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**Article by Mark Trope**

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| WARNING! |
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| *This article addresses issues that deal with firearms, rifle chambers and brass cartridge cases. The information presented is a result of very careful observation, consideration, and much experience. We offer no guarantee or warranty of any kind on the information presented and you should proceed with caution if you choose to try the techniques or products that we present. We have no control over what you do or what you use. Therefore, you assume any and all risk involved.* |

Brass really is a wonderful material. It's ductile, tough and non-ferrous. For the shooters purposes, it holds bullet, powder and primer in a neat, convenient package; all ready to be fired. Even better, it can be reused again and again and again. All that's required is the removal & replacement of the old primer, and new powder and bullet installed.

Wait! There is one more step. Actually, it's the second step in the process. The brass case must be resized back somewhat smaller then the size it grew to when it was fired in the rifles chamber. A rifle-sizing die handles this job. Should the chamber be very close to standard size, the brass case will not have expanded very much. Then when it's resized, the brass will be reworked very little. But, there's the rub: many chambers, *especially* on Mil-Surp rifles are large. Some chambers can be quite large and quite long (Note.1).

Brass that's been fired in a loose-chambered rifle, and then continually resized in a full length (FL) die will soon get overworked. The case will get work hardened, and the structure of the brass will change, it becomes brittle. Overworked brass is the breeding ground for case head separations. Some calibers are more prone to this problem then others.

The .303 British is notorious for being hard on brass. However, there is nothing mysterious about the design of the .303 British. The chambers tend to be quite long on Mil-Surp .303 guns. The reason they were chambered that way was because the military wanted ammunition to chamber easily. Ammunition produced under the pressure of war may not always meet the highest dimensional standards. Also, ammunition may get dirty, corroded, etc, when stored under battlefield conditions. A generous chamber insures ammunition will fit and fire. Lastly, the military does not reload. Brass is a one-time affair to the military. For the full story on brass, chambers, resizing etc, see this article: http://www.surplusrifle.com/shooting/brasssizing/index.asp

Sometimes, especially if brass is FL sized many times, a case will get reloaded beyond its useful life. What usually happens is: the round is fired, the bolt retracted, and all that comes out is the case head and about 3/8 inch of brass! The remainder of the case stays in the chamber. Needless to say, not only is this annoying to see, but it means the remainder of the case needs to be removed before shooting the gun again.

**Figure 1**

A head separation! Seeing this will spoil a days shooting

(I didn't have a head-separated, boxer-primed brass case on hand. I took a once-fired, berdan-primed .303 British case that had been fired in my British No.5 Mk I, and cut it apart for these pictures. The edge where it separates will be thin, knife-like, and burnt looking)

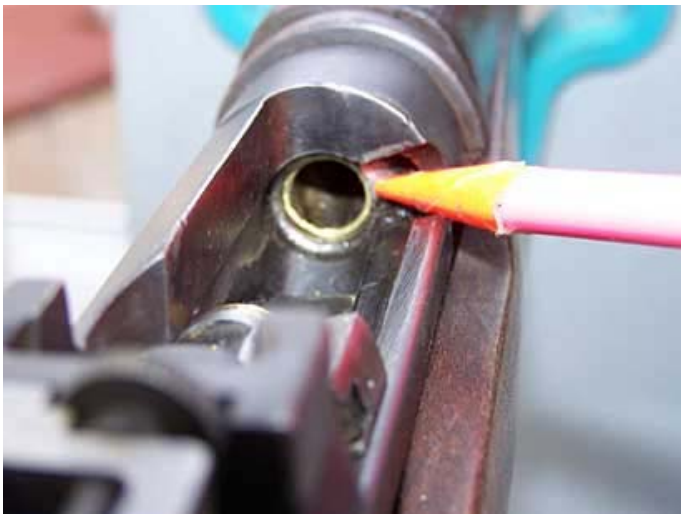

**Figure 2**

The pencil points to the brass case stuck in the rifles chamber.

After just such an incident, we were trying to figure out how to get the remaining section of the case out of the rifles chamber. One fellow recommended trying a large brass brush wrapped in paper towel, and twisted backwards in the stuck case. Other then cleaning the inside of the split case (and ruining the brush), it had no effect. A brass jag was put on the cleaning rod with a thick, double-knapped cleaning patch; and pushed from the muzzle. The hope being it might catch on the case neck and push out the case. All it did was clean the bore of fouling. One fellow had a screwdriver that had been specially ground to act as a sight adjustment tool. It was able to drag the unserviceable case from the chamber. This fiasco got me to thinking about a simple, easily acquired and inexpensive (the SurplusRifle way) tool to get broken cases out of a chamber.

## Part II

## The Fix

The fellow that recommended the brass brush actually *was* on the right track. The idea is to get something inside the split case tight enough to grip the inner case walls, and then pull out the case. The wires of the brass brush simply had too much “give”, and would not hold tight. The trick is to find something strong enough to hold the case.

Let me think about this. Yes, that should work; *lots* of teeth to bite into the interior of the brass case. Then a cleaning rod should push the case right out. A basic set should handle just about any cartridge case too. A basic set is small enough to carry in the range box. Yep, I think we have this problem licked. Ok, so what’s this wonder that will double as a stuck case remover? A simple thread-cutting tap set!

**Figure 3**

Plenty of teeth to grip the interior walls of a broken case

**Figure 4**

A few light taps on the wood dowel drives the tap into the broken brass case.

First, carefully slide a tap into the case. Then, drive it forward with a few light taps on a dowel to make sure the teeth of the tap “bite” into the brass case interior sidewalls.


**Figure 5**
The teeth of the tap will hold in the brass case.

**Figure 6**
The plastic orange tip on the cleaning rod is pushing against the end of the tap in the brass case, pushing it right of the chamber.

Next, slide a cleaning rod in from the muzzle, and push on the front of the tap. The broken case slides right out!

**Figure 7**
The tap can now be twisted out of the brass case.

The way we've shown the broken case is how it *usually* happens. But a break can *occasionally* occur on other parts of a brass case. *Sometimes* the break will occur at the juncture of the shoulder and case main body, or every now and then; it can occur right in the middle of the case body. Should either of these things happen, wrap the tap's teeth in a couple of wraps of masking tape to protect the chamber from scratches as the tap is slid into the broken brass case. The teeth of the tap will cut through the tape once the tap is fully seated in the remains of the brass case it is driven in by the dowel rod. Harbor Freight Company cases an inexpensive set that should cover any size case you might have to remove (Note.2). Or, individual taps can be purchased from any tool dealer.

http://www.harborfreight.com/

ITEM 39391-1VGA

A broken brass shell casing can ruin a days shooting to be sure! A few simple, inexpensive taps can save the day, and save you a trip to the gunsmith.

| **Note 1** |
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| It's not only Mil-Surp chambers that tend to be big. Belted magnum chambers are notorious for this problem. The case headspaces on the edge of the belt. The reaming of belted magnum chambers tends to be casual at best. They are well known for overworking of brass, and separations. |

| **Note 2** |
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| A simple way to determine what taps will be required for all the calibers in your stable is to cut the case head off an example of every caliber you shoot, and measure the case interior width. Or if you already have a tap set, just try them for fit. |

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