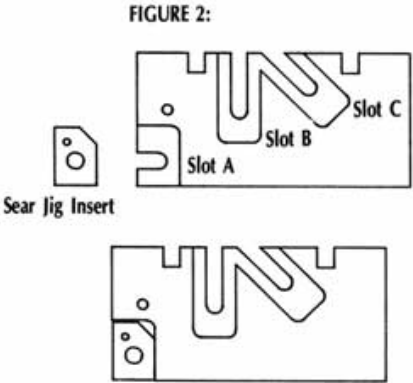
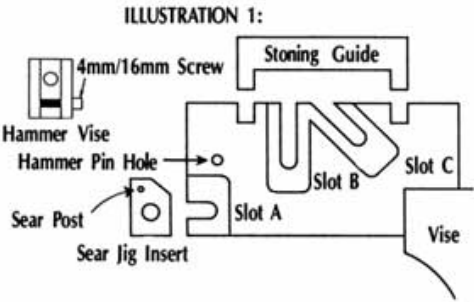
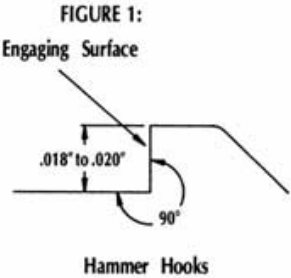


FIGURE 3:



ILLUSTRATION 3:

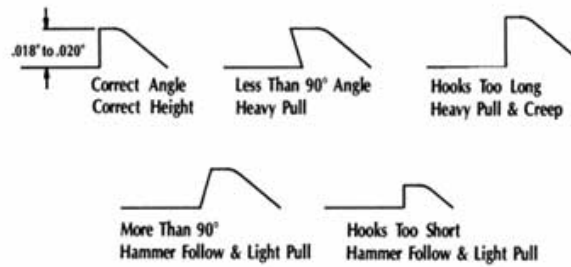


FIGURE 4:

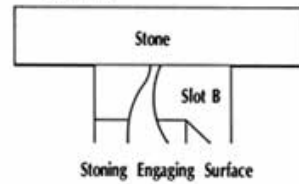


FIGURE 5:



FIGURE 6:

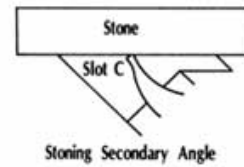


FIGURE 7:

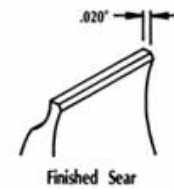


FIGURE 8:

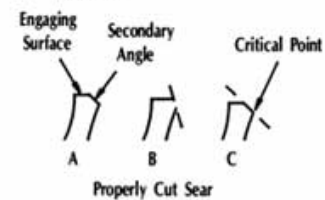


FIGURE 9:



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### Building A 1911 - Part VI

By Mike Watkins

After several months of work, weâ€™re almost finished building our 1911, and now weâ€™ll begin fitting the Beavertail Grip Safety.

There are a number of good ones on the market and it just comes down to which one you like the best and which will work the best for your particular project. If you have a Springfield Armory frame, then I would recommend one that has the .220-inch radius on it. This has a smaller tang on the back of the frame and the .220 radius will blend in better for a nicer look without a gap at the top of the radius.

Iâ€™ve chosen an [Ed Brown Memory Groove grip safety](#) to install in my STI 2011 Limited class pistol in .40 S&W. Itâ€™s the full dust cover frame with a heavy bull barrel, and Tungsten guide rod to help reduce recoil.



Whichever beavertail you choose, be sure to get the fitting jig too. It will be a great help when youâ€™re ready to file the radius on the tang ears of the frame. First, I install the jig on the stripped down frame and scribe a line on both sides. Remove the jig, and the lines will give a reference point as to how far you can grind down the tangs. Stop when are about .010 to .015 thousands above the lines. Now, reinstall the jig and with a Mill file, complete filing the tangs down against the jig. Again, remove the jig and file the burrs that are left on the inside of the frame.

Trial fit the beavertail into the frame and check to see if the pin on the thumb safety will go through with the beavertail in place. If it wonâ€™t, remove it and with a black marker, coat the frame radius of the tang. Take the beavertail and install it in the frame and move it up and down through its travel. This will leave a bright spot where material will need to be removed for the beavertail to fit correctly. Carefully file down the high spots and check the fit again. Be sure to go slow removing only a little metal at a time. When the thumb safety pin will go through the frame easily with the beavertail installed, and will move freely through its travel, this part is done.



Next, fit the frame radius to the grip safety. This is the part of the frame that sits on the web of your hand. Youâ€™ll have

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to file the frame so it will blend the concave radius into the grip safety. I use a fine cut round chainsaw file to blend them together and I do that with the beavertail grip safety pushed down into the frame. This way none of the edges on the frame will be higher than the grip safety. I stop filing when I'm close to having them blended together, and finish up with a piece of fine Emery cloth, wrapped around a file. This will remove the file marks and leave a nice, smooth finish on both parts.

Now, you'll want to blend the top of the frame tangs into the top of the beavertail. Some blend that top radius with the grip safety pushed up in its released position, and others will blend it in the depressed position, as it is when you are holding or firing the pistol. This all depends on the look you want once you're finished.

After you have those fitted and blended in, remove the grip safety and file out any burrs from the safety and frame. The tang on the grip safety will have to be fitted to the trigger bow so I install the trigger, sear, and hammer components back into the frame. Then, slide the mainspring housing into the frame to hold the sear spring in place. The tang of the grip safety blocks the travel of the trigger by contacting the trigger bow and preventing it from moving rearward. They are usually made a little long so you can fit it to your pistol. Install the grip safety into the frame and hold it in place with a punch that just fits the thumb safety hole in the frame. With the hammer in the cocked position, and the grip safety pushed in, the trigger should be free to move and release the hammer. And of course, with it released outward, it should block the trigger and prevent the trigger from moving. If it doesn't go down far enough to block the trigger and fit behind the trigger bow, you'll have to carefully file the end of the tang until it will go down behind the trigger bow and block its movement. The key here is to go slow, and check often so you don't file it down too much and make the whole works inoperable. Sometimes you will also have to remove metal from the bottom edge of the tang if it drags on the trigger bow in the depressed position.

With the beavertail grip safety fitted and functioning perfectly, we can fit the ejector in the frame.



Trial fit the ejector into the frame and file down the two posts on the bottom of the ejector if necessary so it will go down into the frame. Then use a 1/16-inch pin punch through the side of the frame, where the retaining pin goes to mark the front post groove for the retaining pin. A gentle tap of the punch with a hammer will leave a mark on the post. Then I use a 1/8-inch Needle file to file in a groove so the retainer pin can hold the ejector in place.



Remove the grip safety, but leave the other components installed. With the hammer in the cocked position, you can trial fit the thumb safety to see if it will go into the frame and the lug on the thumb safety will fit behind the sear. It should be too long to fit, and a little metal will have to be removed from the lug. Put the safety in until it's contacting the side of the sear. With a long leather-sewing needle scribe a line on the lug of the thumb safety to show approximately how far to file the lug down.

This is generally a lot of trial and error so go slow, and check your progress often. It should just fit with slight contact on the sear to prevent it from moving. Check it by pulling the trigger with the hammer cocked and the safety on, there should be NO movement of the hammer. Now, push the thumb safety down to release it. Again, there should be no movement of the hammer. If there is some movement, something is wrong. Double check to see if too much metal has been removed from the thumb safety lug. If so, you'll have to get another thumb safety and start over, No errors allowed here! If it does function correctly, deburr and radius all the edges and install all of these components into the frame.

Now you can fit the firing pin stop to the slide if required, and install the firing pin and spring. Check the firing pin by depressing it fully a few times to be sure it moves freely without sticking. These can be left out for now as we still have to fit the extractor.

The next step is to assemble the magazine release with the spring and catch lock installed into the frame. Some minor fitting may be required if it sticks during operation, but most will generally fit right in.

Fitting the extractor into the slide is the next step. Most should have a little tension or drag on them when you're inserting it into the slide hole. If not, bend them a little so they will have a slight drag. The tension on the extractor should be just enough to hold a loaded round flat against the breech face without the round drooping down. Weigand Combat makes an excellent gauge for determining extractor tension, the [Extractor Tension Gauge Set](#) and a tool to bend the extractors also, the [1911 Auto Extractor Tensioning Tool](#). Brownells also has a neat tool to remove firing pin stops to remove the firing pin and the other end helps in removing extractors from the slide during fitting or cleaning. Most match extractors have a bevel on the bottom of the hook that the case rim fits into, if yours doesn't use a 1/8 inch Needle file to file that bevel on the extractor. This helps feeding of the rounds up into the extractor during cycling.

Now we can assemble the pistol completely and function test it with Dummy rounds for feeding and to double-check all of the safeties. With everything assembled, double checked, and checked again, it's finally time to head out to the range for the real test. I always load only two rounds in the magazine at first just to be safe. If everything works out and is safe, you're in business!

Congratulations on building your first 1911 Pistol, hopefully you brought along a couple of hundred rounds to shoot!!

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