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INSIDE THE ARCHIVE

WORKING THE WINCHESTER MODEL 1892 LEVER- ACTION RIFLES

FIREARM SALES DEFY ECONOMIC DOWNTURN • DISASSEMBLY AND REASSEMBLY OF THE SIG SAUER P250 PISTOL • INL...

ORIGINAL METHODS. MODERN ACCESS.

ARCHIVE EDITION 064

DIGITAL ARCHIVE EDITION

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FROM THE ARCHIVE

Firearm Sales Defy Economic Downturn

BY AMERICAN GUNSMITH EDITORS APRIL 2009

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I'm sure it's news to no one that the current economic outlook is weak, if not bleak. And all the forecasts I've seen don't give much hope of a recovery to begin before this time next year. But despite the weak economy and slumping retail sales in virtually every other area, firearm sales continued to increase through the beginning of the new year, defying that trend and continuing the upswing that began after November's election.

No one knows how long this run on the gun stores is going to last, but with millions of new guns being sold and new gun owners being created, I think we can expect plenty of work for gunsmiths well into the future. The actual statistics are quite interesting. Data from the FBI's National Instant Criminal Background Check System (NICS) show background checks on the sale of firearms jumped 29 percent in January 2009 compared to January 08.

This increase followed a 24percent rise in December 08 and a 42-percent jump in November 08, when a record 1,529,635 background checks were performed.

As you know, FBI background checks are required under federal law for all individuals purchasing firearms from federally licensed retailers, and in most cases, a background check is an indication of an actual sale.

"Since the election, sales of firearms' handguns and semi-automatic hunting and target rifles in particular'are fast outpacing inventories," said Steve Sanetti, president of the National Shooting Sports Foundation (NSSF). "Americans are clearly concerned about their ability to purchase these products in an uncertain future.

NICS reported 1,213,885 checks in January, up from 942,556 in the same month a year ago. Last year in 2008, a total of almost 13 million background checks were conducted, which is nearly a 15percent increase from 2007. How 2009 will compare is anybody's guess at this point, but I wouldn't be surprised to see that figure jump to 17 million'and that represents a lot of work for gunsmiths. If you regularly read this column, you know I supported the Republican candidate John McCain in the last election.

I still think he's a great American patriot. But those other guys from the other party are clearly the better gun salesmen. God bless "em, I say. Need Some Extra Cash? If you would like to turn your gunsmithing ideas and expertise into cash (we pay pretty handsomely), I would like to discuss your article ideas with you.

Contact me, Keith Lawrence, Editor, at: American Gunsmith, Merritt Island, FL 32954; voice fax Editor Keith Lawrence Technical

GRINDING

Disassembly and Reassembly Of the Sig Sauer P250 Pistol

The buyer has a choice of three calibers and gripframe sizes, but you can service them all in the same manner.

BY CHICK BLOOD APRIL 2009

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To begin working with the Sig P250, you'll want to make a couple of small tools. For the first one, take a 3/32-inch parallel drift punch and grind it to a "D" profile from tip to about an inch above the tip. If you look closely at the inside of the slide after you've field stripped the pistol, you'll clearly see the reason for doing this. A milled section of the bolt partially covers the end of the safety-lock spring pin (#33).

As you can see in the photo, this forms a "D" past which around punch will not pass to gain contact with the pin. The pin is drifted out to the top of the slide near the rear sight. It's a roll pin, so don't drift it completely out when the time comes to do so. For the second tool, you can use a hollow tube. Lacking that, a smallblade screwdriver can be substituted. Both tube and driver have to be wide enough to make solid contact with the large mainspring (#19).

Both require a U-shaped cut that spans the hammerpivot pin (#15). If you use a screwdriver blade, the end result looks like a dinner fork with two tines. With the tube, it will look like a tube with a Ushaped notch in its end. Whether you use a tube or a screwdriver, both serve the same purpose, which you'll read about later

on. All right, you've got the tools you need, the chamber is empty, the magazine is out, and you're wearing eye protection. So let's begin to take down the P250.

Field Stripping Retract the slide and lock it open with the catch lever (#8). Rotate the takedown lever (#5) clockwise until it stops. With a brand new pistol, you may have to nudge this lever with a nylon drift to get it started. Sig Sauer handguns leave the factory tight. Pull the slide back slightly to disengage the catch lever and keep it under control as it moves forward off the grip frame (#1).

Invert the slide, compress the recoil-spring guide (#22) toward the muzzle, and then lift it at the rear to remove both the guide and the spring (#23). Raise the breech end 40 S&W, and .45 ACP. A choice of three grip frames is also available to accommodate the owner's hand size. of the barrel. Pull it to the rear and out. Leave the slide inverted for the time being. Detailed Disassembly Compared to most other double-action-only pistols, the P250 isn't complex. I'd even dare to say it's simple.

The only area you might quibble with me about is the inner frame (#7), but even that lacks the abundance of levers, pins, and tricky springs usually found in the back end of modern semi-autos.

DISASSEMBLY AND REASSEMBLY OF THE SIG SAUER P250 PISTOL CONTINUED

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It disappears into the slide when the pistol is fully assembled. I'll remind you, as you work through the disassembly, keep close track of how parts such as the trigger bar engage the inner frame and how the trigger-bar spring (#11) is installed. Of course, this study can be negatively affected in no small way if your customer has already tried to "improve" the pistol by dismantling it. Quite often, this happens immediately after a new gun is taken from its shipping box and before it's been fired.

Okay, the slide is still inverted. Working with a nylon or wooden bench block, use the 3/32-inch punch to move the safety-lock spring pin (#33) up toward the rear sight until you can start to depress the safety lock (#27). Don't depress it completely, though, until you've placed a finger over the firing-pin hole at the rear of the slide. While holding the lock, slip about one-half inch of your D-shaped punch past the finger retaining the firing pin and push inward on the pin.

Then lever up with the punch to push the rear sight from the slide. The safety lock spring (#32) and lock (#27) are housed in a recess of the sight. Losing them means replacing them, of course. With the safety lock fully down, slowly release the firing-pin assembly. It won't need your help to find its own way out. (Note: The schematic leads you to believe the firing pin and spring have their home in the barrel breech.

They don't.) The extractor-spring guide (#28) and spring (#34) is a one-piece press-fitted unit—a very tightly press-fitted unit. Remove them as such. Take out the extractor (#29) to complete the disassembly of the slide. Detailed Frame Disassembly Sig Sauer and other offshore gun makers seem to have an affinity for a frame within a frame. So it is with the P250. What we unsophisticated, non-engineers call a "frame" or "receiver" is known by Sig as the "grip frame" (#1).

Within that is what I'd call the "firing mechanism" or "fire-control assembly." Within the grip frame of the P250 is what is officially

known as the "frame" (#7). Addressing the grip frame first, make sure the takedown lever (#5) is turned down as far as it can go. On a pistol that's been fired a bit, you can start the lever out by pressing inward on its right end. Levers on new pistols will probably need a starting nudge from a brass, aluminum, or nylon drift.

The lever will come out with an "O-ring" (#6) still attached that normally seats in a recess of the grip frame. Leave the ring on the lever shaft. Now grasp the "ears" of the inner frame between your fingertips, raise the ears about 20 degrees, and then pull the inner frame forward to disengage its rear tab from the grip frame. Pull the hammer back so the trigger will clear its inner-frame slot and remove the inner frame from the grip frame.

The trigger (#13), trigger bar (#12), and its spring (#11) will accompany it, along with the hammer (#14), safety lever (#20), small mainspring (#18), and large mainspring (#19). Now stop. Don't go any further



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Sig Sauer P250 Semi-Automatic DAO Pistol (Specifications subject to change without notice) 1 Grip Frame 2 Magazine Catch 3 Magazine Catch Stop 4 Magazine Catch Spring 5 Takedown Lever 6 O-Ring 7 Inner Frame until you've studied how the triggerbar spring engages the bar and is attached to the inner frame.

Turn the frame upside down and examine how the hammer-strut pin (#16) sits on top of the double-main-spring arrangement, how that pin relates to the safety lever (#20), and check out the trigger/trigger-bar connection. Got it? Whether you take pictures, make drawings, tape-record notes to 8 Slide Catch Lever 9 Slide Catch Lever Spring 10 Slide Catch Lever Pin 11 Trigger Bar Spring 12 Trigger Bar 13 Trigger 14 Hammer yourself, or do all three, be sure you've got it down pat.

Remembering how things were before you took them apart is the best way to ensure you'll get those same things back together right when the time comes. That advice being given, unhook the trigger-bar spring from the inner frame. Move the hammer to the rear.

The trigger/trigger bar will move with it and almost be clear for removal. 15 Hammer Pivot Pin 16 Hammer Strut Pin 18 Small Mainspring 19 Large Mainspring 20 Safety Lever 21 Barrel 22 Recoil Spring Guide 23 Recoil Spring 24 Slide 25 Front Sight 26 Rear Sight 27 Safety Lock 28 Rear Extractor Spring Guide 29 Extractor 30 Firing Pin 31 Firing Pin Spring 32 Safety Lock Spring 33 Spring Pin 34 Extractor Spring 35 Front Extractor Spring Guide 36 Magazine Tube 37 Magazine Follower 38 Magazine Spring 39 Magazine Insert 40 Magazine Floorplate You'll have to pivot the trigger back to make contact with the bar before both can be taken out.

It is now time to use the second tool, be it made from a tube or screwdriver. Insert it into the inverted frame over the hammer-strut pin. Press down on the large mainspring and remove the strut pin from the frame. (Note how the pin passes through the safety lock.) Ease off on the double main-

DISASSEMBLY AND REASSEMBLY OF THE SIG SAUER P250 PISTOL CONTINUED

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springs and remove the hammer pivot. This releases the hammer, mainsprings, and safety lock. You can detach the front of the trigger bar from its stud on the trigger, but it isn't necessary except to replace a damaged part. What remains within the inner frame are the slide-catch lever (#8) and its spring (#9). Press down on the front end of the lever slightly and push the lever pin (#10) out to the left. Place these components in a magnetic parts tray and you're done.

Reassembly Tips All the Sig's pins are reinstalled left to right unless otherwise noted. Squeeze the hammer and safety lock together, align their hammer-pivot pin holes, and make sure the upper arm of the safety is pointing straight up. Insert the pivot pin through the frame and the two parts. Place

the double mainsprings, preassembled, into their recess in the hammer, and align the crescent-shaped cutout on the hammer with the similar one on the safety. The strut pin has to pass through these voids.

Use your notched tool to depress the mainsprings and install the pin. The small end of the slide-stop spring must bear against the inner frame when installed. Place the catch assembly in, align the lever-pin holes, and install the pin. Check the slidestop assembly for free movement. Spear the front end of the trigger bar on the trigger stud. The longer leg of the trigger-bar spring is installed in the bar from the outside. The short leg will eventually be placed in its hole toward the rear of the inner frame.

Pivot the trigger back into contact with the trigger bar, and position the bar against the frame. Hold the trigger/trigger-bar assembly in place while you hook the small end of the triggerbar spring into the frame. Insert the inner frame's rear tab back into the grip frame. Pull the hammer back to ensure the trigger will pass through the grip-frame opening to the trigger guard. Push the inner frame down into the grip frame and insert the takedown lever. Don't dislodge the O-ring when you do this.

You'll make getting the lever back into position more than tough. And finally, keep in mind that before you can reinstall the slide assembly, the lever has to be in its original field-stripping position. I

FINISHING

Inletting a Machined Stock

Here's how to finish the inletting and bed the metal on a machine-carved stock that's sold as '95-percent inletted.

BY DOMINIC PISANO APRIL 2009

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Many firms advertise stocks that are '95 percent inletted, which sounds like it might be a snap to fit a barreled action. Wrong. It's a fact that the so-called last 5 percent of inletting a barreled action can be the most trying and frustrating—not to mention the fact that the last 5 percent is where any mistakes made will show in the finished product. It's been my experience that most gunsmiths who want to fit a barreled action to a machined stock have no intention of making a career out of it.

Some are professionals, of course, but many are amateurs who simply want to learn more about inletting and want to try to expand their skills on a onetime project. I'll try to help both the amateur and the pro here, and try to pass on a few "tricks of the trade" from someone (yours truly) who specializes in stock work and inletting. When the machined stock arrives, a careful examination of it is in order. Look for flaws in the wood such as bark inclusions, drying checks, and the like.

Ascertain if they are repairable with epoxy. Never use white glue, yellow glue, or wood filler on a custom stock. It will show, and it will look ugly! If the damage is more than you can deal with, call the wood turner and explain the situation. Most will exchange the stock unless you have tampered with it. Now let's get started. Do a bit of dry fitting to calculate how much work is involved.

Most machine-carved stocks are machine inletted as well, so a certain amount of wood must be removed in order to fit the barreled action. Don't be in a rush. Plan your attack, and go slowly. I don't have any particular carving or woodworking skill that allows me to stand out except one—and that's patience. So take your time. If the barreled action has a onepiece bottom metal unit (trigger guard, floor plate assembly), most of the experts call for inletting this first.

I agree with that approach, as it helps you to properly align the "top metal" (barrel and receiver) later. If you have a barreled action

with a two-piece bottom metal, you have no choice but to inlet the top metal first. Pre-64 Winchester 70s are in this category. It will be most helpful to acquire a few specialized tools to make your task easier. Inletting pins area must for me, as are T-handles. These can be purchased from Brownells or other gun tool suppliers.

The inletting pins are useful from the beginning in aligning the barreled action. The T-handles are useful during the later stages of inletting, as they allow you to pull the bottom metal and top metal together quickly and easily. You can, of course, use the forward and rear tang screws, but as many times as you will have to "try and fit" the parts, they're bound to get damaged. We'll begin here by fitting the bottom metal.

First, insert the T-handles in the forward and rear tangs and fit them into the screw holes in the machined stock. In all likelihood, the bottom metal will be a bit larger than the machined inletting. Take a sharp

INLETTING A MACHINED STOCK CONTINUED

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scribe and carefully scribe an outline of the tangs. This is your starting point. Remove the bottom metal and begin to cut away the excess wood, staying inside the lines you just scribed. Use a medium-coarse burr in your Dremel tool and begin by removing the excess wood from the curved ends of the tang recesses. Then coat the bottom metal with a marking agent—either lipstick or one of the commercial spotting agents—and refit the bottom metal using the T-handles for correct alignment.

Give the bottom metal a light tap with a plastic or rawhide hammer. This tap will impart marking agent to the wood. Remove the bottom metal and note where the spotting agent has left marks. These are high spots and indicate where wood must be removed. Once

again, pare away the excess wood. Repeat several times until the bottom metal begins to slip into place about three-quarters of the way in. Now it's time to work with the "top metal" (the barreled receiver).

If the machined stock has a "starter" barrel channel, you won't be able to get much of an impression using the spotting agent. Here's what I do: Turn the barreled receiver upside down and place it on the stock, aligning it so that it's centered. Then take a sharp scribe and outline the barrel, being careful to stay inside of the barrel contour. Remove the barreled receiver and use a sharp pencil to trace the scribe marks to make them more visible.

Now go to the drill press and, using appropriately sized Forstner bits, hog out the barrel channel from the recoil-lug area to a half-inch short of the end of the forend tip, being careful to stay inside of the scribed pencil mark. This last half inch will be carefully opened up using rat-tail rasps and chisels so as to not have a square bottom visible once the barreled receiver is fully fitted. Use Forstner bits to open up the recoil-lug area.

The barreled receiver should now drop partially into place in the stock. If you haven't done so already, remove all the extraneous parts from the receiver—the trigger assembly, bolt-stop assembly, and the like. These parts will be inletted after, and only after, the barreled receiver is fully inletted and bedded. With spotting agent liberally coat-

INLETTING A MACHINED STOCK CONTINUED

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ing the barrel and receiver, begin paring away the excess wood using the stock pins to align the parts. Take it slow and easy. Remember you can't replace wood that has been removed. Once the barreled receiver is approximately halfway inletted into place, use the T-handles to align more precisely, and slowly draw the bottom metal and top metal together. Now's the time to complete the fitting of the bottom metal by the "try and fit" method. Make as many fittings as necessary to achieve a perfect fit.

The fit should be tight, but not so tight that the part is difficult to remove. Remember, as the part becomes fully inletted, the marking agent will appear as it slides down into the inletting. Be careful to remove these marks or

you will likely open the inletting too much, ending up with a case of "gaposis." The same thing applies to inletting the barreled receiver. The top metal should be inletted to one-half of the barrel diameter.

Use a pencil to scribe the sides of the barrel to the tip of the forend to check your progress. Then go a fraction of an inch deeper so you will have a bit of wood to play with when you complete your finish sanding. Tap the barreled receiver with a plastic or rawhide hammer to reinforce the marks left by the marking agent just as you did on the bottom metal. Use chisels, a Dremel tool, and abrasive paper wrapped around various-sized dowels to remove the high spots left by the marking agent.

Take your time and every so often step away from the project to take a look at your progress. When you're satisfied that the barreled action is fully inletted both the top and bottom metal you can begin preparation for bedding the barreled action with epoxy. It's important to remember that the epoxy is not to be used to fill in mistakes but to reinforce and waterproof the wood. I'm convinced that the best way to get a perfect bedding job is to do it in stages.

First, I do the recoil lug area and rear tang, then the barrel channel, and finally the receiver. Coat the entire barreled receiver with release agent or wax, being certain that every part is covered. I use children's modeling clay to fill in any opening in the

INLETTING A MACHINED STOCK CONTINUED

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metal to prevent the epoxy from flowing into these areas, which could make it difficult or impossible to separate the wood from the metal. If the cartridge being used is larger and more powerful than the .30-06, I always reinforce the previously hogged-out recoil area with “atomized” aluminum. For Magnum cartridges, I use recoil cross bolts with plugs to cover the holes in the sides of the stock. You can’t be too careful.

Now that we’re ready for bedding, here’s how I do it: The previously hogged-out area of the recoil lug and rear tang are first. Drill out the reartang screw hole from the top with a bit of about 3/8-inch or so. Go down about halfway. You don’t want to drill that hole all the way through, because you want the smaller, lower portion of the hole as a guide for the T-handle. Also, too large a hole will allow the epoxy to run out before it sets.

Use generous portions of modeling clay in those places where you don’t want epoxy, such as the triggerassembly inlet and magazine cutout behind the recoil lug. If you’re

working with a Magnum caliber, mix up enough Acraglas (from Brownells) to fill in the recoil-lug area, with a little left over for the upper rear tang. In this case, I’ll mix in a generous portion of atomized aluminum. What that does is essentially form a solid block of aluminum when it cures.

I also use a small amount of black dye to color the mixture. For any standard cartridge up to .30-06, I use Acraglas Gel, because it’s easier to work with due to its thicker consistency. No additives are necessary with Acraglas Gel except coloring. With the stock set firmly in your vise, pour the epoxy mixture into the recoil-lug opening and the rear-tang inlet, and carefully set the top metal in place. Insert the T-handles through their respective openings and slowly tighten up the forward handle.

Don’t tighten the rear-tang T-handle, as it’s used to keep the epoxy from running out. We want the action/receiver to settle in place without any stress on it. This will become clear as we proceed with the second step.

Once you’re satisfied that the forward T-handle is tight, wipe away any excess epoxy that has oozed out and set the entire assembly aside for 24 hours to properly cure. The next day, carefully remove the barreled receiver from the stock and clean up any excess epoxy. Examine your work.

If you followed the instructions carefully, the aluminum/ epoxy mixture should be hard and without any major voids. Now on to step two. Recoat the barreled receiver and bottom metal with release agent to prepare them for additional epoxy. Also, don’t forget to do the same with both T-handles. Drill out the remainder of the reartang screw hole from the bottom as well as the forward tang with the same 3/8-inch drill you used before.

What we’re going to wind up with is a variation of the pillar-bedding system, as the epoxy will form a solid pillar promoting accuracy. Coat both lower-tang inlets with Acraglas Gel and carefully set the bottom metal in place. Use masking (continued on page 21)



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tape to hold it in place and then turn the stock right side up. Generously coat the barrel channel with the epoxy gel and carefully set the top metal in place. This time, use both T-handles to tighten the top metal and bottom metal in place, using first one and then the other. Since the recoil-lug area and rear tang have been previously epoxy bedded, the top metal should slide precisely into position without too much trouble. Be certain the barrel is fully seated to the end of the forend to get an exact fit.

Wipe off any excess epoxy to make removal of the metal easier. Wait 24 hours and then remove the metal. I prefer to remove the bottom metal first followed by the top metal. Step three in bedding is to bed the sides of the receiver. Some experts think this step is not necessary, as the amount of bedding compound used is slight. I like to do it anyway, since it gives the bedding a finished look and also waterproofs the receiver area.

Coat the receiver with release agent and then mix up the Acraglas Gel as before, and apply it to the sides of the receiver and also to the wood. Fit the top metal into

the inletting and tighten as before using the T-handles. When the gel sets, the bedding job is complete except for the cleanup. Reassemble the trigger and boltstop assemblies to the action and inlet them into the stock.

If the machining job was well done, it's likely all you'll have to do is to cut grooves for the various pins in the trigger assembly. On Mauser actions, the bolt-stop assembly must also be fitted to clear the wood without a large gap. And let's not forget the bolt notch. This is also inletted into the stock by the "try and fit" method. I prefer the Dremel tool with various-sized burrs for this task.

Be certain the rear of the bolt handle clears the wood or it will chip wood out of the notch if there is the slightest setback upon firing. Finally, reassemble the rifle and check that all is in working order. If you followed instructions carefully, you'll find you have a near-perfect result. If you discover voids in the epoxy which you consider excessive, you might want to "paint" on a coat of Acraglas epoxy. A paint coat implies what it is'epoxy spread in a thin layer to fill in any voids. I

PEOPLE & COMPANIES

Modifying the Mini-14/30 Bolt To Fire Imported Ammunition

Early production runs of the Ruger Mini-14 and Mini-30 would not fire imported ammunition. Here's the reason why, and what to do to fix the problem.

BY ROY SEIFERT APRIL 2009

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Many years ago, I purchased a Mini-14 manufactured by Sturm, Ruger & Co., Inc., in .223 Remington caliber. The manual that came with it stated point-blank that I should not use imported ammunition with this rifle. I soon found out why. After firing only 30 rounds of Russian .223 Remington ammunition, the rifle would no longer fire. Upon examination, I found the firing pin was jammed. I disassembled the bolt and found it filled with small, round, brass disks!

I removed the disks, fired another 30 rounds, and once again, the firing pin jammed because the bolt was filled with those brass disks. I recovered some spent shells and discovered each primer had a neat, round hole in the center of the primer that corresponded to the brass disks I found inside the bolt. This problem was caused by the combination of three factors. First, foreign ammunition manufacturers apparently use softer, thinner metal in their primers.

Second, I carefully examined the bolt face and found a sharp, raised burr around the firing pin hole, which was probably the result of the machining process when the hole was drilled. And third, using a firing-pin-protrusion gauge, I discovered that the firing pin protruded 0.010 inch too far in front of the boltface. The long firing pin created a too-deep indentation in the primer, possibly stretching and cracking the metal.

Then, during recoil, the case head would be pressed against the boltface, where the burr would cut around disk out of the center of the primer. Next, the blowback through the ruptured primer caused the disk to be blown into the bolt body through the firing-pin hole. And once enough disks were blown into the bolt body, they would jam the firing pin. To fix this problem, I removed the extractor and firing pin from the bolt. I used a narrow 400-grit stone to remove the burr around the firing pinhole.

Then I shortened the firing pin by 0.010 inch. I did this by rubbing the end of the firing pin on a smooth Also, check the firing-pin protrusion with a firing-pin-protrusion gauge. stone, being careful to maintain around end. With these simple modifications, I could fire my Mini-14 all day using imported ammunition with no failures or jamming. Conclusions/Recommendations Ruger has since corrected this problem'presumably'and the rewritten manual now warns only against shooting imported ammo with corrosive primers.

However, I recently purchased a Mini-30 and, once again, the bolt had a burr, which I polished smooth for this article to avoid any problems with imported ammunition. On the Mini-30, the firing-pin protrusion measured correctly, so I did not have to make any changes there. So if you see a Mini-14 or -30 with a jammed firing pin, the first thing you want to do is to check the bolt face for a burr, and then measure the firing-pin protrusion. I

FROM THE ARCHIVE

Making a Crossover Bolt For the 98 Mauser

A favorite of hunters and custom-rifle builders, the 98 Mauser will be much more friendly to the left-handed shooter with this simple modification.

BY PAUL MAZAN APRIL 2009

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Well past its 100th birthday, there isn't much left to discover about the 1898 Mauser. It's certainly been one of the most talked-about, written-about, customized, sporterized, homogenized, pasteurized, and plagiarized bolt-action designs of all time. Unfortunately, from the left-handed shooter's point of view, it has never been very ergonomically friendly. Simply put, the bolt is on the wrong side.

And unfortunately, little has been done over the years by aftermarket manufacturers to address the need for left-handed parts for left-handed shooters. I searched in vain for a Mauser trigger with a left-handed safety so I could put one of those spiffy aftermarket bolt shrouds on my gun.

But, alas, the right-handed majority give us lefties no sympathy and either ignore us or apparently think we're just being stubborn and should learn to shoot the "right way." I even read one article that suggested that the old straight bolt design was "ideal" for the lefthanded shooter! Ideal? Sure, if you don't mind that big bolt

knob poking you in the belly whenever you carry the gun. And who's going to spend hard-earned dollars to customize a rifle and then not mount a scope?

Normally, there aren't many problems that can't be cured with a suit- The compact arrangement is much handier for the southpaw than the normal right-handed bolt. able application of cash, and it is possible to purchase a left-handed Mauser-style action on the aftermarket. That's great if money is no object, but the primary thing that's made the military Mauser so treasured by both professional gunsmiths and hobbyists is the fact that they can be purchased cheaply.

Come to think of it, I don't know a gunsmith'professional or amateur'who hasn't cut his gunsmithing teeth on the 98 Mauser. If it wasn't the first bolt-action rifle he worked on, it came along pretty soon thereafter, and most have worked on lots of them over the years because it's affordable to experiment on them. To a large degree, that's still true today. There are still bargains to be had on military Mausers that lend themselves to an almost endless number of projects for the gunsmith.

MAKING A CROSSOVER BOLT FOR THE 98 MAUSER CONTINUED

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The hammer marks that moved the metal to shape are still apparent at this point. For this project, I bought a Czech Mauser at a great price. I got the whole rifle, but what I was really buying was the action, bolt, and related parts, since the rest of the rifle will be scrapped. The first order of business was to disassemble the rifle and replace the barrel with a sporter style. I decided on an Adams & Bennet barrels at a reasonable price. Once that was done, the real fun began.

The stock was ordered for any action that they cut. I bought a Claro walnut stock for a 98 Mauser with a left-hand cheekpiece and no bolt-handle cutout. They took the order in stride as if they get that request every day. The safety lever that blocks the striker is available from just about all the gunsmithing tool houses, and that allows you the choice of triggers from all the major manufacturers.

So far, other than the stock, and the lack of a trigger with a left-handed safety, it's been simple to find parts for my Custom Mauser. The problem comes when trying to do something about the right-handed bolt handle. The standard arrangement is unsuitable for the lefty because, to operate the

bolt to reload the chamber, he has to reach over the scope and operate the handle in a very awkward fashion.

Years ago, I'd seen a photograph in a magazine of a crossover bolt that was made for use on the Krag with iron sights, and I had spent a lot of time thinking about the concept. The main problem, as I saw it, was that the crossover bolt stuck out the left side of the rifle and was there to catch on every bush, branch, and vine in the forest. The idea I came up with was to build a crossover handle that would lie alongside the scope.

It would be worked with the left hand by rotating it down to open the action, leaving the handle sticking straight out, then pulled back, pushed forward, and finally rotated up to close and lock the bolt. This "butterknife-style" bolt handle can be just as attractive on any hunting rifle and its slim close-to-the-stock design can add an elegant look to a cherished rifle. They aren't very expensive; you can buy one for a right-handed rifle for about \$25.

But for a left-handed crossover design, you're going to have to do some metalwork. A crossover bolt handle for a left-

handed shooter doesn't have to be of the butterknife style, of course, but I wanted it to lie as nearly flat as possible so that was my choice. To duplicate the part I made, you'll need a piece of square or round steel stock approximately the size of the base of the bolt handle. I found a 36-inch-long piece of 7/16-inch square stock at my local hardware store for less than \$10.

Next, you'll need a few tools such as a good file, a torch, and one of my favorite tools that I rarely get to use—a big old ball-peen hammer. Use an anvil or a block of steel as a base and start forging the bar from the tip. You want to achieve an even taper from the tip to the base of the handle and an even flair from the base to the tip. Hearing protection is an absolute necessity unless you want your ears to ring for the next week.

Keep your blows moderate to heavy to start, and finish with lighter blows to smooth out the surface and reduce the amount of filing that will be required. Forge the handle to shape until you're satisfied with its width and thickness. Should a crack appear in the tip, stop and cut or file it off. The crack will only get longer if you keep

MAKING A CROSSOVER BOLT FOR THE 98 MAUSER CONTINUED

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Once formed, the handle should be sanded with emery cloth to a burnished finish, starting with 60 grit and working up to 100 until all the scratches have been removed. forging. Heat the tip with the torch and allow it to cool slowly, then continue the forging process. Once you are satisfied with the overall shape, eliminate the hammer marks in the surface of the handle by “draw filing.” For draw filing, the file is held in both hands with the cutting edge of the teeth facing you.

The file is then placed on the work and pulled toward you. If you’ve been careful and left an evenly hammered surface, you should be able to file the part smooth in 15 or 20 minutes of relatively simple work. Now that you have a smooth and nicely shaped handle, break out the torch and heat the tip, bringing it to as close to red color as you can. This will allow you to bend it without cracking. Use a glove and hold the bar as far from the heated tip as possible.

Place the tip over the edge of your anvil and hammer it over. This is the time to determine how sharp an angle you want. A good point to start the bend is about 3/4 inch from the tip. The final shape and taper is

sculpted with the file. Round the tip and smooth out the taper with the file while removing any “waves” left by the hammer. A rotary tool comes in handy for quickly polishing the file marks out of the handle, sculpting the back to the final shape, and bringing the part to a final finish.

If you do not have a rotary tool, the job can be done just as well if more slowly using files and emery cloth. The general shape of the underside was determined as the metal was stretched during the forging process. You should not have to hammer the back but will have to file and polish it to its final shape. What that shape will be is up to you, it can be flat, round, or scalloped as you see fit. This will take a little file work, but the reward is worth the effort.

You don’t need to bring the part to a mirror finish at this point, since welding it to the bolt will discolor it and require polishing it again. You are now ready to cut the part from the bar. I cut mine at about 5 inches from the tip. Figure 1 will show you the approximate dimensions I used in the final version of the handle. These dimensions are not carved in stone, but will give you a great place to start. Now you can bend the part to shape.

Careful file work will help to sculpt the handle into a pleasant shape, will remove metal anywhere the handle comes in contact with the ejector housing as the bolt is opened, and will smooth out the final shape. Welding the finished part to the bolt is a job you might leave to someone else if you haven’t done it before.

On my first attempt at this project, I tried to keep the bolt as close to the top of the receiver as possible, only to find that the height it crosses over is determined by the ejector housing on the left side of the rifle. When the handle rotates to open the bolt, it must pass over the ejector housing. In my case, this dictated the use of medium rings to mount the Leupold 3x9 scope and have the handle pass under it while still being high enough to clear the ejector housing. Figure 1.

Approximate Dimensions The finished project will produce a modestly priced sporter that is much more left-hand friendly than the original Mauser and allows the southpaw to mount the scope of his choice.

I

PEOPLE & COMPANIES

Working the Winchester Model 1892 Lever-Action Rifles

With over one million originals manufactured along with numerous modern replicas, the Winchester Model 1892 is one of the most popular lever-actions ever produced.

BY DAVID R. CHICOINE APRIL 2009

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Winchester's Model 1892 is another one of those wonderful John M. Browning lever-action designs that will always be hard to improve on and will always be admired by those who appreciate Winchester's fine lever guns. All these designs have been a source of fascination for me, and the Model 1892 in particular is one of my alltime favorites. The 1892 is actually a simplified, small-scale version of the Model 1886, and was intended to be the replacement for the venerable Model 1873.

Known worldwide for its dependability, the popular Model 1873 was a hard act to follow. Based on the equally popular but older Model 1866, the Winchester 1873 incorporated elements of the Henry, the Volcanic, and an 1850s Smith & Wesson design. The system used a set of toggle links to lock the action, and though it had a wonderful feed system and was quite reliable, it was never known for strength. On top of that, the Winchester Model 1873 was a complex and expensive design to manufacture.

Unlike the Model 1873, the altered Browning design used in the 1892 had a very strong action, was lightweight, and

very much simpler. It seemed to have answered all the 73s shortcomings in one tidy little package. Similar to the mid-sized Winchesters before it, the 1892 was built to handle revolver cartridges. That meant an owner could carry a rifle and a handgun chambered for the same caliber. Winchester offered the Model 1892 in .44, .38, and .32 Winchester centerfire calibers.

We know these cartridges today as the familiar .44/40, .38/40, and .32/20. With the introduction of the Model 1892, the famous New Haven, Connecticut, rifle company had a truly dependable, ultralight and brutally tough little lever-action to take into the new century. Anyone who loves Winchesters will quickly notice that the 1892 looks like a scaled-down Model 1886. That's essentially what it is, as I mentioned earlier, but the 1892 is also simpler than the 1886, using fewer internal parts.

Both, however, share the same rugged John M. Browning breech design. Winchester sold over a million 1892s between 1892 and 1947, when the last Model '65, an 1892 variant, was shipped. The design stayed in production for an incredible 55

years. Very few firearms designs stand out for their exceptional engineering and construction like Winchester's Model 1892. Having worked on hundreds of them, I can attest to the fact that this is one weapon that refuses to quit.

I've seen an occasional broken firing pin and a broken spring here and there, but by and large these are unusually dependable weapons. Of the calibers offered in the 1892, the most popular caliber was the .44/40, with nearly 600,000 manufactured. Buyers preferred the longer-barreled rifle over the carbine by a large percentage, with roughly 640,000 rifles made compared to 360,000 carbines. The seldom seen musket was the scarcest Model 1892, with less than 600 weapons ever made.

Always a popular weapon, the Winchester Model 1892 design has been revived in modern times by both Browning and Winchester (which are now the same company), as well as Rossi, Uberti, and others. Takedown Instructions These basic instructions for the Winchester Model 1892 also apply (with a few exceptions) to similar firearms

WORKING THE WINCHESTER MODEL 1892 LEVER-ACTION RIFLES CONTINUED

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including the Winchester Models 53 and 65, the Browning B92, the Rossi M92, and the Spanish El Tigre. 1. As always, check first to be sure the rifle is unloaded. Start by pointing and holding the muzzle in a safe direction, grasp the weapon around the barrel and forearm wood with your left hand, and open the action by pulling the finger lever (#44) all the way down with your right hand. Here, you'll check to be absolutely sure there is no cartridge in the barrel's chamber.

Look also into the action to be sure there is no cartridge laying in the cartridge carrier (#48) within the action. If a cartridge is present in the carrier, when you close the lever, the rifle will become loaded and is an indication there may be more cartridges in the magazine. To safely unload a rifle with a loaded magazine, keep the muzzle pointed in a safe direction and your finger away from the trigger as you operate the lever to the fully open and fully closed positions.

Repeat this several times to expel the cartridges in the magazine until there are no more cartridges in the action. 2. To remove the buttstock and main- This holds the spring captive during disassembly. spring, unscrew and remove the upper tang screw (#25) from the upper tang. This is the rear-

most of the two screws located behind the hammer. The buttstock is loose and can be removed from the action (#1) by pulling it straight toward the rear.

Open the lever, but only far enough to give you access to the mainspring screw (#38). This is the rear-most screw on the lower action tang. After you loosen and remove the mainspring screw, the mainspring (#37) can be lifted out of its seat with the hammer stirrup (#29) and then out of the frame. Take note of how the tangs of the mainspring engage the stirrup for later assembly.

To remove the Rossi M92s buttstock (see the inset drawing on the opposite page), unscrew and remove the tang screw, and then pull the buttstock off to the rear. 3. Next, you'll remove the hammer and lower tang and disassemble them. On Winchesters and others, close the lever and while you hold the trigger to the rear, unscrew and remove the hammer screw (#31). The hammer (#28) can now be removed by pulling it upward and to the rear. Open the lever and then pull back on the lower tang (#39).

The lower-tang assembly removes straight out through the rear of the action, and it contains the trigger and its spring. Unscrew and remove the trigger-spring screw (#34) from

inside the lower tang and lift out the trigger spring (#33). Make note of its position for re-assembly. The trigger (#35) can be removed out the bottom of the lower tang after driving out the trigger pin (#36) from either side of the lower tang using a small hammer and pin punch.

For the Rossi M92 (see inset), pull the hammer (#66) far enough so that the hole in the mainspring strut (#76D) becomes visible at the rear end of the mainspring (#69), and then place a small pin or paper clip into the hole and allow the hammer to go down. Unscrew and remove the hammer screw (#68), pull and hold the trigger (#36), open the lever slightly, and slowly slide the tang assembly (#35) to the rear and remove it. Close the lever to move the bolt all the way forward.

At that point, the hammer assembly can be dropped out the bottom of the action. The lower tang contains the trigger and its spring. Unscrew and remove the triggerspring screw (#38) from inside the lower tang and lift out the trigger spring (#37). The trigger (#36) can be taken out the bottom of the lower tang by first drifting out the trigger pin (#29) from the side of the lower tang using a small hammer and pin punch.

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Winchester Model 1892 Lever-Action Rifle 1 Receiver 2 Barrel 3 Rear Sight Assembly 4 Front Sight 5 Front Sight Screw 6 Upper Tang Plug Screw 7 Forearm Tip Tenon 8 Magazine Ring 9 Magazine Ring Pin 10 Forearm Tip 11 Forearm Tip Screws 12 Magazine Tube 13 Magazine Spring 14 Magazine Plug 15 Magazine Plug Screw 16 Magazine Follower 17 Spring Cover 18 Spring Cover Screw 19 Cartridge Guide, left 20 Cartridge Stop 21 Cartridge Stop Joint Pin 22 Cartridge Stop Spring 23 Cartridge Guide Screws 24 Cartridge Guide, right 25 Upper Tang Screw 26 Breech Bolt Assembly 26A Breech Bolt 4.

To disassemble the action, open the lever, and unscrew and remove the locking-bolt pin screw (#43) from the left locking bolt.

You may now push out the locking bolt pin (#42) from 26B Extractor 26C Extractor Pin 26D Firing Pin 26E Firing Pin Stop Pin 26F Ejector 26G Ejector Spring 26H Ejector Collar 27 Lever & Breech Bolt Pin 28 Hammer 29 Stirrup 30 Stirrup Pin 31 Hammer Screw 32 Lower

Tang 33 Trigger Spring 34 Trigger Spring Screw 35 Trigger 36 Trigger Pin 37 Mainspring 38 Mainspring Screw 39 Mainspring Strain Screw 40 Locking Bolt, right 41 Locking Bolt, left 42 Locking Bolt Pin 43 Locking Bolt Pin Stop Screw 44 Finger Lever 45 Friction Stud 46 Friction Stud Spring right to left using a small pin punch.

The locking bolts (#40 and 41) are removed by sliding them out through the bottom of the action.

Take note of the positions of these locking bolts for Rossi M92 37 Trigger Spring 38 Trigger Spring Screw 59F Strut Pin 66 Hammer 67D Strut Coupling/Stirrup 68 Hammer/Tang Screw 69 Mainspring 76D Strut 29 Trigger Pin 35 Lower Tang 36 Trigger 51 Carrier Stop Pin 52 Carrier Screws 53 Lever & Breech Block 47 Friction Stud Stop Pin 48 Carrier 49 Carrier Stop 50 Carrier Stop Spring Pin Hole Plug Screw reassembly; there is a distinct right (#40) and a left (#41) side.

Now, push the breech bolt closed (#26) and slide one of the locking bolts back into place (temporarily) to

WORKING THE WINCHESTER MODEL 1892 LEVER-ACTION RIFLES CONTINUED

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hold the bolt closed. Unscrew and remove the lever-pin cover screw (#53). This is the front screw on the left side of the action. Exactly opposite the locking-bolt pin-screw hole on the right side of the action you'll find a small hole. Place a pin punch through this hole and drive out the lever & breech bolt pin (#27) moving from right to left. You can now remove the lever by pulling it straight out the bottom of the action.

Remove the temporarily installed locking bolt so that the breech bolt (#26) can be withdrawn out the rear of the action. The ejector (#26F) is now loose at the front of the breech bolt. The ejector can be pulled out the front of the breech bolt, along with the ejector spring (#26G) and ejector collar (#26H). You'll want to pay careful attention to these parts for later assembly. 5.

Disassembly of the lever and breechbolt begins with using a pin punch of the appropriate size to drift out the friction-stud stop pin (#47) from the side of the finger lever (#44). This will free the friction-stop stud (#45) and its spring (#46) so they can be pulled out of the hole in the finger lever.

Then, using a pin punch, the lever & breech bolt pin is driven out from right to left. extractor (#26B) is removed from the

breech bolt by first driving out the extractor pin (#26C) using a small hammer and pin punch. The extractor is removed by pulling it forward and up until it comes free from its seat in the breech bolt. Once again using a small hammer and pin punch of the appropriate size, drift out the firing-pin stop pin (#26E) through the side of the breech bolt.

This frees the firing pin (#26D), which can now be removed by pulling it out the rear of the breech bolt. 6. Continue disassembling the action by unscrewing and removing the two carrier screws (#52). There is one on each side of the action. Then move the carrier (#48) to the rear and pull it out the bottom of the action. Now, do you see the small plunger on the side of the carrier? This plunger is held in by a small pin and it is spring loaded. Make sure the spring has good, lively action.

If it doesn't, it's easy to change the spring. A weak or broken carrier-plunger spring can cause feed malfunctions. The spring cover (#17) or loading gate is removed by first unscrewing and removing its screw (#18). This is the rear-most screw on the right side of the action. The spring cover will now fall loose and can be pulled out of the action. The last

two screws remaining in the action sides are the cartridge-guide screws (#23) and again, there is one on each side of the action.

They hold the cartridge guides in place. Unscrew and remove the screws one at a time and then remove the cartridge guides (#19 and 24). Here you will want to take note of the position of the cartridge-stop spring (#22) which will come off with the left side cartridge guide. The cartridge-stop spring is one of the few parts that you will occasionally find broken or'm ore often' rusted in half. A faulty or broken cartridge-stop spring can cause misfeeds, especially with the smaller caliber cartridges. 7.

For rifles, you remove the magazine tube and forearm by unscrewing and removing the magazine-plug screw (#15) from the bottom-front of the magazine tube (#12). The magazine-tube cap (#14) is now loose and is pulled out the front of the magazine tube, along with the magazine spring (#13) and the magazine follower (#16). The cap is under spring tension, so use caution when you do this. Next, unscrew and remove the two forend tip screws (#11). These are sometimes called fore cap screws.

THERE IS ONE ON EACH SIDE OF THE FOREARM CAP (#10). NOW SLIDE THE FOREARM



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cap forward slightly. Using an appropriate size pin punch and a small hammer, drift out the magazine-ring pin (#9) from the magazine ring (#8), and then pull the magazine tube (#12) out to the front. Once the tube has cleared the forearm wood, the forearm wood can be tilted down, pulled forward, and off the barrel. The magazine can then be turned perpendicular to either side of the rifle onequarter turn to unlock the magazine ring from its dovetailed seat in the bottom of the barrel. 7A.

On carbines, the magazine tube and forearm disassemble by unscrewing and removing the magazine-plug screw (#15) from the very bottomfront of the magazine tube (#12). The magazine-tube cap (#14) is now loose and can be pulled out the front of the magazine tube, along with the magazine spring (#13) and the magazine follower (#16.) Remember, the cap is under spring tension. Now unscrew and remove the front and rear band screws from the front and rear magazine bands.

The magazine tube can now be pulled out to the front and off the weapon. Slide the rear magazine band forward off the forearm wood, then the forearm wood is

tilted down and can be pulled off to Pay attention to those ejector parts in the face of the breech bolt for later reassembly. the front. At this point, the forward magazine band is rotated a half-turn and slides off over the sight base, as does the rear magazine band.

Take notice of the direction the screw entered the bands before you remove the bands so they can be reassembled in like manner. Reassembly Notes On replacing the breech bolt, be sure you assemble the ejector along with its spring and collar into the bolt first. Then, tilting the barreled action so it is facing muzzle up, install the assembled bolt in the action, again using one of the locking bolts to hold the bolt in the forward-most position.

In this way, you will be holding the ejector components in place while you reinstall the lever and the lever & breech bolt pin. Remember I mentioned earlier to make note of the position of the cartridge-stop spring which you'll reinstall with the left side cartridge guide. The front or leg of the spring fits in behind the cartridge stop. Otherwise, you simply reassemble the rifle in the reverse order of the above. I

PEOPLE & COMPANIES

Reader Forum

BY AMERICAN GUNSMITH EDITORS APRIL 2009

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Remington 1858 Conversion I have a Navy Arms 1858 Remington Copy, .44-caliber cap-and-ball revolver that I would like to convert to the .45 Colt cartridge, as the bore diameter is .451 inch. However, I don't know who to contact to order the conversion cylinder. Would you possibly have access to this information? If Navy Arms can't provide the cylinder, contact R&D Gun Shop Adjusting Savage 110E Trigger The safety on my Savage Model 110E does not work correctly.

It moves freely from the "off" to the "on" positions with the bolt assembly removed from the rifle. With the bolt in the rifle, the safety will not move into the safe position unless all trigger travel screws have been backed out to a point where the safety no longer works. The two trigger adjusting screws, travel and pull, located in the trigger housing directly affect the safety. The pull-adjusting screw seems to do nothing but compound the function problems when screwed in to make contact with the trigger.

The engagement screw in the trigger itself only further compounds the problem when adjusted to come in contact with the sear to any degree. Are there any step by

step instructions or measurements to follow when making these adjustments? If your rifle was equipped with an Accu Trigger we assume you would have mentioned it specifically. What follows, then, relates to the standard Model 110 trigger mechanism.

With the trigger system removed from the action, adjust the safety for smooth vertical movement without play using the screw located in the center of the safety. Reinstall the trigger assembly, close the bolt, and cock the rifle. Turn the trigger-engagement screw at the front end of the trigger until the sear releases, then back the screw off one-half turn. This should give you a .015 sear engagement.

Cock the action again, place the safety "on," adjust the safety screw (rear-most screw on the bottom of the trigger assembly) to remove any play in the safety. Uncock the action. Adjust for travel with the screw located just forward of the safety screw. Afterwards, there should be a small amount of clearance between the sear and trigger with the trigger depressed.

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The weight of pull can be adjusted by turning the screw located aft of the sear, but the front of the trigger spring must be seated properly in its slot at the front of the housing and stressed by its pin at the rear in order to maintain the pull weight. You must be sure no part of the trigger assembly comes in contact with the stock. Improper operation will result. Now for the bad news: Any adjustments made to the trigger assembly by other than factory technicians voids the manufacturers warranty. QFI Gun Parts?

I have an old single-action revolver (.22 caliber) from Quality Firearms, Inc. (Opa-Locka, FL). Apparently, they were only in business for about two years from 1990 to 1992. The problem is the hand and post are worn and will not rotate the cylinder. The cylinder can be rotated manually and the cylinder bolt locks up fine, and it shoots fairly accurately for what it is. I have tried the usual parts sources without luck. I've even considered trying to make a new one.

I think I can get the old leaf spring out without damaging it. Any ideas on parts? Do you think another manufacturer's part might fit this gun, possibly with some minor fitting? Thanks for any help you might be able to give. The brief existence of Quality Firearms is mentioned in The Blue Book of Gun Values, but nothing is

said of the manufacturer of the guns the company sold. From the listing of those handguns offered, we assume yours is either a Western Ranger or a Plains Rider model.

Not knowing who made it, we can't advise on parts interchangeability, but you might want to start your search by calling Bob's Gun Shop Short-Cycling Winchester Model 100 I have a Winchester Model 100 semiauto .243-caliber carbine in the shop. When the customer brought it in, the story was that it would not feed the second round from the magazine. He provided a new magazine, and that did not correct the problem. A complete cleaning and inspection did not show anything that would cause a short cycle.

He mentioned that a new firing pin was installed after the problem was first noticed (a stainless-steel firing pin was used). I assumed it was a lack of sufficient gas pressure to completely cycle the action and to fully strip a new round from the magazine. So I replaced the gas piston and tested it using factory ammo. After coloring the top of the second round in the magazine with a black marker, it was evident the bolt was not completing the rearward travel needed to strip the second round from the magazine.

This rifle is clear of any gas obstructions via the gas system. Thanks. Though it may look like one due to its gray color, the firing pin Winchester redesigned to correct an old slam-fire problem with the Model 100 was not made of stainless steel. Now on to possible causes for the short cycling, not necessarily in any order related to frequency of occurrence: The gas housing on the bottom of the barrel could be leaking.

It's silver-soldered on, but correction requires it to be removed, the old solder cleaned off, the housing reinstalled, and silver soldered again to seal any leak. Depositing a small amount of

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(continued from previous page) liquid dish detergent on the union between barrel and housing will show the existence of a leak by forming bubbles in the detergent. The gas cap may have been altered or the incorrect one installed for the ammunition being used by the notorious "person or persons unknown." These caps are caliber specific. Consider ordering anew one if any doubt of the suitability of the present cap exists in your mind.

Many gun owners clean their barrels from muzzle to breech if they clean them at all. This continued practice can result in fouling of the chamber and, eventually, an enlarged chamber. Check for this by inserting alive round in the rifle and then extracting/ejecting it manually. Measure the unfired case circumference, shoulder angle and length. Reinsert the round and fire the rifle. Measure the fired case against the unfired case. The maximum allowable expansion between fired and unfired is seven thousandths.

Near or above that can cause hard extraction and a resulting slowing of the bolt travel to the rear. Polishing and lapping the chamber usually resolves this situation. Hopefully, one or more of these suggestions will cure the ills of your customer's Model 100. Pocket Pistol Takedown

I have acquired an old Model 51 Remington .380 pocket pistol. I have a pretty good library, but nothing on this one. It ended manufacture in 1934. I have not been able to figure out how to remove the slide.

I need to polish the chamber, since it's a bit sticky. Help, please. Thanks. Remove the magazine, check the chamber, put on eye protection, and pull the slide to the rear until the notch in its left side aligns with the barrel-lock pin in the receiver. Start the pin out from right to left, then pry it all the way out carefully with a screwdriver or the tip of the magazine floorplate. Now pull the slide back far enough to expose the barrel.

While holding the slide to the rear, pull the barrel forward to separate the slide from the receiver. For more on taking down this pistol, pick up a copy of the NRA Guide to Firearms Assembly, combined handgun/shoulder arm edition. Mauser 98 Receivers I need a couple of stripped Mauser 98 receivers. Since Numrich Gun Parts no longer sells receivers, do you have any idea where I can get them? Do you know who bought their stock? I can't even find any cheap old Mausers to strip. Help would be appreciated.

Mauser receivers are getting scarce, particularly those made by Mauserwerke. They can turn up at gun shows still attached to a

whole rifle and are advertised once in awhile in Gun List or Shotgun News. After you check out Jack First Springfield Sporters and Centerfire Systems call Brownells and request a no-charge copy of their parts-source list for outof-production guns. Of course, Mitchell's Mausers is doing a healthy business selling reconditioned Model 98s, but we seriously doubt they'd part with a receiver.

Marlin 27 & 27S Firing Pins I have a question about the Marlin 27 and 27S in 32-20 centerfire. I received one of each this week for repairs. The 27 is missing the firing pin and the 27S is missing apiece in the front of the firing pin that hangs down and fits into the breech block. My question is this: Does the firing pin keep the bolt locked when the gun is cocked and ready to fire and only after the hammer is all the way forward allow the action to be opened?

I know that's along question, but I need to make firing pins for each. The Model 27 went out of production in 1916. The 27S did likewise in 1932. We doubt that the firing pin serves to keep the bolt locked, but you could pose your question to the Marlin Historian at ican.Gunsmith, address your email to a letter to American Gunsmith Merritt Island, FL 32954.

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