



JAN 2011

DIGITAL ARCHIVE  
EDITION

# PRECISION ARMS WORKSHOP

AND THE AMERICAN GUNSMITH ARCHIVE

A TECHNICAL JOURNAL OF CRAFT, REPAIR & RESTORATION

01

ARCHIVE ISSUE NUMBER

INSIDE THE ARCHIVE

# GETTING FAMILIAR WITH THE P238

NEW YEAR PLANS • SAVAGE MODEL 12 REBUILD: STOCK STRENGTHENING AND CENTER PILLAR BEDDING • DUPLICATION...

ORIGINAL METHODS. MODERN ACCESS.

ARCHIVE EDITION 085

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# AMERICAN GUNSMITH

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## PEOPLE &amp; COMPANIES

# New Year Plans

BY AMERICAN GUNSMITH EDITORS JANUARY 2011

ORIGINAL PP. 2

**H**appy New Year! So, how's your business and where is it heading? What are your plans for taking your company into the next year? How about the next five? These are times of great economic uncertainty but can you honestly remember a time that wasn't? Rather than bemoan flat sales or the industry bubble bursting, the time to advance your business is now.

Avoid the plague of being "good enough." It keeps innovation and unique thought at a minimum and forces expectations low for you and your customers, making you like anyone else. Too often, "good enough" businesses resort to lowering prices to try to recover or gain market share.

If price is your only USP (Unique Selling Proposition) most literate people capable of using Google can find a wholesaler that can beat your price. New Year Plans to raise margins then is to loosen your standards of performance and be willing to accept less profit, less innovation, less growth, less customer service or support. Complacency is another subtle killer and the bleating of "we've always done it this way" is a sure way to give up the ghost.

This guarantees that when you do open your eyes, you're going to be behind. So if you want to destroy your business just do what you have always done, or you could realize the world of today is much different than it was even a month ago. You always have a greater capacity to give, create and change. Regardless

of the economic conditions, change is imperative, demanding constant attention to finding a better way of doing business and communicating with customers.

The challenge this year (no, I won't call it a mere "resolution") is to understand where you are now and decide on a path. By avoiding the crutch of good enough and a real desire to find a better way will let you better understand your particular local market, their needs and desires. Upon sensing a real, needed change don't be afraid to change your direction. With the recent rush of tactical sales, perhaps that market and appropriate accessories is ideal.

Offering or supporting concealed carry classes or hunter safety classes may become your biggest draw. Catering to serious competition shooters, proving that you truly "get it" may work best of all. Get a cup of coffee, a legal pad, a sharp pencil and draw a line down the middle of the top sheet on the pad. On the left side brainstorm the changes you've always dreamed of making, anything that might make your business grow and prosper.

Then, on the right side of the dividing line, copy over those items that make sense for your customers, are actually affordable and give you the most bang for the buck. Of course this requires a sharp focus. Perhaps the best change for you actually is maintaining the status quo. Blindly following some temporary trend at the expense of loyal customers is just as bad. How would you make your business best support your customers? If you knew you could not fail, what would you do? Do that and you probably won't.

## MEASUREMENT &amp; INSPECTION

# Getting Familiar With The P238

*A new entry from SIG SAUER joins the growing parade of CCW pistols. We think you'll be seeing more of these than those of lesser quality.*

BY CHICK BLOOD JANUARY 2011

ORIGINAL PP. 3-7

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As you can see from the tape measure comparison made in the accompanying photograph the P238 is a very compact pistol. Overall length is 5.5 inches, height is 3.9 inches, width 1.1, barrel 2.7 and sight radius 3.8 inches. The weight with magazine is a scant 15.2 ounces, chambered in caliber .380 ACP sporting an aluminum frame and a hard coat anodized stainless steel slide. In other words, a fine personal defense pistol it is, easily concealed and carried by any male or female citizen holding a permit to do so.

A tack driving target gun it isn't. I only bring this up because entirely too many people earning Carrying Concealed Weapons (CCW) permits purchase concealed carry handguns, immediately trek out to the nearest firing line and blast magazine after magazine full of ammo toward a paper target twenty five yards downrange. The usual result of this turns the air purple with invective after it is noticed the bullseye hasn't been entirely obliterated. How absurd. And for more than one reason.

The typical distance defensive shooting takes place, whenever it must take place, is inside seven yards. Many of these encounters can more easily measure target distance in feet rather than yards. The target a CCW gun has to hit and deter is a heck of a lot bigger than a bullseye. Putting hundreds, in some cases a couple thousand, of rounds through such guns in an attempt to transform it into something for which it was never intended only wears it out sooner regardless of how well it was built in the first place.

Need I suggest a worn out, very small, quite light handgun is only good for throwing in the general direction of an oncoming hostile? I thought not. A self defender would be far better off hurling a brick or the nearest large rock. I conclude that a baseball bat would be more effective than a worn out pistol, brick or large It needs to be treated like one!

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rock but bats are not readily secreted. Admittedly, if obviously present, one would likely prevent a threatening situation to develop initially. The problem is being called to your attention because factory repair/service technicians, including those at SIG SAUER, are called upon to restore the damages caused by the above described malpractice all too often. Keep that in mind anytime a CCW pistol or revolver is brought in to you accompanied by a function or accuracy complaint. Now I'll step down from my soap box.

**Field Stripping** If you don't cock the hammer and have the thumb safety engaged (up) during this primary operation any movement of the slide will be blocked. Wear eye protection, remove the magazine, check the chamber and retract the slide until its half moon shape disassembly notch is lined up with the matching tab on the slide stop (2).

You have to hold the slide back — one means is shown in the photo — to maintain notch/tab alignment and push on the end of the stop from right to left with a finger of your gripping hand to start it out. Withdraw the stop between fingers of your free hand. Do not pry it off. The slide is under the influence of the recoil spring (35). You need to be the boss and don't let the spring take control as you move the slide forward and off the frame. Invert the slide.

Push the recoil spring guide (21) forward slightly then lift upward at the rear to remove spring and guide from the assembly. The barrel is taken out in the same way. This level of disassembly is enough to allow a thorough cleaning of the pistol except for the magazine, that self-contained, indispensable A Bammo depot frequently overlooked during a basic clean up. It's a pity for a dirty magazine has been known to, and does, cause feeding problems.

The owner of any pistol, CCW included, has likely never cleaned or even looked inside its magazine after firing it. I've not been able to dope out the reason for this beyond ignorance or laziness. The vast majority of pistol magazines have round openings in their bodies (40) called cartridge witness holes and they all have followers atop their springs. Some have base plates that usually slide out from the base of the body while others, like P238 magazines, do not.

With this one and those like it simply depress the follower, capture the internal spring by inserting a punch or pin through one of the witness holes, lift and rotate the follower to remove it and pull the punch or pin and pick out the spring. Item B is the safety detent plunger easily lost forever if not approached with caution.

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**Detailed Slide Disassembly** The slide and magazine catch assemblies are ringers for those in a M1911A1. There's an exception involving the rear sight (22) and I'll get to that in a minute. Meanwhile, press inward on the firing pin (12). Push the firing pin stop (7) downward to block the pin's escape when you let up on the pressure. Remember that when you get done pushing the stop clear of the rear of the slide there's nothing to keep the firing pin and its spring (39) from popping out.

Have a finger ready to prevent this or you may be in for a frustrating and fruitless search. The extractor (16) may need a little push from its ejection port end to get it started to the rear. After that has occurred you should be able to remove it completely with a couple of fingertips. Now for that rear sight.

Like the front sight and all pins in the P238 it Those with a less sturdy thumb can employ the four-fingers-over-the-slide grip with equally positive results. drifts right to left on the way out and left to right on the way in. However, this particular sight retains the firing pin block (17) and its spring (36). Drift the sight too far and you'll lose that spring for certain. Probably forever.

Avoid this by securing the slide between padded vise jaws, having a small blade jewelers' screwdriver handy and don't move the sight past the spring hole beneath it. It should only be nudged far enough with a nylon drift to reveal the spring and not totally uncover it. Apply the screwdriver blade to the spring to control it as you complete removal of the sight. You will have to do the same in reverse after dropping in the block and spring during reassembly of the sight to the slide.

During removal or replacement of the rear sight and associated components it's best to have the slide retained in the padded vise jaws. Detailed Frame Disassembly I may not have placed enough emphasis on the material from which the frame is made. It isn't pure aluminum. It's a stronger alloy, but not stronger than the steel of the hammer (6). So what? If the steel is allowed to impact the softer metal it doesn't require rocket science to determine the softer metal is going to get the worst of it.

With that thought preventing you from pulling the trigger and allowing the hammer to slam forward under the pressure exerted by the mainspring (25) hold the hammer back with your thumb, pull the trigger and ease the hammer fully forward. This will also relax the mainspring somewhat. After removing the grip panels (26 & 27) take a magnified look at the

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SIG SAUER P238 (Specifications subject to change without notice) 1 Frame 2 Slide Stop 3 Thumb Safety 4 Barrel 5 Slide 6 Hammer 7 Firing Pin Stop 8 Magazine Catch 9 Magazine Catch Lock 10 Trigger Pad 11 Trigger Bar 12 Firing Pin 13 Disconnecter 14 Hammer Pin 15 Hammer Strut 16 Extractor 17 Firing Pin Block 18 Slide Stop Lever Spring 19 Mainspring Housing 20 Ejector 21 Recoil Spring Guide 22 Front Sight 23 Rear Sight 24

Sear Spring 25 Mainspring 26 Right Grip Plate 27 Left Grip Plate 28 Grip Plate Screw 29 Safety Detent Plunger 30 Sear Pin 31 Trigger Pin 32 Trigger Bar Pin 33 Mainspring Housing Lock Pin 34 Sear 35 Recoil Spring 36 Firing Pin Block Spring 37 Magazine Catch/Trigger Bar Spring 38 Safety Plunger Spring 39 Firing Pin Spring 40 Magazine 41 Mainspring Housing Pin

## GETTING FAMILIAR WITH THE P238 CONTINUED

ORIGINAL PAGE 7

thumb safety. You'll see a bright spot partially exposed behind it. That spot is the safety detent plunger (29). It hides the detent spring (38). Both are loosely housed inside the hammer pin (14). Nothing holds them in place except the thumb safety (3) and the next in line for removal is the thumb safety. Catch-22? Not at all. You just have to be clued in on the little trick to it. Swivel the safety up enough to reveal the plunger and still retain it.

Place the blade of your small screwdriver over the plunger and depress it. Swivel the safety all the way up, gently ease off on the plunger and the spring pressure will move it upward. Grasp them to lift out the two small components and place both in a magnetic parts tray. Remove the thumb safety. During reinstallation the plunger/spring depression technique is reversed so the thumb safety can clear them.

Actually, this methodology is very close to that used in disassembling and reassembling the slide stop assembly in a M1911. If you've ever tackled that successfully you won't have any problem with the P238. Drift the mainspring housing pin (41) right to left to prep the removal of the mainspring housing (19). This normally frees up the housing. If it doesn't, get out your magnifier, a flashlight and take a peek into the back end of the pistol.

What you're looking for is a spring attached to the bottom end of the ejector (20). If it's present you have to probe down in there with something like a dental tool to unhook the spring. Its opposite end is attached to the housing. Even then the housing might balk at leaving the grip frame and this reluctance is not to be tolerated. Giving it a nudge downward with a nylon drift gets it started. The spring I've been telling you about doesn't show up on every P238, just the older models.

On new production pistols the hook-up between the ejector and housing has been eliminated. Drift out the hammer pin right to left and lift it out with its strut

(15) as a unit. Remove the sear spring (24). The magazine catch assembly (6, 9 and 37) is removed and replaced in the frame exactly like the same assembly in a M1911. By now it ought to be pretty obvious John M. Browning's forever-classic design has made noticeable contributions to the P238!

Continue with the right to left drifting to remove the sear pin (30). Do this step-bystep moving the pin far enough to free the sear first; followed by a withdrawal to lift out the ejector. I recommend you make a slave pin the same length of the sear pin and slightly smaller in diameter. It will become close to indispensable when the time comes to rebuild the back end of the gun. Right to left does it again when removing the trigger pin (31).

When you do the whole assembly (10, 11, 32 and 37) will move upward inside the frame. Note that spring #37 and pin #32 are duplicates of components in the hammer/hammer strut and magazine catch assemblies. Beware the loss of said spring when you move the trigger group to the rear before the end of the bar is pivoted downward and out of the magazine well. It's reinstalled in reverse and you'll probably want to place a dab of Vaseline on the end of the spring to help keep it in the trigger pad during this process.

There's not much left except the slide stop lever spring (18). The ninety degree bend of it nearest the loop-end fits in a small frame hole. The straight leg of this spring bends easily, folks. Use your dental pick or similar tool to lift and maneuver it into its frame recess so it intrudes into the slide stop opening as shown in the accompanying photo. Perform a quick test on the stop by prematurely installing it in the frame and checking for spring tension with a fingertip.

If none is felt you didn't quite reinstall the spring right. Try, try again.

## RESTORATION

# Savage Model 12 Rebuild: Stock Strengthening And Center Pillar Bedding

*Some rifles can benefit by adding a central bedding pillar as an assist to the regular front and rear bedding. The inherently accurate Savage Model 12 single shot rifle is one of these, with the added advantage to strengthen the stock at the same time.*

BY NORMAN E. JOHNSON JANUARY 2011

ORIGINAL PP. 8-10

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The Savage Model 12 single-shot, short action rifle is factory pillar-bedded just back of the recoil lug and at the rear, immediately forward of the trigger housing. The rear pillar forms a semi-circle with a portion of it cut away to avoid pillar contact with the trigger housing. This reduced pillar surface tends to weaken the pillar support to some extent in this area. The Savage Model 12 single shot also has a full magazine cutout extending between pillars within its laminated wood stock.

This unused space also tends to weaken the stock in this area. The thrust of this article will cover the procedure in filling the magazine cutout and adding a Score High central bedding pillar as a means of stock strengthening and accuracy improvement. Filling the Magazine Cutout A solid piece of hardwood is used to fi

ll the stock void which later serves as a place for the added central pillar. It also adds to the rigidity of the stock.

The block is measured and fitted to the hole with atop radius to fit just beneath the underside of the receiver. A central pillar is later installed midway between the existing stock pillars and Brownells Steel Bed bonds the block in position, providing a solid bed for the new central pillar. A ball end mill or round wood rasp is used here to shape the radius. The part is made undersize to allow for epoxy bonding all around it. Try the piece for fit allowing a minimum of 1/16-inch at all sides for bonding material.

This includes the coved out upper part of the block. When satisfied that the fit is good, release agent is applied to the rifle receiver to prevent unwanted bonding material to stick on it. Coat the guard

## SAVAGE MODEL 12 REBUILD: STOCK STRENGTHENING AND CENTER PILLAR BEDDING CONTINUED

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This is followed by a 1/4-28 tap is used to cut the threads for the central pillar screw. This work adds considerable bedding support to the receiver. Shown here is the extent of the rear pillar and where the cutaway pillar fits up to the trigger. screws, the sides of the magazine cutout, as well as the wood block with bonding material, including the area of the front and rear pillar. Set the action squarely into the stock and use the guard screws to draw the action into the stock and let it dry until hardened.

Brownell's Steel Bed is an excellent choice for bonding here. When dry, remove the action from the stock and clean things up. Application of the Central Pillar With the action bolted into the stock, again carefully

mark where the central pillar will be positioned. This will be midway between the existing guard screws and directly in line with them. With the action still bolted into the stock, tip it over and secure the rifle squarely in a padded drill or milling machine vise.

Be extra careful that everything is positioned perfectly square in the vise. When properly set a hole is drilled down through the stock with a Number 3 drill, right into and through the action. Clean up wood and metal chips frequently while drilling the hole, then enlarge it in the stock only to 1/4-inch to serve as a tapping guide hole. Be sure when drilling the 1/4-inch hole to stop when the drill contacts the receiver.

You can now tap the 1/4-28 screw hole into and through the receiver using the newly drilled hole as a tapping guide. After a few threads are This screw remains in place until the pillar is permanently bonded into the stock. cut remove the action from the stock and finish tapping the hole where it's easier to see. Take your time tapping the hole, removing chips and applying tapping oil. After completing this the action is again bolted into the stock in preparation for making the pillar hole.

A foolproof method of making this hole is to use a guided through-hole counterbore with a special pilot that fits the newly drilled 1/4-28 threaded hole and the counterbore. Cut the pil-

## SAVAGE MODEL 12 REBUILD: STOCK STRENGTHENING AND CENTER PILLAR BEDDING CONTINUED

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New Steel Bed covers the front and rear pillars as it permanently bonds the central pillar adding great strength to this action. lar hole at slow speed down to the rifle receiver and remove the stock from the action to clean up the hole. You are now ready to attach a Score High pillar to the action using one of the short pillars in the kit provided for the 700 Remington action. A special 1/4-28 socket head screw with a snap ring holds the pillar perfectly aligned, ready to drop into the stock.

Bedding Action Into The Stock It is pretty difficult to beat Brownell's Steel Bed for all types of stock bedding, including installation of bedding pillars. Just coat the pillar and in-

side the stock hole, then carefully lower and secure the action into the stock. The front and rear action screws will assure proper positioning of the central pillar as they are drawn down.

Following several hours of drying time, the action can be removed from the stock, but be sure to remove the 1/4-28 socket head screw as it now secures the stock in place. Installing the Center Escutcheon The central bedding pillar was left short enough to leave space for bonding in an escutcheon Here I made one of brass countersunk for a square shoulder socket head 1/4-28 screw. The escutcheon is measured for length and bonded in place to match the depth of the front.

Blued steel would work for this part but brass turned out to be quite attractive. The new 1/4-28 socket head screw can The brass escutcheon and attaching screw are shown here as are the original front and rear pillar positions. The central stock pillar virtually eliminates any possibility of action-to-stock movement in this vital area. be used to align the escutcheon and regulate its depth. Be sure to apply release agent to the screw.

Conclusions The work put into a properly installed central bedding pillar pays off. This is particularly noticeable in target and varmint rifles where day-to-day bullet point of impact is important and extreme accuracy is demanded. AG

## FINISHING

# Duplicating Remington's Factory High-Grade Finish

*Remington's classic finish looks a foot deep without looking like plastic. Here's how to do it yourself.*

BY DOMINIC PISANO JANUARY 2011

ORIGINAL PP. 11-12

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Most sportsmen who are interested in custom rifles prefer the so-called oil finish or matte finish. I prefer them myself and have worked diligently to achieve these good results with these finishes over the years. Occasionally, it is possible to get a client who wants — in fact, demands — the Remington Custom Shop finish. This is especially so among those who collect Remington high grade shotguns.

I have come up with an approach for producing such a finish after years of experimentation with the vast majority of commonly available gunstock finishes on the market along with some not so common ones. This includes the nitrocellulose lacquers which Remington used, even though they called it varnish on the high

grade guns, it really was a lacquer. As is often the case, the solution to the challenge is often the simplest material.

My solution to duplicating Remington's High-Grade Finish is pure and simple Tru-Oil, thinned 1:1 with mineral spirits. No filler, no stain, nothing but Tru-Oil! Remington Below left and used color in their lacquer, sometimes a dirty brown and sometimes a honey or-ange depending on the time period. Fortunately Tru-Oil has an amber tint which almost completely replicates the Remington honey color.

Before the first application of finish, whether it be a re-finish or a fromscratch job, you must first prepare the stock by sanding it smooth. That means 220 grit or 320 grit, being careful to remove all the scratches. Fail to do so and the scratches will show up

## DUPLICATING REMINGTON'S FACTORY HIGH-GRADE FINISH CONTINUED

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Above Left and Birchwood Casey claims Tru-Oil works in a day but best results will require many applications over a month. The entire process takes only three or four hours total actual working time, glaringly apparent with the first coat of finish. When sanding is complete, tack off all the sanding dust. This is an important step and one that will be repeated as many times as there are coats of finish.

The secret to getting good results is the application of many coats of the thinned Tru-Oil using a 12 gauge cloth shotgun patch folded into quarters. It takes no longer than five minutes to coat the stock in this fashion. I don't do a lot of sanding between coats, only enough with 600-1000 grit abrasive paper to remove any lint and to keep the surface build up knocked down some while the pores are being filled. You can sand dry or use a wet sanding.

I prefer the latter as it helps to keep the abrasive paper from clogging. When you're done, wipe the stock dry and tack off prior to the next top coat. Properly thinned to

equal parts, when anew coat is wiped on and the stock placed horizontally until it begins to dry, the thinned Tru-Oil will flow out to a mirror smooth surface. It takes many coats, although the work itself goes quickly. I let each coat dry at least 24 hours before recoating.

Although the Tru-Oil finish is mirror smooth — if that is what you want — it does not have the harsh high gloss finish of the new Remington or Browning epoxy finishes. Tru-Oil says you can finish a stock in one day but best results take about a month with maybe only three or four hours total actual working time. I am often asked how many coats does it take. My answer is always the same. I don't count coats. The measure of success is the stock itself. Some woods are more porous than others.

This is especially so of Claro walnut and that is why most professional stock makers prefer English walnut. I am in the process of finishing a Bastogne walnut stock as I write this. I'm up to the fourth or fifth coat and I have along, long way to go before the

pores are completely filled. The final coat can be rubbed down with 0000 steel wool or rotten stone if a matte finish is desired. I leave mine with the same moderately high finish that Remington had but polish it somewhat with Johnson paste wax.

The tricks I have learned are: 1. Thin Tru-Oil with equal parts mineral spirits. Measure it! 2. Apply this anew cloth 2x2-inch shotgun patch. Do not use synthetic paper or whatever patches that some, including Hoppes, now sell. 3. Wipe everything down, including the application patch with a tack cloth before every application. 4. Dry in the stillest and most dust free air you can find and in the horizontal position to minimize the tendency to run, yet allow for the finish to flatten out. 5.

I almost always open anew bottle of Tru-Oil for the last couple of coats. It is surprising how it accumulates junk within the container after it has been opened a couple of times. At \$3 or \$4 anew bottle of Tru-Oil is far cheaper than time. AG

## PEOPLE &amp; COMPANIES

# Charter Arms Tune Up

BY ROBERT K. CAMPBELL JANUARY 2011

ORIGINAL PP. 14-17

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I have respected the Charter Arms revolver line for a variety of reasons for some twenty years. The company has been around for some time under a variety of names and today MKS Supply handles distribution. These revolvers have offered an honest value, often at a time when good handguns were difficult to obtain. Charter Arms was founded in Stratford Connecticut in 1964. The Undercover, the first product, was a small frame .38 caliber revolver. Innovations were incorporated that are still considered state of the art.

The transfer bar ignition and modular frame design were adopted to one extent or the other by Ruger and Dan Wesson in their later double action revolvers. Charter Arms revolvers use a steel frame that is removable from the main receiver. The firing pin is of beryllium copper and the transfer bar system offered a unprecedented degree of safety when first introduced.

The hammer cannot contact the firing pin until the trigger is fully pressed to the rear, at which time the transfer bar rises and allows the hammer to contact the firing pin. Other than the transfer bar system, I have examined a few Spanish revolvers with sim-

ilar features, including one with a Dan Wesson type cylinder lock, but none that come together in the fashion of the Charter Arms. For ease of manufacture and simplicity the design is very good.

Throughout bankruptcy and a number of sales and reorganizations the company has remained a fixture on the firearms scene. As may be expected production quality and attention to detail have sometimes suffered. For some reason most of the trouble prone specimens are .44 Special Bulldog revolvers. The Bulldog is similar to the .38 but with a deeper frame and appropriately larger cylinder and barrel. I have examined quite a few Bulldogs over the years and carried them professionally as backup revolvers.

Some examples are better than others but 500 rounds will always produce wear and rattles on the .44 Special Charter Arms revolver. This is simply the price we must pay for a nineteen ounce .44. Few handgunners will fire a handgun such as this that much, but some 32 caliber revolver with barrel underlug, a typical and well used early model .38 caliber Undercover, and a

Bulldog Pug.. The operating principles are sound. will fire it extensively and experiment with handloads.

Sometime around 1993 I examined a new stainless Bulldog Pug that exhibited the roughest action I have seen in a production Charter. Not only was it rough, if you stopped pulling the trigger in mid stroke the hammer would simply stay in the midway position and not fall! The problem of hammer binding on the frame was obvious. These problems seem to be pretty well absent from Charter 2000 production but just the same there are areas that may be improved.

I have some experience with the type and recently I have been able to examine several examples of the most recent production. Each seemed typical of the breed. If you are used to other makes, when first attempting to work with the Charter Arms revolver you really have to don your thinking cap as the design is so different. Disassembly is considerably more different than the Smith and Wesson, for example. I have examined Charter Arms revolvers in .22, .32 Smith and Wesson

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38 caliber Undercover has seen yeoman service in a tackle box for some time. It still functions but needs refinishing. Remove the grips and then capture the mainspring. Note the small hole at the bottom of the spring housing. This is designed for easy disassembly. Long, .38 Special, .357 Magnum, and .44 Special. Among the revolvers currently on hand the first I examined is a modern .32 Magnum Undercoverette. Small bores remain popular for many reasons.

As an example, the owner obtained this revolver for his teenage daughter for protection in the home. The action was very smooth, the smoothest I have tested in any Charter. Recoil was mild and the revolver is accurate enough to serve as a fisherman or outdoors-

man's tool for popping snakes or perhaps finishing off a downed game. My examination revealed the smoothest and best finished Charter type revolver I have ever examined.

There were simply no rub marks on the hammer as is common with the type and the revolver is overall comparable to practically any on the market. The second Charter Arms revolver examined was a Bulldog Pug. The Pug features a two and a half-inch shrouded barrel in comparison to the earlier three-inch barrel Bulldog with exposed ejector rod. As a result weight is up to 21 ounces. The Charter Arms Pug .44 Special worked OK but with a well defined hard spot in the action just before the trigger fell.

The action definitely could have been improved. The lockup was good but the cylinder displayed typical play when open. I felt there was more room for improvement with this handgun and it would be a better test case. I elected to work over the .44 first while ad- It seems long lived. mitting it was questionable if any worthwhile improvement could be done with the .32. Disassembly As always, check to be certain the handgun is unloaded by inspecting the cylinder.

To disassemble the revolver, first bring the hammer to full cock. Insert a paper clip or similar tool into the hole at the bottom of the mainspring guide and then gently lower the hammer, allowing the spring and spring guide to be removed. The mainspring seat

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is a small square piece that is the number one part often lost on this revolver. I have two spares at the moment for obvious reasons as they will take flight if a home enthusiast attempts disassembly without the proper steps. Even an experienced individual may lose such a small part. All frame screws differ, so it is a good idea to carefully lay them out and memorize their location. The revolver is held together by a combination of screws and pins.

First, the screw near the back of the grip frame, the frame assembly screw, is removed. Then tap out the frame assembly pin near the

bottom rear of the frame. The forward pin must also be drifted out. This is the cylinder stop pin and we will address a common problem with this pin in a few paragraphs. The butt section or handle section can now be removed from the frame or receiver. Next, unscrew the hammer screw and lift the hammer from the frame.

At the forward section of the frame is the cylinder retaining screw that may be removed to release the cylinder. You may draw the crane forward to address cleaning the integral bushing on the frame as this bushing sometimes becomes caked with dried powder, un-

burned ash or even congealed lubricant. Obviously something is binding. As it turned out the hammer had well defined wear marks indicating drag. The hammer pawl also demonstrated rough areas. I carefully studied these parts under magnification.

The roughness in the action seemed to correspond with safety bar movement during the lock cycle but I felt comfortable with only a minimal polish of the pawl and the hammer on the bearing surfaces. The hammer sides area different matter.

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While not as serious as seen with some revolvers of the type, this binding resulted in a rough action. The cylinder retaining screw is at the front of the frame. I did lightly stone the hand on the surface. The hammer pawl features a rather simple radius that is easily addressed. The hammer has a more severe angle but may be polished with care. These parts were stoned carefully and this improved the smoothness of the action. The sides of the hammer may be polished to a greater extent.

The hammer showed several drag lines common to some Charter revolvers, and the obvious interpretation is that the hammer is dragging. I stoned these marks away leaving a smooth surface when done, leading to a smoother operation when the piece was reassembled. Coupled with the action surfaces smoothing the overall effect was more than the sum of the work would have indicated. Next I addressed the shaky cylinder.

This Bulldog Pug cylinder definitely displayed more play than the .32 Magnum Undercoverette but seemed typical of Charter production. The cylinder screw seemed to have a removable bushing in the take down illustration but in this case the bushing was not removable, at least not

easily. I considered adding a shim to address cylinder play and shake but the revolver locked up tight during firing so the final verdict was to leave the revolver as is.

I did peen the assembly pin that rides just under the cylinder near the front of the frame. I have never seen a .44 Special fired often that did not suffer some loosening of this pin. The pin will even walk out the right side for about half its length if not tightened. I have never seen one continue all of the way out but it will certainly work loose. By peening and roughing this pin up to an extent this walking is curtailed. This is a simple operation that saves lots of trouble later.

The next step helps alleviate some of the problems encountered in matching a light revolver to a heavy caliber. The cylinder release latch of the Charter .44 is often a source of discomfort. Even when firing the standard Winchester 246 grain round nose bullet loads, which exits the Charter's 2.5 inch barrel at a meager 650 fps, recoil is noticeable. After all, this is a 21 ounce revolver firing a big bore cartridge and the cylinder latch often bites the thumb.

In early production the ejector rod was unshrouded, allowing shooters to pull the ejector rod forward to release the cylinder.

Many simply removed the cylinder latch for comfort and relied upon the cylinder ejector rod to open the cylinder. The shrouded barrel Pug does not allow the use of the cylinder pin to open the cylinder. A better operation is to remove the latch and then carefully polish and radius the bottom of the cylinder release into a smooth shape.

The original is pretty sharp and while it gives a good surface for manipulation when firing the geometry of the revolver practically demands two locked thumbs and these thumbs often are rapped hard by the sharp cylinder latch. Many of you have seen the modern design offered by SDM Fabricating for the Smith and Wesson revolver. This is a good design and you should carefully consider the shape and configuration of the SDM piece when working the Charter Arms latch.

I found the modern Charter revolvers as offered by MKS Supply as one of the better revolvers available on the modern market. It is affordable and reliable. We left the .32 Undercoverette as is. The others, earlier revolvers and the Bulldog and Bulldog Pug types, certainly may be improved. The rougher versions still found on the used market often need the attention of a gunsmith to perform at acceptable levels. AG

## HISTORY

# Rolling Block Renovated

*Knowing what to look for, along with a dose of gunsmithing knowhow, can transform a discarded, century-old rifle into a great shooter.*

BY PAUL MAZAN JANUARY 2011

ORIGINAL PP. 18-22

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In the long history of Remington Firearms several of their guns that have become true classics. The 700 rifle, 870 and 1100 shotguns come immediately to mind but less well known today is the single shot rifle that saw more examples produced than any other single shot in history. That rifle is the Remington Rolling Block and it gave Remington a financial roller coaster ride like no other.

In the brief period of time in the late 1800's when single shot rifles were fielded by most of the major military powers, the Rolling Block was standard issue in many countries. France had the Gras, Germany the 1874 Mauser, England soldiered on with the Snider and then the Martini, and the United States fielded the Trapdoor Springfield. While the Snider and Trapdoor were conversions of earlier muzzleloaders the others were new designs.

State run arsenals in the major powers of the day churned out their proprietary rifles. Smaller countries found that Remington had an excellent single shot design that could put their military on a par with the big boys and was more than happy to produce the firearms for them. Argentina, Cuba, Denmark, Egypt, Mexico, Spain, Sweden, almost all the Caribbean and

South American countries bought large quantities of the military Rolling Blocks to arm their soldiers.

Even the Papal Guard thought the Rolling Block was the best of the single shots available. Not only was Remington able to produce the rifles in the quantities needed they also chambered them in proprietary cartridges to assuage the national pride of each country that requested one and licensed the manufacture of Rolling Blocks to Sweden and Denmark. A somewhat lesser known role of the Rolling blocks was in the hands of civilian buffalo hunters.

We normally think of the vast herds of American Bison that the plains Indians depended on and the white man coveted for its hide as prey to Sharps-armed hunters. That image is certainly correct as the Sharps was indeed the choice of many of the market hunters of the day, however, the Rolling Block was also a highly regarded slayer of thousands of the big shaggies.

With all of these truly great single shot rifles available what made so many men and nations that depended on their rifle for their living or their survival choose the Rolling Block over all of them? In three words, the gun was simple, rugged, and available. The rolling block is a simple design that even a third world farmer who has never seen a gun can master in very little

time. It is built of massive steel parts housed in a heavy steel receiver with springs that are over engineered and rarely fail.

Produced from 1865 until 1930 people were still buying the nearly indestructible Rolling Block long after repeaters had become the norm. Lastly, the Large #1 action Rolling Block was available in just about every caliber imaginable. From the big 50's to the 7mm Mauser and including at one time or another the .45-70, .30 WCF (30-30), the .30-40 Krag, and both the .43 Egyptian and .43 Spanish just to name a few.

The Martini, Mauser, and Gras were certainly capable of taking Buffalo but first line military rifles were not generally available to civilians leaving the Great Plains and buffalo herds open to the Sharps and the Rolling Block. Today there are thousands of military surplus rifles on the used gun market in conditions varying from NRA Excellent to totally used and beaten up.

One of my passions is searching gun shows and auction sites for guns that the owners think are no longer usable and then bringing them back from the edge of the grave and breathing new life into them. One case in point was a battered Egyptian Rolling block that Ire-

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After disassembly the barrel is unscrewed from the receiver to be used to form cases. cently purchased on Gunbroker.com. The gun was neglected and seemingly had been for years. The seller had bought it at an estate auction and had no desire to fool with it. At the end of the auction I found myself as high bidder. One of the problems of buying online is that you are trusting the seller to honestly describe the item.

Perhaps I've been lucky, as the few times I have been disappointed the seller was more than happy to have me return the item and

refund the money. Still, there is always some apprehension until the gun is delivered and inspected. When my Rolling Block arrived, my first inspection reveled that the gun was in reasonably good shape under the layer of surface rust and grunge that covered it, exactly as it was described.

Chambered in .43 Egyptian from the 1869 contract that nearly put Remington out of business when they tooled up for 100,000 guns called for in the original contract, only to have Egypt reduce the order to 10,000, then increase the order again later and finally

default on payment. In 1877 Egypt owed Remington over one million dollars, the equivalent of twenty four million dollars today. It was enough to drive Remington to the brink of bankruptcy.

Remington eventually collected about two thirds of the money but that is another story. The long barrel of my Egyptian model had a massive integral bayonet lug and the bore looked great from the breech to within four inches of the

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The final inletting is done using scrapers and inletting block. muzzle. In those last four inches the rifling disappeared into a section that was oversized, smooth bored, belled at the muzzle and pitted. My guess is that the gun was carried and the bore cleaned from the muzzle a lot in its military career but was seldom shot. Disassembly is simple and intuitive and offers no surprises. After clearing, start by removing the ramrod and the barrel bands and pulling the forend forward and down.

Next, remove the tang screw and pull the butt stock off to the rear. Remove the button screw and button on the left side of the re-

ceiver. This is the metal piece that sort of looks like a bow tie right in the center of the left side of the receiver. Cock the hammer and push the breechblock pin out from right to left and remove the breechblock. Uncock the hammer and remove the hammer pivot pin and the hammer. Remove the two trigger guard (Remington called it a guard plate) screws and remove the trigger guard.

All the action springs are retained within the trigger guard and can be removed for cleaning by removing the screws that retain them. That's about all there is to it. Did I mention that the gun is simple and rigged? 50-90 Sharps case the first step was to cut the cases

to the correct length. Here Paul used a hacksaw with a 32 TPI blade to cut the brass. The interior of the action looked like it hadn't been apart since it left the Remington factory, although the burred screw heads proved that not to be true.

I think there was some dirt in there from the building of the pyramids. There was no hope of returning this gun to its former military glory, not with that wallowed out muzzle, so I looked around the local library for some

## ROLLING BLOCK RENOVATED CONTINUED

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This is necessary to soften the brass for forming and reduce brass spring back. If cases are not dead soft they will not chamber after being formed in the barrel. books that would show what Remington offered in the way of sporting guns made on the rolling block action. As it turns out Remington had a custom shop way back then and was turning out anything the customer wanted and was willing to pay for. After studying examples of some of the rifles they made I settled on a sporting gun with a Schnabel forend.

The conversion process itself is simple consisting of shortening and recrowning the barrel, polishing it, installing sights and making

a sporting forend from a block of walnut. The challenging part was fabricating ammunition for this long obsolete cartridge. Delighted with my new Rolling Block I sat down at the computer to find reloading components or loaded ammunition for the gun and promptly developed a case of sticker shock.

I found several offerings for loaded ammunition ranging from a high of \$118.00 per 20 rounds to a low of \$75.00 for 20. Likewise, brass ran from \$68.00 to \$63.99 for twenty cases. My biggest shock came when I looked at loading die sets and could only locate RCBS dies at \$282.99 for the set. That was more than I paid for the gun! Suddenly my

beautiful Rolling Block didn't look like such a bargain so I started looking around for alternatives. The easiest solution would be to fit a 45-70 barrel to the gun.

The ammunition is readily available and reloading dies are inexpensive in comparison. However, I was once again confronted with the problem of the barrels I found selling for over \$250.00. I then decided to try a technique I had heard of but never tried myself. Research indicated that .43 Egyptian could be formed from .50-90 Sharps brass and that brass can be formed using

## ARCHIVE IMAGE WITHHELD

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the chamber itself as the forming die. This was the project I would test that information on. A call to Starline Brass ([starlinebrass.com](http://starlinebrass.com)) found cases at \$1.19 each, not cheap and only listed in quantities of 250 but, much better than the \$3.20 each elsewhere. Two days later the brass was at my door and I was ready to form some cases. My first step was to trim the cases to length, in this case 1.94-inch overall length, and then annealing the entire case.

Annealing the case softens it so that it will form easily and is done by heating the case on a nonflammable surface to red heat and then dropping it into a bucket of cold water. At first this seems wrong because it is exactly the opposite of quenching steel but believe me that is how it works. This will leave your cases very soft but it is a necessary step. Each case is then removed from the water, dried and then lubed just like you would lube any case for resizing.

With the entire case well lubed and the barrel held vertically in a vise fitted with soft jaws to keep from marking the barrel, the case is gently tapped into the chamber about a quarter-inch or so using a plastic mallet. You want to take the process slowly to not damage the case. Remove the case by inserting a rod in the muzzle and tap it out, double check to see that it is well lubed, reinsert it and tap it in another quarter of an inch.

Repeat this process until the base of the case is flush with the back of the barrel. Once you have the case formed to full length try chambering it by hand. If it will

not chamber completely you have probably not annealed the back of the case just ahead of the rim sufficiently. There are two mistakes to avoid. The first is not annealing the case, which will allow the brass to spring back and keep you from chambering the round. The second mistake is to try to size it in one operation.

I tried that twice and damaged both cases. One showed a dent in the shoulder and the other had a fold in the neck. Anneal the cases thoroughly and Not seen in this photo is the ear to ear grin on my mug when I saw that first five shot group. size them in small increments and you should get good results. Actually there is a third mistake I should mention. A propane torch will melt the brass if you don't keep it moving over the surface. I managed to melt a hole in one case while taking pictures for this article.

Keep the torch moving over the surface until the whole case is evenly heated and you can avoid this mistake. With cases formed, the next step was to find bullets. The information I found online said to use .444 diameter bullets. I am grateful that I don't believe everything I read. I ran a lead slug through the bore and measured the diameter of my gun at .434 according to my electronic calipers. Perhaps the information on line was a typo or there may be a wide variation in bore sizes.

In any case to keep from rapidly disassembling the gun with disastrous results, measure to be sure. I found .439 diameter .43 Spanish Rolling Block bullets for sale but found 100 bullets were going to cost about

twenty dollars less than a Lyman mold. Hopefully I will shoot more than 100 bullets through this rifle before I'm finished with it so I bought Lyman mold #439186 and it casts beautiful 370-grain lead bullets measuring 0.439-inches.

Having been built in the black powder era my first loads were kept at low pressures. I started out with 60 grains of 2f black powder that filled the cases to the base of the shoulder. Over the powder I placed a grease cookie and a SPG lubed bullet, crimping the bullet in place with a .45 ACP seating die by running the case in only as far as the shoulder. This load compressed the powder slightly as no air space should be left between the powder and the bullet when loading black powder.

Use a filler to completely fill the case or pressures will be excessive to the point of possibly rupturing the barrel. If the case is not full the bullet acts as an obstruction. My preferred filler is Kapok acquired from an old life preserver for light plinking loads in black powder cartridge guns. At the local range the first five shot group on the paper went into 1 1/2" at the bottom of the target. Not great but more than good enough to make me smile.

Following groups proved to be about the same as I had run out of elevation adjustment and was aiming at the top of the black. Now it's back to the shop for installation of a lower front sight to bring that group up and a lot of fun developing a hunting load for this old war horse. AG

## MEASUREMENT &amp; INSPECTION

## Reader Forum

BY AMERICAN GUNSMITH EDITORS JANUARY 2011

ORIGINAL PP. 23-24

**M**odel 12 Winchester I have recently acquired an heirloom Model 12 Winchester pump-type twelve-gauge shotgun, serial #3506XX from my father. It is quite old and hasn't been fired for at least forty years. The problem with the gun is the bolt is wide open with the slide locked back and tightly jammed open. There is no apparent rust. How to free it and make any needed repairs? Dr. Fred J. Schuster Sounds like quite a keep sake to us. We advise against turning it over to anyone who hasn't worked Model 12s over before.

It's no more complex than many modern pump guns but locating and replacing parts or the whole bolt release assembly, which we believe is causing the problem, could end any hope of the gun coming back to life if not performed properly. We recommend you contact Nu Line Guns, former Winchester Authorized Service Center, and negotiate their assistance. Firearm Identification I recently bought a Husqvarna rifle from an estate and have some questions.

The safety is on the bolt, though my research indicates other rifles of this make had tang safeties. The floor plate release is not on the trigger guard and the bolt stop is of Mauser M98 style. The serial number is 125XXX. Steven Stanford Our standard response for all firearm identification questions is the same. Send several pictures of the gun in question along with a description and stamped, self-addressed return envelope with your inquiry to the NRA Museum.

As you might suspect, the museum's curators are experts in firearm identification. Their contact info is National Firearms Museum, Fairfax, VA 22030. Phone or via the web at [nra.nationalfirearmsmuseum.org](http://nra.nationalfirearmsmuseum.org) or [nramuseum.org](http://nramuseum.org). Enfield Cock On Opening Kit I have a Pattern 14 Enfield ri-

fle that I want to use as a base for a customization project. What cock on opening kits do you recommend? Walt Kuleck offered to handle this one.

Cock on opening kits for the Pattern 14 and Model 1917 Enfield rifles have been available for as long as I can remember, which would be at least as far back as the early 1950's. There are several still being offered. SARCO ([e-sarcoinc.com](http://e-sarcoinc.com)) has both Pattern 14 and M1917 kits. A more modern arrangement is now being made by Dayton-Traister as their Speed Lock Kit P-14/17 Enfield DSLP. These can be found at [greenesgunshop.com](http://greenesgunshop.com).

Brownells also has a product listing for their version of the Dayton-Traister kit ([brownells.com](http://brownells.com), part number is 240-150-017.) While I don't believe that the D-Tkit requires any modification to the bolt, Brownells listing indicates that a Dayton-Traister trigger must be used, though unlike the kit direct from D-T, a trigger isn't included in the Brownells offering. While cock on closing feels different, with the proper bolt manipulation technique it can be just as fast as cock on opening.

My first rifle was a Lee-Enfield No. 1 Mk V, so maybe I just got used to it over the decades! Monroe, OR Rochester, NY M1 Carbine Stove Pipe I have an M1 Carbine that routinely stove pipes on fired cases and I've not yet diagnosed the cause. What are some suggested fixes? There is a good chance the ejector spring is weak or possibly gummed up with packing grease. I would check there first. While not M1 Carbine specific, a technique from a similar sounding issue may also prove helpful.

While working on a knock-off Thompson submachine gun that used old .45 ACP M3 "grease gun" magazines I was having stove pipe/failure to eject stoppages and a failure to feed separately at various times. The

Tommy gun might fire one or two rounds before one of these two things happened. Turns out it wasn't a problem with the gun itself, but rather the magazines.

Since the M3 mags came from actual old military stock they were used in a full auto guns that would heat up pretty good and, after awhile, distort the magazine lips slightly. The lips hold the top round in the mag and between the heat distortion and full auto functions they gradually moved outward in a "V" shape. By spreading the lips outward on the front side the front of the top round would sit higher in the magazine, rubbing on the bottom of the bolt as it cycled and slowing the whole action down.

I even suspected it slowed it down enough to not allow the bolt to fully cycle open before closing again. This did not allow the empty case to eject because of the partial open bolt. Of course, the empty is flying away when the bolt reaches full open and if it doesn't open fully the bolt starts to close again before clearing the ejection port. The empty then releases and falls in the open chamber allowing the bolt to close on it, causing stove pipes.

Because the magazine lips were bent outward, the pressure of the magazine spring forces the front of the top round to tip up and rub the bolt as the bolt travels rearward. The bent lips also allowed the round to tip up and strip off the mag too early (mid-way) as the bolt closes again, instead of allowing the rear of the round to clear the forward front lips and tipping up to the feed ramp. The fix was so simple.

With a dead weight hammer, I gently pounded the forward lips in a little at a time while manually stripping off rounds until the rear of the cartridge cleared the lips before tipping up to feed ramp. Bob John Linse

## READER FORUM CONTINUED

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This fixed all the failures to feed and ejection problems. Luger Pistol I recently completed a Luger project by replacing the take down lever and side plate. The action is tight and functions properly when cycled by hand, feeding a fresh round with the toggle closing completely. The pistol fires the first round which had been manually chambered, ejects the spent brass smartly and chambers the next round, however, the action will not cock for the next round. I must manually operate the toggle to cock the action.

A guy at the range stated that he had seen that problem before and that the trigger bar spring needed to be bent or replaced. Have you ever heard of such a thing? On an unrelated note, I believe that the Small Arms Shop is no longer in business. Steve Simon is not listed in the directory and the phone number you published is not in service. Fairman Bockhorst Responding in reverse order to your questions, Steve Simon remains in business but no longer is a source for obsolete Savage/Stevens parts.

His services are now limited to repair according to Savage HQ in Massachusetts. His new phone is The problem with the Luger is likely related to the side plate. On its inside is an L-shaped lever that moves down when the trigger is pulled to activate the trigger bar and release the firing pin. It is the opinion of a Director of the

American Pistolsmith's Guild who is a specialist with Luger pistols that the lever isn't going in far enough.

He went on to say this can be corrected by heating the end of the lever and bending it, not the trigger bar spring, which any significant degree of heat would render useless. H&R Handi-Rifle I would like to build up barrels for the H&R Handi-Rifle for some of the older cartridges, such as .25-20, .32-40, etc. How are the barrel lugs afixed to the barrel in the Handi-Rifle?. It looks like a weld but I don't know if it is TIG or MIG welded or some other method.

I have rechambered a Handi-Rifle barrel in .44 Mag to 10.4 mm (.41) Swiss Centerfire with cases made from Lebel brass but other chamberings I would like can not be done with standard H & R barrels that are available. I have made up the under lugs for the barrel from 4140 steel but need to fasten it on. I had a person tell me the lugs were silver soldered on but they do not look like that to me. James Stuart The under lugs of the Handi Rifles are welded on.

If you decide to proceed with this project, we recommend using TIG or MIG to limit or avoid high heat affecting the integrity of the barrel itself. Samuel Buckley Shotgun I have a double side-by-side shotgun with exposed hammers with the markings "Samuel Buckley & Co, London Laminated

Steel" on the convex barrel rib. It's also marked "Saml Buckley & Co" on each of the side locks. While there is some decent engraving that is still good enough to resurrect, the furniture on the gun is very rough.

I have found one single website that stated I. Hollis & Son were the likely makers of this firearm, which was then marketed by Buckley in the late 1860s to 1880s era. Looking at some similar models lends me reason to believe that this is a reasonable truth. I'm looking for disassembly instructions so I can clean, inspect and potentially repair and restore and then successfully reassemble. Ill probably have to re-craft the forearm and any internal parts that may be broken.

The client is looking to refinish and restore this old horse but has no intention for using it as a shooter. Dane Frazier Send a photo of what you have and wish to learn to the NRA Museum for positive identification. Your double gun predates the use of schematics so we can't help you there or with an owner's manual, either.

Use extreme caution with the "restoration." You do not want to run afoul of a BATF inspector choosing to classify your work as manufacturing unless you hold an FFL identifying you as a manufacturer. AG

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