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INSIDE THE ARCHIVE

DISASSEMBLY/REASSEMBLY OF THE CZ PHANTOM PISTOL

MSR OWNERS ARE MOST ACTIVE SHOOTERS • FITTING THE RIGHT 1911 BARREL FOR THE JOB • INSTALLING A SILVER ...

ORIGINAL METHODS. MODERN ACCESS.

ARCHIVE EDITION 092

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RIFLES

MSR Owners Are Most Active Shooters

BY AMERICAN GUNSMITH EDITORS AUGUST 2011

ORIGINAL PP. 2

Or, so says a NSSF/Responsive Management Survey, the first comprehensive survey to look at ownership and use of modern sporting rifles. This study about MSRs, typified by AR-15 platform rifles, reveals that 8.9 million Americans went target shooting with MSRs last year and that participants using this type of rifle were the most active among all types of sport shooters.

The statistics related to modern sporting rifles were part of a wide-ranging survey that revealed a new high-water mark for annual participation in formal and informal sport and target shooting. The study showed that 15 percent of the U. S. population, representing 34.4 million people nationwide, go target shooting at least once a year.

This number surpasses all other previous survey estimates of annual sport shooting participation. “These findings underscore that modern sporting rifles are becoming commonplace in America and are among the most desired firearms by sport shooters,” noted Steve Sanetti, president of the National Shooting Sports Foundation. “Those who want to ban these civilian sporting rifles simply because they look like military rifles must acknowledge after seeing this study that AR-style rifles are exceedingly popular with millions of Americans.

These rifles are our industry’s high-tech, cutting-edge product—rugged, accurate, versatile, fun to shoot and easily accessorized—and they’re here to stay.” The

study on Shooting Sports Participation Survey in the United States was conducted for NSSF by Responsive Management through a random digit dialing telephone survey of 8,204 US residents ages 18 and older. To avoid confusion, the term “modern sporting rifle” was further defined as an ARstyle rifle.

Mark Duda, executive director of Responsive Management, explained the survey’s methodology, saying “This was a highly scientific study with the sample meticulously developed on a state-by-state basis to construct the national number. Both landline and cell phones were utilized in the actual proportions they exist within the American population.” Duda said this type of telephone survey yields a 95 percent confidence level. The report’s sampling error is plus or minus 1.08 percentage points.

No doubt Modern Sporting Rifles are popular and for good reason. However, as discussed in a previous editorial “Not Doing As They Say” (July 2011) how is this data compiled and tracked? The survey showed that an estimated 8.8 million people shot a modern sporting rifle last year while involved in “target shooting” but the basis of this scientific data gathering rests on unsubstantiated claims made over the phone.

What constitutes “target shooting” in the minds of these anonymous respondents, or is it just another “sport ball” defined by folks with no concept of organized shooting disciplines?

PISTOLS

Disassembly/Reassembly Of The CZ Phantom Pistol

Once upon a time there was a Czech pistol everyone seemed to have on their wish list but no one could buy. How times change for the better.

BY CHICK BLOOD AUGUST 2011

ORIGINAL PP. 3-7

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The handgun had been forbidden for import by the usual suspects. At taxpayer expense, they ponder in heavily secured conference rooms day after day to compose regulations affecting things about which they know little or nothing. In this particular case it was the CZ-75. For the present, the usual suspects have turned their collective attention to other matters and their import ban has evaporated.

Since then, numerous variants on the design have flowed freely in from Czechoslovakia and widely distributed by CZ-USA (czusa.com). The newest star of the family wears "CZ-75 SP. 01 PHANTOM" on the left side of its slide. That mouthful may have to be shortened if a compact Phantom is produced. For now, I believe CZ-USA has made a smart marketing move in maintaining a close relationship between the pistol folks had on their wish list but couldn't have and its latest incarnation.

Going beyond my belief, I'll even bet very few readers would be impressed by a pistol taking its name from an old comic book character until discovering it is related to the CZ-75. Yet, it is a different animal. Actually, quite different. Call it further proof that the Darwinian Theory on evolution is alive and well in the firearms business. So, what's new and different about the Phantom? The first and the most apparent change is the material of the frame (1). The CZ-75 is steel.

The Phantom lightens the load considerably with Polymer. The relationship between the slide and frame rails. The comparisons are actually few and far between. is unchanged as the slide rails ride within the frame for greater protection. The Phantom has no loaded chamber indicator. Its grip panels don't come off but the back strap is replaceable in differing sizes to "fine tune" the grip feel to an individual shooter's hand.

The Phantom's slide stop spring (3) has no midway hump while retaining the 90 degree bent end. Unlike a Model 75, there is no firing pin block housed in the rear of a Phantom slide. Two other small parts, a safety detent plunger and its spring, both related to the right side lever in an ambidextrous decocker format, are no more. In my case, the Phantom received had a single, left hand mounted decocker (60).

As usual, I'll start off with field stripping after tipping you off that there is something you can do with the slide amounting to a factory "trick" for taking out the firing pin assembly without removing the slide from the frame. That's coming up later. Get going by removing the magazine, checking for an empty chamber and protecting your eyesight. Field Stripping Move the decocker lever to its "off" position, down but not all the way down, to free up the slide. Full cock the hammer (16) to get it out of the way.

USING YOUR DOMINANT HAND, PLACE YOUR THUMB THROUGH THE TRIG-

DISASSEMBLY/REASSEMBLY OF THE CZ PHANTOM PISTOL CONTINUED

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ger guard and then curl your fingers up and over to firmly grasp the slide. There is an indicator line on the slide. You have to move the slide to the rear until the indicator aligns with the rear of the frame and maintain the alignment as you start the slide stop (2) on its way out the left. The magazine base makes a perfect tool for completing stop removal. Pull the slide assembly forward and off the frame. Remove the recoil assembly and barrel from the slide. Locate 57a and 57b in the schematic.

Number 57a is identified as "Firing Pin Coiled Pin." If you are sure that must be Czech for "roll pin." There are a bunch of them holding the Phantom together and 57b may not even exist. Some Phantoms have a single pin, others have the roll pin within the roll pin

arrangement. You see, or will soon see, the firing pin has two milled flats. The front one allows the front roll pin to pass through the slide from right to left. The rear one engages the firing pin block (58) and its spring (59).

I recommend you commit those "firing pin flat facts" to memory since all mentioned elements must align for reassembly. Right here I'll repeat a recommendation often made previously. Do not drift roll pins all the way out. Always use a roll pin punch and only move the pin far enough to allow movement of the firing pin (54) when pushing it forward through the hole in the slide. The reason behind my roll pin advisory is that putting it into practice eliminates any difficulty or damage when reinstalling the pin.

Place a finger over the hole in the slide and keep an eye on the firing pin block along with its spring. When you are able to depress the firing pin the block and spring sometimes pop upward. The spring is quite strong. Protect the extractor from loss. The firing pin block (A) hides its spring beneath it. Note how the extractor pin has been staked (B) after being reinstalled. A Unless the slide has been inverted, they'll vacate the slide. Prepare a soft place for them to land.

They tend to get lost but if they remain in the slide, as most do, they are quite simple to pick out. Now hear this: Once the stop and spring are out of its way, the firing pin assembly will be free to exit to the rear...perhaps with injurious velocity. A B

DISASSEMBLY/REASSEMBLY OF THE CZ PHANTOM PISTOL CONTINUED

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Both photos above are pre-disassembly references. A detailed study of these and other subassemblies should be made prior to and during detailed disassembly. It is now time for the “factory trick” disassembly tip I picked up from a friendly CZ-USA engineer. Look, Agnes! You can remove the roll pin, firing pin stop, firing pin assembly and the firing pin block with spring without removing the slide from the frame, but you’ll need some help from a vise with protected jaws to do it unless you’re related to King Kong.

Remember, the recoil spring is still inside the slide. The strength of four fingers may not be able to maintain position of the slide for any real length of time. Understand, I don’t mean to brashly or even mildly insult any one who has been pumping iron for years. That possibility being resolved, the rest of us can invert the pistol, slide still attached to the frame, upside down in the vise after the locator line has been aligned.

The entire operation for removal of the firing pin and its related components can then happen as described in the preceding para-

graph with final disemboweling of the slide to follow. This “quickneasy” approach will save you time for sure and I recommend it becoming a regular step taken in field stripping every CZ-75 or close relative thereof to come your way. After all, if it’s good enough for the factory gunnies, it’s good enough for us.

Detailed Disassembly A couple of blocks of hardwood can come into play here whenever you suspect the frame might need some extra support. Feel free to use them though they are not specified for every step to be taken in this process. The extractor pin (51) is drifted downward to free the extractor (50) and its spring (52). When reinstalled in the slide the pin should be restaked as shown in the accompanying photo of the underside of the slide.

Select a length of drill rod not quite equal to the diameter and length of the mainspring plug pin (23). Grasp the frame very firmly; hold it upright and press downward on the mainspring plug (22). This relieves tension on the mainspring plug and you can push out the plug pin. Do not suddenly

or completely withdraw your push-tool. Easy does it a little at a time and maintain some downward pressure. The mainspring will take care of extruding the plug and join it soon afterward. Now you can relax for the moment.

Part 10 is listed as the ejector block but it holds far more than the ejector. Hold up with further disassembly until you’ve taken a few reference pictures or have made a readable drawing showing how things fit together inside the block. Once that’s done, make a slave pin substitute for the sear pin (13). I know you’re going to need it in disassembly and it comes in very handy to get all the block elements properly positioned in reassembly.

When the study and reference materials period has ended, lift the leg of the sear spring (12) from its groove in the decocker shaft. Shift the leg to one side or the other. Rotate the decocker upward to just before it normally clicks position. Withdraw the decocker lever to the left. Use the C



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1a Frame 1b Back Strap 2 Slide Stop 3 Slide Stop Spring
4 Slide Stop Spring Pin 5 Trigger 6 Trigger Pin 7 Trigger
Bar 8 Trigger Bar Spring 9 Pin (3x) 10 Ejector 11 Sear
12 Sear Spring 13 Sear Pin 14 Firing Pin Block Lever 15
Firing Pin Block Lever Spring 16 Hammer 17
Disconnecter 18 Hammer Pin 20 Main Spring Strut 21
Main Spring 22 Main Spring Plug 23 Main Spring Plug
Pin 32 Magazine Catch 33 Magazine Catch Spring 36
Magazine Body 37 Magazine Base 38 Magazine Spring
Seat 39 Magazine Spring 40 Follower 41 Recoil Spring
42 Recoil Spring Guide 43 Barrel 44 Slide 45 Front
Sight 46 Front Sight Pin CZ Phantom Pistol (Speci

cations subject to change without notice) 50 Extractor
51 Extractor Pin 52 Extractor Spring 53 Rear Sight 54
Firing Pin 55 Firing Pin Spring 57 Firing Pin Coiled Pin
58 Firing Pin Block Stop 59 Firing Pin Block Stop
Spring 60 Hammer Decocking Lever 61 Decocking
Lever 62 Decocking Lever Spring Breaks in numerical
sequence are due to CZ-75 parts not being included in
the Phantom pistol.

64 Screw- Rear Sight 66 Rear Insert 69 Spring Pin 70
Magazine Catch Spring 71 Magazine Catch 72 Lifter
Rod 73 Lifter Rod Pin 74 Bolt Stop Spring 75 Lifter

DISASSEMBLY/REASSEMBLY OF THE CZ PHANTOM PISTOL CONTINUED

ORIGINAL PAGE 7

slave pin to push out the sear pin to the left. Leave the slave in place to maintain the ejector block inner assembly, withdraw the block and set it aside intact. Make another study of how the components relate to and interface with each other. Several of these parts are quite small. Be prepared to cap these inside an empty, plastic prescription bottle.

I used to keep really small parts in used 35 mm film containers but digital is the thing these days, so prescription pill containers have found a permanent home in my working areas. The hammer pin (18) has a hole on the left side of the frame. Find the hole. The pin is drifted right to left. The hammer (16), main spring strut (20) and disconnecter (17) are removed as a unit. The trigger pin (6) is next. First, rest the frame on the wooden blocks. Examine both ends of the pin. It may have been flared.

If so, the pin has to be drifted from the smaller flared end toward its larger flared end. Insert a punch fitting the smaller end and drift out the pin. Leave the punch in. Invert the frame over a flat surface and cover its openings with your hand. When you withdraw the punch the spring-loaded trigger spring (8) will be released. The trigger (3) with trigger bar (7) still attached are removed after the pistol has been repositioned upright. In some cases, the two parts fall out all by themselves.

Unless I've lost track of something, the rear insert (66) can be taken out and set aside for later reinstallation. Let me see, the hammer assembly and trigger bar assembly are out of the frame. That's good. If they weren't, the magazine catch (32) and lifter assembly (parts 72-75) couldn't be removed. Better keep a finger over the magazine catch pin (71) when you pull the rod (72) from the catch. If you don't, spring #70 is sure to launch and take the pin with it. What, more slave pins?

You've already made up a couple of them. Consider it good practice. You're going to need more. I'm calling one the AAAP instead of spelling out "Abbreviated Assembly Assistance Pin" each time I mention it. In rebuilding the ejector housing, start out with the ejector facing forward and you looking straight down at it. Insert the long slave pin into the right hand sear pin hole. Slide it about half way through the housing. Spear the block lever spring (15) on the slave with both its legs facing upward.

Slide the spring all the way to the right. Spear the block lever (14). The short leg of the lever should be downward and its long leg extending upward and to the rear. There's a small, angular groove milled in to the right side of the lever. Here's how you get the long leg of the spring and the angular groove together. As you slide the lever on the slave pin, slide both legs of

the spring over to meet it. Hook the rear-most spring leg into the groove and slide both parts to the right.

As they near the right side of the housing, the front leg of the spring will find its way into the sear spring channel. No problem. Keep on sliding to the right and bring the invasive front leg to rest inside the right corner of the housing. The trigger and trigger bar call for some pre-assembly before both are reinstalled in the frame. Match up the two parts, align their holes and insert one of the cross pins (9), tapping it in gently to temporarily join the trigger to the bar.

Place the trigger spring into its trigger recess with the long arm of the spring facing outward. Insert an AAAP after aligning the frame trigger pin holes. Use an appropriate punch to push out the AAAP but leave the punch inside to keep things together. Install the OEM trigger pin and push out the punch with it. If you've kept a copy of the February 2003 issue in your files you may want to read over the troubleshooting article on the CZ-75.

Whatever was brought up in that article pretty much applies to any variant of the pistol. All things here being considered, that includes the Phantom.

MAINTENANCE & REPAIR

Fitting The Right 1911 Barrel For The Job

Be it for enhanced accuracy, feed reliability or due to actually being worn out, understanding the aftermarket options in 1911 barrels and how to install them is an oft-needed gunsmithing task.

BY ROBERT K. CAMPBELL AUGUST 2011

ORIGINAL PP. 8-12

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Over the course of the previous thirty years I have replaced dozens of pistols barrels and the great majority have been 1911-type handgun barrels. Most were replaced in order to gain an advantage in accuracy or feed reliability, although a few were replaced simply because they were badly worn or corroded. With the rapid disappearance of GI pistols and their comparative rarity, the replacement of these types is far less common today.

Many military pistols needed new barrels, but these pistols are no longer a common resource for building custom 1911s. Today we replace 1911 barrels primarily to increase accuracy potential. When I first began building 1911 handguns to one degree or the other, the good fit and accuracy demonstrated by Bar-Sto Precision was a main reason for fitting new barrels to standard pistols. While a few modern 1911s come from the factory with a match grade custom barrel, they are not common and are relatively expensive.

The barrel is, of course, only one ingredient. The skill of the person fitting the barrel is more important, given a quality barrel

to work with. There are several types of aftermarket barrels, ranging from dropin types to those that must be carefully fitted. They are available for every budget. As for the quality of drop-in barrels, I have ordered units that required only a minimum of fitting and gave good results. When a barrel is needed for a 1911 of mod- This Bar-Sto barrel is fitted in a Caspian slide.

We had no original results for comparison as this is anew slide, but we have our own accuracy standards to test against. est cost, I often use the attractively priced Roto barrels from Sarco, Inc. As one example, the reason for the last barrel replacement in an Armscor pistol that crossed my bench was not to increase accuracy, rather, the owner has gotten too happy with the Dremel while attempting a throating job at home. He had ruined the barrel, producing an unsupported chamber and the inevitable burst case.

I replaced the damaged part with a Roto unit with little difficulty. The ten thumbd owner had not gouged the frame ramp, thankfully, having only done in the original barrel. The Roto Barrel has also given good

results in a number of older 1911s. For an original type or GI pistol replacement these barrels remain afine resource. A high-quality pistol such as the Rock Island or High Standard guns, as one example, may be counted on to yield even better accuracy still.

The next step up are Match Grade barrels, which may require considerable effort in fitting but the results are almost always consummate with the labor. As an example, when working with a Springfield 1911A1 I ordered a Bar-Sto barrel and specified dropin dimensions. My experience with Bar-Sto indicates these barrels are actually drop-ins with the majority of Colt and Springfield pistols. This means "Series 70" to most of us.

These barrels are consistent but be aware you get into a different situation with a barrel that was carefully fitted at the factory. The Springfield GI may allow a true drop in. Conversely, a pistol supplied with a fitted barrel from the factory will often require a match grade barrel be fitted as a replacement if the original wears out. In years past there was time tak-

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The Nowlin barrel is among the finest barrels ever produced. When at the factory to fit the barrel, so when we say “Colt and Springfield friendly” we may use the term Series 70 interchangeably and seldom be wrong. If we are fitting a barrel to a Colt Gold Cup we will have more trouble on our hands. Understand this. As an example, when experimenting with the .400 Cor Bon I could not simply drop in a barrel to the High Standard G Man, a high end piece.

It was not Series 70 at all as this pistol is a highly fitted handgun. I suspect Les Baer and Wilson Combat might present the same difficulty if you had a customer that had managed the Herculean feat of shooting out such a barrel. Before we proceed, let me issue a warning. If you do not completely understand how the 1911 pistol functions and if you do not have patience in working with firearms, do not attempt to

precision fit a barrel. If the firearm is a defensive firearm this should not be your first project!

Let's look at some of my experiences with barrels, both drop-in and fitted, and consider the options in ordering and fitting barrels. Not long ago I found a decent older 1911 at a fair price in a pawn shop. One of the main reasons I wished to obtain the piece was it had a custom grade barrel. The popularity of the .400 Cor Bon cartridge is reflected in the fact that we are now seeing used pistols with conversion barrels in this chambering. The barrel was an Ed Brown drop-in.

The pistol functioned fine, but it was well worn and lacked good sights, with the original GI sights still in place. I wished to keep the high quality Ed Brown barrel for another pistol and fit the 1911 with a .45 caliber pistol barrel. This made sense as the Ed Brown barrel ended up shooting like a house on fire in a target-sighted Colt. I can

only guess how that Ed Brown barrel ended up in an old Ithaca GI pistol! I ordered a Roto barrel from Sarco, Inc.

Advertised as a drop-in, I found the Roto barrel well made of good material and still affordable, a good application for replacement in older 1911s. It “plugged in” and came out firing. Accuracy was good and the barrel was smooth enough that the Roto barrel gave good results with my cast bullet handloads using the Oregon Trail 200 grain SWC. A word on barrel fit. As long as the pistol locks up in the same manner time after time when the pistol fires, we will have an accurate handgun.

The locking lugs and the barrel bushing must be reasonably tight. Older 1911s sometimes rattle when shook and this means the piece is loose enough for good reliability even when dirty. Just the same, if the lugs and bushing are tight the pistol can be accurate, but all points must be accurate. A well-fitted lug

FITTING THE RIGHT 1911 BARREL FOR THE JOB CONTINUED

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does nothing if the bushing is not also tight. Sometimes, a match-grade barrel bushing alone can increase accuracy. If you wish to replace a pitted or well-worn barrel in a GI or MIL-SPEC type, the Roto barrel should give good results, especially if you also fit a King's match grade barrel bushing. This is an old school approach and still very workable. I recently fitted a Bar-Sto barrel to my long serving Colt Combat Commander.

I have used the Commander for some time and never benchrested the piece for accuracy, believing that marksmanship is hitting the target rather than firing small groups. But the Commander was more casual than I liked with accuracy. A five-inch group at 25 yards, while typical of the generation, was not what I desired. The drop-in barrel required a few passes on the barrel hood for good fit, but the results were excellent.

The original groups with Colt Commander ranged between 4.75 to 5.75 inches for five shots at 25 yards. With a properly-fitted Bar-Sto barrel in place group sizes ranged from 2.5 to 3.5 inches. Obviously this is good performance from a short barrel 1911, and with load development better accuracy would probably be realized. The Bar-Sto really shines and dropped in for most applications. In fairness, the Commander is not a loose handgun but neither is it exceptionally tight.

It needs better sights for practical improvement. Good sights and a good trigger compression affect practical accuracy while the barrel affects intrinsic accuracy. The only 1911 pistols I have owned that approach a true one-inch 25 yard group have been those fitted with a match grade custom barrel. The above results show the difference between casual accuracy and a much more usable level of accuracy that promotes practice.

As an example there would have been little point in fitting custom sights to a handgun with the type of accuracy the Commander exhibited out of the box. The sky is the limit. Fitting The Barrel First, understand your lock up points. There are four lock up points on the barrel. These are the locking lugs, the barrel bushing, the sides of the hood, and the bottom lugs. Let's begin with a quality barrel that is ordered as a match grade unit. In other words, oversize.

The barrel hood is Not noted for fine accuracy the Colt showed a distinct improvement with the drop in Bar-Sto barrel. larger than the breechface opening and must be fitted. When filing, be certain of two things. You must have 0.003-inch clearance on each side and the hood must remain parallel to the breechface sidewalls. Straightforward, sure, but requiring attention to detail. You cannot replace metal once it is gone. The barrel extension

FITTING THE RIGHT 1911 BARREL FOR THE JOB CONTINUED

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Both are factory fitted and give generally good results. is also longer than on a drop-in unit and must be measured with a hood gauge and properly shortened. Carefully cut the barrel on a lathe until the hood is about 0.003 longer than the hood gauge measurement. At this point, the hand work comes in. Carefully file the barrel until the unit slides into the lugs with no excess movement giving a good tight fit.

I normally use Bar-Sto barrels, and am most familiar with this type, but the general rules apply to Nowlin, Storm Lake, Wilson Combat and any other fine barrels as well. Kart barrels are a special case covered at another time. A quick caution on the Kart. They are high quality but I have seen duffers simply grind the fitting humps off and call it a gunsmith fit. What a waste! Time and effort are required to fit any barrel.

The rear cut of the Bar-Sto controls upward motion and must be carefully inspected during fitting. The time honored method of fitting begins with placing the upper lugs in the slide slots and carefully, slowly tapping the bottom lugs with a brass hammer. Tap toward the muzzle for proper fit. Simply put, filing the barrel allows it to move more fully into contact in the locking recess. You may smoke a stainless barrel and file where the smoke is rubbed off. Sight black can also work.

Be certain your strokes are perfect, with metal filed away and moved evenly. You wish to reach a point where the barrel rests in its locking lugs without springing away from locked position when pressed into place. In short, the barrel must be properly fitted and also perfectly centered in the slide. With care and deliberation this will happen but atten-

tion to detail is demanded. This ring on the end of a Randall barrel tightened the barrel to the bushing.

Italy, is a finely made bushing well worth using to improve accuracy. If finding binding on the slide stop less common with modern barrels but it can happen. This is especially true of extended slide stops for some reason. I supposed they are overall a bit larger to support the added weight of the gas pedal-type slide lock. The hood must be centered and the bottom lug must not bind on the slide stop, but ride smoothly against it and squared properly.

There has been some confusion concerning the proper length of the link. This is not an arcane art but I am surprised it is not understood more thoroughly. Once the barrel lower lugs are properly filed and smoothed, with a proper fit to the slide stop, measure the length from

FITTING THE RIGHT 1911 BARREL FOR THE JOB CONTINUED

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The customer will have to foot the bill. A National Match bushing fitted to a factory Colt. Without any other type of alteration accuracy improved considerably. the link pivot hole to the area that has been polished. Next, measure the area between the two holes of your swinging link. These measurements must be the same. If not, the link will not be properly fitted.

When using a larger diameter slide stop this measurement becomes critical, but I have had to use the Chip McCormick oversize slide stop on occasion with off specification 1911 pistols in order to ensure proper function and, while not related to barrel fitting, to snug up certain upper unit caliber conversions. You really have to understand the rela-

tionship between link length and barrel to locking lug to slide stop measurement to do this.

When the upper assembly is placed on the pistol and checked for smoothness and function, any drag will normally be the lower lug against the slide stop. This is addressed by filing and smoothing in turn. As for the barrel bushing, normally a fitted bushing comes with the barrel. When using a King's or National Match bushing we are required to fit the bushing to the barrel. An improvement in accuracy is always realized after properly fitting a tight bushing.

This type of bushing is oversize in inner dimensions and the barrel is turned to achieve a good fit. A fitted bushing alone without

adding a barrel works best with pistols that are already pretty accurate. It will not make up for a sloppy pistol. The Kimber is one such example. The barrel on the right has lugs that are being beat up during firing. Something is amiss. Keep in mind that what we are doing is increasing accuracy.

The technical concept of accuracy is a qualitative expression attempting to describe the measured degree of precision an instrument exhibits. The term has been used when measuring time pieces and to ascribe a true value to accuracy when that value is known. The true value of an accurate handgun will probably never be measured but the skilled gunsmith may improve what we have and in the process make for a much more accurate handgun. AG

PEOPLE & COMPANIES

Installing A Silver Wreath Stock Overlay

Properly selected and placed stock inlays or overlays can set off the good-looks of a gunstock, but few will surpass the eye catching beauty of a silver wreath with encircled cartridge headstamps.

BY NORMAN E. JOHNSON AUGUST 2011

ORIGINAL PP. 13-14

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This special switch-barrel target rifle with its quality thumbhole stock was a prime candidate for a silver wreath to circumscribe its four cartridge headstamps. This job was a most pleasant task and quite easy to install. Here's how I did it. It all began with a Model 700 Remington action bedded carefully into a thumbhole stock. The rifle was a switch-barrel set up with four premium target barrels in four different chamberings.

So what could have been more presentable than surrounding cut-off cartridge heads of each of the four cartridges with a classic silver wreath? The silver wreath had a 2.35inch outside diameter with a 1.8inch open center to encircle the four cartridge heads. It was 3/16-inches thick with a fl at bottom surface. The inner circle was just the correct size to delineate the four case heads.

A bit of trial-and-error was needed to get the proper arrangement of the This project used a silver wreath with four case heads representing each of the different cartridges chambered in the switch barrels for this rifle. four headstamps. Finally, a triangle of three around a centrally positioned case head was selected and used. Separating the case rims from the cartridge cases was easy. First, be sure it is not a loaded case or that alive primer is in place. Use a cut-off The spent primer remains intact.

INSTALLING A SILVER WREATH STOCK OVERLAY CONTINUED

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tool in a lathe or even a hacksaw to remove the case rim. If a fine-toothed hacksaw blade is used, it leaves a rough surface for better bonding. Installing The Silver Wreath Finding the best position for the wreath overlay wasn't much of a problem. It was a bit too large for a forward stock position, so it found its rightful place at mid-stock on the left side. With the position located on the stock, carefully mark the borders of the wreath with a washable-ink pencil.

Then remove the gunstock finish inside the markings to promote a good bond between metal and wood. I also etched the metal on the underside of the wreath for a better bond.

At this stage I bonded the silver wreath to the stock using J-B Cold Weld. Such a bond is permanent, so don't plan to remove it. With the wreath in place you can arrange the case heads. This arrangement, if used, will depend on the number and size of the case heads too.

Having decided this, carefully place them and put four dots around each of them for later replacement. Then remove a little stock finish for bonding beneath each one and you are all set. In setting the headstamps, place with a coating of bonding agent at center and carefully lower each headstamp into position. It is well to place them in the order you want and in an easily readable position.

I used a tweezers to position each one as they are quite small and thin to A tweezers works well for this job. grasp with bare fingers. Some may want to place other items within the silver wreath. There are plenty of possibilities here. Chances are good the completed job will really get some attention. Conclusion Where pride is taken in a much-treasured gun, some form of inlays or overlays can enhance the beauty as well as the value of the piece.

Such application should be well thought out and performed with much care. A silver wreath is especially applicable to the rifle shooter. AG

PEOPLE & COMPANIES

Leade Lapping A Bore For More Efficient Barrel Break In

While breaking in a barrel might not normally be considered a routine gunsmithing procedure, many shops can benefit by seeing their newly chambered barrels off to a proper start.

BY NORMAN E. JOHNSON AUGUST 2011

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A key area of concern in barrel break-in involves the throat or leade of the bore where the lands begin. As put by Krieger Barrels—a manufacturer of some of the world’s best barrels—the throat or leade of a barrel is of major concern during the break-in period. Here is the company’s synopsis. “With any barrel that has been lapped, the lay or direction of the finish follows bullet travel.

Because the lay of the finish is in the direction of bullet travel, very little is done to the bore during break-in ... but the throat is another story. As the barrel is chambered there are reamer marks left in the throat that are across the lands, much like the teeth on a very fine file. When the bullet is forced into the throat or leade, copper dust is released into the gas, which at this temperature and pressure is actually a plasma. The copper dust is vaporized and carried down the barrel.

As the gas expands and cools, the copper comes out of suspension and is deposited in the bore. This makes it appear as if the source of the fouling is the bore when it is actually, for the most part, the new throat. If the copper is allowed to stay in the bore and subsequent bullets and deposits are fired over it—copper, which adheres well to itself will build up quickly and may be dif-

ficult to remove later. So when we break in a barrel, our goal is to get the throat polished without allowing copper to build up in the bore during the break-in period.

Leade-lapping, as described in text, can appreciably cut the follow-up, shoot-clean phase of bore break-in. The goal is to get the throat polished without allowing copper to build up in the bore. This is the reasoning behind the shoot-and-clean procedure. The goal is to get and keep the barrel clean while polishing out the throat.” With this in mind, I have developed a procedure to hasten barrel break-in that is quick and easy to perform.

I simply micro-lap the throat section with snug fitting patches cut from abrasive sheet material made by 3M. The 3M lapping paper is coated with micron-graded mineral patches on a high strength polyester backing. The available mineral abrasives are aluminum oxide or silicone carbide in micron grades 1, 2, 3, 9, 15 and 30. These numbers correspond to US mesh grades 8000, 6000, 4000, 1200, 600 and 400, respectively.

Here I simply cut small patches of the 600 or 400 mesh grade paper to fit the bore size I am working with. These polishing patches are backed by a common cleaning patch and pushed snugly into the throat,

LEADE LAPPING A BORE FOR MORE EFFICIENT BARREL BREAK IN CONTINUED

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using a proper size cleaning rod jag. It is important that these double patches fit the throat very firmly and the cleaning rod is perfectly in line with the bore. I usually have the barrel in a padded vise for this procedure. If the barrel remains on the action I use a cleaning rod guide. With a snugly fitting patch, a throat can be properly polished in as few as a dozen inch-long strokes using either 400 or 600 mesh grade paper. A good bore scope is helpful to monitor the throat as you lap the leade.

You will be amazed how efficiently this lapping is performed. This will hasten the remaining bore break-in requiring far fewer shots than are commonly used with the shoot-clean method. Muzzle Collects Copper First During the final bore break-in, the com-

monly shoot-clean method is used. Ordinarily, the customer does this and should be instructed on proper procedure. While barrels break in differently, cleaning the bore after each shot for the first five to ten rounds is recommended.

Cleaning after each five shots thereafter until the bore no longer collects copper is the follow-up procedure. Copper will invariably collect near the muzzle of a barrel and a ten minute soak in the forward bore with a strong bore-cleaner like Barnes CR-10, Ventco Industries Copper Remover or Montana Extreme's Copper Killer does a good job of removing it. A good From left, a square piece of 3-M, 400 mesh grade silicon

carbide lapping paper over a common cleaning patch as used to lap the leade (throat) of a bore.

The center patch has been used to lap the leade and the patch on jag shows how the pressure of the bore forms the patch to a tightly fitted lap. bore scope will help in monitoring progress during the final shoot-clean process. rifle accuracy and help from the gunsmith is a good place to begin. Offering this service along with good information makes your shop a better one to come to.

AG Bore break-in is a very critical area in attaining the best possible. It is at this area where lapping smooths out the roughness left by the reamer as a means of reducing the commonly used shoot-clean method.

HISTORY

Reviving A Steyr 1909 Pocket Pistol

BY SERGEY LYALKO AUGUST 2011

ORIGINAL PP. 17-19

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Let me start with some thoughts on small pistol history. I have to admit that small pistols and derringers have been fascinating me for along time. The major wonder of these guns is twofold. First, they are the last resort in self-defense. Second, they have to combine maximum power with the smallest size for better concealment. Over the years these requirements have produced some interesting designs. But what is the small pistol?

One would assume that the term “small pistol” is self-explanatory but in reality the definition is somewhat fuzzy. Take, for example, miniature replicas. Many of them are fully functional, even with 0.5-inch long barrels and 2mm bullets. These toys became quite collectable. See below for more info. These miniatures are actual pistols since each of them can be fired with one hand and the bullet is flying out of the barrel, however, we cannot consider them a weapon for self-defense.

For this purpose their power is laughable. We all understand that greater caliber and bullet weight are more efficient for this job,

but heavy loads imply heavier pistols. That, in turn, violates the concealment principle. So, what is the minimal size of the pistol able to be a weapon for selfdefense? Again, not an easy question. Firearms history has a lot of controversial examples. One of them is the Velo Dog revolvers.

They first appeared in France in the late 1800s and were designated to cyclists against dog attacks. The original cartridge was a 5.75mm Velo Dog. This type of revolver became very popular across Europe and was followed by all kinds of small pocket revolvers, mostly with five chambers in .22 Short. Definitely, that can harm the dog, but still is far from a real self-defense weapon.

Interestingly enough, the Velo Dog became a prototype for the Bull Dog, produced in Britain by Webley & Scott in 1878 and chambered for .442 Webley first and the .450 Adams later. No doubt, that was a real weapon. It seems that the definition of the small self-defense pistol became 25ACP, de-

signed by Nicolas Pieper of Liege, somewhat more stable with appearance of the .25 ACP cartridge.

This cartridge was introduced by John Browning in 1905 for his semiautomatic “pocket” pistol, made first by Fabrique Nationale in Belgium. Then, from 1906 and on, this pistol was manufactured by Colt. The .25 ACP centerfire cartridge is of a semirimmed design. A small rim on the case allows for more consistent head spacing than one based on the casing geometry only. For this matter the shoulders of the chamber are the only support for the rim of the chambered round.

Having approximately the same power as .22 LR, this cartridge is more reliable for cycling in semiautomatic pistols. Small size and comparative reliability of Browning’s design inspired other designs of similar-size semiautomatic pistols for the same cartridge. Given the flatness and compactness of such pistols compared to revolvers, they became very popular and pushed away from the market

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25ACP barrel, which happened to be in a good shape, with an already-finished chamber was used for making anew liner. The barrel lug will be removed and the barrel turned into the liner with outer diameter of 8 mm. most of small, low power wheel gun intended for the same purpose. Even today the popularity of .25 ACP pistols is quite high and design of pocket pistols for this cartridge continues. Among new .25 ACP designs are such as Beretta, Bernardelli, Kel-Tec, Raven Arms and many others.

For the sake of truth and completeness of this description I have to mention that another strong tendency in modern self-defense small handguns is the design of sub-compact big-bore pistols. In this article, however, I want to describe the repair of the old .25 ACP Steyr 1909 pocket pistol, designed by the prominent Belgian gun-maker Nicolas Pieper of Liege with a number of interesting characteristics. Steyr-Pieper Model 1909 This pistol began its life at the Austrian Weapons Manufacturing Company in 1909.

It is a blowback, semiautomatic pistol of .25 ACP with a magazine holding six rounds. The barrel length is 2.24 inches. The Steyr 1909 was manufactured from 1909 through 1914 and then after WWI from 1921 through 1939. This particular example featured in this article was assembled in 1921, which is stamped on the left side of the barrel block. This design has a

tip-down barrel block. I call it a barrel block because it contains not only the barrel but also the recoil spring housing.

A tipping barrel allows for fast access to the chamber and is needed for removal of the unused or misfired cartridge since this model of Steyr 1909 does not have any extractor. The ejection of the spent case relies completely on blowback. The tip-down barrel is a very convenient feature and appeared on many contemporary designs of .25 ACP caliber, such as the 1979 Beretta 21 Bobcat, Taurus PT25 and others. The recoil spring, located at the top of the barrel block, is another interesting feature of Steyr 1909.

Putting this spring in a separate housing instead of winding it around the barrel allows for a flatter, narrower design. It also allows for a longer spring, which is important for consistent slide-returning tension. In other words, this helps to avoid the situation when pulling the slide back is easy in the beginning and hard at the end. In addition, the recoil spring plunger has a hook for engaging with the slide. Tipping the barrel down momentarily disengages the recoil spring from the slide.

This feature makes disassembling very easy. The other important feature of this pistol is its modular design. Undoing two screws disintegrates this pistol into four main modules: barrel block, slide, slide housing and frame. Modularity is a modern idea found more often in the latter parts of the

twentieth century and through today. We can see it nowadays on combat rifles and pistols but in 1909 it was a futuristic feature, unparalleled to other firearm. Another interesting feature of the Steyr 1909 is its barrel.

It is not a separate part—it is drilled and rifled in the body of the barrel block. That also is an attempt to minimize the width of the pistol's body. Any separate tube would require more space. Unfortunately, this last feature made repair of this pistol a bit cumbersome as I describe in the next section. What's Wrong With This Pistol? The pistol came into my shop with the problem that "it does not shoot." A quick test showed that the internal hammer kicked pretty good and the firing pin was in order.

Despite this, the mark on the primer was absent or almost invisible. The problem was not difficult to detect after checking the chamber. It was abnormally widened and did not support the rim at all. As I mentioned before, the .25ACP is a semi-rimmed and straight bodied case. There is nothing else to provide a correct headspace other than reliable support of the rim by the shoulders of the chamber. As was the case with this example, the chambered cartridge bypassed the shoulders and deepens into the chamber.

As a result, the primer is beyond the reach for the firing pin. That is a real headspace problem.

REVIVING A STEYR 1909 POCKET PISTOL CONTINUED

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Making the liner out of the Bernardelli barrel required some attention since it ends up being a pretty thin tube. It also should fit snug into the new tunnel in the barrel block. Repair My first effort was to find the barrel block in better condition than the original one. I was quite surprised when Numrich Gun Parts Corporation had this part available. However, after receiving it and realizing that finding this part in a good condition may be a utopian idea, I started thinking about some other solution.

Naturally, relining the barrel came to my mind, however, there were some obstacles for this solution. First, finding a .25ACP liner or even a chamber reamer turned out difficult. The other problem was a really slim profile of the barrel block. So, the drilling through the old barrel for the reasonable liner becomes quite risky. However, that seemed to be the only way to go. My solution for the

liner was to buy a barrel for a Bernardelli .25ACP from Numrich Gun Parts and work it into a liner.

This also means I would not need the chamber reamer either. I found such a barrel in good shape. A 21/64-inch drill bit was used for drilling the tunnel for the new liner. Making the liner out of the Bernardelli barrel required some additional attention since it is going to be a pretty thin tube, yet should still fit snug into the new tunnel in the barrel block. Another careful step was putting the liner into the tunnel so that the headspace would be correct.

Remember that chamber is already finished and there is no way to regulate headspace by gradually reaming the chamber, as would be done in the normal circumstances. For fixing the liner in the tunnel I decided to solder it in. The liner soldered into the barrel block with SWIF 95 solder/flux mix. This soldering mix is very useful in many situations and can be bought at Brownells Inc.

After shaping the liner outside the barrel block the Steyr The chambered cartridge has proper support of the rim, which is properly supported by the shoulders of the new chamber. The SWIF 95 solder/flux helps to tin the hard to reach surface of the tunnel. 1909 became like new. The liner with correct chamber along with Nicolas Pieper's great design enabled reliable cycling of this revived pistol. That is how I repaired this Steyr 1909 disabled by a damaged chamber.

This damage caused the cartridge to protrude inside the chamber and its primer became inaccessible for the firing pin. This problem was solved by relining the barrel of this pistol with a liner made out of a Bernardelli .25 ACP barrel. 25 ACP cartridges are the smallest ones widely used for selfdefense. Anything less is below the edge of needed power and makes it a miniature toy. For more info visit miniaturearsenal.com AG

PISTOLS

Trigger Work: How Good Is Yours, Really?

You can build a fixture to help quantify your work so you can get repeatable results when working the trigger group.

BY GERRY RITACCO AUGUST 2011

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As an old-timer, I have listened to people discussing and comparing pistols and trigger jobs for many years. Phrases like “buttery smooth”, “clean break”, “crisp”, “no creep”, “pre-travel”, “over-travel”, and “short reset” come to mind. Double-action and single-action trigger pull are others. For the most part, buttery smooth, crisp and other subjective and relativistic terms are hard to quantify, as what may be acceptable to one person may not make the mark to another.

I came to gunsmithing with a machine design engineering background, so terms like smooth, crisp, and other subjective terms that cannot be quantified are good for open discussions and debates, but leave little to offer when a client’s pistol hits the bench. So, you want to improve the trigger on a pistol. Where do you begin and how do you know you’ve achieved your goal, really?

I first looked at what could be quantified when doing pistol work: trigger pull, both DA and SA where they apply, pre-travel,

over-travel, creep, and trigger reset. Things like “smoothness” and “crisp” are not readily quantifiable but results are reflected in other work. For example, smoothness will be reflected in the DA trigger pull. Once you have polished and deburred trigger-group components, you should see “some” decrease in the DA pull. Again, not readily quantified, but you should see some improvement.

The crispness or clean-break of the trigger will be reflected in the “creep”, so if you reduce the sear-to-hammer engagement, the release should be more “crisp” and so on. To get to the finish line, you must first leave the starting gate. I must know from where I am starting to have something to compare with when I am finished. Enter the pistol/revolver fixture.

I designed and built a fixture just for measuring trigger functionality, again, keeping in mind the quantifiable parameters of total trigger stroke, such as, DA/SA, total SA. The original vise clamp screw is also seen sitting above the vise. The mounting plate

was made from a piece of 1/4-inch thick fiberglass and cut rubber mounting pads from an old tire inner tube. trigger stroke, pre-travel, break point (or point of fire), over-travel, distance to reset, etc.

Starting with a very inexpensive drill press vise as illustrated, I proceeded to strip it down, square it up, add guide rods for the moveable jaw, refit a larger diameter, finer pitch clamp screw and fit clamps and mounting plates so a pistol or revolver could easily be mounted to it for taking measurements. The purpose of the guide rods is to stiffen the moveable jaw so it doesn’t wobble and lose position. It is the moveable jaw that actuates the trigger when taking measurements.

Any unwanted movement will lessen accuracy. Two 1/4 x 2-inch long dowel pins were added to the vise, one to the fixed jaw and one to the moveable jaw for actuating the trigger when the vise jaw is moved. The original vise clamp screw, which is attached to the moveable jaw, was coarse threaded and very loose in the nut. I made a

TRIGGER WORK: HOW GOOD IS YOURS, REALLY? CONTINUED

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finer pitch screw and rethreaded the nut so there was very little play. This again aids accuracy. The finer pitch screw increases the mechanical advantage, making it easier to move the jaw which is pulling the trigger when taking measurements. The mounting plate was made from a piece of 1/4-inch thick fiberglass. I cut some rubber mounting pads from an old tire inner tube to make the pistol more stable and secure when laying on the fiberglass plate.

I also cut several 1" wide x 2" long x 1/4"-thick strips of rubber that I stack for securing the pistol when clamped. They act to fill the gap between the grip and the clamp due to the different pistol grip width variations. It is hard to tell in the pictures but the clamp pivots on one of the screws. This allows it to swing so the clamp can be located anywhere along the pistol grip. The clamp is a toggle clamp readily available from hardware suppliers like Mc-Master-Carr Supply. Various sizes are available.

How the Fixture is Used The pistol is placed and clamped on the fixture with both dowel pins within the trigger guard. The pistol is located so the pin on the fixed jaw is against the trigger guard. It is then clamped on the

fixture, using rubber pads and the toggle clamp. Once the pistol is clamped to the fixture it must remain in that position for all measurements. If moved, you have to start again.

I locate the pistol in the fixture such that the pin on the moveable jaw will contact the trigger approximately 3/4 inches down from the trigger pivot pin. This isn't always possible but seems to work for most pistols and revolvers. Having a fixed position for trigger contact allows you to compare data taken from similar pistols to check for conformity. I have found similar model pistols, especially of the newer varieties, to vary considerably.

With the new manufacturing methods, I was expecting more uniformity but it appears not to be the case. We are now ready to take measurements. I proceed by turning the vise screw until the dowel pin on the moveable jaw just visibly contacts the trigger. The pistol is mounted and "zeroed" by placing and clamping on the fixture with both dowel pins within the trigger guard.

Locating the pistol with the pin on the fixed jaw against the trigger guard, it is then clamped on the fixture, using rubber pads cut

from inner tube to make the pistol more secure in the toggle clamp. This is the "zero" or start position. Originally, I would take a set of digital calipers, measure across the dowel pins and write this as the "start" position. Eventually, I modified the fixture by adding a one-inch stroke digital depth gauge to it.

Now, when the moveable trigger-dowel contacts the trigger, I zero the gauge so "0.000" is my starting position for all guns. Once the start is recorded, I slowly turn the vise screw to bring the trigger through its various stages all the way through its full-stroke position. The accompanying chart is a possible scenario for a DA/SA pistol. Lines one through three covers the full motion of the trigger in DA mode. As you can see from the last column, the depth gauge makes life a little easier.

The fixture allows the movement of the slide without unclamping the pistol, so once the DA fire position and full stroke are recorded I can move the slide and cock the hammer for taking the measurements shown in lines four and five by turning the vise screw in the opposite direction.

The pre-travel is found by subtracting line five from line four. Once the trigger stops its forward motion, I turn the vise screw and return the trigger to the reset position. I then continue to turn the vise screw very slowly and record the point of SA fire, line six. Subtracting line four from line six is an indication of trigger creep. Normally, I perform lines four through seven a couple of times to check for accuracy and to make sure the pistol didn't move while setting the slide.

Note that the numbers are increasing as the trigger is pressed, making the results counter-intuitive. There may be a couple of thousandths variation between repeated measurements for various reasons, but this doesn't affect the overall results. A gross difference will indicate something has moved. I enter the recorded numbers in an Excel spreadsheet to calculate the DA stroke, SA stroke, SA reset, pre-travel, over travel and other parameters I am interested in.

This is done on the pistol Complete your American Gunsmith collection. Or read up on a special subject! A limited number of the following

READER FORUM

Reader Forum

BY AMERICAN GUNSMITH EDITORS AUGUST 2011

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Back Issues Available I have a complete set of American Gunsmith and Gun Tests from 1993 to current. Contact me for details. Thanks for the info. Back issues are also available at Norwalk, CT 06856-5656. Or call Savage 110 Problem Looking for assistance with a technical issue concerning the Savage 110. I'm getting blow-by when I shoot but it doesn't happen all the time. I took the rifle to a local gunsmith and he shot eleven rounds of factory ammunition with no blow-by.

He has no idea why it's happening with me and not them. Any insights you might have would be appreciated. Warren Grey Chino Hills, CA Are you using reloads? Base on what you're telling us, a difference in ammunition would be the most likely culprit. Since the rifle has no problems with factory ammo, as experienced by your gunsmith, you'd best lay out the bucks for good, brand name ammunition to totally avoid present and future troubles. Pistol Info Where can I get disassembly and assembly info for a Star Model 30M?

Also, I've been searching for a firing pin safety for a Firestar .45. Richard A. Foster MSG, USMC (ret.) We could find nothing among the usual suspects on the Model 30, only the Star PD. Then we scoured the Internet, which usually comes into play when other sources strike out. The site we found after entering "Star Pistols" into our search engine was "Star Bonifacio Echereverria, S. A. Armas.

Firearms." On that site in large, red letters was information on "Star Manuals." They can be purchased in spiral bound volumes or downloaded for free as a PDF. These manuals cover the Models 28, 30 and 31, as well as the Firestar and Megastar.

Unless your Spanish is excellent, make sure you select your downloads in English. There was nothing on this site specifically for Firestar .45 parts. Those, we fear, will require a search of the aftermarket.

You can kick it off with a complimentary copy of Brownells Parts Source List. Charles Krall Shotgun Restoration A friend of mine brought me a shotgun that his father owned. He wishes to restore the gun for his son. The gun is missing the complete bolt assembly, ejector interrupter, ejector screw, magazine follower and spring and magazine shell. I have already searched Numrich and Jack First, among other dealers, but to no avail.

The gun is marked on the barrel "410 GAUGE - 3 INCH CHAMBER; EIG - EIBAR - SPAIN; 3 - SHOT REPEATER." The gun is similar to the Mossberg Model 183 .410 bolt action shotgun, but without a choke assembly. Eibar was a primary source for Spanish-made shotguns. The one you've been handed was obviously made there, but who imported and marketed it?

An answer might be forthcoming from the National Firearms Museum Fairfax, VA 22030, nramuseum.org) if you send them a few photos of the piece along with a stamped, self-addressed return envelope. What you discover, however, will probably do you no good. No importer or manufacturer will sell you a complete bolt assembly. By the time you might be able to locate and purchase the parts you list, if you ever do, the questions of proper assembly, headspace and safe operation remain.

Oceanside, CA Tell your friend thanks, but no thanks. He, his son and you would be far better served with the purchase of

anew break-action single shot .410 from, say, New England Firearms. Specifically, the Pardner. N. E. F., by the way, has joined Remington, Marlin and Bushmaster, among others, in the rapidly expanding Freedom Arms Group. Llama Max 11 I own a Llama Max 11 .45 that was burned in a fire. I have restored the pistol and completely rebuilt it except for the grips.

So far, I have tried Ebay and Jack First without success. In fact, upon calling Jack First I was directed to a message that the number was no longer working! Any recommendations on where I can obtain grips for this pistol? Kenneth Floyd Jr. kennethfl Alexander, AR We called Jack First The call went through and we got no recording. For grips try Eagle Imports and Tom Forrest Winchester M90 and Suppressors I have two questions.

First, a family member has a .22 rifle that says Winchester Model 90 on the tang but the barrel says Stevens. Where the barrel goes into the receiver, part of the Stevens name is hidden, as if the barrel was into the receiver too far. What is it and why won't it unlock when you pull the slide back? The user has to push the firing pin forward and then the slide will unlock. I don't see anything else that will cause the slide to unlock.

Kirk Theetge Hornsby, TN Second, a different family member has a legally-registered Jonathan Arthur Ciener, Inc. suppressor on a Ruger Mk II pistol with a bull barrel similar to the government models. How do you take the suppressor off? I took the set screw out and the front cap off but the suppressor tube seems

READER FORUM CONTINUED

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stuck. What technique can be used to loosen it? Ciener hasn't answered my phone calls. We don't think your .22LR ever saw the inside of a Winchester factory and believe it might be a Savage Model 90 or Savage/Stevens Model 90. You may get a better fix on it by photographing the rifle and sending the pictures to the National Firearms Museum Fairfax, VA 22030, nra-museum.org) along with a query on the rifle's identification along with a stamped, self-addressed return envelope.

Being along out-of-production rifle, you might try to get in touch with Steve Simon at the Small Arms Shop, Inverness, FL. Last phone known to us was open between 5:30 and 9:00 PM. He used to provide parts for old Savage guns and still is the person Savage refers people to for problems. As for the suppressor, we wonder why one is needed on a .22 LR target pistol that shoots best on standard velocity ammunition.

That being said, we called the Ciener operation in Cape Canaveral, FL and got a recording despite calling during their listed business hours seeking their procedure for removal as we've never dealt with one. No response for us, either. Ernie Bennett Sear Stoning Fixture In using a sear stoning fixture to perform a trigger job, what about new and used sears that need to be stoned for the right let off? How would you know if you had stoned too far past the case hardening?

With new sears, we advise not to stone the hammer hooks lower than 0.020 on the first fitting trial between sear and hammer. Many such fitting trials are to follow before the job is complete. Each of these trials should be followed by a function check with dummy rounds to see what you have accomplished, or failed to accomplish, with your work on the engagement surfaces. Always perform a final check out using live rounds before returning the gun to its owner. As for used sears it depends on how well used or abused.

Has the one you refer to been hacked upon by unskilled or unpracticed hands? If so, there may not be enough original material remaining and you, along with the gun owner, would be far better off with a fresh replacement. For your case hardening query, you're dealing with a thin "skin" or case rarely measuring more than 0.008 inches deep and usually measuring less than that. If you fear you have gone beyond the limit, re-harden the finished job with Kasenit, give the sear a light polish and test fire again.

M1888 Marlin I recently acquired an Model 1888 Marlin that is in need of some TLC, however, considering the rarity of the piece is this worth restoring? I can find diagrams for the Models 1881, 1889 and 1891 but so far have found nothing on the 1888. Do you know of any source that has a diagram or exploded view of this model?

Ken Willis Due to the popularity of several pistollength black powder cartridges, Marlin relented on its objections to these less powerful loads and began production of new lever action rifles. The tube-fed M1888 was the first among them. It was invented by L. L. Hepburn, who had previously created many designs for Marlin. Hepburn admitted his patent, #371445 dated October 11, 1887 on which the 1888 was based, had "many of the same general characteristics" as patents he was issued for earlier Marlin lever actions.

Jerry Spadorcio We could not locate a schematic for the M1888. As a result, Hepburn's own words lead us to believe the drawings you have for the '81, '89 and '91 would be perfectly safe to follow. However, if you contact the Patent and Trademark Office in Washington, DC you can purchase a copy of the patent identified above. The cost is minimal. The patent itself has no schematic but does include clear, sectional drawings and a detailed verbal description of how the rifle operates. AG

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