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INSIDE THE ARCHIVE

RETENTION OF AR-15 BARREL EXTENSIONS

THE AMMO DROUGHT EXPLAINED WITH MATH • WORKING THE BERETTA 92FS • SCOPING SWEDISH MAUSERS • REQUIE...

ORIGINAL METHODS. MODERN ACCESS.

ARCHIVE EDITION 117

DIGITAL ARCHIVE EDITION

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FROM THE ARCHIVE

The Ammo Drought Explained With Math

BY AMERICAN GUNSMITH EDITORS SEPTEMBER 2013

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Despite claims to the contrary, the lack of ammunition on your dealer's shelf is not a government conspiracy. Some simple math demonstrates how a slight uptick in demand can quickly exhaust available supply. Consider .22LR ammunition. The industry as a whole (all manufacturers combined) is currently setup to produce about 4,200,000,000 (4.2 Billion) rounds of .22 LR ammunition annually. That is the current production rate of all manufacturers running all their machines at full capacity.

Without taking the time and large financial risk of purchasing additional, expensive equipment, not to mention the additional needed shop space and trained personnel to run it, there is nothing these manufacturers can do to produce more. This adds up to a maximum 11.5 million rounds of .22LR per day, which is 23,000 bricks (500 rounds) of .22LR production per day. There are 80 million gun owners in the States, a figure widely reported by and agreed upon by multiple sources.

If 0.03 percent of them (24,000 people) decide to each buy one brick of .22 on any given day, that is a demand for 24,000 bricks, exceeding the entire maximum U. S. production of .22LR by 1,000 bricks on that day. If 0.5 percent of the American gun owning public (400,000

people) simultaneously decides they each want to buy two bricks of .22LR, the entire maximum U. S. production of .22LR is immediately backlogged for five weeks.

Any additional demand has to be supplied by currently available stocks from dealers, distributors or elsewhere. When those stocked items are exhausted, dealer shelves go bare. Lesson learned: Ammunition retains (and possibly increases) value, stores easily and for along time. When it's available, buy it cheap and stack it deep. Waiting until you need some, only to find the shelves bare, is never a good idea.

Gunsmith's Creed: • You can have it cheap, you can have it fast, and you can have it right... and you can only have two of them for any given project. Understand why the part is shaped, positioned and attached as it is, and what its purpose is before it's removed. This will make correct re-assembly easier to remember. There is no art in mechanics except simplicity of design. If there's a knob, notch or unknown gizmo, it does have a purpose.

Figure out what it is as you go, so when all the parts are in a pile there is no mystery about them to worry about later. There is no such thing as drop-in parts. Fast X, • • • John M. Buol Jr. americangunsmith.wordpress.com

PEOPLE & COMPANIES

Working The Beretta 92FS

The 'F' indicates US military testing and the 'S' is for the enlarged hammer pin to keep the slide from flying off if it cracks.

BY DAVID W. MANNEY SEPTEMBER 2013

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The Beretta 92 has gone through several different design changes since it was first rolled out in 1975. The gun was designed by Carlo Beretta, Giuseppe Mazzetti and Vittorio Valle. The 92 became the 92S, then the 92SB and the 92F when it was submitted for trials by the US government in the 1980s. The following changes were made: All the parts were to be 100% interchangeable to simplify maintenance for large organizations. The front trigger guard was modified so that the finger could be used for aiming.

The barrel bore was hard chromed to help protect it from corrosion and reduce wear. The forward base of the grip was curved forward too, also an aid with aiming. A new surface coating on the slide called Bruniton was used, which is supposed to provide better corrosion resistance than a blue finish. After testing, the hammer pin was enlarged so that the slide would not come off the back if the slide cracked. This was due to reported defective slides during testing.

Field Stripping Use safety glasses when disassembling this or any gun. Remove the magazine and check the chamber to make sure it is unloaded. The disassembly button is located on the right side opposite of the disassembly lever. Push in on the button and rotate the lever clockwise, to release the slide. Pull the slide off the frame toward the front. Pull the recoil spring and guide off the underlug of the barrel.

Keep this under control as there is a lot of tension on the spring and it can fly out if not controlled. To remove the barrel, push in the locking block plunger to release the locking block. Push the barrel slightly forward and lift up out of the slide. This completes field stripping. Detailed Disassembly Starting with the barrel, drift out the pin holding the locking block plunger to either side. The locking block will slide out sideways once the plunger is removed. Next, the slide.

With the safety in the fire position, drive out the two split pins holding the right safety lever. Do this from the inside of the slide. With the slide upside down, drive out the pin holding the extractor. Remove the extractor and the extractor spring. Drive out the pin holding the firing pin block. Remove the firing pin block and spring out the bottom of the slide. Rotate the safety lever clockwise until it stops, push in on the firing pin plunger and rotate and push out.

The safety lever plunger and spring, along with the trigger bar plunger and spring with pop out, if not controlled has the safety lever comes out the first 1/8". Continue pulling the safety lever and the firing pin and spring will be released. Drift the rear sight off to the right. Next, we'll tackle the frame. Pushing in the disassembly button all the way and rotate the disassembly lever counter clockwise to release. Pull these parts out of the frame. Remove the grips from the

WORKING THE BERETTA 92FS CONTINUED

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frame. If the grips are tight, use a finger to push out from inside the frame. With the hammer uncocked, push the lanyard loop down on the bench. The pin holding the lanyard cap can be easily pushed out with a punch. Slowly lift up and the cap and hammer strut spring will fall out. The spring holding the trigger bar can be unhooked and lifted up out of the frame. Pull the trigger bar out to the right. Pull the slide stop out and let it unwind the slide lock spring and remove both pieces.

The pin holding the trigger can now be pushed out the left side, releasing the trigger and trigger spring. Pull the pin holding the hammer out the left side. The hammer and hammer strut can now be removed. The hammer release lever pin has to be pushed out the left side, due to the head on it. This will release the hammer release lever. Push the split pin holding the ejector out either side. Remove the ejector. The sear pin is slowly pushed out to the right side.

Once the sear spring is clear, the pin will drop out the right side. To remove the magazine catch, push the oppo- Slave pin installed and ready to be inserted. site

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side into the frame and back. The magazine catch can be further disassembled by pushing the smaller plunger until it clears the frame of the catch. Reassembly Tips Put the sear into place and insert the sear pin from the right. Install the sear spring with the short end up and the coil to the front.

Push down with a punch through the magazine catch opening in the frame to capture the spring with the pin. I made a slave pin to put the trigger and spring back in, making this a three second job. However, you can trap the trigger using the pin and push down on the spring while pushing in the pin. The legs of the spring are the same and the coil is to the top. It is easier to put in the trigger bar spring from inside the frame. Catch the lower end in the hole and slot and push down to catch the top into the bar.

The slide stop release spring can be tricky to get back into place. Hook the straight leg in the slot on the slide stop, keeping a finger on it, slip the other end of the spring into the hole. Rotate the slide stop into place as you line up the stud to the hole. AG



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1 Barrel 2 Locking Block 3 Locking Block Plunger 4 Locking Block Plunger Pin 5 Slide 6 Extractor 7 Extractor Pin 8 Extractor Spring 9 Rear Sight 10 Trigger Bar Plunger 11 Trigger Bar Plunger Spring 12 Firing Pin 13 Firing Pin Spring 14 Left Safety 15 Firing Pin Plunger 18 Recoil Spring 19 Recoil Spring Guide 20 Frame 21 Disassembly Latch 22 Slide Catch Spring 23 Slide Catch 24 Trigger 25 Trigger Pin 26 Trigger Spring 27 Trigger Bar 28 Trigger Bar Spring 29 Disassembly Latch Release Button 30 Disassembly Latch Release Button Spring 31 Hammer Release Lever 32 Ejector 33 Hammer Release Lever Pin 34 Ejector Pin 35 Hammer 36 Hammer Pin 37 Hammer Strut 38 Hammer Spring

39 Lanyard loop 40 Sear 41 Sear Pin 42 Magazine Release Button 46 Magazine Release Button Spring 47 Lanyard Cap Pin 48 Grips 50 Grip Screws 51 Grip Bushing Beretta 92FS (Specifications subject to change without notice) 52 Magazine Box 53 Magazine Follower 54 Magazine Bottom 55 Magazine Spring 56 Magazine Lock Plate 57 Firing Pin Catch Spring 58 Firing Pin Catch 59 Firing Pin Catch Retaining Pin 60 Safety Plunger Spring 61 Safety Plunger 62 Right Safety Lever 63 Right Safety Lever Pin 64 Firing Pin Catch Lever 65 Magazine Catch Spring Bushing Short 66 Magazine Catch Spring Bushing Long 69 Spring Washer

FROM THE ARCHIVE

Retention Of AR-15 Barrel Extensions

When building AR-15s, or any firearm, taking simple, proactive steps can avoid future embarrassment.

BY JOE CARLOS SEPTEMBER 2013

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Very few shooters, including even the most active competitors, will ever have a barrel come loose. That is a good thing! For those of us who have experienced a barrel unscrewing, I can assure you it is an event that will never be forgotten. The first time it happened to me was back in the early 1970s, not long after my return from Viet Nam. I was working in law enforcement at the time. Revolvers were the staple for police duty and I remember paying the outrageous price of \$190 for a brand new Colt Python.

I quickly became interested in shooting PPC (Practical Police Combat) competitions and by the time my Python was reaching about the 200,000 round count (that is two tons in bullets alone) it was still shooting well as we used soft lead bullets with light “talcum powder” propellant charges. A rifle shooter would only get a tiny fraction of that kind of mileage. One day while training, I noticed my groups shift to the left. I blamed it on grip strength and tried to compensate.

As the week wore on, however, I found my zero continuing to shift further and further to the left. Eventually, toward the end of the week, I was running out of windage correction on my rear sight. Finally, while gripping the unloaded firearm normally in one hand and

twisting the barrel with the other, I discovered that I could easily screw it in either direction. I unscrewed the barrel completely and degreased everything.

The following day, after everything had sufficient drying time, I doused the back threads of the barrel liberally with red Loctite and screwed everything back together as stoutly as I could by hand. After allowing a couple of days for set up, I rezeroed the gun. The rear sight ended up back near the middle of its travel, so I felt my repair job was successful—although you real pistol smiths may tell me if I goofed it up. Anyway, I went on to carry that gun every day and staked my life on it.

I killed a six point whitetail buck with it and earned my first of three Distinguished metals with it. Now, about 40 years later, it still holds zero and shoots well but, unfortunately, not often enough due to my AR-15 gunsmithing workload. Perhaps I have a dark cloud hanging over my head because this wasn’t my last time to get unlucky. The next time was with an AR-15.

At the time, a number of top AR gunsmiths in the country were advocating screwing on flash suppressors only hand tight and using lots of red Loctite. Most of us who work on the various Stoner plat-

RETENTION OF AR-15 BARREL EXTENSIONS CONTINUED

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forms still use some variation on this theme. I have found, however, that just a little mechanical torque helps me as I have had a number of flash suppressors which were held on only with the red Loctite come loose. The theory is that too much torque, like most factories apply, will crush the muzzle. Somehow that theory, which does make sense, also got applied to the other end. At least one notable barrel maker was using hand tightened barrel extensions and red Loctite.

That worked for awhile but eventually heat (remember, we are right at the chamber here) and age conspired to weaken many of these assemblies and mine was one of them. I cured it in a manner very similar to the Python and the joint held to the end of the barrel's life. I know it would make for a much more interesting story if I said I earned my second Distinguished medal with it. Honestly, however, I earned that one with an issued M14 years prior.

And no, I didn't kill any six pointers with it or carry it into battle either. In an interesting post script, I have learned that this barrel manufacturer in question abandoned the practice of just hand tightening their extensions and now torque them on at 150 footpounds. As the Armorer for the US Army Reserve Marksmanship Program

(ArmyReserveMarksmanship.info) for a little over a decade, I would occasionally run into these loose extensions at a rate of about one or so per year.

Because of my hard learned personal lesson with a loose extension, I was able to quickly diagnose the problems and get the rifles repaired. As William Bell once said, "In any search for knowledge there are always unintended consequences." Suddenly, a couple of years before I left the Team to pursue my civilian gun business I noted a significant up-tick in loose AR-15 barrel extensions. All of the barrels in question had been salt bath nitrided, usually under the trade names Melonite or Isonite.

When I removed the extensions to repair the barrels I noted that the male threads on the all of them were perfectly coated with the chemical and looked like there had been no extension covering them at all during the nitride processing. I spoke with Joel Kendrick who is associated with MMi Tru Tec, one of the companies who performs the nitriding process. He indicated to me that they use temperatures closely approaching 1,000 degrees during the processing of barrels.

We both agreed that such a temperature would easily melt out even the strongest Loctite and jeopardize retention. It was also

apparent to me that as the Loctite was melted out it was replaced with the Isonite compound which, unfortunately, had no bonding characteristics. To make matters worse, as I was repairing these barrels whose extensions had come loose I inquired with their makers as to the original torque they used.

I found that when I duplicated their original torque I invariably "over timed", meaning the extensions went too far and actually passed top dead center. So, while there are tangible benefits to having barrels salt bath nitrided (which I will cover in detail in a future article) as William Bell said, there can also be unintended consequences. Frank White at Compass Lake Engineering turns and chambers a lot of my barrel blanks for me. I was discussing the problems I was having with him not too long ago.

I mentioned Derrick Martin of Accuracy Speaks a few months ago. Derrick is one of those folks that I tend to listen to regarding AR-15 gun plumbing. Frank White is another such person who has earned my professional respect. Here is what he has to say about what the high temperatures are doing to barrel extensions and why they "overtime" if reinstalled at the original torque. "If the nitriding process heats the barrels to 1000 degrees The barrels

RETENTION OF AR-15 BARREL EXTENSIONS CONTINUED

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and extensions are stress relieved and they lose their torque. Re-torquing will cause the extension to rotate past correct alignment. The draw temperature of the extension is exceeded by several hundred degrees which results in decreased hardness and strength of both the core and case of the barrel extension. I recommend removing the extension before nitriding. Punch mark the barrel just in front of the extension pin and when reinstalling the extension align the pin with the punch mark.

When the extension is reinstalled, the nitrided threads of the barrel will have a different coefficient of friction so 150 foot pounds may not get the extension to the same spot." Frank and I agreed on a strategy for dealing with the extension retention dilemma. We

agreed that Compass Lake would continue to install extensions as done previously. Like some others in the AR-15 barrel business, they use the increasingly popular 150 foot pound torque setting when timing their extensions.

Frank agreed to put a distinctive punch mark at top dead center right in front of where the extension pin is located. When barrels are returned to me from Compass Lake, I simply spin off the extensions from those that are being sent out for the nitriding process and label them so they go back on their respective barrels. By not allowing the extensions to be subjected to those near 1,000 degree temperatures, their characteristics are not changed.

When the barrels are returned about a month later I thoroughly degrease both the extension and the back of the barrel (the male threads.) Then I do a trial fitting using 140 foot-pounds of torque and visually inspect to see if the extension pins line up with the punch marks at top dead center. Note, I am starting with 10 foot-pounds less than the original 150 because of the lowered coefficient of friction on the male threads of the barrel that Frank White cautioned about.

Finally, I triple check my work using what I calla "bastard application" of a Gas Port Drilling Jig available from Brownells (#100-006- 626EJ). As originally designed, the tool consists of two flat aluminum jigs. The first fits over the barrel extension indexing on the pin and

RETENTION OF AR-15 BARREL EXTENSIONS CONTINUED

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the flat surface sits level on a work bench or other flat surface. Then, the second jig slides back on the front of the barrel until it abuts against the shoulder of the barrel near where the gas port is to be drilled. When both the front and rear jigs are sitting flat on the work surface the front one is locked in place with a set screw. There is a bushing on the front jig that aligns the drill to where the port needs to be drilled at top dead center.

It is a handy device in its own right to do the job it was designed to perform. Please note that one weakness of this fixture, however, is that it fails to take into consideration the location of the lands of the barrel so there is a high probability of cutting a land when drilling the gas port. We will cover this topic in greater detail in a future article on gas ports. I simply reverse the order.

I put the front jig on first and carefully drop the shank of the appropriate size drill (commonly a 0.093" but 0.100" and 0.098" are also used) down thru the bushing and into the gas port. To avoid damage to either the gas port or the bore I suggest you do not insert the drilling side of the bit. It doesn't hurt to carefully slide a cleaning rod into the bore first to keep the drill from contacting the bottom of the bore.

Then, tighten the set screw on the front jig and ensure that it is sitting level on a flat work surface. Slide the rear jig over the barrel extension. If it fails to sit flat on the work surface it will be immediately evident whether you need to increase or decrease torque. In the event that I have to lighten up the torque much below the original 150 foot-pounds, I unscrew the extension and apply red Loctite to the threads and then torque everything back up. Too easy!

Joel Kendrick from MMi Trutec and the folks at Northern Competition came up with an alternate method of dealing with retention. Their fix is also very straightforward. They recommend timing up the barrel extension to top dead center as normal. Before tapping

in the pin, however, drill down into the top of the threads 1/8". Use a pin that is 1/8" longer (1/8" diameter x 5/16" long) than normal and gently tap it into place. Obviously, an extension thus pinned to the barrel can't unscrew.

Northern Competition sells a lot of Badger AR-15 barrels and so far they report 100% success with this method. A warning. If you pound that pin too hard as it bottoms out in the hole in the barrel, the bottom of the pin will mushroom out a little making it almost impossible to get back out. I am using BAT Machine match barrel extensions exclusively in my custom guns. While they are very reasonably priced given their significant contribution to accuracy, they are a little more expensive than the garden variety.

Barrel extensions way out last barrels so I want to recycle my BAT's onto a new barrel when the first barrel shoots out. If you pound too hard on that pin and mushroom the bottom of it, you will likely need to drill it out when you want to remove it. I recommend that you tap it in and check to see if that a barrel nut will clear it. Done as I have described, you should be able to pull such a pin back out and save some time later when you want to recycle the extension.

Northern Competition also cautions that hammering too hard on the pin will flare the top if it as well, often making it impossible to fit into the corresponding slot in the front of the receiver. Should that happen, dress the sides of the pin back to spec with a file until everything fits as normal. Now, some comments on what won't work.

See Jethro Gibbs, Rule #51: "Sometimes you're wrong" and Rule #8: "Never Assume." When I first noticed this tendency for nitrided barrels to unscrew from their extensions, as many of you are probably thinking, I figured I could just set them vertically with the muzzle down and apply some

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wicking-grade Loctite to the joint where the back of the barrel comes through the extension. I assumed that the Loctite would do its job and migrate down into the threads and form enough of a bond to cure my retention problems. Gibbs would have been able to say, "I told you so," twice. My assumption was wrong! The wicking Loctite just pooled up and wouldn't soak down into the threads at all.

Remember me stating earlier how the salt bath solution had so effectively seeped into the space between the male threads of the barrel and the female threads of the exten-

sion? In doing so it apparently filled up all the gaps and voids leaving no room for Loctite to wick or migrate into. It would have been a whole lot easier fix had it worked, but it didn't. I have found that 100% of extensions put on hand tight with Loctite will come loose if subjected to the nitriding process.

About 50% of extensions put on at 75 foot-pounds will come loose. Even 150 foot-pounds of torque is not foolproof. So that leaves you with the two very viable alternatives described above. Both take time, but not that much. Spin it off and try again with 10

foot-pounds less torque. Continue backing off torque until the proper setting is established. Apply red Loctite to the threads if the final torque is much below 140 foot-pounds.

Chances are that only a fraction of your customers will want their barrels nitrided anyway due to the significant added cost. Securing the extensions right the first time will save you time in the long run, however, as opposed to inconvenience to the customer and you doing a repair job later on when the barrel unscrews. AG

RIFLES

Scoping Swedish Mausers

Scoping older foreign made rifles, such as the Model 96 Swedish Mauser, results in fine shooting rifles.

BY NORMAN E. JOHNSON SEPTEMBER 2013

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The rifle being scoped here is a Model 96 bolt action Swedish Mauser. Swedish-made actions were proof tested with load pressures up to 66,000 PSI and provided with gas venting holes. This particular rifle was made by the Carl Gustaf firm in Sweden. The receiver is dated 1918 while some were made as late as the 1940s. The receiver inscription reads, "Carl Gustaf Stadelgevarstaktori 1918". The specimen worked on here was found in most excellent condition with a bore that appeared unfired.

The old rifle just beckoned to be scoped. First, I totally accurized and sporterized the old gun. This included glass bedding the ac-

tion with Brownells Steel Bed, shortening the forend and adding a laminated forend tip, finishing the well grained stock, installing a Timney trigger and cutting some 2 ½ inches off the barrel (including the front sight and existing threads), followed by re-crowning. The rifle was then ready for scoping.

Installing the Scope Sight With all the aforementioned work done on the old Mauser, it was time for scope mounting. I chose a Leupold mounting system with streamlined bases and one inch rings. The receiver was carefully aligned and stabilized in the milling/drilling vise to aid in true alignment of the screw holes.

While I could have used a Brownells 8-40 screw conversion for a somewhat stronger and easier installation, I stayed with the 6-48 base screws pro- The two 8-48 screw holes are drilled and tapped for a Leupold scope base. vided. The receiver is quite hard, so care must be taken when drilling and tapping the base screw holes. This is particularly true of tap holes that bottom out on the receiver rings. There is, however, ample screw thread depth on this well-made receiver.

The rear base required a bit of extra fitting at the raised front, which was

SCOPING SWEDISH MAUSERS CONTINUED

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The Leupold base forms a near perfect fit on the front receiver ring of the Model 96 Swedish rifle. As a means of more solidly anchoring the adjustable ring side locks, a through bolt and new cap screws were substituted on the rear scope base. performed before final placing in position and screw hole marking. There must be no rocking of a scope base at any time. Following base installation, I placed the rings in position and tested them for true coaxial alignment with Brownells Sleeved Scope Alignment Rods.

This instrument quickly reveals any misalignment of the scope rings, and these rings checked out well. When you stop to think about it, it's a pretty tall order for a scope base and ring manufacturer to produce a precision fit between parts for a rifle receiver made more than 90 years ago. But they do it

and do it well. Testing Things Out On occasion, as we set out to prove our work, we may not always have a clear picture of what is being tested.

It may be the scope, its mounting system, the rifle's barrel, or its load, or a number of other things, including the shooter. Obviating many of these things in advance is the key. I had selected a couple good scopes for testing the customized 6.5x55 Swedish Mauser chambering, including the new 6.5-20X Sightron scope with one-inch tube. I was immediately encouraged with the sub-minute-of-angle grouping with a few different bullets.

The mounting system showed the reticle adjustable to optical center, which in itself answers a lot of questions. Scopes The pointers

show good ring alignment of the Leupold scope mounting system. The final proof of alignment is verified as one alignment rod slides into the opposite sleeve.

The instrument is designed to fit both one-inch and 30mm scope rings. 5-20X MOA2 Sightron scope mounted on the venerable Model 96 Swedish Mauser rifle. sometimes run out of adjustment as the reticle is moved for windage or elevation, resulting in using only the peripheral part of the lenses. Conclusion The bottom line shows us how a good scope mounting job can bring out the accuracy and shooting pleasure of even the oldest of rifles never designed to be scoped. AG

PEOPLE & COMPANIES

Requiem For A Gunsmith, Part One

BY WENDELL DEANER SEPTEMBER 2013

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“I fought 111 fights and never took a dive.” –Mountain Rivera, Requiem For A Heavyweight “Riddle me this,” –The Riddler, Batman And Robin “You can’t handle the truth!” –Colonel Nathan R. Jessop, USMC, A Few Good Men “Sad stories don’t inspire me, but I sometimes feel enlightened.” –Me Years ago, I took a Model 770 Winchester to a neighborhood gunsmith. A lot of you are shaking your heads right now. What the heck is a Model 770? Winchester made them along time back.

The 770s were chambered in magnum calibers, such as the .300 Winchester Magnum, and the 670s were in standard calibers like .30-06. These rifles had a blind floorplate, pressed checkering and a 24-inch barrel in magnum and a 22-inch barrel standard. The finish wasn’t all that great but the rifles were pure push-feed Model 70s. Why the manufactures deemed it profitable to introduce a dumbeddown sort of product is beyond me. Witness the Remington BDL verses ADL.

I traded an Interarms Mark X in .300 Winchester Magnum for it. The Interarms was stocked to knock my teeth out every

time I shot it so it was no great loss, even though I wouldn’t mind having the barreled action right now. But the joke was on Winchester. This rifle is one of the best shooters I’ve ever owned. I brought home my first deer using it. I made the longest shot of my career on a groundhog and then hit it a second time. I won’t say how far it was because I would be accused of lying.

I had a Redfield 4X scope mounted on this gun that I had purchased at K-Mart for \$100. My load was a 150 grain Sierra spitzer under a charge of IMR 4350. I would later find out that this load only propelled those Sierras about the same velocity as an ordinary .30-06, but they killed deer as dead as I needed them to. During the preseason sight in I carefully unpacked my gear, consisting of a couple sandbags, a spotting scope and my ammunition. I took one shot. Uh huh, same place as it hit last year.

Then I packed up my stuff and left. I’m certain I got a few dirty looks, but it was what it was, and the accuracy has lasted until this day. The only modifications I’ve ever made to this gun was to glass bed the action and adjust the trigger. I can hardly be-

lieve how this thing shoots myself. 300 Winchester Magnum. Utilitarian but very accurate. The first shot always goes where it’s supposed to. This was the only big-game rifle I owned for many years. I counted on it for some serious hunts.

So one day I couldn’t get the bolt open. I moved on. I noticed anew gunsmith’s sign just up the road from my house and stopped by to check it out. I was greeted by an older gentleman who had owned a gunshop in a neighboring town and had now moved into a residential area with his sick wife. He constructed a little shop out back using an old garage and set himself up in business. It wasn’t long before the zoning board came down on him with both feet and nipped it in the bud.

But, in a rare defeat for bureaucrats, a lot of his friends and neighbors wrote letters and gave support so the old man was allowed to have his little shop in his back yard, which gave him the opportunity to care for his wife as well as earn a few bucks. He even had a young man trying to pick up some points of the trade working

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This part allows the rifle to be cocked on opening. After much difficulty, anew one was found and fitted to make this gun run again, for free. The first thing you would hear when you entered his shop was inspirational music playing on the Christian radio station he favored. I took this man some work, thankful to find a 'smith so close. From his considerable stash of parts he found a screw that I needed for the rear sight on my Model 29 S&W that I had lost during a metallic silhouette match.

I decided he should fix my beloved Model 770. He gratefully accepted the job and I was happy I was going to get my favorite rifle back in order. Several weeks later I returned. The gun was fixed, but this old Christian man began to curse it for afoul deed of the devil! I couldn't believe the awful words he put through himself. He told me he filed and filed on it to get it to work properly. The bolt wouldn't close without what seemed like a ton of pressure.

He put the muzzle of the barrel on a padded rug and was, after some difficulty, able to ram the bolt home. He said I could probably put it up against a tree trunk in the woods. It was safe, he assured me, except that when the safety was released the gun would go off without touching the trigger. Tennessee Ernie Ford was softly croon-

ing How Great Thou Art over the radio waves. The gunsmith's protégé was looking on. What could I say?

Could I have said, "You old idiot, Model 70s cock on opening!" No, that wasn't me and I felt sad. He wanted twenty dollars, I got him down to ten and walked away with my "repaired" gun feeling like I had lost something. The shop closed soon after. It was for the best. I am an old movies fan and I am partial to good questions. The only trick is to return a good answer, one that—hopefully, for our trade—not only educates but will stand up in court.

Gunsmiths receive much of their communication with customers in the form of questions. This is as it should be. You area bastion of information about guns and shooting. However, truth is as we see it and our truth may preclude logic. I got to thinking the other day (admittedly dangerous on my part) about some of the questions that have been posed to me pertaining to firearms. In retrospect, I answered them clearly and truthfully—at least to the capacity of my honesty and knowledge at the time.

I admit that sometimes my knowledge has not caught up to the facts of the day. That is my fault and concern since I am supposed to be an expert, at least in parts of

my field. One of the ways I combat this failure of duty is to read as much as I can. I remember as yesterday when one of my old instructors in college took my class aside by suspending the scheduled lesson for a mini lecture on learning.

A student had just asked, "Why do we have to know all this stuff when we can just look it up?" Although I may have been hung over and half asleep at the time, his words have always stayed with me because they had the clarity ring of a man telling the truth instead of simply reciting what was in the textbook. I paraphrase, "Very few of us are expected to retain more than ten percent of the curriculum we are exposed to in the classroom; but without that exposure what base are we building on?"

A teacher's job is to show you how to begin a lifelong journey of self education and the pursuit of knowledge for knowledge's sake in your professional field as well as your life in general. If you don't know, you can always look it up. How and when to do that is what you are here to learn." It came to me that being exposed to the nuances of your profession is not only good practice but essential. Knowledge builds upon knowledge. Why not pay attention to what some have labeled archaic or obsolete as

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I think maybe a ton or so. traditional. Each kind of bullet available has its place. The gunsmith should steer his customers towards the right one for the job. well as the most modern advancements if you are serious about becoming a perpetual student as well as a practitioner? The building on sand or rock analogy is apt. After hundreds of experiments ending in failure Thomas Edison was asked if he was discouraged.

Again I paraphrase: "Of course not," he replied, "We have been successful in finding out what does not work." Memory is a wondrous adventure. Don't squander its opportunities. Although bits and pieces of useful information may lie dormant for along time, who knows what may trigger resurgence? In that spirit, I thought it would be an interesting exercise to pose some common questions a gunsmith may encounter and try to answer them to the best of my ability.

I fully understand that many of you may disagree with my humble offerings but the point is to initiate contemplation, not condemnation. Let's begin. Should I full-length resize my cases? The best way to answer this question is by asking questions of our own such as, "What are you going to use the ammunition for? What gun or guns are

you going to use it in?" I once took a Model 99 Savage in caliber .308 Winchester to a gunsmith for repairs.

When I got it back I tried some of my handloads in it and noticed there was a slight hesitation when trying to close the lever on a loaded round. I took it back to the 'smith. He cycled some try cases in the gun and it worked perfectly. "Always full-length resize when using a lever action," he intoned. I had sized the cases using an RCBS X-die which supposedly does size full length, but I had used these cases in another rifle which didn't necessarily translate to my Model 99.

The action would close and the gun would fire, but the hesitation wasn't ideal for a hunting arm. But what if you're hunting prairie dogs or groundhogs? Some folks, myself included, like to partial size such cases as the .22-250 Remington that will normally be used in a strong bolt-action rifle because we feel it gives us a slight accuracy edge. There is controversy on that subject, but that doesn't make this practice wrong. Neck sizing? Perhaps you will be informed that this is the only way to obtain good accuracy.

Again, controversy abounds. Neck sizing has seemed to fallen out of favor nowadays. Some folks figured out that just sizing the

necks can tilt them out of line with the case body. I suspect the introduction of multiple, nifty little machines that are on almost everyone's bench to check this phenomenon has had something to do with it. A word about Xsizing, RCBS style.

It works as advertised but it still may not allow a case to function properly in some rifles that don't have the heavy extraction power of bolt actions, as I found out when trying a .308 Winchester so sized in a Handy Arms break-open job. Factory rounds worked fine but it took a little more than the X-sizer to make sure the case popped out after firing as it should. I'm not knocking these two ways to do the job. I suspect it is the quality of the die that makes all the difference.

And, yes, I'm saying any of the major manufacturer's products are excellent. But, I check them all for critical measurements using my press and my equipment. If they don't stand up to this scrutiny, they go and are replaced until I find ones that will. This is especially important for dies made many years ago but I have some I bought in the sixties that I would not part with. Also, it's best to full-length size if you are going to use the ammunition in more than one rifle. Even a few

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I gotta buy some more bullets. They can help by eliminating—or at least reducing—the number of times a case must be trimmed. Just use them as intended. If you change rifles, resize your cases. thousandths of an inch discrepancy can totally hang up a rifle from feeding properly. So the answer would be: It depends. I find it difficult to use the word “always” pertaining to anything and I never use the word “never!” Should I sight my rifle in using a 6 o’clock or center hold? I like this one, too.

Of course, this is a personal preference, but on the range I use a 6 o’clock hold and in the field I zero for a center hold where I want the bullet to hit. I use a square target to sight in and test my loads, and I am testing a diamond-shaped one now. Keeping a thin line of light between my crosshairs and the target seems to help me aim more consistently than trying to hold dead center for every shot.

I don’t really care where my groups are hitting as long as they are somewhere on the paper when I am shooting for group, but I want to hit exactly where I am aiming (or maybe a little high) if I am sighting in for hunting no matter which hold I use. I have been confounded sometimes when trying to explain that simple fact to a new shooter. They all want to use a center hold and if the rifle doesn’t shoot exactly where they aim they can’t understand it. So, again, it depends.

I usually give my answer above and qualify that by telling them to use the hold that feels most comfortable to them. Another part of this question may be where to sight in on the paper. I do not subscribe to the point-blank range business. If you sight your rifle in at, say, 275 yards so you are on for a shot at zero to 350 yards, that just confuses me. I sight my big game guns dead on at any shots I take within that range are no-brainers that only cross the line of sight up or down a couple of inches either way.

At 300 yards I’m down around six inches, at 400 yards add another ten inches. That works out well using about any hunting round with a velocity of around 2700 feet per second or more at the muzzle. For the many of us hunting with laser range finders and know almost exactly how far away their quarry is, this system will do yeoman’s duty. For specialized shooting at great distance, that is another story. Which is best: Bolt, lever, or pump-action rifles? Wow! Where do you go with this one?

Which campfire’s coals do you want to kick? No one will pry me away from my Remington 760 in .30-06, or my Browning BAR in 7mm Magnum, or my Model 94 Winchester in .30-30 for that matter. They all do the job quite nicely. I am partial to a short, light, bolt action carbine for all my hunting, but I hunt deer from stands and expect a quick, short shot to drop game. A

hunter who is stalking through heavy brush and expecting a jump shot could well use an auto or pump or lever action in case a second shot is necessary.

I personally have had very few second shot opportunities, but I know they are out there and don’t belittle anyone who goes so prepared. As to accuracy, I have found that any of these action types are more than enough to drop any game in reasonable distances. I recommend hunting with factory ammunition and using the handloads for practice. Find a box of factory ammo that will work through your action and are reasonably accurate and you are in business. Don’t let your buddy or Uncle Joe load your hunting ammo.

You might save ten cents but miss the trophy of a lifetime. I own a Remington Model 760 chambered for .30-06. At one hundred yards shooting factory Remington 165 grain Core-Lokt the gun consistently shoots the first two shots in the same hole and the third round goes out of the group less than an inch. I have plenty of bolt action rifles that won’t shoot this well. Why the third shot goes out of the group, I wish I knew. If it didn’t, I might take the thing to a benchrest match. I have lever actions and have shot

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It doesn't matter which action type you choose. Hitting the animal is what's important. Case neck thickness, case neck concentricity and bullet to case straightness are measured easily with reloading tools like this. semi-autos that are more than accurate enough to hunt with, given an eight inch vital area on a deer, for example. Very few rifles can't pass this muster, even the older ones. If you find one that isn't up to snuff, move on. Otherwise, be thankful for small miracles and leave well enough alone.

What is the best bullet for hunting? OK, let's start another argument. Today, the hunting public enjoy the best selection of bullets than at any other time in history. The old days of use any bullet you want as long as it's made of pure lead are long gone. Innovations in bullet design astound me. It seems as though we can't get through another week without anew bullet being introduced.

Plastic ballistic tips, homogenous, all cop-per, all gilding metal, jackets fused to the core, bonded to the core, no core at all, scored here, relieved with rings there, a mixture of all of them, and still we have the good old bullets (now known as traditional) that we've had all along, and even those have been improved to the point of near perfection also.

It would be easy to say, "Just stick a Nosler Partition in it and go hunting." Many times I follow that advice myself, but you need to ask your client some questions. What round are you using? What are you hunting? How far? If you are using a .30-378 Weatherby, you better use a premium bullet no matter the rest of the questions. A traditional bullet at short range could blow like a varmint round. They just can't stand magnum velocities until the round has slowed enough at 300 to 500 yards down range.

The premium bullet will hold together at 50 yards as well as 500 yards. I also believe that if you are on the other side of the spectrum, such as using a .243 Winchester or 6mm Remington to hunt, you should use the best premium bullet you can afford. I want a complete pass through on my hunting shots. Some don't agree, arguing that the energy is wasted on the other side of the animal. OK, we'll agree to disagree. I look at the new bullets as insurance in the smaller calibers.

Some experts say that the Nosler Ballistic Tips are the best deer bullet ever made. They certainly are accurate and have dropped a lot of animals but I wouldn't use them in anything less than a .270 caliber or larger. That being said, if you are hunting

deer-sized game using a 7mm- 08 Remington in a situation where three hundred yards is along pop, by all means use any of the traditional bullets from any of the major manufacturers.

These bullets are made to expand at the velocities of the more sedate rounds and penetration is more than adequate. Nowadays, we have the best of both worlds in that companies like Federal, Remington, Nosler and many others offer premium bullets in factory loadings as well as their traditional loads. I think you can find one that shoots well in your gun. I usually recommend using factory loads to hunt with. If you can't find one to suit you, you aren't looking very hard.

Like my old pap told me, "A box of shells should last all season." For guys like me who can't leave well enough alone and just have to use their own handloads to hunt with, I say choose the right bullet for the job. See the three questions above. Use a projectile that will do everything it is supposed to do at whatever range you are hunting for the size of the game you are after. If you use common sense and take the time to do your homework, you will be fine.

YOU'LL HAVE MORE GAME READY FOR PICTURES AND THE SKINNING SHED. AG

PEOPLE & COMPANIES

Ruger P-Series Custom Touches

Like Rodney Dangerfield, the Ruger P-Series pistols “can’t get no respect” since being introduced in 1985. Here’s how to customize them.

BY PAUL MAZAN SEPTEMBER 2013

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When shooters discuss Ruger pistols, they are generally described with words like “rugged” and “reliable,” with mention that they just don’t break. Those are very highly regarded attributes for any handgun to have. Words you never hear when describing these pistols are “extremely accurate,” “elegant,” or “beautiful.” In fact, despite over a million of them having been manufactured and sold, if you look for aftermarket accessories, you’re going to be disappointed. I wondered why that was so.

With that many pistols around you would think there would be plenty of sources for improved triggers, decocking levers, magazine wells, match grade barrels or drop in accuracy jobs. About all I’ve been able to find are grips from Pachmayr and Hogue, Wolff Gunsprings and a few sight sets. Are the guns so well made that nobody can come up with better accessories? No.

Actually, the guns seem to be bought by folks that don’t shoot them a lot and have little interest in customizing them.

Manufacturers that have tried to offer accessories were unable to sell enough of them to be profitable, so the unforgiving laws of business have left aftermarket parts pretty much unavailable. It would seem that most of those million pistols are sitting in night stand drawers, just waiting to be called to duty. To satisfy my own curiosity, I checked shooters at our local public range the last several times I was out there.

Despite the range being full and more folks waiting for spaces to open up, I was unable to find a single shooter firing a Ruger P-Series. A couple showed up at a zombie shoot I attended but I just don’t see many of them being used. What I did find in my search for accessories was factory parts. Both the auction sites and parts houses all seem to have a plen- Big and bulky, we will work on rounding out the facets and reducing the bulk.

Watch the transformation of the slide, frame, hammer, slide stop and trigger guard. tiful supply of Ruger factory parts. I guess that means that if I want a customized Ruger P-Series pistol I’ll just have to break out the tools and do it myself. The first complaint I hear about the pistols is that they are blocky looking, feel oversized and clumsy. I have to admit I agree, so the first thing to look at is how to we can reduce the pistol’s bulk and make it look and feel more slim and trim.

Have you ever compared a Ford Thunderbird to a Chevy Corvette? Both are classic designs but where the Ford is all about lines and angles, the Corvette is all curves and radii. The Rugers look to me like a Ford engineer designed them. Lots of lines and angles. Most other pistols, including the S&W M&P, Glock, XD, SIG and Walthers that look quite angular, have far fewer flat planes and facets than the Ruger. Perhaps the Ruger design isn’t so much bulky as

RUGER P-SERIES CUSTOM TOUCHES CONTINUED

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it is different and appears bulky due to its having so many angles. I wondered what would happen if I simply got rid of all those facets. Well, I have a P-89. Let's try it and see. For starters, pick up the pistol and clear it, confirming the gun is empty. There is nothing worse than starting a project with a bullet hole in something valuable or something that will bleed. Disassemble the firearm, taking it completely down to its basic components.

If you don't know how to do this, go to the Internet and type "Ruger P-XX disassembly" into any search engines. You will find several sites that will offer everything from free videos on how it is done to pages you can print out showing the disassembly procedure step by step. The process is not very difficult but it isn't totally intuitive either. I chose the print out because I, like most old geezers with fading short term memories, prefer having the reference material in front of me as I work.

Once you have the pistol disassembled take a look at the parts. I immediately decided that the trigger needed to be polished and the web at the back removed, leaving a thin polished blade trigger in the trigger guard. Next was the massive hammer. My first thought was to enlarge the hole under the serrations for thumb cocking the gun. Unfortunately, I soon discovered that the hammer is not only huge but also harder than woodpecker lips. Even my TI coated drill bits danced on the surface without making an impression.

After giving the situation some thought, I took the hammer to the grinding wheel and thinned the thumb-cocking piece. With a Dremel tool I ground away the underside, leaving a small pad to thumb cock the hammer. Dissatisfied with that look, I bobbed the hammer by completely removing the rowel. With its reduced mass lock time should be greatly improved.

There is also a web The muzzle end of the slide is being rounded or "melted." Far Here a 1/16" pin punch is used to remove the roll pins holding the sight into the slide. of metal on the hammer just below where the rowel was that could be removed. That will not change the outward appearance of the gun but will further lighten the hammer. I next looked at the ambidextrous decocking levers and decided that about the only improvement I could make to them was to sharpen the serrations.

They are long and wide enough as supplied. Making them longer would cause them to be taller than the top of the slide when shooting, an awkward and distracting modification. The slide release offended me for some reason. I simply didn't like the way it looked so I ground the top line straight, polished off the remaining grooves and checkered the top to give a positive, no-slip surface. The last change to the external parts was to replace the original factory grip with a set of Hogue rubber grips. They give the

RUGER P-SERIES CUSTOM TOUCHES CONTINUED

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gun a completely different feel and made it feel much less bulky to me. Working the small parts over definitely made the pistol more personalized but the frame and slide were where a lot of ugly still lived. I started with the slide. At the top of the slide is a rib that runs from the front sight back an inch or so. It adds to the height of the slide and gives a tall look so I removed it by filing it off, leaving just an island under the front sight.

I then rounded the top of the slide with coarse Emery cloth, used in a shoeshine fashion until the angles disappeared and it looked more like a 1911 slide. I did this from the muzzle all the way back to the rear sight dovetail, giving the slide around top and eliminating the rib that runs from the front

of the rear sight to the ejection port. I then went to the Scott Murray drum and blended the lines along the side of the slide from just in front of the ejection port and tapered the slide from there to the muzzle.

Once I had a look I liked I reduced the grit of the abrasive I was using until I worked my way down to 120 grit and polished the entire slide. Still not happy with the overall look, I rounded the front of the slide at the muzzle again using the Emery cloth until I liked the appearance. I also rounded the back of the slide behind the rear sight so the front and back looked like they belonged on the same gun. Now that we had a softer looking slide with fewer lines and more curves, it was time to tackle the frame.

There was a lot I didn't like about the frame. The dust cover The sharp angles of the dust cover and around the trigger will be rounded. is once again faceted, so that was rounded in the same manner as the slide. I then decided that the most objectionable part of the gun to my eye was the trigger guard area, being too thick and bulky. This is a feature I have seen and disliked on a lot of pistols, especially those with synthetic frames. The Glock comes immediately to mind.

The finger hook on the front is simply too massive and just plain ugly and the frame is once again faceted above the trigger guard. In keeping with the rest of the work, it was all thinned, rounded and, in the case of the finger hook,

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removed. Now, if you happen to like the finger hook you can leave it but the guard itself, including the hook, is in desperate need of thinning and tapering inside and out. The trigger guard was thinned and rounded to present a thinner, more traditional look along its edge. I also slightly radiused the front of the frame just behind the dust cover where it widens out. Care must be taken in working this area because the serial number is on the right side and the trigger return spring and rod are on the left.

Do NOT under any circumstances file or grind off the serial number or any part of it! As Obi Wan Kenobi would say, it will help avoid any "Imperial entanglements." Once you have the gun looking a lot less angular and blocky and you're happy with the change, polish out all the sanding and file marks and think about refinishing the gun. The frame on my P-89 is an alloy of some kind. I think it is stainless but, nevertheless, it is nonmagnetic and will not blue.

In years past that could be a major problem, however, today we have a number of spray on/bake on finishes that will be terrific for this application. They all go on easily and will give you excellent results.

I've used all of them at one time or another and my personal favorites are the Teflon/Moly Oven Cure Gun Finish (Brownells #083-048-801AE) and Aluma-Hyde II (#083-002-112AE.) The Teflon/Moly provides good looks, long wear and low surface friction while the Aluma-Hyde II is an air-cured epoxy that resists bore cleaners and does not require baking. Both are available in several colors from traditional black that old geezers like me favor, and whose stock numbers I provided, to grays, greens, sand and tans.

There are a lot of choices and they all work great. Of course, these are only suggestions to get you thinking about the possibilities. I elected to narrow the slide as much as I could

and that nearly erased the Ruger name and Compare the slide, frame, trigger, trigger guard, slide release and hammer to the factory build. address. You can certainly leave them intact if you wish.

The key to taking on a project of this type is that it allows you to personalize your gun to make it into something both unique and more functional. It is also a great project for anyone with a desire to do a little gun work without investing in a lot of specialty tools. Because all that was done is parts modification with no work on the action or trigger, the only things required are files, emery cloth and the finish of your choice.

I'm quite happy with my "streamlined" Ruger P-89 and you can be just as happy with yours. All it takes is a few tools and a gallon or so of elbow grease. AG

MEASUREMENT & INSPECTION

Reader Forum

BY AMERICAN GUNSMITH EDITORS SEPTEMBER 2013

ORIGINAL PP. 22-24

Remington 1100/11-87 I have a question concerning your answer in the July 2013 Reader's Forum (Shortening A Model 1100 Barrel.) Does the information you gave Mr. Barton Holland also apply to the Remington 11-87? The gun in question is a left hand 11-87 chambered in 12 gauge with a 28" barrel, Rem Choke and light contour. Michael T. Sweeney No, the 11-87 has a totally different gas system than the 1100 since it is capable of firing both 3-inch and 2 3/4-inch shells from a single loading of the magazine.

Spring ield Shotgun I have a 12 gauge single shot Springfield shotgun manufactured by Springfield Arms. The Model number is 1929 or 1829 and the serial number is 147XX. I am looking for a stock for it and can't find this gun in any of my reference books. Can you help me find some more about this gun so I can find anew stock for it? In my research I found that Stevens and possibly Savage made some guns for Springfield Arms. Don M. Pfannenstiel At least you have the serial number.

Write to John Callahan, Savage Historian, Westfield, MA 01085, requesting the model to which your serial number belongs. With that fact known, call Wenig Custom Stocks and Boyds Gunstock Industries In each case, ask if they have a stock pattern for the model and pray they answer "yes." Then it's a matter of determining wood, degree of inletting, finishing and price.

With no pattern or an old stock to go by, or at least a photo or schematic of a stocked rifle to show conformation, the stock will have to made from scratch. You can count on sending the gun to the stockmaker and the price being much higher. Zastava M70 Several years ago I obtained a

Yugoslavian-made Zastava M70 pistol. I showed it to a stockmaker friend of mine and he wants to make a nice set of wood grips for it. If I have the new grips made I would also like to have the pistol reblued.

The problem is I don't have a clue about how to disassemble this handgun. Is there a web site where I can download this information? Shoreline, WA We haven't covered the M70 but an article on the M88 Zastava appeared in our July 2008 issue. If you don't have your copy, reprints might still be available. Our technical contacts at European American Armory, who imported the Zastava in the past, confirms that, though different, the M70 and M88 are similar enough and you can use the 2008 article as a disassembly guide.

Stevens Favorite 1894 model I have a Stevens Favorite 1894 model in .22 caliber. I bought it for my wife due to her size and the size of the rifle. When purchased, it was in rough shape so the intent was to turn it back to a working firearm. First on the fix list was a liner for the barrel. At the muzzle, the bore was an oval shape from shooting and cleaning. Not having knowledge of barrel boring for a liner, I took the little rifle to a local gunsmith. He sent the rifle to another gunsmith to do the liner.

After several weeks, I was called to come to the shop and get my rifle. The reason it took so long was there already was a liner in place! This meant that the original bore was shot out and a liner installed. So now there is a second liner. My reason for writing is the rifle's inconsistent ignition, misfiring about every other round. What should the depth of the extractor slot be?

Since the extractor is also the point where the firing pin strikes the rim of the cartridge, I think that there is too much

spring action of the extractor. The slot measures 3mm deep and that seems excessive. The rims of many rounds have a good indentation from the firing pin so this would rule out the main spring. Gary Coles Perhaps we misunderstand, but how can two .22 caliber liners be installed in a single .22 caliber barrel?

It is apparent from your ovoid muzzle description that the old barrel had thousands of rounds exit it. This is not startling due the age of the gun and how often said muzzle was abused either by accident or otherwise. David Ringrose If you're not having extraction problems we don't believe there's an extractor tension factor present. As for the depth of the extractor cut, .22 LR case rims vary in thickness from brand to brand. Makers of rifles realize this so cuts tend to be executed to accommodate the thickest.

It is very important that the cut itself be kept clear of impacted debris as it can prevent the extractor hook from properly engaging the case rim. An old toothbrush or even Q-tips dipped in gun solvent are very good at this small but vital clean-up. We suspect the firing pin could be worn and suggest a replacement. Check in with Savage Arms, maker of a modern day Favorite, to see if its firing pin will interchange with the original.

Of course, it might come so close that minimal reworking of the replacement would make it perfectly serviceable. Marlin Model 43 Shotgun Do you have any take down instructions or know of where I can get some for the Marlin Model 43 pump shotgun? The Gun Digest Book of Firearms Assembly/Disassembly, Pt. V didn't have this model. John De Angelis

READER FORUM CONTINUED

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The Model 43 was made from 1922 until 1930. There is no schematic and we have been unable to locate a copy of the owner's manual. Marlin, Remington, NEF, H&R 1871, Bushmaster and probably others by now have been acquired by The Freedom Group conglomerate and said organization has been annoyingly tight-lipped about providing phone numbers for their new acquisitions. We will continue to pursue breaking in to this iron curtain of sorts. Meanwhile, your best bet might be the Marlin Collector's Association.

The latest address can be found in the back pages of a current Gun Digest. Savage Model 25 Have you done any articles on this one? I have one in my shop that will not feed from lifter to chamber. The bullet tips down and I do not see a cartridge guide. I'm not certain how to disassemble The closest we can come to the Model 29 pump .22 is a schematic and takedown instructions for the Model 29 which appears in the NRA Guide to Firearms Assembly, hardcover edition.

The 29 shows a cartridge guide is present, or should be. So far, we've found no mention of the same part in a 25. To confirm or deny its presence, write to John Callahan, Savage Historian, Westfield, MA 01085. Another possible cause is a magazine tube spring so severely weakened it can no longer push the rounds far enough back into the receiver to locate properly on the lifter. You would be wise to ask Mr. Callahan if the 25 and 29 are close enough kin to make the above mentioned schematic and instructions of use.

You should also be advised that John charges for such things as copying and mailing owner's manuals for out-of-production Savage, Savage-Stevens and Savage-Springfield firearms. SIG 229 I recently purchased a used SIG 229 in very good condition, better than 95%, and took it to the range yesterday. It fired normally, but when the magazine emptied, the slide stayed closed over the last, unfired round. I shot another magazine with the same result.

Upon closer inspection, I found a slight firing pin dent in the primer, Sam Caudell not enough to fire it. My conclusion is that the firing pin does not contact the primer properly with normal force on only the last round in a mag. This does not make sense to me. Any ideas? Joseph Fasceski Indeed, the singular appearance of a light hit doesn't make much sense. If the firing pin was damaged or its spring weakened they'd be showing up more often as misfires.

A suspicion has arisen amongst us that something may be amiss with the slide hold open mechanism. Among these would be a weak magazine spring that is failing to raise the follower high enough to activate it. You should be aware of the differences in .22 caliber rim thickness from brand to brand and make an effort not to mix brands in charging your magazines. We once witnessed a smallbore indoor gallery match where a competitor mistakenly inserted a cartridge made by other than the manufacturer he'd been using.

He suffered lack of ignition, no impact on his target and lost the match, a State Championship, by a single point. One doesn't easily get over such things. 7mm Remington Magnum When firing this gun the bolt action is very hard to open. When it does open, the bolt slides all the way out. There are also pieces of hard plastic falling out of the action assembly and the bolt is very rough to operate. Lupe Vargas Hereafter, please specify the firearm by model.

The bolt should not retract totally from the receiver upon opening the action. The plastic or polymer escapees indicate internal interference is taking place between the bolt and firing mechanism but may represent other problems. We suggest you call Remington Customer Service at If the rifle is still under warranty corrective measures should be at no cost to you. AG

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