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INSIDE THE ARCHIVE

DISASSEMBLY AND REASSEMBLY OF THE BERETTA 90-TWO

OSHA BUREAUCRATS THREATEN TO REGULATE THE FIREARMS INDUSTRY OUT OF BUSINESS • WORKING WITH SPRINGS ...

ORIGINAL METHODS. MODERN ACCESS.

ARCHIVE EDITION 046

DIGITAL ARCHIVE EDITION

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SAFETY & COMPLIANCE

OSHA Bureaucrats Threaten to Regulate The Firearms Industry Out of Business

BY AMERICAN GUNSMITH EDITORS SEPTEMBER 2007

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The Occupational Safety and Health Administration (OSHA) “the government agency charged with assuring the safety and health of America’s workforce” is proposing a rule that would affect the manufacturing, transportation, and storage of small-arms ammunition, primers, and smokeless propellants.

According to the National Shooting Sport Federation (NSSF), the proposed rule would force the closure of nearly all ammunition manufacturers and force the cost of small-arms ammunition to skyrocket, essentially collapsing our industry. The cost to comply with the proposed rule for the ammunition industry—which includes manufacturers, wholesale distributors, as well as retailers—will be massive.

For example, ammunition and smokeless propellant manufacturers would have to shut down and evacuate a factory whenever a thunderstorm approached, and customers would not be allowed within 50 feet of any ammunition (displayed or otherwise stored) without first undergoing a search for matches or lighters.

NSSF and SAAMI have met with OSHA officials to explain the problems the proposed rule presents for all levels of the firearms and ammunition industry, and requested a 60-day extension of the public comment period to conduct a more thorough review of the proposal.

OSHA recently honored the industry’s request by extending the comment submission deadline to September 10.

NSSF is urging all manufacturers and retailers of ammunition, primers, and smokeless propellants to submit comments on the proposed rule directly to OSHA.

Industry members should inform OSHA that: The proposed rule constitutes a “significant regulatory action” as defined in Executive Order 12866 Section 3(f)(1) in that it will clearly “adversely affect in a material way” both the manufacturing and retail sectors of the ammunition industry, productivity, competition, and jobs, and that the annual compliance cost for makers and retailers of ammunition alone will far exceed \$100 million dollars annually.

All written comments submitted to OSHA must include the following information in the reference line: RE: Docket No. OSHA-2007-0032 Comment on Department of Labor/OSHA Proposed Rule “Significant Regulatory Action” as Defined in Executive Order 12866 Please fax the letter to the OSHA Docket Office at Include the header (in bold type above) on the cover sheet nce You can also email the letter by visiting <http://> and following the submission instructions.

MAINTENANCE & REPAIR

Disassembly and Reassembly of the Beretta 90-Two

No, it's not exactly GI Joe's Model 92. Here's what you need to know about the differences in order to avoid problems in reassembly.

BY CHICK BLOOD SEPTEMBER 2007

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The Beretta Model 92 was once a highly controversial pistol. How controversial depended on the individual's level of devotion to the Model 1911, which the 92 replaced as the U. S.'s standard-issue military sidearm. Controversy aside, once the Italian semi-auto became "GI, law-enforcement agencies in this country rushed to adopt it as their primary duty weapon and to retire the wheelguns they'd carried for years.

Some observers believe the Model 92 was the pistol that ignited the "wondernine" craze that swept America in the 1990s. The interest in the wonder nine is easy to understand from the police officer's point of view. A revolver held six rounds of .38 Special or possibly .357 Magnum that had been downloaded to perform far below its true muzzle velocity. The bad guys, on the other hand, often packed autoloaders stacked with eight or more rounds.

The Model 92 and other "nines" helped to even the playing field for the patrol officer facing a "situation." Nevertheless, aside from the capability of discharging a large number of rounds, I've never totally understood the whole wonder-nine thing. The cartridge was not intended to deliver maximum terminal effectiveness when it was developed around 1906. The reasoning: Kill a soldier and you eliminate one man, but wound a soldier and it takes two more men to get him off the battlefield.

That presumably is why German submachine guns sprayed millions of 9mm slugs during World War II. But I digress.... Beretta USA says the 90-Two "introduces new improvements to form, fit, and function, while maintaining the integrity and reputation of its predecessor, the Model 92/96 Series. The most obvious difference is the single-piece wraparound polymer grip that comes in two sizes (standard and

slim). Not immediately obvious are the internal recoil buffer and captive recoil-spring-guide assembly.

Field Stripping The chamber is empty, the magazine is on the bench, and the decocking lever is in its downward position. If you value your eyesight, you'll wear safety glasses, because the 90-Two contains springs, and these springs are like airplanes't hey can fly. Assuming the gun belongs to a right-handed shooter, press inward on the disassembly latch (#18) on the right side of the frame.

Keep pressing and rotate the disassembly lever (#14) on the left side of the frame downward about 90 degrees in a clockwise direction. Pull the slide/barrel assembly forward, remove it from the frame, and invert the slide. Slightly compress the recoil spring (#40) and guide rod (#37) into the guide-rod tunnel at the front of the slide. Lift up and

DISASSEMBLY AND REASSEMBLY OF THE BERETTA 90-TWO CONTINUED

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remove the recoil assembly to the rear. Depress the locking-block plunger (#36) into the locking block (#34) to free the barrel (#33), which is taken out with the locking block still attached. I hope this is as far as your customer has ever gone in taking down his 90-Two, but that hope is probably in vain. The result of the additional effort will one day be presented to you in a plastic bag, as the customer says sheepishly: "I thought it was the same as a Model 92/96." "No problem," you say.

And you can give him a big smile, for you're about to learn exactly how the 90-Two should be dismantled and how it's reassembled (which, basically, is in reverse order). Just remember that the slide is taken down from an upside-down position, with you working from muzzle to rear, while the frame is approached from its rear to the muzzle. Some special tricks and tools will be noted as I walk you through the process.

Detailed Disassembly The first items to be removed from the slide are the extractor (#56) and extractor spring (#55). This is not

done like it's done with the Model 92. The latter employs a headed pin staked in at the top of the slide, while the Model 90-Two uses an extractor pin (#57) that's knurled at its upper end and is driven in. Go at it from the underside of the slide, and control the extractor against any pressure from its spring. Set the removed parts safely aside.

If you don't already have one, I recommend purchasing a magnetic parts tray (from Brownells); you'll be using it a great deal. Next to be worked on is the righthand safety (#51). It's retained by a pin (#52) connecting it to the lefthand safety (#44). Position the safety so the red dot shows. Rotate the right safety wing to see the pin and drive it out. Be careful before taking the wing off the pistol. The triggerbar detent (#50) and spring (#46) will shoot out if not controlled.

A plastic bag can prevent the escape of these small parts. Note that part #46 shows up twice on the schematic—once for the firing-pin block spring and again for the spring housed in the right safety wing. If they do, you're likely to receive the gun in a plastic bag. The

left-hand safety (#44) has a hole in its middle like the one on the Model 92/96. But it's a hole with a difference.

In the 90-Two, the firingpin plunger (#49) passes through this hole and you can't pull out the left safety while the plunger is in the slide. Place a finger over the firing-pin assembly hole at the rear of the slide. Push down on the firing-pin block (#45) and rotate the left safety until you feel the firing-pin plunger bump against your finger. Then you can pull the plunger out and pull the left safety from the slide. Removal of the firing-pin block and its spring mirrors the method used with the 92/96.

Push down on the block, rotate the firing pin to "block the block" (as the factory "smiths say"), then lift out the block and its spring followed by the firing-pin assembly (#47 and 48).

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There's no difference between the 92/ 96 and the 90-Two regarding takedown of the barrel assembly. Drift out the locking-block roll pin (#35), then separate the block and plunger from the barrel. And that's it for the slide group. So far, you've been working front to back. With the frame, you'll go from back to front. Before doing anything else, look down into the frame just aft of the trigger itself.

Take plenty of time to study how one leg of the trigger spring (#10) curves up against the cross piece in the upper trigger, and note how its other end rests on a frame "shelf" in front of the trigger. The grip (#32) on the 90-Two is a single piece. It's held to the grip frame by the grip-unit pin (#2). This pin is drifted left to right but only drift it partially at first. You want to nudge it just enough so you can swing the unit clear of the metal.

After that, place the bottom of the magazine well over your bench't he closer the better. Why so close? The instant the grip pin clears them, the hammer-strut cap (#31) and hammer spring (#30) are going to propel themselves out of the grip frame like crazed hornets.

Set 1 Frame (receiver) 2 Grip Unit Pin 3 Magazine Button 4 Bushing, Magazine Release Button Spring 5 Magazine Catch Spring 6 Bushing, Magazine Release Button Spring 7 Hammer Pin 8 Hammer Release Lever Pin 9 Trigger 10 Trigger Spring 11 Trigger Pin 12 Slide Stop Spring 13 Slide Stop Lever 14 Disassembly Lever 15 Rail Cover 16 Buffer Block 17 Disassembly Spring 18 Disassembly Button 19 Hammer Release Lever 20 Firing Pin Block Lever 21 Trigger Bar Spring 22 Trigger Bar 23 Ejector Pin 24 Ejector 25 Hammer 26 Sear 27 Sear Pin 28 Sear Spring 29 Hammer Strut 30 Hammer Spring 31 Grip Unit 32 Grip 33 Barrel 34 Locking Block 35 Locking Block Plunger Pin 36 Locking Block Plunger 37 Recoil Spring Guide 38 Recoil Spring Guide Cap 39 Recoil Spring Guide Washer 40 Recoil Spring 41 Recoil Spring Ass'y (complete) 42 Safety Plunger Beretta 90-Two Semi-Auto Pistol (Specifications subject to change without notice) 43 Safety Plunger Spring 44 Safety 45 Firing Pin Block 46 Firing Pin Block Spring 47 Firing Pin Spring 48 Firing Pin 49 Firing Pin Plunger 50 Trigger Bar Detent 51 Safety Wing R/H 52 R/H Safety Wing Pin 53 Rear Sight 54 Universal Pin, Long 55 Extractor Spring 56 Extractor 57 Extractor Pin 58 Front Sight 59 Slide Assembly 65 Magazine

DISASSEMBLY AND REASSEMBLY OF THE BERETTA 90-TWO CONTINUED

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The ejector is located on the opposite side of these two components. All these pieces aside, lift up on the rail cover (#15), and slide it out to the front. Forward of the trigger on the frame is the pistol's disassembly lever. Press in on its opposite side (the disassembly button) and grasp the protruding end of the lever with smooth-jaw pliers. Turn the lever to release the tension from the disassembly spring (#17), then rotate the lever further to free it from the button. Then remove the lever.

When the lever, button, and spring are gone, move the buffer block (#16) to the front and out of the frame. You can't miss the block. It's a brand new and very blue component of the 90-Two. Study the relationships of the slide stop (#13) and its spring (#12) to each other and to the frame prior to removing them and moving on to the trigger bar (#22). The 90-Two bar has had a thin slot machined into its upper edge. The trigger spring (#21) fits into that slot and helps prevent lateral wobble of the bar.

These two parts require some finesse in removal. A small hooked tool is needed to lift the front of the spring from the slot and

gently tug it toward the muzzle end of the frame. Keep the spring hooked and A B this objective, recognize that the spring has a rather long neck. Don't bend it. Once the trigger bar has been removed, the spring can join it, but be aware of the possibility of damaging that long neck.

Because you've had a look at them previously, you may want to drift out the trigger pin (#11) right to left in small increments so you can study the positions of the trigger spring (#10) and trigger (#9) again. Once you're certain you're clear on their relationship, push the pin clear of the frame. The spring, being quite small, is a prime candidate for the magnetic parts tray. The ejector (#24) is retained by two pins. One (#23) is a roll pin. The other (#8) is solid.

Both drift right to left and secure important move the bar toward the right side of the frame (as viewed from above) with a second small tool. The objective here is to clear the spring from the bar and then push the front end of the spring downward and remove the bar. After reaching parts to the back end of the frame. Among the parts held in by pin #8 are the hammer-release

bar (#19), firingpin block lever (#20), and the ejector itself. Part #23 has to be drifted out first.

Afterwards, you can do the same with #8 and lift out the parts it's been retaining. Now drift out the hammer pin (#7) right to left. The hammer (#25) and hammer strut (#29) remain united and are taken out from the top side of the frame. The sear pin (#27) can be drifted in either direction, but focus on how the sear spring (#28) and sear (#26) relate to each another before pulling out your drift punch.

You'll probably have to observe this by placing the butt end of the pistol on your bench and shining a bore light or small flashlight on the two components. Finally, we come to the magazine catch (#3). If the pistol is set up for a right-handed shooter, the release button will extend from the left side of the frame. It would extend from the right side for a left-hander. Either way, push in from the opposite side of the button a curved pair of tweezers with (continued on page 16)

DISASSEMBLY AND REASSEMBLY OF THE BERETTA 90-TWO CONTINUED

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dulled down ends will help if you have short fingernails't hen move that same side toward the magazine well until the catch assembly is free to drop out. The catch assembly of the 90-Two is taken out, put back in, and reversed exactly the same way as it is in a 92/ 96. But if it ain't broke, don't fix it. Reassembly Tips As I mentioned earlier, reassembly basically proceeds in the reverse order of the above, but here are a few tips that will help in the process: Sear/Sear Spring.

Place the frame on your bench with the muzzle upwards. Use pin #27 as a slave. The spring fits in a milled track on the sear. Preassemble the spring and sear. The slave will help keep the sear in place. From the hammer side, push down on the two parts with a punch to align them, and then push the pin through. Ejector, Hammer-Release Lever, and Firing-Pin Block Lever.

Make certain the long arm of the firing-pin block lever points toward the muzzle and that the hump on the hammer-release lever is positioned toward the hammer

(see photo). Start pin #8 in from the left. Capture the hammer lever, the block lever, and the front hole of the ejector in that order. Reinstall roll pin #23 in the rear hole of the ejector. Firing-Pin Block/Firing-Pin Assembly. With the slide upside down on the bench, install the firing-pin block and its spring. Preassemble the firingpin assembly.

Depress the block, use tweezers to guide the assembly into the block, and rotate the assembly to ensure it has been captured. When the extractor, its spring, and its pin are installed, the pin should ride in a firing-pin assembly "flat" to secure it in the slide after pressure is taken off the firing-pin block. Take care not to damage the firing-pin assembly when inserting the pin. Safeties. Start the left-hand safety in from the left side just enough to allow insertion of the firing-pin plunger.

Rotate the safety to tension the plunger, continue in the reverse order of the disassembly instructions, and then reinstall the right-hand safety.

METALWORKING

Working with Springs

Understanding the role of the springs is crucial to understanding how a given firearm was designed to function and why it doesn't when it malfunctions.

BY DENNIS A. WOOD SEPTEMBER 2007

ORIGINAL PP. 7-9

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Springs are probably the parts most often neglected in a firearm. Other parts that are worn out are usually obvious once we get inside a firearm, but springs don't always show visual signs of wear even when they're getting close to the point of failure. In this article, I'll cover some of the signs to look for in order to prevent the failure of a spring when a firearm is needed most.

The purpose of a spring is to absorb energy, store it, and then release that energy to perform a desired function during a specific process. The springs most commonly seen in firearms are one of three types: the flat, the compression (coil), and the torsion (mousetrap) spring. Flat Springs Flat-style springs were first used almost exclusively on firearms during the flintlock and percussion eras. Even today, there are some applications where a flat-style spring is still the best choice.

When parts need to interact in an area that's especially tight and a sturdy force is required to make the parts work together, a short, stiff, flat spring would most likely be the designer's choice. You'll see flat springs used in most antique muzzleloader ignition systems. The lockwork will usually have two flat springs: one for the hammer and one for the trigger.

You have to admire the gunsmiths of those times, since making a flat spring requires skill in the handwork along with the knowledge of how to harden and temper a spring so it will work correctly. With today's labor rates, some of these springs could run \$50 or more if a replacement had to be made from scratch, considering the time involved. If you work with old muzzleloaders, you probably already have a copy of the Dixie Gun Works catalog.

If you anticipate working on older muzzleloaders, the \$5 price of this catalog is a bargain for all the knowledge you'll find inside. Dixie's replacement flat springs are a bargain considering the time and effort it would take you to make one. If they don't have exactly what you need, you might find a spring they offer that can be adapted to your specific need.

Magazine followers in most bolt-action rifles with integral box-style magazines use a W-shaped flat spring to force the ammunition upward so the bolt can send around into the chamber. Remarkably, I have seen some magazine-follower springs that were pulled out of Mauser 98 rifles manufactured in the early 1930s that still had enough strength to get the job done.

Nevertheless, whenever one of my customers wants to discuss the sporterizing of a military rifle, I suggest the replacement of these springs. In this photo, "H" is a flat

hammer spring and "T" is a flat trigger spring, as a precautionary procedure. The current Brownells catalog lists replacement magazine-follower springs that will work for almost all the military Mausers we're likely to encounter.

And in a pinch, springs made for the Remington Model 700 and Winchester Model 70 can be easily substituted with very little alteration. Now that cowboy-action shooting is one of the hot new games in town, we're seeing more and more single-action-type revolvers in need of a tune-up. All of the Colt Single Action Army revolvers and most all of its clones use some type of flat spring in their lockwork.

Replacements can be obtained from Wolff Gunsprings (another good catalog to have) and there's quite an array of single-action-revolver springs in the Brownells catalog. Compression Springs These days, most good compression or coil springs are made of piano wire (ASTM A228) and the processes used to manufacture them have evolved to the point where it's possible to create an almost perfect product at a very reasonable cost.

Still, because of the excellent performance produced from these modern methods and materials, complacency can create a false sense of security; springs don't last forever. Corrosion, especially where pitting is

WORKING WITH SPRINGS CONTINUED

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taking place, will weaken the base metal of a spring. Pitting results in stress being distributed unevenly, making a spring weaker and more prone to failure. The compression spring is the most common type used in modern firearms. They're used for firing-pin and action-return springs, as well as for striker springs. In a bolt-action rifle, the striker spring stores energy when the striker is held back until the trigger releases the striker to ignite the primer.

All compression-type springs will develop a "set" over time. Thus, if a firearm is stored with the hammer or striker in the cocked position for an extended period of time, the spring may not have enough strength to get the job done. What this means is that a compression spring will shorten up much more when under a prolonged, sustained, load unless the tension is relieved using a "snap-cap" of some sort. When the "snap" of the hammer or striker turns into along drawn-out click, it's time to change that spring.

The Government Model 1911 pistol and relatively all copies use a compression spring to work the slide during the firing sequence. Wolff makes compression springs for 1911style pistols with a bit of extra length built into the spring to account for the set that will eventually occur.

When In this case, it will be replaced with anew Wolff spring for positive ignition. the set gets shorter than the working limit of the

spring's length, you'll notice that the pistol is not ejecting empties as well as it once did or the slide doesn't return with quite as much oomph when chambering another round. There are quite a few different weight ratings for recoil springs for 1911-style pistols, because there are so many variations in ammunition that can be fed through one of these guns.

A recoil spring made to withstand the energy from a 230-grain hardball must be substantially stronger than the spring needed for 185grain lead target load. Therefore, the springs should be changed accordingly. All semi-auto pistol magazines will benefit from having extra-power springs installed to ensure feeding. This is especially true for pistols used in self-defense and law-enforcement applications, where magazines are stored full of ammunition for extended periods of time.

Semi-automatic centerfire hunting rifles depend on a compression spring to work the action during the firing sequence. Most of these rifles have areas along the barrel channel where rain or snow can get into the barrel channel and rust the coils of the action spring. Whenever one of these rifles appears in your shop for maintenance, a thorough inspection of this spring should be part of your routine. Spring service packs are available that are quite handy when you need to replace a missing or worn-out spring.

When replacing a worn-out spring, it's a simple matter to measure the wire diameter with your caliper and then measure the inside and outside diameters of the old spring to determine what will be needed from one of the service packs. If you need to shorten the length of a replacement spring, it's important to observe how that spring is placed in the firearm. Leaving a clipped end unfinished is not a good practice if the spring needs to stand up or lay straight when it's in position to do its job.

Some judicious grinding using a stationary belt sander to square up the clipped end is a good idea in most cases. But don't get the spring so hot that it loses its temper. A factory-provided spring should never have coils clipped off to lighten trigger pull; this is just begging for trouble in the form of ignition failure. It makes little difference whether the spring has a rightor left-hand helix when a single spring is used alone.

In those instances where a spring will need to work inside another spring, like those that work the action bar inside the Model 100 Winchester or the recoil spring inside the Colt Officer's Model, the outer spring should have a right-hand helix and the inner spring should have a lefthand helix (or vice-versa) so the coils don't get tangled up with one another

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and impede the action they were designed to perform. The same idea applies for a spring that needs to work over a threaded rod. The spring should be the opposite helix (turn) of the thread. Torsion Springs The torsion-style spring is seen mainly on triggers and hammers, where one leg of the spring is fixed in a stationary position, while the other leg transfers the force held in the spring coils to create movement of the hammer or trigger.

Most often, there is a pin going through the coils to hold the spring in position. The pin must not be a close fit to the inside diameter of the spring coils, because the diameter of the coils is somewhat reduced while under tension. This could cause binding on the pin's outside diameter and restrict its intended purpose. It's very important to install a torsion spring so that it works in the direction in which the coils of the spring are wound.

I have seen these springs installed backward after a gunowner has taken a firearm apart for cleaning. Failures of function due

to this errant installation are common. Disk-Type Springs We don't see disk-style springs used very often on firearms, with the one exception being the wave-style set of three constant-force springs used to maintain the handguard in position on AR-15-type rifles. There are several styles of disk springs. One type I use on occasion is known as the Belleville disk spring.

Occasionally you'll encounter an older firearm where the fit between parts isn't quite what it was when it was newer. There may be some side play with a hammer or trigger, for example. This is where one of the various types of spring-disk washers can save the day. Sliding a Belleville () spring washer over a pin and up against apart that has side-to-side play will usually eliminate the side play while allowing the parts to interact freely.

Belleville washers are convex, with a slight bevel from the outside toward the inside. These spring washers are used under the head of a fastener to create a slight pressure that acts to keep the fastener from

loosening due to vibration. This style of spring washer can be stacked, one on top of the other, to take up an unwanted gap. In many cases, this is simpler and more expedient than trying to make up a spacer to restore the alignment between two parts.

Conclusions To better understand the workings of any firearm, we need to know how the springs inside that firearm were intended to work. Only then can we restore proper functioning when something's not working as it should. Springs do wear out. Moreover, they get weak from being compressed for extended periods of time. They can break due to rust and pitting. And they sometimes get rubbed thin just from doing their job.

When you find a spring that exhibits visible or mechanical signs of wear in a malfunctioning firearm, it's probably the first part that should be replaced.

FROM THE ARCHIVE

Stocking the Rare Stahl Martin

Creating a new stock for this high-end antique rifle called for the use of some Old World craftsmanship combined with some modern machinery.

BY DOMINIC PISANO SEPTEMBER 2007

ORIGINAL PP. 10-13

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The voice at the other end of the line said: "I saw a photo of one site Wo mine? I responded that, yes, I would, but first I had a few questions for the caller. The first thing I wanted to know was which Martini was it, and what was the nature of the work in question? The caller said it was a "large Martini," and I immediately thought it was one of those made in the tens of thousands for the British army during the halcyon days of the Empire.

When I asked, he said: "Yes, sort of, but it has a funny-looking curved trigger guard, double-set triggers, and is fully engraved." My interest perked up to anew level, because I knew he was describing one of the Martinis made in Germany and Austria by a myriad of craftsmen during the later part of the 19th and early 20th centuries. Though I had custom stocked many Martinis'from the Cadet to the large military Martinis and everything in between'I had never had an opportunity to work on one of these Martinis.

In fact, I had only actually seen and held one of these Martinis once in my career. This represented anew challenge. After ask-

ing more questions, I learned that my new client had purchased the action many years before and had recently had a 32-inch par-tactagon Badger barrel fitted to it. It was chambered in .40-65. That should have rung a bell with me, but it didn't until later on in the project.

The barreled action arrived a few days later, and I began the research I always do before making a stock for something with which I'm unfamiliar. I reviewed John Grant's Single Shot Rifles, along with Frank De Haas' book of the same name. After reviewing these and everything else I could find on the subject, I concluded that I was dealing with a System Stahl action.

Since we see so few of these rifles, I think it's prudent to quote what Grant has to say about it: The single shot was...the result of several different patents which were first issued in the United States. It is slightly ironic, however, that this type of action reached its greatest development in continental Europe. There were so many conversions and perversions on the Peabody-Martini ac-

tion made in Germany, Switzerland, and Austria that it is impossible to show them all.

The Stahl Martini is perhaps the best known of these various systems. It featured a demountable lower tang and quickly removable breechblock.... The set triggers as used on the Martini actions of German and Swiss make are the finest set triggers I have ever used. They show thought and workmanship of a high order. These, like so many of the actions, barrels, etc., were largely handmade, and so are beautifully finished on all parts, and show a great variety of systems used.

I next sent a sketch, developed from photos in the John Grant book, to the client, along with several photos of stock blanks. The photos and sketch were returned a few days later. The client said the sketch I prepared had too much drop and he asked if I could accommodate a higher nose-to-heel stock line. Upon getting his instructions to decrease the drop significantly, the thought occurred to me that he was probably a silhouette shooter. The choice of the .40-65 cartridge

STOCKING THE RARE STAHL MARTIN CONTINUED

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Right and far The softwood pattern is then duplicated in the hardwood blank chosen for the finished stock. reinforced that thinking. With that I recalled having read that the big Stahl Martini was not designed for heavy-recoil cartridges, as the full thrust of recoil was borne by the breechblock lever pin. I immediately placed a call to the client and reported this to him. He said he was not a silhouette shooter; he just wanted the rifle for plinking with light loads and to hang on the wall of his den.

I instructed him that, should the rifle ever change hands for any reason, he was obligated to tell the new owner that the action should be limited to the use of light loads—with the emphasis on light! Once we agreed on the action's limitations, I set about designing a stock that met the client's requirements and yet still had an authentic Germanic appearance. I prepared a few more sketches, and when I had one that seemed to fill the bill, I sent it off for review and approval.

This time, the customer said it was exactly what he had in mind. Once the design had been approved, I started on the softwood pattern, which would eventually be duplicated in the hardwood the customer had chosen. I transferred the sketch to two pieces of poplar glued together, giving me a thickness of 1-1/2 inches. I then glued on a third piece of poplar roughly shaped like the proposed cheek piece. I cut out the profile on the band saw and the serious fitting began.

Once I had the very rough pattern fitted to the frame using epoxy to get an exact fit, I added the steel buttplate to give me the outline for shaping the heel/toe line. I then began shaping the body of the stock using Bondo and epoxy to get the shape just right. I try to make the pattern as exact as I can, because I've learned through experience that the more exact the pattern is, the easier the machined stock is to fit, thus saving valuable time.

One of the things I immediately noticed when I began the task of inletting the buttstock was the peculiar. Since the Martini's forend incorporated some complex curves, the author made a pattern of it as well, which was later duplicated in hardwood. (continued on page 22) method of attaching it to the action. Two screws were inserted through the top tang.

There's nothing unusual there, of course, but instead of finding a similar attachment on the bottom tang (trigger plate), there was an unusual locking arrangement with a baseplate installed into the bottom of the stock. To this, an engagement spur was attached by rotating a lever located on the lower tang 180 degrees. I'm still wondering how or why anyone could come up with such a complicated arrangement.

The base plate was missing, incidentally, and I had to make one and then fit it perfectly so the contraption would work. I've seen evidence of over-engineering by German gunmakers before, especially

STOCKING THE RARE STAHL MARTIN CONTINUED

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with shotguns and shotgun/rifle combinations, and this was yet another good example of such. While I usually make the forend directly in hardwood, in this case, I made a pattern of it as well, because the front of the frame where the forend butts up was a series of compound curves that would be difficult to fit.

Once the patterns for the buttstock and forend were finished, I shipped them off to my old friend of Shulin Stock Works to be duplicated in the client's choice of wood was a very unusual looking piece of English walnut. When the machined parts were returned to me, I knew that the customer had made an excellent choice. This stock was going to be a real eyecatcher. Even though I used

epoxy to get an exact fit on the forend pattern, it still took me more than two hours of fitting to perfectly inlet the machined forend.

With that finished, I completed the shaping of the final walnut parts using the usual array of rasps and files, and then I sanded everything silky smooth. Following that, I finished the stock using a 50-50 combination of Tru Oil and mineral spirits. The stock was then checked and waxed several times, using Johnson's Paste Wax, giving the finished wood a wonderful sheen. Turned to the customer, he reported that he was more than pleased with the outcome. When the completed rifle was re-

GRINDING

Build a Recoil-Pad Grinding and Fitting System

This do-it-yourself pad-grinding system is adjustable for a precise fit, and virtually eliminates the problem of the associated airborne dust and dirt.

BY GENE BELL SEPTEMBER 2007

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Whenever possible, I try to build the tools and fixtures I use in the gunsmithing trade, and I often find myself dreaming up a tool to make a particular job easier or more precise. One of my favorite homemade tools is used for a job we're frequently asked to do: installing a recoil pad on a rifle or shotgun. All of the materials used in my recoil-pad fitting and grinding system (see Figure 1) are readily available at almost any hardware store or home center.

The mounting base of the pad-grinding fixture (Figure 1, Detail B) is cut from 1/4- x 1-inch flat bar, with holes drilled and tapped as needed to fit your particular pad. The toe of the base is rather small to give clearance on very small pads. The two brackets (Figure 1, Detail C) are cut from 1/8- x 1-inch steel. The bottom of the brackets are sloped upward to give clearance on small pads. Don't weld the brackets on at this time.

Also note that you should avoid using galvanized steel where welding is required, because of the toxic fumes. The upper and lower barrels shown in Figure 1 are cut from 1/4-inch blackiron pipe, and are welded to the two 1/4-inch barrel ends that are sandwiched between the base brackets. A 17/64-inch clearance hole is drilled near the end of the upper and lower barrels for the Allen-head lock-screw assembly. The back of three 1/4-inch nuts are "fish-mouthed" so they will lie flat against the side of the barrels.

The lock screws are coated with an anti-seize compound and are installed in the nuts so they protrude through the nuts and into the clearance holes. The nuts only need to be tack welded on each side. After the welding, the two barrels are chucked in the lathe and drilled to their full length with a 3/8-inch extension bit. At this time, align the two side brackets for the mounting base, and drill with a #21 bit and tap with 10/32 tap.

The near bracket should be opened up with a #10 drill for clearance and countersunk for the 10/32 flat-head bolt. The brackets are assembled with the bolts and the barrels and clamped into position, and then tack welded to the mounting base, taking care to get the base at a right angle to the barrels. Chuck the upper 3/8-inch extension rod in the lathe and drill and tap for 10/32. The lower extension rod has a flat section of 1/4-inch material welded to the end and is drilled with a 1/4-inch bit.

The adjusting rider for the upper and lower rods is made from a short section of 1/4-inch pipe with the nut welded as before. Two sections of steel are cut out and match drilled and bolted together with a 1/4-inch bolt and are welded to the 1/4-inch pipe. I was lucky to find a 1/2-inch ball with a 10/32 screw already mounted to it, but one can be made by welding two nuts together and shaping the bottom contour in the shape of a ball. You might have to chuck the upper



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shaped pieces. Purchase a 2-1/2-inch shop-vac hose adapter to be installed in the bottom of the funnel. Mix up a batch of Bondo and put a generous amount around the adapter to form a dition and to true the face. I made two plates so I wouldn't have to remove the sanding disks. I use Brownells 8-1/2inch pressuresensitive disks in 60 grit and 220 grit. and lower extension rods in a lathe and reduce the OD slightly to get them to slide freely in the barrels.

I built the pedestal grinder shown in the photo many years ago, so for this project I only had to adapt the accessories for recoil-pad fitting to it. The steel for the face plates (see Figure 2) is 1/2-inch sheet from the scrap yard, flame cut 3/8 inch oversize, ground down to the approximate size, and final turned in the lathe. (Flamecut steel is death to lathe tools). Find the center of the faceplate and drill a pilot hole and then enlarge it to the size you're going to use for the arbor.

Cut a section of 1-1/2-inch round stock slightly longer than needed and face both ends. Then center drill, pilot drill, and drill to the final dimension. Turn a 45-degree bevel on the end to be welded to the face plate. Drill and tap the hub for an Allen screw to lock the hub to the arbor. Before welding, insert a tight-fitting rod through the hub and faceplate to Recoil Pad Grinding Fixture Figure 1. align the two holes, then clamp and weld.

I removed the arbor and mounted the faceplate in it and turned the OD, then faced both the front and the back to avoid an out-of-balance con- Figure 2. For the vacuum funnel (Figure 3), you can use aluminum flashing or sheetmetal from a heating and air conditioning shop, bent up to form two U- Figure 3.

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seal. The two U-shaped pieces are coated where they overlap with tub & tile sealer and squeezed around the adapter and clamped at the top on each side and clamped around the shop-vac adapter. You'll have to work quickly and mix the Bondo up last because it sets up very quickly. Fasten both of the sides of the funnel by drilling and "pop" riveting the overlap and also around the shop-vac adapter. A hinge is mounted on the right side (back) and a hood is formed to cover the top of the assembly.

I found this necessary to contain some of the grinding dust that gets slung off the top of the faceplate. The Simms Limbsaver pads seem to be the worst offenders. Notice the dotted lines in the center of the funnel (Figure 3). This a bracket welded on to the grinder to mount the funnel. Two 1/4-inch bolts protrude through from the back side of the bracket (top and bottom) and act as locator pins that match up with two holes in the back of the funnel. The unit is held in place by along weak spring.

This funnel does such a good job that almost no cleanup is required after the job is completed, and a dust mask is not really necessary, although I still wear

one when I use the fixture. What I call the "overarm fixture" is shown in Figure 4. The base under the socket is cut from a 1/4-inch section of steel. The socket is welded to it and a 1/4-20 nut is welded near the top as per previous instructions. A 1/4-inch bolt with a "crank" handle welded to it completes the assembly.

The upright bracket has a section of 1-1/4-inch pipe welded at the top with a 1/4-inch nut and clamp bolt inserted. The overarm has a section of steel, 1/8 x 1 x 2 inches, welded to the bottom of the overarm and a 5/8-inch nut welded to the end. A slot is cut in the nut to allow the grinding-fixture ball to slip into it. The 1/8-inch steel under the nut is drilled and countersunk to allow the grinding fixture to be free to pivot and turn in any direction. Figure 4.

This project does require a bit of work, but it can be constructed over a period of time as your schedule permits. You'll find the ease and precision of this system is well worth the time spent constructing it, and the cleanliness of the system is an added bonus. In a future article, I'll demonstrate fitting and installing a pad on a shortened synthetic stock. I

MAINTENANCE & REPAIR

Increase Your Per-Gun Income

There are many ways to increase your income. First and foremost, however, you have to establish a minimum price and profit for even the smallest jobs.

BY ARTHUR J. HUNT SEPTEMBER 2007

ORIGINAL PP. 17

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We've already talked a bit about establishing a fair minimum price per job and sticking to it so that you get paid, even for small jobs. This adds up to quite a bit over a year. A job may call for just a screw, but you have to take the gun apart and spend time finding a replacement screw, so you have to charge for it. If you have to make the screw, the job could run even more than your minimum.

Speaking of screws, keep in mind that a gun screw is usually different in shape and thread from anything that's available in the hardware store. It's far more profitable for you to step up to the lathe and turn one out than it is for you to reach into your "assorted-screw bin" and go searching for one. The customer will feel like he got his money's worth if you had to make it; and you'll take in more money to help offset the cost of dies, steel, bluing solution, and most importantly, time.

Few of us employ a "bean counter" to keep track of the money taken in for items produced on the lathe. But due to the high cost of the machinery, it stands to reason that the more you use it and charge for it, the better the return on your investment in

equipment will be. If you make apart that requires the use of a mill, you can charge more than you would for lathe work.

The setup time required to make the first cut on a mill is longer than on a lathe, and fashioning the part will probably require cutting away a lot of excess metal. And the part will still require some hand fitting, so such apart becomes expensive. If that is what your customer wants great but don't do it cheaply. The average machine shop would charge more than you do for doing the same job, and they probably wouldn't understand what the part is and how it has to work. Your knowledge is worth money.

Restoration jobs often require more machine work and shop time than the typical repair. Take these jobs if you have the right combinations of ability and equipment, but take them only if you can do the work profitably. Personally, I like making parts. I think it's the artist in me that wants to take a piece of metal and create apart that can't be purchased anywhere.

But I don't want to be a "starving artist." So make all the parts you can, within reason, and you'll get more money for them.

Your customer will think you're a real wizard—which you are—and your credibility will be enhanced. Your customer will tell his friends how great you are, and you can't put a price on the value of word-of-mouth advertising. Of course, when I say to make as many parts as you can, I'm referring mostly to obsolete parts.

You usually can't charge more to make a currently available part than a new one would cost unless your customer is in a big hurry. In this case, the extra cost to make the part may be acceptable to him. It doesn't hurt to say to your customer: "I can order the part and have it in a few weeks, or I can make one here and have the gun back to you in a few days." You might just find that your customer is willing to pay extra for a fast turnaround.

Finally, I can't stress enough that, although steel and most gun parts are fairly cheap, your knowledge and your equipment have come at a relatively high price. You need to charge enough on every job to get a fair return on your investment in yourself. I

PEOPLE & COMPANIES

Working the Remington Rolling Block Rifle

Produced in staggering numbers, the Remington Rolling Block is one of the most popular and easily recognized of the 19th-century single-shot rifle designs.

BY DAVID CHICOINE STILL SEPTEMBER 2007

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Considered beautiful for its sheer simplicity, the Remington Rolling Block rifle was produced in many forms from 1864 up to as late as around 1934. The highly successful design was probably best known for its minimal number of parts and its resultant reliability. The rolling-block action was manufactured as a rifle, carbine, shotgun, and even a single-shot pistol, in military as well as sporting configurations.

Accurate production records no longer exist, and the exact quantities of Rolling Block rifles Remington manufactured are not known. It's safe to say, however, that the numbers are substantial. My sources tell me, in military rifles and carbines alone, more than a million were manufactured between 1867 and 1902. Also impressive is the list of countries that bought the rifle.

Remington literally covered the globe with Rolling Block rifles, shipping the Rolling Block to a list that includes Argentina, Chile, China, Columbia, Cuba, Denmark, Egypt, France, Honduras, Mexico, Norway, Spain, Sweden, as well as the United States, of course. Throughout its long life,

Remington's ever-faithful Rolling Block has been chambered for virtually every known blackpowder cartridge.

In its latter days, the action was even offered for the Spanish Army chambered in an early version of the smokeless 7x57mm Mauser cartridge (called the No. 5 Action) and for the French in 8mm Lebel. In the rolling-block action, a massive hammer rolls down in front of the breechblock, serving to effectively lock the breechblock closed. The design was originally patented by Leonard Geiger in 1863.

Later, Joseph Rider, well known as the genius of Remington's Ilion, New York, factory, took Geiger's action and improved it, developing the split-breech carbine. Geiger and Rider then worked together to perfect the design into the Remington Rolling Block in 1866. Additional improvements were incorporated in August 1867 and in November 1871. To help with identification, there are seven basic rolling-block frame sizes, numbered 1 through 7.

Key features include: Top of page: Remington's famous Rolling Block was most plentiful in its military form, with

likely more than 1,000,000 manufactured by Remington alone. The rifle shown here, an 1871 U. S. Army model in 50-70 caliber, was built by Springfield Armory. Author photos. No. 1 Action. This is the largest rolling block action, measuring 1-1/4 inches wide. It was intended for military use and for the largest, most powerful cartridges.

This action was also used on what was known as the Model No. 1 (a rifle chambered for pistol-size cartridges). No. 2 Action. This 1-1/8-inch-wide action was used for smaller, less powerful and pistol-size cartridges. It can be identified by the curved contour at the rear, where the action joins to the stock. No. 3 Action. This is not actually a rolling block, but is rather a "falling block," known as the Remington-Hepburn action. No. 4 Action. This short, lightweight action was used for rimfire cartridges.

The forward end is much narrower than the larger actions. No. 5 Action. The No. 5 action is the same size as the No. 1 action. It was the last of the large military rolling-block actions made starting in 1898

WORKING THE REMINGTON ROLLING BLOCK RIFLE CONTINUED

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S. Army 50 caliber has a decocker to move the hammer into a "safe" position when the breechblock is closed. Notice that the firing pin in this model (U. S. Army M1871) is held in place by a screw. for use with smokeless-powder cartridges. It was equipped with a rimless cartridge-case extractor. No. 6 Action. This action was used for a boy's takedown rifle of small dimensions in rimfire calibers. No. 7 Action. Made on the Model 1871 SS pistol-action frame, the No. 7 has a distinctive long-tang pistol-grip stock.

For further background information on the Rolling Block rifles, I suggest reading Remington Firearms: The Golden Age of

Collecting, by Robert Ball (Krause Publications, 1995). Also of interest are Remington, America's Oldest Gunmaker by Roy Marcot (Primedia, 1998) and Remington Arms & History by Bill West (Stockton Trade Press, 1970).

Takedown Instructions The exploded diagram on page 21, which I have renumbered and re-touched, was originally printed in The Gun Digest Book of Exploded This leaves the action stripped. The one remaining pin in the action shown here is a limiting pin for the mainspring, a feature unique to the U. S.

Army Model 1871. Firearms Drawings, 2nd edition, edited by Harold A. Murtz (DBI Books Inc., 1977).

It is used here with permission of Krause Publications, Iola, WI 54990; The reply to most large-frame Remington Rolling Block rifles and copies thereof, except for the Model 1869 U. S. Navy rifle. I should point out here that the accompanying photos show the U. S. Army Model 1871 Rolling Block rifle made by Springfield Armory. It has several parts that are not found on most of the conventional Remington-made Rolling Block actions. "

WORKING THE REMINGTON ROLLING BLOCK RIFLE CONTINUED

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Remington Rolling Block Single-Shot Rifle 1 Receiver 2 Barrel 3 Rear Sight 4 Recoil Stud 5 Recoil Stud Screw 6 Ramrod Stop 7 Tang Screw 8 Front Guard Plate Screw 9 Rear Guard Plate Screw 10 Hammer 1. Let's start by making sure the rifle is unloaded. Keeping your fingers away from the trigger and holding the rifle around the barrel and forearm with one hand, point the muzzle in a safe direction.

Open the action by pulling the hammer all the way to the rear, and then pulling back on the breechblock lever in order to roll the breech until it is open. Look down into the barrel and check to be certain there's no cartridge in the barrel chamber. If there is a cartridge in the chamber, reach in and remove it by pulling the cartridge straight out of the rear of the barrel.

I make a habit of moving any 11 Breechblock 12 Firing Pin Retractor 13 Retractor Pin 14 Extractor 15 Extractor Screw 16 Firing Pin 17 Firing Pin Limit Pin 18 Breech Block Pin 19 Hammer Pin 20 Button live ammunition to a separate location before starting any work. 2. Disassembling the Rolling Block action begins with unscrewing and removing the button screw (#21) and lifting the button (#20) off the left side of the receiver.

Make sure the hammer (#10) is cocked (pulled all the way back), then push the breech-block pin (#18) out of the receiver (#1) from right to left. The breechblock (#11) and the extractor (#14) can be lifted straight up and out the top of the receiver.

Hold back the hammer with your thumb and pull the trigger (#31), 21 Button Screw 22 Guard Plate 23 Mainspring 24 Mainspring Screw 25 Lever Spring 26 Lever Spring Screw 27 Trigger Spring 28 Trigger Spring Screw 29 Locking Lever 30 Locking Lever Screw 31 Trigger 32 Trigger Pin 33 Stock Tip 34 Stock Tip Screw 35 Rear Band 36 Rear Band Screw 37 Middle Band & Screw 38 Front Band 39 Front Band Screw 40 Ramrod thus allowing the hammer to ease forward all the way.

Again moving from right to left, push out and remove the hammer pin (#19). The hammer can now be lifted up and out of the receiver. To disassemble the breechblock, drift the firing-pin retaining pin (#17) out of the breechblock using a suitable pin punch and hammer. The firing pin (#16) is now free and can be pulled out the rear of the breechblock. 3. Next, unscrew and remove the tang screw (#7). The buttstock can be pulled straight off the rear of the rifle. Using

WORKING THE REMINGTON ROLLING BLOCK RIFLE CONTINUED

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an angle-head screwdriver, loosen the mainspring screw (#24) by several turns, then unscrew and remove the front and the rear guard-plate screws (#8 and 9). Now the guard plate (#22) can be pulled down to the rear and taken out of the receiver. The mainspring (#23) can now be removed after removing its screw (#24). Unscrew and remove the triggerspring screw (#28) and the trigger spring (#27) can be lifted out.

After unscrewing and removing the leverspring screw (#26), the lever spring (#25) can be lifted out the front of the guard plate. Use a suitable pin punch and hammer to drive out the Remington's trigger pin (#32). The trigger (#31) itself can now be removed. The locking lever (#29) can be withdrawn from the left side of the

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guard plate after unscrewing and removing the locking-lever screw (#30). Note that, in some cases, the locking lever is secured with a pin instead of a screw. 4.

Finally, remove the forearm wood. On military models, the forearm is removed by first unscrewing and removing the ramrod and then removing the barrel bands. The forearm wood will then drop off the bottom of the barrel. On most sporting carbines and The guard on this Springfield Armory model is somewhat more complex than those produced by Remington. rifles, the forearm is retained by one or more machine screws. These are accessible from the underside of the forearm wood and are threaded into barrel tenons.

Reassembly of the Rolling Block rifle is quite straightforward; simply reverse the order of the above. I

PEOPLE & COMPANIES

Reader Forum

BY AMERICAN GUNSMITH EDITORS SEPTEMBER 2007

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M7400 Extraction Problems First, I love your magazine. I have a Remington Model 7400 in .270. Every few shells, the spent brass ejects about 1/4 inch and seems to swell into the chamber. If you bounce the bolt against the shell, the extractor grabs it and you can tap the bolt handle with a hammer to get the brass out. I've tried numerous brands of bullets and gotten the same result. The gun is clean and I have tried lots of lubricant, bone dry, and everything in between.

I had the same problem with a Model 742 in .243 and never figured it out. Please give me any ideas you have'no one else has ever heard of this. Thank you. You didn't mention the age of the rifle, but there was a design change in the bolt about 30 years ago. (Remington used to retrofit the new bolt in the Model 7400 for a small service charge.) The problem you're experiencing could be the result of poor timing as it relates to primary extraction.

This can be resolved by performing a modification to that part of the gas system located beneath the action bars. Unfortunately, no specifications have been published for this alteration. We suggest you return the rifle to Remington along with a copy of your query to us.

They can do the work and might also change the bolt. The "small" service charge, however, is a thing of the past. Savage 1899 Questions? I have some questions about the Savage Model 1899 in .300 Savage. The gun shows "899" as the model number.

It is a takedown version with a straight stock and slightly curved buttplate. Am I assuming correctly that it's a Model 1899? First question: The area where the model number is struck on the action is worn, so that the last numeral "9" is partially worn off. Is the value of a firearm greater if there is a "flaw" in the model-number stampings, like in coins with flaws? Would the lack of a stamping of the numeral "1" (so it reads 899 not 1899) make it more valuable? Or is there a Model 899?

Next question: The foregrip comes off readily enough, but when the barrel is rotated in the direction depicted on the barrel, the barrel doesn't budge. It may be corroded, and sadly, it looks like someone took a screwdriver and a hammer to the slot in the base of the barrel in an attempt to get it to rotate. Is there something else that must be done to remove the barrel, besides just rotating it? My next step would be penetrating oil and ultrasonic cleaning. Or should I try something else?

According to the Standard Catalog of Firearms (Krause Publications), you most likely have a Model 99-F Lightweight Takedown Rifle. If the stock wears a pistol grip, it's a Model 99-G Delux Takedown Rifle. There is no mention of a Model 899 in the catalog or in the Blue Book of Gun Values. We doubt, in any case, that a "light hit" or "no hit" on the stamping would affect the value of the gun significantly. We're sorry we can't give you a quick fix for the damage to the barrel.

But before you attack it with a barrel vise and receiver wrench, we suggest you contact John Hinnant San Antonio, TX 78269) and seek his advice. Loose Benelli Barrel Thanks for your presence and your support in the past. It's great to know you're out there. Here's my latest problem. I was able to acquire a Benelli M1 Super 90 slug 12-gauge for myself for a price I couldn't believe. It's had a lot of use, but with the 10-shot tube, slug barrel, and black furniture, I was smitten.

I bought it "as is." Now I know why the barrel won't stay put and the action won't cycle with the barrel in place; disassembly gave the answer. The barrel "loop" that slips over the mag tube and secures the barrel has detached itself from the barrel. Now, my question: Both parts are ferrous (steel).

Can I electric "microweld" (with a small rod and low heat) the loop back onto the barrel once I determine exactly where? I anticipate it was soldered on, but the previous owner removed the material and prepared the surfaces, so I don't know. The trouble would be if the barrel is out of line't hese are pretty close tolerances'not to mention that shooting the barrel out of the receiver isn't my idea of a good time. I don't want to solder the loop on, as the strength isn't there for 3-inch 12-gauge.

Can I weld it on if I'm careful and don't ruin the barrel? Silver soldering would require a lot of heat. The loop you describe is a separate, forward sling-support piece that works in partnership with a swivel plate in the buttstock. At least that's how it's identified in the owners' manual for the M1 Super 90. The support slips over the mag tube and is held in place by the magazine cap. It was never attached to the barrel...not by the factory, anyway.

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The barrel and magazine tube are joined at their muzzle ends by a retaining ring that resembles a “figure 8.” A screw runs through the retainer and serves as a means of tightening the relationship. The locking lugs of the barrel extension may be worn and causing the looseness. According to the manual we have, barrel/breech assemblies are not restricted. If the receiver ways are worn, however, you’re looking at a factory-only repair. Check a couple of other things as well. There is supposed to be around

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(continued from previous page) washer and a spring washer present where the mag tube joins the forend. If absent, the tube could be so loose it's affecting the barrel. Another washer, a thicker one, should show up inside the front end of the buttstock where it joins the receiver. If it's missing, it could be the reason your barrel isn't seating properly in the receiver. German Weatherby Parts? Do you have any idea who would have a safety for a German Weatherby? Thanks.

There are two types of safeties because there are two types of trigger assemblies. One is old, and one is new. One safety is on the bolt, and one is on the trigger. We called Weatherby. They need the caliber of the rifle and the serial number before they'll know if they have the safety you need. Call the factory or look up the authorized service center nearest you on the internet and call them with the necessary information. Remington 788 Light Hits I have a Remington 788 in .243 caliber that occasionally misfires.

The firing pin will dent the primer, but not fire the round. (The same reloaded ammo will fire fine in another rifle.) I had room to turn the bolt plug 360 degrees tighter, tightening the mainspring. I also tried turning it the other way, but neither produced afire. The firing pin and spring both look okay. Is turning the plug the right thing to do, or am I completely on the wrong track? Thanks. You could be dealing with a broken, binding, or short firing pin or a weakened firing-pin spring.

Sometimes these parts appear to be fine, and you usually can't tell if a spring has gone weak just by looking at it. Installing anew pin and spring would be a good place to start. It's also possible that the sear is binding or the trigger mechanism is out of adjustment. If either of these are the problem, the rifle will have to be returned to the factory.

Milling 1911 for Novak Sight How much milling has to be done to a Springfield Armory GI .45 ACP slide to change the rear sight from the GI sight to a Novak Adjustable rear sight? Does the existing dovetail just need to be enlarged at the front to accept the Novak sight, or does a flat also have to be milled on the rear of the slide? Any help you can give this old "smith will be most appreciated. Thanks. The Novak Adjustable dovetail requires a 65-degree cutter and is .495 inch deep.

Use a machinist's bubble level to true the completely strippeddown slide between padded vise jaws. Make no milling cuts that extend forward of the original dovetail. Cut anew dovetail the same depth as the original, .770 inch forward of the rear edge of the slide. At the upper front edge of the original dovetail, make a cut no deeper than .150 inch to accommodate the hinge on the Novak.

Finally, here's a fitting tip directly from Novak: Elevate the front of the slide to be out of level by half a bubble, then mill a 1/8-inch wide, very slight taper just aft of the new dovetail's upper edge. Rebarrel

Remington Model 74? I have in the shop a Remington Model 74 Sportsman semi-auto rifle in 30.06. The customer wants anew barrel installed due to his lack of cleaning the chamber, resulting in 'as you can guess' a rusty chamber. Oddly enough, the bore is bright and shiny.

He's interested in rechambering the rifle for .270 Win. Is this a recommended swap? I looked up the part numbers and the barrel is available. What about headspace with this type of bolt/barrel lockup? Should I try to lightly polish the .30-06 chamber (if no pits show up) and Cerrosafe a cast for dimensions? Thank you.

If you can purchase a .270 barrel from Remington, or find one made by Remington for the Model 74, that would indicate that pressure and compatibility should not be a problem with the caliber change under consideration. Final checking for correct headspace should be conducted with the proper "go" and "no-go" gauges. Hopefully, the chamber has only a thin deposit of rust with no pitting beneath it. In that case, rust removal and polishing would be sufficient.

The rifle would still be .30-06, of course, but that's a fine round for deer-size and larger game. Finally, the only reason you might need a chamber cast is if you're concerned about removing too much metal in the rust removal/polishing job you perform on the old barrel.

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