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When a group of mil-surp rifles are released for sale by a foreign government, corresponding ammo may be released at the same time. Virtually all of this ammo has corrosive, berdan primers. In some countries "**Arsenal Storage**" of ammo is airtight containers in climate-controlled warehouses, where stock is routinely rotated. In other countries "**Arsenal storage**" means crates dumped on the floor of damp, padlocked buildings!

The price of mil-surp ammo is usually attractive enough to make one forgiving of the rounds that refuse to fire, or the required vigorous scrubbing with hot soapy water or Windex soon after firing to remove the salt, which attracts water and will rust the barrel.

On a side note, the chemical reaction of the old corrosive primers takes a mixture of potassium chlorate and antimony sulphide and when reacted with heat (*i.e., the firing of the primer*) creates antimony oxide, sulphur dioxide gas (*can you "smell" those old primers?*) and potassium chloride. The latter is the salt culprit that attracts the water and starts the corrosion process (*Sharpe, 1953*).

Most shooters are also willing to concede the reduced accuracy they get with most of the old ammo. Reduced accuracy can be because of degraded components, somewhat casual tolerances of ammo, which may have to be fired after sitting in a muddy foxhole and must be small enough to be chambered during dust storms. Much

mil-surp ammo is designated as **“dual purpose”**, serving both the rifleman and light machine gunner. This ammo tends to be Loaded to very high pressures. Most mil-surp ammo has a rather enthusiastic case neck crimp, so much so that bullets are damaged.

When stores of mil-surp ammo dry up, the first consideration is to buy factory fresh ammo. Until just recently many rounds were only Loaded by Norma. At \$27.00 to \$33.00 dollars a box this is not an option for most of us. Even buying common 8x57mm (*8mm Mauser*) from American companies will strain your wallet in short order.

With the introduction of reasonably priced, reloadable ammo and brass from Eastern Europe, and companies like [Grafs and Sons](#) who are courting the mil-surp shooter with new brass and bullets, hand Loading becomes the solution. In the last few years [LEE](#) has introduced Loading dies for all the old rounds at popular prices, and [Lyman](#) has dusted off many of the old, discontinued molds. hand Loaded ammo with modern boxer primed cases and components can be tailored to a softer shooting Load, straining neither the old rifle nor the (*old*) shooters shoulder!

One question, which seems to crop up quite often is: **“How far out should a bullet be seated to give best accuracy in a mil-surp rifle?”**. Different Loading manuals can often cloud the issue further by listing various lengths for the same cartridge. Sporting rifles and mil-surp usually give best accuracy with a bullet seated 0.015 to 0.030 inches back from the lead in the barrel proper. Chambers in most mil-surp rifles tend to be on the roomy side. This give added insurance against jamming and high pressure, because the soldier on the battlefield may not have time to properly clean his rifle.

For years owners of match rifles have used devices such as the **Stoney Point Chamber All Gauge** to find the exact distance from bolt face to barrel lead for a chosen bullet (*as shown in figure 1*). A specially modified cartridge case is threaded to the Chamber All to get this distance, then a caliper takes the final measurement.

The Chamber All costs about \$30.00, add to that a modified case for about \$5.00. However, the only mil-surp cases made by Stoney Point are the 6.5x55mm, 7x57mm, 8x57mm, .308 Winchester (7.62 NATO), 30/40 Krag, 7.62x39mm, 30-06, and .303 British. As you can see, many cases have not made the list! You can send an empty brass case from their rifle to Stoney Point along with \$6.50, and they will modify it to be used with the

gauge.

The final cost including shipping will run close to \$40.00, not to mention the waiting time.

Oh, but there just has to be a better way.....



Figure 1. All .30 cal bullets. Different lengths of bullets require different seating depths for accuracy.

In our conversations, Ted and I felt a simpler, less expensive way was in order. A way, which would not involve special equipment for each caliber, yet get an extremely close reading, here's what we developed.

[Sinclair](#) sells quality plastic [Cleaning Rod Stops](#). Each one is like a sleeve, it has a nylon setscrew to retain it on your center-fire cleaning rod without damaging the rod. You will need two [Sinclair Cleaning Rod](#) stops to make the technique work. Depending on whether you have a large bore or small bore cleaning rod, you will need either large stops (for 27/30 cal rods) part # 02-1020 or small stops (for 22/6mm rods) part # 02-1000, they cost \$3.25 each (as shown in **figure 2**).



Figure 2. Just a few items are needed for this bullet seating measurement technique. Most hand loaders will have these items already on their bench.

You will also need a cheap, plastic cleaning jag tip, which will fit in your barrel with a little clearance all around.

Thread the jag onto your cleaning rod. If the jag has a pointy tip, file it flat.

You want the plastic jag to rest flush against the bolt face and later the bullet tip (**figures 3 and 4**).



Figure 3. Cleaning jag with pointy tip that needs to be removed



Figure 4. Tip on the jag has been removed.

Before beginning any measurement, insure the barrel is clean, I mean really clean. We don't want to measure against barrel lead and/or built up crud!

Put you rifle in a holding rack. Lacking a rack get a large sturdy cardboard box. Put some weight inside and cut slots in the top to support the rifle.

An alternative is to build a step device that can be used to support the stock when working in the vertical mode (as shown in **figure 5**).

The upper portion of the rifle can be clamped to the bench or vise as needed.



Figure 5. A couple of different lengths of 2x4 and a clamp provide a nice step block to support the stock when working vertically.

Close the bolt insuring the action is cocked.

Slide one cleaning rod stop on your cleaning rod and thread the plastic jag into the end of the rod. A one piece rod is best, however, if you have a jointed rod make sure the pieces are tightly threaded together.

Gently slide the rod in from the muzzle until you touch the bolt face.

Hold the rod against the bolt face, slide the cleaning rod stop against the muzzle and tighten the set screw on the cleaning rod stop (as shown in **figure 6**).

Now remove the bolt and the cleaning rod.

Drop one of your bullets into the chamber and push it firmly into the lead with a wooden dowel.

Take your second cleaning rod stop and slide it onto the cleaning rod.

Gently slide the cleaning rod down the barrel until the flat plastic jag touches the tip of your bullet. Do not push on the bullet; just come into firm contact with it.

Now tighten the set screw on the second cleaning rod stop (as shown in **figure 7**).



Figure 6. Make sure that the cleaning rod stop is flush against the muzzle of the rifle before tightening it down.



Figure 7. As with the first cleaning rod stop, make sure that the stop is flush against the muzzle of the rifle.

Now we have the physical data to get our distance from bolt face to barrel lead for our chosen bullet.

Withdraw the cleaning rod and measure the full distance between the furthest ends of both cleaning rod stops with a dial or digital caliper (as shown in **figure 8**).

Make a mental note or better yet a physical mark where you are measuring from on your rod and stops. Record this measurement.

Now measure the thickness of one cleaning rod stop and record this number (as shown in **figure 9**).

Subtract the thickness measurement of the rod stop from the first measurement of total length.

That answer is the maximum length allowed for this rifle/bullet combination.

However, we do not normally want a bullet jammed into the lead. That may cause high pressure and may not allow a round to cycle through the magazine.

Subtract 0.025" or 0.030" from the previous final calculation as a starting point to load your rounds.

This is Over All Length (OAL).

In the example:		
<i>Total length</i>	3.216"	
<i>Minus stop thickness</i>	0.385"	
<i>Non adjusted TOTAL</i>	2.831"	
<i>Minus starting point</i>	0.030"	
OAL	2.801"	For this bullet combination
		(.303 British, 178g Cast GC)

NOTE:
<i>Even though you have a physical measurement of where to seat the bullet so that it has only 0.030" to "jump" to the rifling, you still have to make sure that you will not be compressing your powder charge in your case. This can lead to dangerous pressures in the rifle.</i>

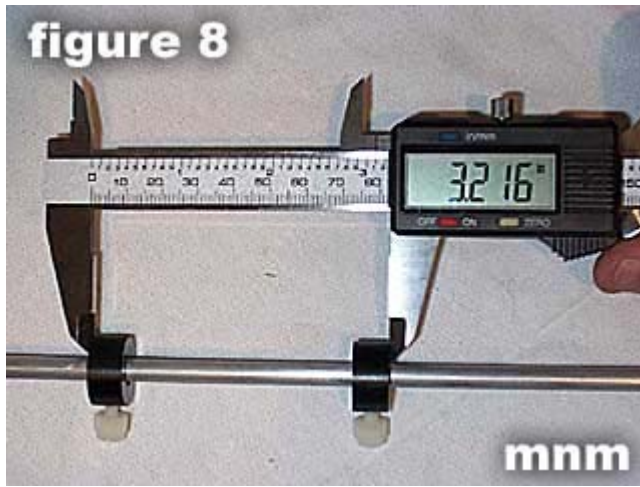


Figure 8. To be consistent, make a mental note, or better yet, a physical mark where you are measuring from on your stops/rod.



Figure 9. Note that the thickness of the stop was measured at the same point where the total length was measured from.

Adjust the seating stem in your seating die to just start the bullet.

Continue to turn down the stem and seat the bullet deeper while taking readings with your caliper from bullet tip to case head (as shown in **figure 10**).

Once you have seated the bullet to the determined OAL you are almost finished.

What if you decide to change bullet brands later on, or decide to try another bullet weight?

Of course you will have to determine the distance with the method just described, however you only have to go through adjusting the seating die just once, providing, you make a **“Dummy Round”**.



Figure 10. The completed dummy round.

A "**Dummy Round**" is a brass case with a seated bullet, but no power or primer.

Once it's assembled use a Sharpie pen to write the bullet weight, brand & what gun its for on the side of the case.

An alternative to the Sharpie pen is to use an engraver and put the information on the case. If an engraver is used, care must be taken to make sure no burrs of metal are left on the cartridge that could scratch the inside of your seating die if you choose to use it to set your die. If you own several guns in the same model you can put the model and the last digits of the serial # to distinguish between individual guns.

An example may be: **CZ24-793**

Even after I got some reasonably priced brass I loathed the idea of having even one reloadable case just sitting in the "**Dummy Round**" box. I own four rifles in 8x57mm. If I made dummy rounds for both 150 and 180 grain bullets this would take eight perfectly good cases out of my horde. That is not acceptable!

My solution was:

At the range I picked up discarded berdan primed mil-surp brass. Regular brass cases, not those made of steel and painted, or those steel cases with a copper wash. If in doubt check them with a magnet. I drilled a pilot hole using a 7/64 bit and then drilled completely through the berdan primers and the primer pockets with a 1/4 inch drill bit. Knowing the inside of the cases were coated with potassium chloride, I washed them in hot soapy water and flushed them well. Now the cases were lubed and full resized in the normal manner. These cases alone are used to make Dummy Rounds. Of course, you can use the dummy round also to make sure that your bolt closes

and you can safely cycle the action without discharging the firearm.

A note about costs:

The Stoney Point system works very well, but can cost up to \$40.00 to get set up for just one caliber. Each additional caliber added will cost between \$5.00 and \$6.50. With this cleaning rod stop method you are completely set up for any caliber for less the \$10.00.

A stainless caliper is a tool every reloader should own. The good news is that prices have never been cheaper! Every mail order house has calipers for reloaders. Prices between "brands" vary; however, nearly all are all made in China and quite accurate for reloading use. I once used a Starrett one inch standard and checked several different Chinese calipers. All were within 0.001" ! It matters not if your caliper is a dial type or a digital model. Digital is faster to read, but no more accurate than analog. One low cost source for calipers is www.harborfreight.com they have calipers for as little as \$19.99.

Of course, there will always be the individual who will say that military surplus arms are not worth the extra effort to accurize because most are in a used to well-used state and the rifles themselves were never designed to shoot tight groups at any distance. But, the technique described will help in reducing inaccuracy issues as well as help answer the question of what bullet seating depth to use.

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Sharpe, Philip. "Complete Guide to Hand Loading. A treatise on hand Loading for pleasure, economy and utility." Funk & Wagnalls, New York, p. 60. 1953

DISCLAIMER **reloading ammunition is an individual's project and should not be undertaken without good equipment and reloading information/data/techniques. The authors offer this measurement technique as a way to reduce inaccuracy issues in military surplus (or other) firearms. As each firearm is different and there are

uncountable combinations of components that could be used to make ammunition, no warranty, claim or guarantee is offered. The reader should ALWAYS make sure that ammunition that they reload is within correct tolerances and will work safely in THEIR firearm and they are solely responsible for their own safety.**

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