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WARNING!

This article addresses issues that deal with reloading firearm cartridges. The information presented is a result of strict compliance to reputable, current loading references, careful observation, and 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. Reloading is not an exact science; we have no control over what you do or what you use. Therefore, you assume any and all risk involved.

Recently, I was at my reloading bench neck sizing some .308 Winchester (7.62 NATO) cases with a LEE Collet Die. The LEE Collet Die is one of the very unique products of LEE Precision Inc.

Let's take a quick look at the The LEE Collet Die. The LEE Collet Die has a center mandrel that serves two functions. It serves as a holder for the decapping pin; however, its main function is to provide a properly sized shaft for the fingers of the collet to close around when a cartridge case is inserted in the "die". Actually, the "die" body only serves as a holder for the collet & sliding sleeve. A cap threads into the top of the die body and

retains the mandrel. A sliding sleeve is in the lower part of the die. The sleeve is pushed up by the press shellholder to engage the collet assembly. The sliding sleeve causes the four "fingers" of the collet to compress. Since each collet die is precisely made to fit a certain cartridge; the fingers of the collet will surround the outside neck of the correct cartridge case. The mandrel will already be inside the case neck. The case neck will be squeezed down to the correct diameter as the collet fingers contract.

Just as I was down to my last few .308 cases to be processed, I was looking at a batch of 7.62X54R brass that needed to be resized. LEE doesn't make a collet die set for the 7.62X54R. I was lamenting this fact as I reached for my regular LEE 7.62X54R die set.

As I was replacing the dies in my press I began to: "think outside the box". "*What if???????*" I disassembled the collet die, & studied it very carefully. As previously stated, I noted the collet die body is basically tubular, and merely serves as a holder for the other parts.



The 7.62X54R is .099 longer than the .308 Winchester

I grabbed my calipers and compared the length of both the .308 and 7.62X54R cases. The .308 case is 2.015 long, and the 7.62X54R is 2.114 long. The 7.62X54R case is .099 longer. Both cartridges are basically .30 calibers. A 7.62X54R case is too long, and would get damaged if it were pushed far enough into a .308 collet die for the shellholder to engage the sliding sleeve. Unthreading the collet die body so it sits higher in the press frame wouldn't work. The sliding sleeve wouldn't be raised high enough to close the collet fingers. The 7.62X54R case is just too darn long to make this work. Or is it?



The legend "LEE – 308 W" is on the sliding sleeve of the LEE Collet Die

Ok, what if I "fool" the collet die into thinking the 7.62X54R case is shorter than it actually is? What if I came up with a way to have the sliding sleeve close the collet while the neck portion, **and only the neck portion** of the 7.62X54R case were in the correct position inside the collet die body for neck sizing? Think outside the box...

Ah ha! Got it! Come up with a separator that drops **over** the 7.62X54R case **after** the brass case has been inserted into the shellholder. The separator will push the sliding sleeve up, while effectively lowering the brass case. **Only** the neck portion of the 7.62X54R case gets sized.



"Thinking outside the box" a common fat washer, yep it's used!



The washer is .091 thick. This will take up most of the case size difference



The hole in the washer about ½ inch, common hardware store fare

I reached into a box of odd & end hardware; and found a used common flat washer that slipped over the 7.62X54R case with just a bit of play. I checked to ensure the washer would clear the frame of the press, and measured from the top of the washer to the top of the 7.62X54R case mouth. Sure looked like everything would be OK. Just to make sure, I checked the setup again. What could possibly go wrong? Well, let's see. I could ruin the 7.62X54R case. There was a possibility the collet could get damaged. ([Note 1](#)) The brass case may get stuck in the die, locking up my press. Then I would have to hacksaw the case in half to get the press unstuck.



LEE shellholder # 16 is correct for the 7.62X54R



7.62X54R inserted in the shellholder



Washer slipped over the 7.62X54R case



Washer is approaching the sliding sleeve of the LEE .308 Collet Die



Washer is pushing up on sleeve, collet is closing

OK, recheck the setup a third time. Still looks good. I accepted the risk involved and decided to proceed. Take a deep breath, gently lower press handle. Washer engaging sleeve, sleeve moving...feels normal. I'm sweating, but, it's not hot. The cheapskate in me is thinking of the replacement cost of the collet die if I screw it up. Ah, I feel collet close and all still seems normal. Time to lower the press handle. Will it lower? Yes, it's lowering. The collet relaxes and the sliding sleeve is moving down. Dare I look? Success! ([Note 2.](#))



7.62X54R case on left is not sized. 7.62X54R case on right has been neck sided in .LEE .308 Collet Die. Notice how a short amount of the neck is not sized just in front of the shoulder? This is a good thing!



A closer view



About .060 of the bottom of the neck is unsized

A small portion, about .060, of the **bottom** of the 7.62X54R case neck is left unsized. This small area will help center the round in the chamber of the rifle, leading to more consistent shooting. This is a very desirable side benefit from this project. Bullet grip will not be affected to any measurable degree by the unsized portion of the case neck, since the case neck of the 7.62X54R is quite long. Sometimes you *can* have your cake & eat it too! ;-)

A neck sized 7.62X54R case; and done with a LEE .308 collet die. Not only do I have a double-duty collet die, but, this project cost me nothing. The reloader in me is pleased; the engineer in me is pleased, and the cheapskate in me is *very* pleased! I'm feeling good, time to be generous.

"Baby, forget about cooking tonight, I'm taking you out to dinner". Guess I'm not all that cheap...

Note 1

Whenever a tool is used for a purpose, or a way not intended by the manufacturer, or the instructions accompanying the tool are blatantly ignored, (as I did in this case) the responsibility is *solely* on the shoulders of the person (me) making the decision to do so.

Had I irreparably damaged the collet die, or ruined a piece of brass in this venture, the fault would have mine & mine alone.

Note 2

I wrote to John Lee, President of LEE Precision, about this procedure. He took time out of his busy day, and wrote me a nice letter. He indorsed the procedure described in this article as a sound one.

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