Special thanks to:

Lee W. (plans for decapper and 7.5 Swiss reloading data)
LEE Precision (donation of 7.5 Swiss expanding pin)
Dangerous Dave **Old Western Scrounger** (Berdan primers)

CAUTION!: The following article pertains to rifle cartridge reloading. We make no statements, warranties or claims to the safety of the reloaded cartridges, reloading method or load data. Reloading cartridges is to be taken seriously and you should only proceed if you feel totally comfortable and willing to accept any and all risks for your actions.

I was looking through a big tub of shot brass that I keep all my “non reloadable” brass in and was lamenting on the fact that some of it was just too nice to toss out (CHEAP, cheap cheap cheap cheap…..). Then someone pointed out to me that one CAN get Berdan primers here in the US. One thing led to another and what follows is my experience in reloading Berdan primed brass.

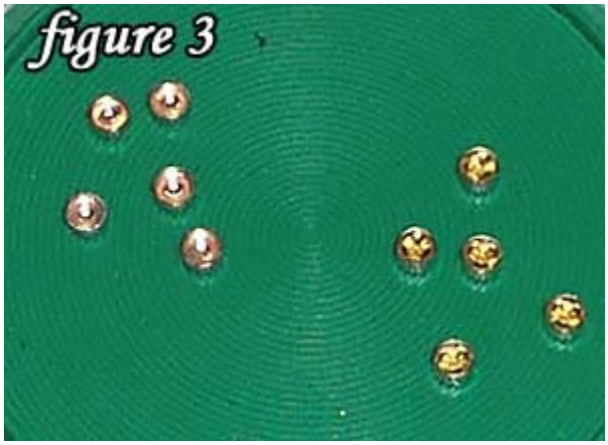
First off, let me say that I still stick by our current statement that reloading Berdan primed brass is more labor intensive then Boxer primed brass. No getting around that fact.

Second, this article is an attempt to show you the technique how you can reload with Berdan primers, it is not intended to offer up the exact perfect accurate load for your Swiss rifle. That is for you to work up. In essence, I am going to show you that the rounds that I loaded using the technique described did indeed go BANG (in the right direction).

What's the difference?
Berdan vs. Boxer Primed Brass

In a nutshell, Berdan uses an anvil "teat" that is built into the base of the cartridge. There are two flash holes on either side of the anvil.

The Boxer has the anvil built into the primer cup itself. Boxer brass has one large hole to pass the flash to the powder.



Primers on right are PMC Berdan Large rifle. They are firing side up. A thin foil like material covers the primer compound itself. The Boxer large rifle primers on right show the anvil inside the primer cup.

A Little History:

In general, Berdan primed ammo tends to be the stuff that is imported from overseas

(Europe) and is the “mass produced” mil surp ammo that may be brand spanking new or decades old.

Boxer primed ammo seems to be a “US only” product, but in fact it is being made overseas as well.

I found it interesting to learn that both Berdan and Boxer refer to the surnames of Army officers who developed their respectively named priming systems. Oddly enough, Colonel Hiram Berdan was an American and Colonel E.M. Boxer was a British officer. Colonel Boxer actually designed an entire cartridge that used a coiled brass case with an iron base. Whereas the Boxer cartridge was made obsolete, the Boxer primer was so well designed that it has pretty much remained unchanged over the years. American Colonel Berdan developed both his priming system and a cheap method of drawing brass to form cartridges. I find it ironic that the American invention became the standard in Europe and the British invention became the standard in America.

Source: The Book of Rifles, Smith et. al., 1948

Reloading Issues:

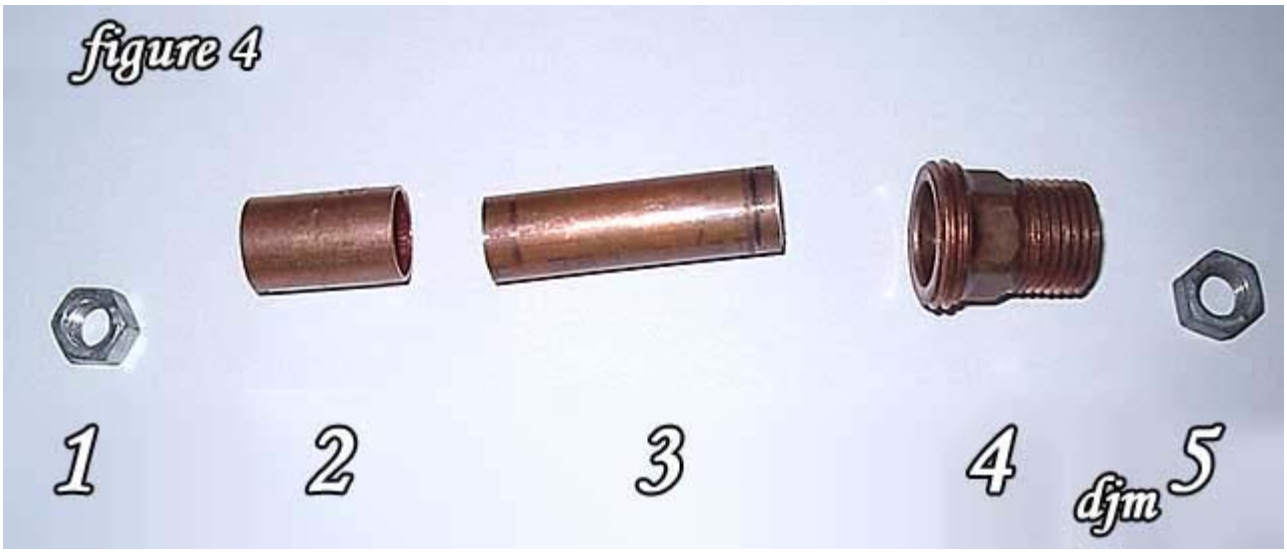
If you have done any reloading at all, you know that one of the very first steps is to deprime or decap the brass, that is to remove the spent primer. In Boxer brass, with its single hole, a pin (usually part of the sizing die) is pushed down and through the flash hole and pushes the spent primer out. This does not work for Berdan brass, indeed, if you accidentally try to decap Berdan brass using a regular die, you may end up with a bent or broken decapping pin. Reloaders take heed. Check your brass. You cannot tell from the outside whether the brass is Boxer or Berdan. You have to take a light and look down into the cartridge and see how many flash holes there are.

BEFORE you start to reload your Swiss brass, you should inspect each piece to make sure that it is still intact, with no corrosion marks, no major dents or dings. Discard any brass that does not look normal.

So, how do you decap Berdan brass? That is the $64,000 question.

The Cheap Guy’s Decapper:

There are several methods floating around that work, some easier than other, and with a great variation in cost. In researching this topic (and in the spirit of keeping things CHEAP), I ran across information on the web provided by Lee W. Basically, Lee came up with a way to make a Berdan decapper that uses the hydraulics of water pressure to pop the spent primer.



The cheap basic components of Lee W. decapper.

1. 3/8” nut
2. ½” copper coupling
3. 3 ½” copper tubing (1/2” diameter)
4. ½” to ¾” coupling
5. 3/8” nut
6. 5/16” clevis pin (not shown)

1. To assemble the device, place the 3 ½” copper tubing (3) into the ½” coupling (2) and solder using the same technique as soldering a water pipe.
2. Place 3/8” nut (1) into ½” coupler (2) and tap nut until it is flush with top of coupler.
3. Place 3/8” nut (5) into the ½” to ¾” coupler (4) and tap nut until flush with top of coupler.

Complete assembled unit. Clevis pin is located at bottom left of photo the slender

end of the pin has a slight bevel put on it to help the insertion.

To Use the Water Decapper:

Fill the case with water. I found filling from a bucket to be easier and faster than trying to pour water into the mouth of the case.

Place the water filled case onto the base of the decapper.

Place the top portion of the decaper unit over the case and press it into the base. It forms a nice tight seal with the base.

Place the clevis pin into the top of the device through the 3/8” nut, which helps center the pin. The pin will stick up, seen in the right photo, and is ready to be smacked.

Using a plastic mallet, smack the pin smartly. The decapper unit keeps the water spray contained.

Disassemble the unit. There may still be water in the case which you need to dump out. Note the primer sitting on the towel.

Once you have decapped the brass, it's a good idea to wash it completely in soapy water to remove primer particle as such. In the case of the GP-11 Swiss brass, it was not corrosively primed, however other Berdan primers are corrosive in nature and therefore you will need to wash the brass to remove the corrosive salts.

My Way of Washing (and Polishing) Brass:

You have seen other articles on Surplusrifle's web site about **liquid cleaning brass**. I have a vibrating type cleaner as well. I like using the liquid cleaning method for fired brass. There is less mess, no dust, and it is much quieter. Health wise, it is a better method as well, with no lead dust from the polishing compounds and you do not need to pick pieces of tumbler media out of the brass either. The downfall is that it takes longer to clean via the liquid method as you have to allow time to dry the bass. With the two drum tumbler, I can do about the same number of pieces of brass as the vibrator type, an added bonus being that I can clean two different sizes of brass without having to sort the brass after cleaning.

The Chicago two drum tumbler. I purchased a rock tumbler (two drums) from Harbor Freight tools (about $35).

I learned of using Jungle Jake's from the guys at the range. It's an all in one degreaser/cleaner. A couple of capfuls in each of the drums and away you go. Cost for a gallon (available at Fleet Farm) is about $4.

With a two drum tumbler, you can clean two different sizes of brass at the same time. On the left, a few rounds of 7.5 Swiss, you could put about 25 pieces or so in a drum. On the right are 50 pieces of 5.56mm.

After you place the brass in each drum, fill the drum with hot water, add 2 or more capfuls of Jungle Jakes (or similar cleaner/degreaser), seal up and tumble for at least an hour. The longer you tumble the cleaner your brass seems to be. As a side note, if you just place your brass in a bucket, fill it with hot water and add about ¼ to ½ cup of Jungle Jake's to it, swirl and let it sit over night, this will also yield very shiny clean brass, assuming you do not start out with really crappy stuff.

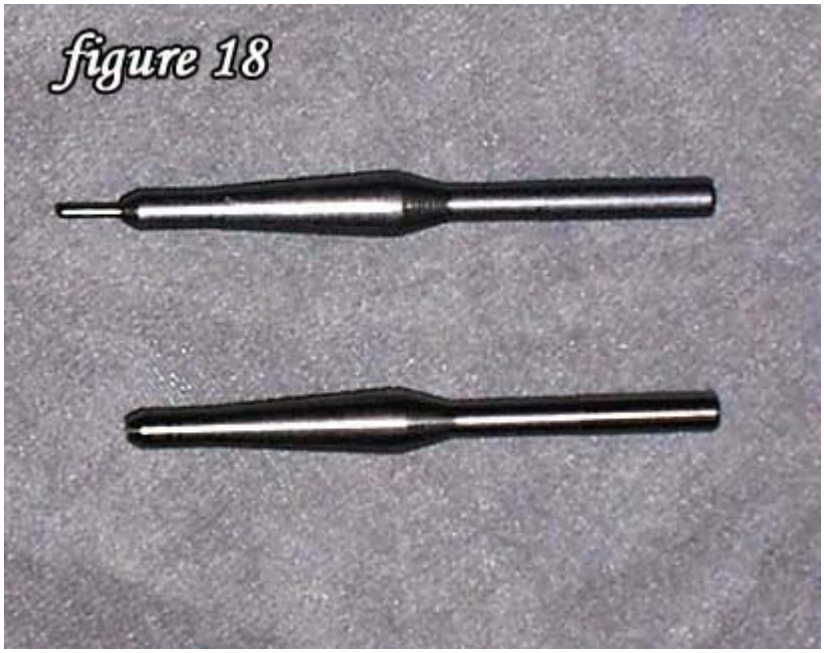
Once the brass has tumbled for at least an hour (longer if really dirty), I dump the contents of the drum down the sink. I pour the brass into some netting (from a bag of oragnes) and then repeatedly dunk/drain them in hot water. Finally, I roll them around inside the netting to get all the water out.

The final step is to place the brass on some sort of cloth and place them somewhere to dry. During the winter, near an air duct works well. In the summer, I put them near a dehumidifier. If you wanted to dry quicker, you COULD put them in the oven…but I would not recommend it. Into the hot summer sun may be a better option.

Loading the Berdan Primed Brass:

So now your brass has been cleaned and is ready to be sized. If you were to use your Boxer primer sizing die, you would probably ruin it at this stage. Obviously, the decapping pin would break, bend or (in the case of the LEE dies) pop out. To alleviate this issue, I got a second expander for my LEE 7.5 Swiss sizing die and then cut the decapping pin off with a Dremel tool. The 7.5 Swiss has a very sharp shoulder on it. Check to make sure that the sizing die is forming the shoulder properly.

Once the cases have been fired in your rifle, you could probably back off the die to only size the neck enough to accept a new bullet. The LEE expander rods (as you can see in the photo) is fairly long before the actual sizer comes into play. Keep that in mind as you back the die out if you try to only neck size.



Unmodified Expander on the Top.

Now you should lube the case and size it as you would with Boxer primed brass. After that you should check your brass length and trim as you would normally as well.

Before I got to repriming the Berdan brass, I noticed that the flash holes were not quite up to the white glove test. The liquid cleaning had removed a lot of the crap, but there was still some flakes left in the primer pocket. You cannot use a standard primer pocket cleaner/reamer in a Berdan pocket with the anvil in the center. So I came up with a CHEAP idea.

I went to a local hobby store and bought a packet of floral stem wire, used to hold flower stems nice and straight. It is fairly stiff wire, but is soft in nature. A pack of 40 18” wires cost like $2. I took approximate 12 or so of the wires, cut them down to about 6” and then wrapped them together with electrical tape to form a “brush” of sorts. Being that the wires are not tightly packed together like a store bought Boxer brush, the wires will bend around the anvil to clean the primer pocket out.

Wrapping about a dozen of the floral stem wires together will give you a wire brush to clean the primer pocket out. Chuck it into your cordless drill to make a power cleaner.

At this point you will want to check to make sure that the two flash holes are clear of debris. This is best accomplished by holding the case up to a strong light and look through it to make sure the two holes are clear.

Now, where to get Berdan primers. Berdan primers come in various sizes. The ones you will need for the 7.5 Swiss are the .217" or "Large Rifle Berdan". I was lucky. I was able to pick up a box of them from a local reloading store. Cost wise they were exactly the same as your standard Federal, CCI or Winchester types, which surprised me. Other sources of the primers are Old Western Scrounger, Grafs, and Midway. Be aware that if you order them via mail, you will be paying a haz-mat shipping tariff. As far as I can tell, no one MAKES the Berdan primers here in the US, rather they import them. The PMC ones that I have came from Russia.

To reprime the brass, I used a LEE manual primer seater. Use the large primer seater. I do not think that the self loading primer seater should be used, the Berdan primers are similar in size to large rifle Boxer primers, but are different enough that they may not behave the same in a feed mechanism.

The correct LEE Primer shell holder for the 7.5 Swiss is #3. PMC is one company of a couple that imports Berdan primers.

When you reprime the brass you will notice that the primer seats deeper than a boxer primer. Apparently, the primer itself is slightly shorter than the primer pocket on the case. I tried seating the primers at various levels, from flush to all the way down and then dry fired them. All of them went off. Seems that primer depth did not make all that much of a difference. In a bolt action rifle it is probably not that critical, however in a semi auto, it could be drastic to have a primer seated to shallow leading to risks of slam fires.

Once you have the brass primed, you can load the cartridge as you would a Boxer primed cartridge. From what I have read on the web, powder loads and bullet selections are the same as Boxer primed ammo.

The GP-11 7.5 Swiss

Loaded with a 174gr spitzer bullet, it reaches 2640 fps velocity. It generates about 45,000 psi of pressure. The round saw service in converted 1911 series rifles, K31 series rifles and the Stgw 57 assault rifle into the mid 1980's. It is not safe to fire this round in the Model 1889 Schmidt-Rubins because of pressure levels.

I loaded some 173 gr. GI FMJBT bullets over IMR 4064 powder and also some 168 gr. Nosler Competition bullets over IMR 4895 powder. I selected these based on the fact that was what I had on hand! I am sure there are dozens of pet loads out there. Hence, this article is not to address pet loads, but rather test and report the reloading Berdan cases.

Some Range Results:

I checked the velocity of standard GP-11 ammo as well as the two hand loads that I put together. The average GP-11 velocity was 2631 fps, the 173gr reloads were 2345 fps and the 168gr reloads clocked at 2376 fps. Accuracy on targets at 50 yards was decent enough. I did not have a whole lot of rounds to test fire on hand, but the reloads consistently grouped as well as the GP-11 ammo.

What I will do now is deprime the brass, clean it again and try to reload it with only sizing the neck of the case and see if I can get the bullet to seat as well as have the case chamber correctly.

Russell Corbitt (who manufactures obsolete ammo from conversion, see **http://surplusrifle.com/shooting/reforming8x56/index.asp**) did point out to me that it is entirely possible that Berdan primed brass will only load 4 or 5 times with dependable ignition. This is because the anvil in the case gets flattened upon repeated firing. After it is deformed, the primer no longer will ignite and the case is useless. He also points out that the cases of the ex-military brass ought to be annealed so minimize the chance of splitting necks upon firing (see the above link to Russell's article for annealing instructions). On the flip side, Lee W. has reloaded 1000's of GP-11 brass with no issues.

As I pointed out at the beginning of this article, I did this to try out the method of reloading Berdan primed brass. With the cost of the mil surp ammo being so low, there are few, if any, calibers that are worth going through the extra efforts of Berdan priming. I chose the 7.5 Swiss because it is a common round with lots of reloading info. The mil surp GP-11 ammo is more expensive then most all other mil surp ammo, but it is also a much higher quality ammo then the tin cans full of 7.62x54R. Indeed, 7.5 Swiss brass is available Boxer primed as well.

I have proven the point and shown you that it can be done. In a future article, we will tackle a less available round, the 8x56R as fired from the M95 Steyr carbine. This ammo comes and goes on the surplus market, so I figure it would neat to try out something that could be more useful in the future when it dries up completely.

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