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INSIDE THE ARCHIVE

WORKING THE EARLY MODEL NO. 3 S&W TOP-BREAK .44 SINGLE-ACTIONS

FRANK BROWNELL MAKES GENEROUS PERSONAL GIFT TO NRA • REVISITING THE WALTHER PPK • UPGRADING THE RUG...

ORIGINAL METHODS. MODERN ACCESS.

ARCHIVE EDITION 029

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PEOPLE & COMPANIES

Frank Brownell Makes Generous Personal Gift to NRA

BY AMERICAN GUNSMITH EDITORS APRIL 2006

ORIGINAL PP. 2

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Frank Brownell, President of Brownells, the Iowa-based gunsmithing supply house we're all familiar with, has given an unprecedented personal gift of \$253,000 toward The NRA Foundation's Law Enforcement Endowment for the Law Enforcement Patrol Rifle Training Program. Support from the Brownells is not new. In 2003, the Brownell Family Foundation paid off their earlier pledge of \$250,000 and renewed it for another \$250,000 to fund NRA's Youth Shooting Sports Camps.

The personal gift from Frank Brownell, combined with other gifts from the Brownell family and a giving program for their customers, brings their combined contributions to over \$1.3 million.

Sandra Froman, NRA President, told Frank and Pete Brownell: "On behalf of the National Rifle Association and its nearly four million members, let me express our grateful appreciation to you and your family for your generous support of NRA's educational programs, and most of all, for your extraordinary vision and leadership at a time when the concept of funding NRA programs through endowments was just an idea.

The NRA's Law Enforcement Activities Division (LEAD) provides firearms instructor training exclusively to public and private law enforcement officers and

military personnel. The Patrol Rifle Instructor School is one of seven disciplines available. In 2005, LEAD trained a record 2,005 police firearm instructors from the ranks of federal, state, and municipal police departments, as well as from the military.

According to Ron Kirkland, NRA Director of LEAD, "We have trained over 50,000 Law Enforcement Firearm Instructors since 1960, and over 12,000 NRA Certified Instructors are currently training police officers nationwide.

In fact, NRA is the largest private law enforcement training organization in the United States. "Our law enforcement men and women are near and dear to me," commented Frank Brownell. "I have many good friends in the profession and I know their training is important to saving their lives and also our own't hose they protect," he added. "I was brought up believing that if you could help, you did. I was brought up to act on what I believed in, to follow my heart, and to put my money where my mouth is.

I'm sure I speak for all the readers of this publication and all the many satisfied customers of Brownells when I say: Nice going, Frank. Editor Keith Lawrence Technical

PEOPLE & COMPANIES

Revisiting the Walther PPK

It's been over a decade since we last looked at 007's pet pistol. Here's how to take down and reassemble the Walther and its clones.

BY CHICK BLOOD APRIL 2006

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As the story goes, James Bond's Beretta failed to fire during one of his cloak-and-dagger adventures. As a result, he was given a Walther PPK before undertaking his next crusade against a master criminal out to ransom the world. Thanks to the Ian Fleming books, the PPK, along with the vodka martini (shaken, not stirred), attracted a great deal of public interest. This interest was enough to encourage the gun-control wackos to lobby against the PPK's importation.

The wackos won and the gun was banned in 1958 but only in .32-caliber. A slightly smaller version was produced to circumvent the ban. Thus evolved the gun under discussion here, a "legal" PPK with twin grip panels and chambered for the short 9 millimeter (.380). T from Century Arms but Walthers are no tributed in the U. S. by Smith & Wesson. I believe, in fact, they are manufactured by Smith & Wesson in Holton, Maine.

In a moment, you'll notice that in addition to the usual schematic drawing (on page 4) there is a small section of another schematic

on page 5. The larger drawing is the P-Series Walther I'm working with here. The smaller drawing shows a pertinent area of some other P-Series pistols and their clones that I'll address as it comes up. The main drawing shows a hammer strut pin (#22). The secondary drawing does not, but it's in there anyway.

Neither drawing indicates the possible presence of two studs that may be present in the frame as retainers for the cocking piece. If these studs happen to show up in a Walther P-Series that comes your way, either one can be dislodged from inside the magazine well. Once that's done, insert a punch through the frame in the justvacated hole and push out the remaining stud. Bottom line: If I refer to a part number you don't see on one parts list, look for it on the smaller drawing.

Believe me, if there weren't so many variations on the P-Series I'd never have considered doubling up on you this way. I felt, however, inconvenience in reading would be forgiven, while any confusion on the bench would be avoided. Field Stripping

Eye protection on, chamber checked, and magazine out as usual? Good. Get a firm hold on the pistol with your index finger extending forward along the side of the triggerguard.

Use your It can be decocked by rotating the safety lever downward, which blocks the hammer and releases the trigger forward. The pistol can then be safely carried until the need arises to discharge it. free hand to pull down the front of the guard and press it sideways so it misaligns with the frame. Keep it misaligned and ease it upward to contact the frame. More often than not, the guard will make every effort to reenter the frame, giving any flesh in its way a serious pinch.

I've found that two small strips of duct tape placed parallel to the frame slot upon which the end of the guard can come to rest

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1 Slide 2 Recoil Spring 3 Barrel 4 Frame 5 Trigger Spring 6 Trigger 7 Trigger Pin 8 Magazine Catch 9 Magazine Catch Spring 10 Triggerguard Hinge Pin 11 Ejector Spring 12 Ejector 13 Triggerguard 14 Triggerguard Plunger Spring 15 Triggerguard Plunger 16 Hammer Pin 17 Spring Plug Pin 18 Magazine 19 Hammer Spring Pin 20 Hammer Spring 21 Hammer Strut 22 Hammer Strut Pin 23 Hammer 24 Sear Pin 25 Sear Spring 26 Sear 27 Cocking Piece 28 Trigger Bar 29 Hammer Block 30 Hammer Block Spring Walther P-Series Semi-Auto Pistol (Specifications subject to change without notice) 31 Hammer Block Plunger 32 Hammer Release 33 Safety 34 Firing Pin Spring 35 Firing Pin 36 Loaded Chamber Indicator 37 Indicator Spring 38 Safety Detent 39 Extractor/Safety Spring 40 Extractor Plunger 41 Extractor 42 Grip Plate 43 Grip Plate Screw greatly reduces this painful possibility.

Any adhesive residue the tape leaves on the pistol can be removed with mineral spirits. Now grasp the slide by its grooves with your free hand. Retract it fully until you can lift its back end off the frame. Now ease the slide forward, controlling any desire of the recoil spring to rip it from your fingers, and remove it. Slip the spring off the barrel.

Detailed Disassembly Excepting their respective sizes, whether they have one or two-piece grips, and whether they include a mainspring plug or a mainspring-retaining bar, Walther P-Series are taken down identically. After removing the grip(s), insert a 1/16-inch punch in the rear of the slide and push the firing pin (#35) forward until it extends from the breechface. Lock onto the tip of the firing pin with long-nose locking pliers to retain it as is.

Position the safety (#33) halfway between on and off, and wiggle it out of the slide to the left. Place your thumb over the rear of the firing-pin tunnel and release the pliers.

The firing-pin spring (#34) will propel the firing pin out to the rear. If you don't like the idea of your thumb taking a hit, place a small plastic bag over the rear of the slide before releasing the locking pliers. Turn the slide upside down and clamp it between padded bench-vise jaws.

Insert a small tool between the rear of the extractor (#41) and the extractor plunger (#40). Move the plunger to the rear along with its spring (#39) and the safety-catch plunger (#38). While holding these elements to the rear, push forward on the extractor and remove it. When you take the pressure off the extractor plunger, all the components so restrained can follow the extractor out to the front. Most P-Series Walther pistols, except the .22-caliber ones, have a loaded-chamber indicator (#36).

This part has a groove or notch in its center. Place a punch in there and push the indicator to the rear of the slide. Use

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The tendency of some .22 ammunition to quickly foul these pistols means the .22 versions will require more frequent cleaning than the larger-caliber Walthers. your locking pliers or smooth-jaw pliers to hold it there while you ease the indicator and its spring (#37) upward and out of the firing-pin channel. There's nothing left to do with the slide, so move on to the frame. Remove the grip screw and grip(s). Lower the hammer but don't let it slam into the frame.

Push the rear of the ejector (#12) and spring (#11) inward. (The ejector also serves as a slide stop.) This inward pressure should raise the stud end of part #12 away from the frame, and you can lift the ejector/spring out as a unit. Secure the frame with its back strap upwards in your padded bench vise. If the gun is equipped with a mainspring-retaining bar (#31), use your locking pliers to press the retainer down and lift it away from the frame.

On some PP models, the one here among them, the retainer isn't present. A plug, shown in the large schematic as #19, re-

places it, and is held to the frame by a pin (#17). Removal of the pin is approached similarly to removing the mainspring pin in an M1911. Depress the plug slightly by pressing it down on your bench top and drive out the pin. You'll have to exert some control against the pressure of the mainspring once the pin is gone.

With plugs like the one in this Walther, I prepare for them by installing a permanent, 1/8-inch-diameter hardwood-dowel "nub" in my bench, and pressing the plug down against the nub. In any case, removing the retainer bar or spring plug releases the mainspring (hammer spring). Note that this spring is identified as #30 in one These are the hammer strut (#29), hammer spring (#30), and lanyard loop/ mainspring-retaining bar (#31).

Usually, these show up on pistols with a one-piece grip, but there are exceptions. drawing and #20 in the other. The hammer (#23) and hammer strut (#21) remain in the frame for the moment on retainer-bar models. The strut will come out with the

mainspring on plug models. To remove the hammer and hammer release (#32), push out the hammer pin (#16) right to left, then lift out the hammer and its release. Disconnect the trigger bar from the trigger and the cocking piece (#27).

It's easier to free the bar from the cocking piece if you free it from the trigger first. After that, address removal of the aforementioned cocking-piece retaining studs and get them both out of the way. Removing the Walther's cocking piece can be a minor challenge. The part must be rotated so the large "shelf" at its rear faces the corresponding hammer cutout. The piece is then rotated so its right side can slide from its frame slot and be taken out of the gun to the left.

The sear (#26) is attached to the hammer by its pin (#24), and is under pressure from the sear spring (#25). Place the hammer on your bench block and drive out the pin to separate the sear and sear spring from the lower

PEOPLE & COMPANIES

Upgrading the Ruger 77/22 Rifle

This Ruger bolt-action rimfire rifle is a topnotch firearm, but with the addition of a few aftermarket parts, it can become an even better shooter.

BY DENNIS A. WOOD APRIL 2006

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Many things have changed in the firearms industry since I was a young boy shooting at the local armory with a rifle team. Since then, we've had changes in gunstock material, barrels, lock-time, and how triggers are presented to the shooting public. As a kid, I "cut my teeth" on the Remington Model 513T, Remington Model 37, and the Winchester Model 52. These target rifles had triggers that were quite simple to adjust, as long as care, common sense, and an accurate trigger-pull gauge were used.

Coaches taught us safe gunhandling above all else, and then sight-alignment and trigger-squeeze techniques became apart of the learning curve. The rest was up to each team member. It's not quite that simple these days, as a result of the litigiousness that seems to pervade our society today. You can't blame manufacturers for setting trigger let-off to some safe and tamper-proof limit to avoid dealing in court with someone who refuses to act responsibly.

The problem is, these triggers don't satisfy the needs of responsible shooters who know what they're doing when it comes to

trigger-pull weight. Take a look at Brownells #58 catalog and especially at pages 4 through 8. There are many brands of aftermarket adjustable triggers and sears located on these pages designed to satisfy any customer's wants.

Anytime you choose to install an aftermarket trigger or adjust trigger pull on this or any other gun, make sure you are aware of what you're doing and use an accurate trigger-pull gauge to set those safe limits. Now let's see what we can do with the Ruger 77/22 to make it a better allaround shooter than it is when it comes out of the box. Removing the Stock and Bedding the Receiver Remove the magazine and then the bolt and look down the inside of the barrel from the breech end to verify that the chamber is empty.

Both action screws can be safely removed using a #340-6 Mag-Na-Tip bit, allowing the barreled action to be removed from the stock. Secure the barrel in your padded-jaw vise with the left side of the receiver facing up. With this view accessible you will be able to get at all the fire-control components for disassembly. Look over the inter-

nal areas of the stock that bed the receiver to the wood for any signs of abnormal depression or unevenness.

Check the barrel channel to see if there are any areas that are dark from barrel contact, and scrape away the wood in those areas. I've found that a floated barrel will help a .22 the same as with their bigger-caliber cousins. If the plan calls for bedding the action with epoxy, the two areas that should be considered are the area where the recoil lug resides and the platform where the bottom of the receiver tang rests.

The recoil lug on these rifles is also the clamp that holds the barrel onto the front of the receiver, so make sure the sockets in the hex screws and any surrounding gaps are filled with clay to prevent bedding compound from getting into these areas and causing difficulty with removal later on. Aluminum pillars will help keep the bedding solid and prevent compression of the wood fibers when the receiver/stock screws are tightened down.

Installing an Aftermarket Trigger and Sear The factory trigger on this particular Model 77/22 has an average pull

UPGRADING THE RUGER 77/22 RIFLE CONTINUED

ORIGINAL PAGE 8

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weight of 5-1/2 pounds as measured with my Lyman electronic triggerpull gauge after 10 pulls. Electronic trigger-pull gauges use a "straingauge" setup, and that's supposed to be consistently more accurate than a spring-type pull gauge. My plan for this rifle called for replacing the factory trigger with an adjustable aftermarket trigger made by Dayton Traister Co., along with swapping the factory sear for a target sear made by Volquartsen Custom.

The goal was to achieve a smooth, consistent trigger pull of 3-1/4 pounds. To get to the trigger, we need to remove the thumbnail bolt stop from the cast-in-place pivot pin. Be cautious here: Don't let the bolt-stop plunger and spring get away from you. The trigger pin can be pushed out with a 3/32-inch punch from either side, allowing the factory trigger and trigger-return spring to be removed. The factory sear pin can be pushed out next with the same 3/32-inch punch, as these pins do not fit tightly in place.

The sear will need to come out through the slot in the bottom of the bolt raceway in the receiver tang. The replacement sear will then

go in through this same slot and the sear pin is installed to hold it in place. Fitting the trigger is not quite as easy as installing the sear, but gives you a chance to remove the side-to-side wobble of the factory trigger and smooth up the side bearing surfaces that the new trigger sits against.

Dress the inside faces of the two ears where the trigger resides lightly with 320-grit emery paper. We simply want to remove any burrs surrounding the inside faces of the trigger-pivot pin hole from drilling and to slightly smooth up these surfaces. Try installing the trigger in place, being careful not to lose the little metal pad that fits over the top of the trigger-adjusting screw and between the screw end and trigger-return spring.

This little pad appears to be a stamping and there are some nasty burrs around the periphery that should be removed. If the trigger will not slide easily into place, you will need to remove some metal from each side of the bosses around the trigger-pin hole. Because you'll be trying this trigger several times dur-

ing the fitting process, it's best to use a tapered alignment pin rather than the trigger-pivot pin.

Once you have the trigger sides dressed to the point where the trigger slides into place without any side-to-side wobble, it's time to see if the sear and trigger work well together. This may require several cockings of the striker and pulling of the trigger, so a snap cap or spent .22-caliber rimfire case should be used to cushion the blow of the firing pin. If the trigger will not engage the sear, the top of the trigger (see photo) will need to be cautiously dressed down until sear engagement becomes positive.

This process wasn't necessary during the fitting process on the gun used in this article. After you have the trigger fit to the sear and engagement is positive, work the bolt to make sure that the striker does not follow forward as the bolt is closed. On the top, back end of this trigger, you will notice a pad of extra metal that will be the platform which the safety rotates onto. There will be extra (continued on page 11)



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material in place that will need to be removed to achieve positive engagement of the safety. I dressed the back face below and to the rear of this metal pad with a file until the bluing was removed. This back face was then blackened with a black-ink marker so that a mark from the safety cylinder could be observed as it was turned into place. This witness mark will give a clue as to how much material will need to be removed.

The top of this pad needs to be dressed down very cautiously until positive engagement of the safety results. The metal in this area is very hard and, on this particular trigger/sear combination, it appeared that quite a bit of the metal needed to be removed. I set the trigger up in my milling vise and took .015 inch off the top of the pad with a carbide endmill, and then retried the trigger/safety fit. As it turned out, all of the pad was removed to achieve positive engagement of the safety.

The next step was to reinstall the thumbnail bolt stop/release and put the barreled action back into the stock to see if there was any interference of the trigger

within the stock. The barreled action should be installed into the stock without the bolt being in the receiver. Conclusions This trigger sear combination takes a bit of time to install, but the results are more than satisfactory. When the customer came in to pick up his rifle he wanted to have the trigger adjusted below the 3 pounds that I had it set to.

This combination handled the adjustment extremely well and remains safe, even when the bolt is rotated into place with some force. The customer was happy with the safe, solid result. If you choose to do this type of work, you owe it to yourself and your customer to use safe methods and an accurate trigger-pull gauge.

When you return the rifle to your customer, place the factory parts in a zip-lock bag, and inform him that if this rifle ever needs to be returned to the Ruger factory, the original parts will need to be reinstalled. Ruger doesn't especially appreciate seeing aftermarket parts in these guns. I

PEOPLE & COMPANIES

Tech Topics

In this feature, we examine new tools and tooling, tips and techniques, and news items of interest to the gunsmithing community. Solder-Free Front Sights for Large-Frame Revolvers

BY AMERICAN GUNSMITH EDITORS APRIL 2006

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Single action fans, notably those into traditional cowboy-action events, don't feel too kindly toward screwed-on front sights. Real Old West shootin' irons didn't come with them as standard equipment. These same competitors, along with hunters, also seem to favor 5-1/2-inch barrels. Considering that, why they buy Ruger Blackhawks, Bisleys, and Vaqueros with longer barrels in the first place is a good question, but gunsmiths can be thankful they do.

Those lengthy barrels will need shortening, crowning, and anew front sight. That sight should at least "look" like it has been silver-soldered permanently in place. These installations can be accomplished with skill, considerable practice, and the realization that a blued barrel will require rebluing. (Any visible solder seam between barrel and sight

base tends to unsettle the owner.) Now a custom pistolsmith who's been soldering them on for years comes up with an easier way.

The sight now being offered by Alpha Precision, Inc., eliminates the complications of silver-soldering and the objections to screwed-on attachments. Heat is not required, rebluing is not necessary, the screws are invisible, and the skill level is no greater than with more common screw-on sights. In other words, the Alpha Sight looks as good and stays put as well as the best silver-solder job with none of the drawbacks.

The sight base is attached to the barrel with three hidden cap screws and accepts interchangeable blades in a choice of four heights. Bases are available in either matte-blue carbon steel or brushed-stainless steel. Blades are matte-blue tool steel, serrated, either post or ramp shaped and can be The blade-re-

taining set screw can be seen extending from the sight base and four blade heights are available. exchanged at no charge.

In case your shop doesn't include a mill equipped with a quill-depth gauge, these instructions are directed to a drill-press installation. First, makeup a drill-and-tap depth stop from 3/8-inch-diameter x 1/4-inch round stock in your choice of steel, aluminum, or brass. Drill a #31 hole dead center and another to accept a #6 setscrew. This second hole should be made from an outer arc of the stop and into the center cavity. Tap the setscrew hole to accept the selected screw threads, 6-32 for example.

Wrap the cut-off and crowned barrel in paper to protect the finish, and use a V-block to clamp it steady. A small piece of shim stock under the V-block screw will prevent the screw from tearing through the paper. Square the gun in

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a vise using the grip frame as a reference, and establish top dead center on the barrel. Mark top dead center with a pencil, position the middle screw hole of the base over the dead-center mark, and retain the base in place with a small, spring clamp. Alpha's transfer punch is recommended for locating the holes because there's not enough material in the sight base to use it as a drill guide. Lacking the punch (a \$17 optional extra), hole centers can be determined by using the base as a scribing guide.

If you wisely decide to purchase the punch 'a precision instrument' keep it perpendicular and center punch the middle screw location on the barrel. Attach the drill stop to a high speed #31 drill, and adjust it to stop drilling at .095 to .100 inch deep. Transfer the revolver to your machine and true it. Then drill the middle sight base screw hole. Don't move your setup. You're going to tap in the machine. Remove the #31 drill and switch the stop over to a 6-48 plug tap.

Use either a center for the tap wrench or a B-Square Tru-Taper and plenty of cutting oil to avoid a fractured tap. Adjust the stop to .090 to .095 inch. When you're finished with the plug tap, change to a same size bottoming tap, adjust the stop to the same depth, and go back into complete the prep of the base center hole. Clean out any metal chips and oil with a pipe cleaner and acetone. Attach the base with one of the Torx-head screws (supplied) and a #10 Torx wrench (not supplied).

The center screw must bottom out on the base, not the barrel. With the center screw holding the sight in place, you can locate the front and rear holes, drill and tap them as

before; make sure they're bottoming on the base. Apply red Loc Tite to all threads prior to final tightening. But don't overtighten; the wrench bit could strip the screw heads. And don't fret over using the red stuff, either.

If the sight base ever has to be removed in the future, all you have to do is heat the screws (individually) to about 350 degrees. This amount of heat won't change the temper of the barrel or discolor the finish, and will allow removal of the screws without stripping. (How do you heat each screw individually? Apply the tip of an electric soldering iron to them one at a time.) The Alpha front-sight blade slides into the base and is held there by turning in the base set screw.

If it proves to be the wrong height, swap it for a taller or shorter one. As long as you haven't chewed up or altered the original sight blade, the trade-in cost is nil. The main man at Alpha Precision who came up with this sight is Jim Stroh. He's been voted Pistolsmith of the Year by the Pistolsmiths Guild, is an NRA Gunsmithing School handgun instructor, and his creations have shown up more than once in these pages.

His headquarters is in Comer, Georgia. We don't know as much about the company's present CEO and Chairman, Ron Coburn, who completed a buy-out of Savage Arms, Lakefield Arms (Canada), and Passive Bullet Traps, Inc., in 1995. According to an article that appeared in *The Range Report*, published by the National Shooting Sports Foundation, the new CEO of Savage became very concerned about lead contamination in

the factory resulting from test firing. The article quoted him as saying: "We right on your bench."

While Savage Arms is a name you've known for along time, Savage Range Systems may not be familiar to you. The arms company dates to 1894 when it was first set up in Utica, New York, by Arthur William Savage. A couple of years later, he invented the first hammerless lever-action rifle. The blade is under a hundred bucks, plus shipping. The finished job should bring you more than enough to cover that.

How to Stop Bullets Safely In Your Shop If you don't have a range next door, you can test fire the guns you work on. The bullet will circle the deceleration chamber until its energy is spent. It has its entire mechanism enclosed in a steel receiver. One of the gun's unique features was a rotary magazine with a counter that displayed the number of rounds remaining. The rifle is known as the M99. Through numerous acquisitions, including J.

Stevens Arms, Page Lewis Co. (Lewis machine guns), Davis-Warner Arms, Crescent Firearms, and A. H. Fox, Savage was the largest firearms company in the free world at one time. After converting its factories over to achieve a World War II production of 2.5 million fully automatic weapons, military rifles, and bomb fuses, the company moved its sporting arms division to Chicopee Falls, Massachusetts, in 1947. In 1960, the company relocated to Westfield, Massachusetts.

By all accounts, Arthur Savage led quite an adventurous and romantic life.



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E A Dmake 550 guns a day and shoot one proof and two function rounds through each. Air-quality tests found we had airborne lead in the factory, and some employees were found to have lead particles in their bloodstreams. We, like other firearms manufacturers, were using steel smashplate systems in our range. I realized it would make much more sense to slowly decelerate the bullet, as there would be less damage to [the bullet], the steel plates, and far less lead contamination.

He concluded that a better system B Cwould begin with deflection. It would direct a bullet up an inclined steel entrance ramp installed at a precisely calculated angle. From there, the bullet would pass into a deceleration chamber (see the cutaway drawing above) where its energy works against it. During its travels, the bullet would be coated with a biodegradable, noncorrosive fluid to trap any lead dust.

Once the bullet completed its deceleration cycle, it would drop from the bottom of the unit in near pristine condition. That's exactly what the system he thought up accomplishes. After it was patented, all it needed was a name to The circular vent (E) accepts the hose of a wet/dry shop vacuum, if desired, to eliminate smoke. The wavy line across the bottom indicates the fluid level. telegraph its capabilities.

The name of a lowly mollusk notorious for its torpid nature seemed most appropriate, and the Snail Range System was off and running. Today, the system comes in dozens of variations. The most ambitious among them is capable of digesting .50-caliber BMG projectiles generating 13,000 foot pounds of energy at the muzzle. These "big boys" are used in a full indoor range setup. Down the ladder from them, but accomplishing the same thing, is a Snail System small enough to sit on a gunsmith's bench.

It is pictured here and called the Gunsmith Series Model GT. Its maximum foot pounds of muzzle energy is rated at 4,100. That's high enough to handle function testing of handguns and most sporting rifles, although it should never be exposed to armor-piercing, steel-core, or ceramic-tipped ammo. Its recommended usage is up to 50 rounds per day, and we doubt your turnover goes above that. No, it's not exactly cheap. But it can sure save you time, gasoline, range fees, and wear and tear on your vehicle.

In view of those costs, it shouldn't take too many months to recover your investment. For more i Savage or visit I

FINISHING

Installing Recoil Pads and Butt Plates on Finished Gunstocks

Shaping a butt plate or recoil pad as part of a new stock is relatively simple. When working with a finished stock, the procedure can be a little trickier and more time-consuming.

BY BILL LARSON APRIL 2006

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Installing a recoil pad or butt plate on a finished wood or composite stock might seem simple, but can actually be one of the most exacting jobs in gun work. To accomplish this correctly and produce a very close fit will require attention to details and some careful hand fitting. There are several priorities that are important to the success of this type of project.

First, you must prepare the stock; and throughout the alteration, installation, and reassembly process you must be extremely careful to avoid scratching or marring the finish on the stock. The new recoil pad or buttplate must be shaped while separated from the finished stock, but the final fit must appear as if the pad were formed and contoured as an integral part the stock. The lines of the stock must continue to flow smoothly to the back of the new recoil pad or plate.

And finally, the fit and balance of the gun must work for your customer for whatever type of shooting he intends to do. Keeping these priorities in mind, in this article I'll go through the procedure I use most often. Getting Started I start by measuring the existing length of pull and record it on the work order. I don't want to get too far into proper gun fit here, but this is the time to adjust the length of pull and pitch. The stock may have to be shortened or pad spacers may have to be added.

Molded or composite stocks must be handled differently from wood gunstocks. On occasion, I've had to make a temporary softwood pad for a shotgun, starting on the thick side, and have the customer shoot at a patterning plate. Hopefully this drawn out procedure will not be required. Once the finished dimensions are determined, remove the stock from the firearm and determine the amount of material to be removed, if any.

I don't usually cut the stock at this point; it's best to have the new pad on hand before any cutting is done. Place the end of the stock on a sheet of paper and trace around it. Measure and select the new pad or plate from this paper template. Order recoil pads large enough to carry all stock contours to the end of the pad, but not so large that when grinding, so much material has to be removed that it results in cutting into the interior of the new pad and destroying it.

Most manufacturers of recoil pads provide good installation and sizing instructions with their products. If the stock is to be made longer, spacers will have to be added to the front of the new pad. These are bonded and fastened to the front of the recoil pad. Also shown are helpful tools including a machinist's protractor, a square, hand sanding blocks, and a "broken-in" 80-grit sanding belt.

INSTALLING RECOIL PADS AND BUTT PLATES ON FINISHED GUNSTOCKS

CONTINUED

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The tool is then readjusted for step two, grinding the toe. Here, the jig is positioned here to shape the sides of a recoil pad or butt plate, with additional small, countersunk flat-head screws. The spacers can now be finished as if they were apart of the pad. If too many spacers are required, the recoil pad can become quite large and the balance of the gun can change. Take this into consideration. Longer pad-attachment screws will also be required.

The Brownells catalog has a good assortment of all required components. Remember to select pads and plates that complement the firearm; conservative and simple usually looks and works best. I use two or three layers of clear packaging tape wrapped tightly and smoothly around the back of the stock. A black felt tip pen is used to mark the correct cutoff line on the tape. I also pad the sides of the stock with cardboard and use wood shims to raise the grip or hand area of the stock and secure all of this with tape.

I want my cut to be as close to perpendicular to the center plane of the stock as possible. If pitch adjustment is required, a spacer may be needed at the comb area. I now drill out the old screw holes to 1/4- or 5/16-inch diameter, being certain to control the drill so it doesn't break through at the toe area of the stock. Then use hardwood dowels and exterior glue to fill the holes

when working with a wood stock. Don't hammer wood dowels into the holes, since it's possible to crack or split a wood stock.

A slip fit is all that is required. I use a fiberglass filler for composite stocks. Some injection-molded plastic or composite gunstocks will not permit shortening or repositioning of screw holes due to their design. If this is the case, you will have to put new holes in the pad to match the holes in the stock. This can become involved and careful measurements are required. You can order butt plates and some pads without holes, which makes things easier.

Now this taped up assembly goes into a 10-inch power miter box. Some repositioning may be required to get the cut in the right place. I usually cut the stock about .050 inch on the long side. The cut is made from the side of the stock, with one clean slow pass, right on through. The blade is a carbide-toothed, precision molding blade (which has all of its teeth), and is razor sharp. Get a good grip on the work. No slips allowed here.

I then hand sand the butt to achieve symmetry or equal angles on both sides of the stock. This requires a little tedious and careful sanding with a coarse abrasive to get things perfectly flat. Typically, most pads require a perfectly flat fit, but if a curved butt is involved, plastic or hard-rub-

ber buttplates can be heated in boiling water and can be hand formed to the required contour (while wearing leather gloves). This will not work with thick recoil pads.

Don't attempt to bend pads cold; they're sure to break. The front face of new recoil pads must be sanded flat. I use a flat steel or granite surface plate, with 100-grit aluminum-oxide paper on top of the plate to straight-line sand the face of the pad perfectly flat. The back of the stock must also be worked to a perfectly flat plane. If the end of the stock is not ground perfectly flat, the pad will be drawn into any hollow areas and a gap around the edges will be apparent.

Use a straightedge and keep at it for a good fit. The pad is installed per the manufacturer's instructions. Position and drill the new holes in the stock. Be certain to position the pad so you have enough material for all stock contours to be carried out. Everything should be centered side to side. Attach the pad and tighten the screws. Look for any gaps between the pad and stock, and correct with additional sanding if required.

Now stand the stock up and, using a very sharp drafting pencil or scribe, trace a clear, sharp line around the front face of the pad. You can ignore the thickness of the clear tape when

INSTALLING RECOIL PADS AND BUTT PLATES ON FINISHED GUNSTOCKS CONTINUED

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The sheetmetal screws on the left attach the spacers to the front of the pad. The long screws on the right then attach the entire assembly to the stock. scribing this line unless you put it on six layers thick. Remove the pad from the stock. Grinding the Pad I use a commercial sanding fixture for "off-the-stock" recoil-pad shaping. B- Square, Miles Gilbert, and Brownells offer a selection. You usually get what you pay for here. These little fixtures position the recoil or butt pad as if it were on the stock.

The back of the pad goes against the fixture support bar. Three positions are required for grinding a pad. If you are working with a curved pad, a spacer in the middle for better support may be required. The instructions that come with these fixtures are easy to understand. You start with the top or comb end of the pad. The base of the fixture is held against the butt. A medium-size square is laid on the comb, and the front of the recoil pad (screwed to the fixture bar) is squared up.

Then the fixturebar locking screw is tightened, and you are ready to start grinding the top of the pad to the scribe line. You then set

the square up on the bottom of the stock, adjust the fixture, and grind the bottom or toe end of the pad. I then position the fixture bar approximately parallel to its base and finish up the sides of the pad. There is no adjustment on these fixtures to permit grinding side draft on the sides of the pad.

Unless a thick stack of spacers or thick pad is being fitted, this will usually not be a problem. However, I always leave a little extra pad on the sides to allow hand sanding the sides of the pad. Don't get carried away and grind off the scribe line. For shaping, I use a slightly worn 60- or 80-grit two-inch-wide belt, mounted on a small belt sander. Then I finish up on a 10-inch disk sander with 80-grit abrasive. Coarser abrasives can get aggressive and can tear or distort some pads.

Use a very light feed or pressure with coarser abrasives. Check for any distortion or tearing. Some customers will prefer highgloss buffed edges as shown in this photo. ing before you get close to the scribe line. The base plate of the sander must be adjusted to produce an accurate 90-degree cut. This is important. Set this up with a scrap wood block. Some belt

sanders "set back" excessively against the belt backer plate as the work is pushed into the belt.

This can produce a curved rather than a flat surface on the work. Disk sanders have a stiffer working face. The fixture is held at the base, and using moderate pressure, is fed into the belt or disk. Keep the work moving and keep the base of the fixture down on the work base of the machine. Do not let it bounce around or ride up on rubber dust. Clean the work plate as required. The pad material is removed quickly so pay attention to that scribe line.

I use a shield behind the sander made of folded-up cardboard to confine most of the rubber or plastic dust. Wear your safety glasses, dust mask, shop apron, long sleeves, and pants. Rubber dust will get up to your elbows and even into your shoes. A good shop vacuum is a must for clean up. Hand-sanding of rubber recoil pads is time-consuming, but is essential to get a really good fit. I use the "fit and sand a little more" method. When you get close to the final fit, carefully remove the protective tape from the

INSTALLING RECOIL PADS AND BUTT PLATES ON FINISHED GUNSTOCKS CONTINUED

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Notice how all stock contours carry out to the end of the recoil pad. The pad is the same thickness on both sides, end of the stock. Hold the pad on, check it, and sand as required. I use an 80-or 100-grit abrasive paper with a small wood sanding block for this final sanding. I also sand around, or top to bottom on pads and plates. I don't like to see the sanding lines on the black pad-support section. The tops of recoil pads and back edges should have a small radius.

If sporting clays is your customer's game, I put more of a radius or angle on the top. I always fine sand and buff the edges of plastic butt pads, and I polish and black-oxide steel butt plates. When you're sanding the sides of pads and plates, be careful not to round off the front edges where they attach to the stock. Reassembly When you have a perfect fit all around with the proper contours and radiuses, it's time to assemble things. Vacuum or blow out the rubber dust stuck in the pad.

I always stain and seal the end grain of wood gunstocks. When this is dry, a few spots of contact cement or varnish are used between the pad and the stock to prevent any movement. Reassemble the stock to the gun using anti-seize compound or perhaps a semipermanent threadlocking com-

pound on the stock-bolt threads and fasteners. Use the correct torque on all fasteners. Do not split or crack the stock by over tightening. Now you can mount the pad and tighten the screws.

I use a small amount of silicone grease on the screws and on the end of the Phillips screwdriver to ease the friction in thick rubber recoil pads. I also use the smallest-diameter screwdriver shank that will work with the screws. You don't want see any trace of the holes in the back of a rubber recoil pad once the screws are installed. Before final tightening of the screws, check for fit all around. It is sometimes possible to shift pads very slightly to achieve that perfect fit.

Always be careful not to mar the gunstock finish. A Few Additional Tips Good lighting at the sander is important. When grinding rubber on a belt or disk sander, use a light pressure to keep the rubber from distorting under grinding pressure. Should you run into a very soft pad material you can put the fixture and mounted pad in a freezer for awhile, and then proceed quickly with the sanding procedure.

A light coat of silicone grease applied and then wiped off will gloss up a rubber pad and make it a bit more supple for awhile.

Leather-covered recoil or butt pads are fitted in an entirely different manner. The cover is put over a sized, internal section. If you must have one of these for a fine, English double, try to get one from the gun manufacture that will fit the firearm. Don't overtighten the attachment screws on plastic or wood buttplates excessively, as splitting or cracking can occur.

Hardwood checkered butt plates look very nice, but are impractical, in my opinion. They are easily damaged and make the butt of the firearm very slippery; if you lean the gun up against something, it's likely to take a tumble. Stocks can be cut off with a hand-saw, but be very careful about edge chipping. (Masking tape might help.) Carefully holding the butt against a disk or belt sander will remove material faster, but I have always felt some hand sanding was required to get things perfectly flat and symmetrical.

After you do 20 or 30 pad installations, the process gets easier and you can proceed more quickly and with more confidence. It would also be better, of course, if your early attempts at this work were not performed on someone's \$60,000 imported game or trap gun. I

PISTOLS

Working the Early Model No. 3 S&W Top-Break .44 Single-Actions

This report on Smith & Wesson's American and Russian models completes the author's series on the S&W large-frame topbreak revolvers.

BY DAVID R. CHICOINE APRIL 2006

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Smith & Wesson's Model No. 3 was manufactured from 1870 through 1913 in several singleaction configurations and even in a few in double-action versions. The name Model No. 3 refers to the frame size rather than the action type, caliber, or model. In this case, the Model 3 is a .44 or large frame. Model No. 3s were popular revolvers in the Old West.

In single-actions alone, S&W made models called the American, Russian, Schofield, and the New Model No. 3, and to make matters a little more confusing, all of those have sub-categories. Indeed, there are so many configurations, all with mechanical differences, that I'm confining this article to the early singleactions known as the American Models and to the 1st and 2nd Model Russian. That's because, while they may not look alike, they all have very similar mechanical operation.

Other variations were covered in earlier issues of American Gunsmith, including the Navy Arms Schofield replica (December 99,

January 00, and February 00); the S&W Third or so-called New Model Russian and the modern Navy Arms replica (June 2003); the S&W New Model No. 3 (October 03); the S&W .44 Double- Action (May 03); and more recently, the S&W Schofield/U. S. Army Models (January 06).

When it was introduced in 1870, the S&W Model 3 what came to be known as the .44 Single Action American 1st Model' became the first in along line of Smith & Wesson topbreak revolvers. Many people today don't realize that the .44 S&W Model No. 3 was also the first metallic-cartridge revolver to be adopted by the United States Army. The Army purchased 1,000 for field trials in 1870, which was three years before the Colt Single Action Army was introduced.

These Model No. 3s are single-actiononly revolvers, hold six shots, and started out with a square-butt grip shape. The revolver uses a T-shaped barrel latch or catch that is lifted up to unlock the barrel. Then the revolver can be opened for loading by tilting

the barrel down like a break-open shotgun. These pistols also had an advanced feature that was not found in any contemporary revolver's simultaneous, automatic ejection. While the U. S.

Army only purchased 1,000 of these, the S&W .44 was quickly adopted in large quantities in 1871 by Tsarist Russia and other countries. As a result of those large purchases, the design underwent a series of changes which were clear improvements to the original design. Some of the alterations made for the Russian military were drastic, with many being introduced into the commercial production of the American Models as well. Out of these contract sales, two distinct model names for the No. 3 emerged.

The one chambered in .44 S&W caliber and sold on the Ameri- 44 American of 1870 was a truly revolutionary design. This particular gun was owned by a lieutenant in the 6th U. S. Cavalry. Author photos.

WORKING THE EARLY MODEL NO. 3 S&W TOP-BREAK .44 SINGLE-ACTIONS CONTINUED

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can commercial market became known as the "American Model." The other, called the "Russian Model," was at first nearly identical to the American Model, but was chambered for the .44 S&W Russian cartridge. Russian Models were sold to the Russians and other military organizations as well as on the commercial civilian market.

Because of the many variations of these popular revolvers, all built on the basic single-action Model No. 3 frame, there has been considerable confusion among collectors and gunsmiths in exact identification of S&W Model No. 3 models. Serial-number tables can actually add even more confusion. So, in an effort to help the gunsmith understand which model is which and how to tell a Russian from an American, there follows a general description of each revolver along with its unique, distinguishing features.

Features of the .44 Single-Action American, 1st Model 1. Neither .44-caliber S&W American centerfire nor .44 rimfire (rare) has a shoulder in the chamber; chambers are bored straight through. 2. Removable triggerguard with a conventional bow shape, held with two screws. 3. Sliding

ratchet pawl under the frame joint, forward of the triggerguard. 4. Geared extraction system with square extractor shank. 5. Hammer-actuated cylinder stop. 6. .078-inch-diameter trigger pin. 7. No barrel catch/hammer-interlock feature. 8.

Flat-tipped trigger. 9. Barrel-joint pivot is a one-piece screw that threads into right joint ear of frame with lock-screw. 10. Square-butt grip shape. 11. Standard American barrel length is 8 inches. 1st Model American uses a German-silver front sight; all other front sights are steel. The .44 American 2nd Model was introduced as an improved Model 3 in 1872.

This model is much like the 1st Model with the changes listed below. (These changes had already occurred first in the Russian military guns.) There was also a so-called "Transition" Model American, which falls somewhere in between the 1st and 2nd Models chronologically. "Transitions" had some of the features of the 2nd Models, gradually blended into the 1st Model-style revolver over a short time period, eventually morphing into full-fledged 2nd Models. Features of the .44 Single-Action American, 2nd Model 5.

The hammer-actuated cylinder stop was retained on 2nd Models. A trigger-actuated stop was introduced on later 2nd Models. 6. Larger diameter (.095 inch) trigger pin than the 1st Model. 8. Barrel catch/hammer with an interlocking feature. 9. Barrel-joint pivot is now two pieces, with a separate lock screw. Features of the .44 Single Action Russian, 1st and 2nd Models First introduced in 1871, the .44 Single Action Russian Model used a square-butt grip shape with a rounded butt and plow-handle grip shape.

The 1st Model Russian with its square butt and 8-inch barrel looks identical to the 2nd Model American except for its caliber. All Russian models, except a very few early 1st Models, are equipped with the barrel catch/hammer interlock feature. The distinguishing features are: 1. The .44 S&W Russian centerfire was standard and .44 rimfire Henry was rare. The .44 Russian chambers are shouldered. 2.

The removable bowed triggerguard is held with two screws. (The 2nd Model Russian used a distinctive "spur" under the rear of the guard.)

WORKING THE EARLY MODEL NO. 3 S&W TOP-BREAK .44 SINGLE-ACTIONS CONTINUED

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3. There is a sliding ratchet pawl under the frame joint, forward of the trigger guard. 4. Geared extraction with square extractor shank. 5. Except for a few 1st Models, a trigger-actuated cylinder stop was used on all Russian models. 6. Larger diameter (.095-inch) trigger pin on all but a few early 1st Models. 7. Trigger has a pointed tip, except for a few early 1st Models. 8. Barrel catch/hammer interlocking feature on all Russian models. 9.

Russian models used a two-piece barrel-joint pivot. 10. 1st Model Russian has a square butt shape like the American. 2nd Model Russian has the rounded, plowhandle butt shape. 11. 1st Model Russian has an 8-inch barrel; The 2nd Model Russian barrel is 7 inches.

Shameless Plug To learn much more about these fascinating old guns, pick up a copy of my book, *Smith & Wesson Sixguns of the Old West*, copyright Mowbray Publications, 2004 or Smith & Wes- A tab on the barrel catch locked into a notch in the hammer top when the hammer was in the fired position, effectively preventing the barrel catch from being opened. To open the barrel catch, first place the hammer in the half-cock position. son 1857-1945 by Neal and Jinks.

Disassembly Instructions Grasp the revolver around its grip firmly, being careful to point the muzzle in a safe direction. Pull the hammer (#32) back to the first click, lift upon the barrel catch (#8), and tilt the revolver barrel all the way down to open the action. This exposes the rear of the cylinder's chambers. Check now to be certain the cylinder is not loaded. If you see cartridges, tilt the rear of the cylinder down as you open the barrel, and allow the cartridges to be expelled from the cylinder.

To Remove the Cylinder. With the barrel still all the way open, loosen the cylinder-catch screw (#6) about two full turns. For 1st Models, use the tip of a screwdriver or punch to push up on the rear end of the cylinder catch (#7) so it will release the cylinder. Unscrew and remove the cylinder-pin screw (#5) from the center of the left side of the extractor housing on the barrel. The cylinder assembly can be withdrawn off to the rear.

All other models: After loosening the cylinder-catch screw as above, pull the cylinder slightly to the rear (about 1/4 inch), then push it back forward. The cylinder catch will have No Interlock Russian Interlock moved rearward with the cylinder, and it can now be withdrawn by pulling it out to the rear of the barrel. Note: With all models, when the cylinder is simply being removed for clean-

ing, if you do not change the position of the barrel, the ratchet gear's position will not be disturbed.

In this way, the cylinder can be reinstalled by reversing the above procedure. To Disassemble the Cylinder. Insert six fired cartridge cases or dummy cartridges into the chambers. Locate a strong, straight punch that will fit into the hole in the extractor rack (#13) and unscrew the rack, using the punch as a wrench by turning it counterclockwise. The extractor (#15) will push out the rear of the cylinder. The extractor-rack screw (#10) can be unscrewed using a screwdriver.

The extractor spring (#11) and collar (#12) will then come free along with the rack screw. To reassemble the cylinder, reverse the above procedure. To reinstall the cylinder in the weapon, open the barrel all the way, noting the position of the gear teeth on the ratchet gear. To install the cylinder correctly, the forward-most tooth of the ratchet gear must be standing almost straight up, nearly perpendicular to the bore and canted just slightly to the rear.

In this way as the cylinder is reinstalled, the forward tooth on the extractor rack will engage with the forward tooth on the ratchet gear. Holding the extractor into the cylinder with your thumb, slide the cylinder assembly forward all the way back into the rear of the

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S&W American Model and Russian 1st and 2nd Model Revolver (Drawing shows a 2nd Model Russian) 1 Frame 2 Barrel 3 Front Sight 4 Front Sight Pin 5 Cylinder Pin Screw 6 Cylinder Catch Screw 7 Cylinder Catch 8 Barrel Catch base pin, until it will not move any farther forward. On 1st Models, once the cylinder is installed correctly, the cylinder-catch screw can be re-tightened. For all other models, the cylinder catch slides into place in the barrel top-strap, and the cylinder-catch screw can be re-tightened.

Removing the Grips, Sideplate, and Mainspring. Unscrew and remove the stock screw (#47) and lift off the grips 9 Barrel Catch Spring 10 Rack Screw 11 Extractor Spring 12 Extractor Collar 13 Extractor Rack 14 Cylinder 15 Extractor 16 Barrel Catch Screw (#45). Unscrew and remove the three sideplate screws (#40 and 41). Turn the frame on its side, holding it by the hinge with the sideplate facing up. Strike the grip frame a sharp blow or two using a plastic or hardwood mallet.

This will cause the sideplate (#39) to jump up out of its seat in the frame for removal. Never attempt to pry off the sideplate as you will cause damage both to it and to

the frame.

Using a pair of spreader-type pliers, pry 17 Ratchet Pawl 18 Ratchet Pawl Spring 19 Ratchet (gear) 20 Ratchet Bushing 21 Joint Pivot 21a Joint Pivot Screw 22 Joint Pivot Lock Screw 23 Guard Screw (front) 24 Cylinder Stop Spring 25 Trigger Spring 26 Guard Screw (rear) 27 Strain Screw 28 Cylinder Stop 29 Stop Pin 30 Trigger 31 Trigger Pin 32 Hammer 33 Hammer Stirrup 34 Stirrup Pin 35 Hand 36 Hand Spring (not shown) 37 Hand Spring Pin 38 Mainspring 39 Sideplate 40 Sideplate Screw (center) 41 Sideplate Screw (front/rear) 42 Hammer Stud 43 Triggerguard 44 Stock Pin 45 Stocks (grips) 46 Stock Screw 47 Base Pin down on the top-rear of the mainspring (#38) and disengage it from the hammer stirrup (#33).

Loosen the strain screw (#27), and the mainspring can now be removed out through the side of the grip frame. To Remove the Triggerguard and Hammer. Place the hammer in the half-cock position. Unscrew and remove the two guard screws (#23 and 26). One comes in from the top through

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These became distinctly recognizable features of the later Russian models. the frame at the cylinder opening; the other comes in at the rear of the triggerguard. Now the guard (#43) can be pulled down off the frame. Use care, since the trigger spring (#25) and the cylinder-stop spring (#24) are held in place by the guard and its screws. These springs are now loose and can be lifted off. Note: 2nd Model Russians use a large leaf-type trigger spring that is secured into the grip strap with a pin.

Using a small screwdriver as a lever, pull back on the hand (#35) causing it to pivot to the rear. Then, while holding the hand back, rotate the hammer (#32) to a position where it will clear the frame opening. From here, lift it up and off the hammer stud (#42) and out of the frame. The trigger (#30) and cylinder stop (#28) are held in place by pins that pass through the frame from side to side. Using a suitable cup-tipped pin punch and hammer, these pins can now be drifted out from either side of the frame.

To Remove the Barrel. When working with the 1st Model American, unscrew and remove the joint-pivot lock screw (#22) from the left side of the frame joint. Remove the joint pivot (#21) from the left side of the frame joint. On all other models, remove the joint-pivot screw from the right side of

the frame, and then remove the joint-pivot lock screw (#22) from the left side of the frame. The joint pivot (#21) can then be pushed out of the frame joint from right to left, using a pin punch.

Hold the ratchet pawl (#17) to the rear with a thumb. The barrel (#2) is now free and can be lifted up out of the frame joint. When the barrel is removed, ease off on the ratchet pawl with your thumb, and it can be removed out through the front of the frame joint along with its spring (#18).

The ratchet or gear (#19) can be removed from the barrel joint by pulling it down. (Make careful note of the gear's position for reassembly.) The ratchet bushing (#20) will be found at the center of the ratchet gear, and it can be pushed out with finger pressure. The barrel-catch screw (#16) is now unscrewed and removed. This will free the barrel catch (#8) and the barrel-catch spring (#9) for removal out the rear of the barrel top-strap. Disassembling the Hammer.

Rotate the hand (#35) 180 degrees, and pull it out the left side of the hammer. Drift out the handspring pin (#37) located at the center-front of the hammer. You can now slide the handspring (#36) forward out of its recess in the hammer. The hammer stirrup (#33) is removed by drifting out its pin

(#34) at the rear of the hammer. Take notice of the position of the stirrup before you remove it for later reassembly.

Note: To prevent damaging the hammer, before driving any pins out, be sure you support the opposite side of the hammer against a steel or brass bench block which has holes in it to allow pins to be driven through. Conclusion With these old S&Ws, you'll encounter two types of cylinder stops. The early hammer-actuated type will be found on 1st and on many 2nd Model Americans, as well as a very few 1st Model Russian revolvers.

The later trigger-actuated cylinder stop is found on later 2nd Model Americans, as well as on the vast majority of 1st and all 2nd Model Russians. There are differences in the triggers used with both stop types. The later trigger has a shoulder on its front-top, just above the finger piece that actuates the stop. This trigger also uses a more pointed tip on the finger piece. Hammer-actuated-stop models do not have this shoulder on the trigger, and have a more squared tip on the finger piece.

Also note that, on Model No. 3s manufactured after the First Model American, the diameter of the trigger pin (#31) was increased from .078 to .095 inch, and the frame around the trigger pin was made stronger. I

READER FORUM

Reader Forum

BY AMERICAN GUNSMITH EDITORS APRIL 2006

ORIGINAL PP. 23-24

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Unfiberglassing a Mag Box I have an old Bishop stock that has the mag box fiberglassed in. Any suggestions on how to remove it without wrecking the stock? There are no magic elixirs for dissolving firmly set up fiberglass. After speaking with a couple of stockmaking firms, we can suggest a few possibilities—all of which assume your old stock is not plastic. You could apply heat to the inner sides and bottom of the mag box to soften the fiberglass.

Be aware that fiberglass (the resin, not the glass) will burn like most other petroleum derivatives. You might also try to work a small hobby saw between the stock and the sides of the mag. This won't accomplish much in the way of freeing the base of the mag from the stock. For this, you may have to fashion a "minichisel" from drill rod, sharpen and harden it, and chip away at the bonded area the best you can.

For this proposed "cure," we recommend that the area of the existing stock around the mag base be taped to prevent any splitting. Our final suggestion is to throttle the character who used the fiberglass in the first place. Noble Action I have a Noble Model 67X Deerfield 12-gauge pump with a 3-inch chamber. It appears to have been made in January 1968 (my guess because there is a star followed by a 1 followed by a 68, and was ordered around that time).

My problem is that I haven't been able to find a replacement handlebar tube assembly. The closest I came was Numrich Gun Parts item #11520. The diameter and length were fine, but theirs is a one-piece welded unit that slides in from the front. The one I have is two-piece. The bar slides in through the back of the receiver, and the tube is tapped on the end. I don't see re-pairing the tube collar as an option, since previous attempts only worsened it.

I realize that the gun has no real monetary value, but it has an extreme amount of sentimental value. I am attaching a photo. Any help would be greatly appreciated. We think you have a Model 66X but that would be difficult to confirm, since Noble went out of business in 1971. You might try other parts sources' Jack First is one—but the "parts- source list" from Brownells, which is dedicated to obsolete and out-of-production guns, could provide your best chance of finding an action assembly. There is no charge for the list, but you'll run up your phone bill checking out the possibilities on the list. Gold-Bead Sights I have a question about the front sight on a 1911A1. I've been looking for information on how to install a gold bead on the front sights of pistols and revolvers.

From what I've found, this was the choice of many a gunman in the 1930s through the 50s. There are some shops that still do this type of work. I'd like to learn how it's done. Most people would say to replace the sight with a night sight, but, for me, "old school" still works in 2006. Thanks for your time. After quick consults with Pistolsmiths Guild members and a reread of the section on sight enhancement on the M1911 in George Nonte's Pistolsmithing, we've come up with the following suggestions: 1. While Mr.

Nonte doesn't specifically mention gold beads, you can grind the existing front sight perfectly flat, then drill and tap the slide to accept a shotgun bead with a small-diameter stem. The stem must not drag the barrel or bushing after installation, and red Lok Tite is recommended to secure the threads. You then have a choice of opening up the rear sight notch to accommodate the bead width or installing anew rear adjustable, such as a Millett, with a rear notch already wide enough.

If you elect the latter, be certain the height of the new rear and revised front sight correspond. 2. Few revolvers have front blades dan email to Chick Blood, Technical Editor, at

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(continued from previous page) thick enough to drill and tap. For these, you'll have to add soldered-on pieces, file the result to conform to the original shape of the front sight, then drill and tap for a bead as described for the M1911. However, placement of the bead on the thicker sight can present point-of-impact problems unless the revolver is equipped with an adjustable rear sight and even then the height of the rear and positioning of the bead might not complement each other.

On the other hand, "Fast Fix Freddie," last name omitted by request, has a couple of ideas whereby you can avoid the drilling, grinding, and tapping. He suggests you affix a gold wire, flattened and formed as you wish, to the rear of the front sight with steel-reinforced epoxy. Either that or first paint the rear of the front sight with yellow paint, cover the dried yellow with gold metallic paint, and then paint over both with clear nail polish. Double Trouble I have a Model 70 in .30-06, manufactured in 1973.

The problem is the safety will not move from the fire position. I took the rifle to a full-time gunsmith in January. He took the bolt apart and everything seemed okay, put it back together and it worked. I then fired two or three rounds and it's back stuck again. This has the gunsmith scratching his head. The original owner had fallen with the gun and stuck the barrel in the mud. Everything was cleared out and cleaned before firing.

I found the stock broken and fixed it, along with glass bedding and fully floating the barrel. Any ideas or suggestions? I have a second problem with an S&W 4506 semi-auto. I bought it used, and it's a very clean and smooth piece. In single-action with the hammer cocked, the trigger has a small "glitch," but otherwise is okay. I've only fired nine rounds of factory ball.

My duty 5906, my personal 5904, and my friend's 1006 or 4506 didn't have this "glitch." The "glitch" is like the trigger is slipping by something rather than hanging. Letters and emails to Smith & Wesson about this piece have gone unanswered, although they had the piece back before they shipped it to CDNN in Abeline, Texas, for resale. (That's who I bought it from.) What's up with Colt? A posting on Numrich's forum says they are now owned by an Iraqi, their website says as much.

In the Model 70, the safety is supposed to raise the firing pin off the sear. More precisely, it's supposed to raise it 40 to 60 thousandths. When it fails to do so, it usually means someone, perhaps the original owner who sounds to be a somewhat awkward fellow, has "overqualified" the firing pin which is a fancy word for reducing its diameter excessively. Install a fresh firing pin in the rifle. If this doesn't resolve the problem, we suggest you send the gun to Browning-Winchester (Utah) for a new bolt.

The safety system will be requalified according to factory specifications in that process. We can't be certain what you mean by "glitch" regarding the S&W. Usually the

term is employed as a synonym for "hitch." But your description of "slipping by something" would seem to eliminate hitching, snagging, or dragging. This makes us suspect the problem could be related to an improperly installed sear or searspring, or possibly a damaged SA notch on the hammer.

Silver Pigeon Safety Please tell me how to change the safety on a Beretta 687 Silver Pigeon so that it doesn't automatically go on "safe" when the gun is closed. This makes it difficult to shoot skeet with the gun. Also, can you tell me where I can get a shop/service manual for this gun? Jr. There are two types of Silver Pigeon shotguns made by Beretta. One is a field gun; the other is a sporting-clays gun. The field gun features a safety that goes "on" when the gun is closed.

The sporting clays gun has no such safety, since it was never intended to be carried afield where an accidental discharge is more likely to occur. Beretta will not alter the safety in the field version of the Silver Pigeon to serve as a skeet gun. Nor do we advise it. A local gunsmith might tackle the job if he's willing to accept liability for any possible injury resulting from the modification.

If no such individual can be found, you or your customer will simply have to remember a Silver Pigeon field shotgun has a safety that must be disengaged prior to bringing the gun to shoulder. There is no shop or service manual available to the public, but drawings and an owner's manual can be found at

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