MAY 2010

DIGITAL ARCHIVE EDITION

PRECISION ARMS WORKSHOP

AND THE AMERICAN GUNSMITH ARCHIVE

A TECHNICAL JOURNAL OF CRAFT, REPAIR & RESTORATION

05

ARCHIVE ISSUE NUMBER

INSIDE THE ARCHIVE

DISASSEMBLY, REASSEMBLY OF THE SSG 3000 RIFLE

GUNSMITHS BOOST BUSINESS · WORKING THE .22 RIFLE · A BEDDING PILLAR FOR LONG ACTION REMINGTONS · BUILD…

DIGITAL ARCHIVE EDITION

Preserved for the bench.

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AMERICAN GUNSMITH

DIGITAL ARCHIVE EDITION · MAY 2010

ISSUE RECORD

ORIGINAL DATE	May 2010
VOLUME	Archive volume not stated
ISSUE NUMBER	05
SOURCE ID	ag-c06f1f2722015f10805153f8

DIGITAL EDITION

PUBLICATION	American Gunsmith
EDITION	Digital Archive Edition
ARCHIVE STEWARD	Innovation Network LLC
CONTACT	editor@gunsmithmag.com

Editorial fidelity. Article titles, author attribution, issue relationships, source-page references, and article text remain bound to the archive corpus. Layout, covers, navigation, and conversion notes are newly produced for this edition. Historical statements remain part of the original editorial record.

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A complete guide to the searchable editorial work preserved from May 2010.

FROM THE ARCHIVE

Gunsmiths Boost Business

BY AMERICAN GUNSMITH EDITORS MAY 2010 ORIGINAL PP. 2

"We receive numerous calls and walk-in customers daily requiring the services and knowledge of our gunsmith. Additionally, our existing customers greatly appreciate the convenience of having a gunsmith on site — at a business they frequent, are familiar with and trust." Bruce Piendl, general manager for a large, Pittsburgh-area shooting range and firearms retail store called Anthony Arms has found that offering the services of an on-site, full-time gunsmith has been a great boost to business.

In addition to bringing business to the operation and providing needed additional services for retail and range customers, Piendl's gunsmith is a critical back-up person to the sales force and as a firearms expert. Not that any American Gunsmith readers are surprised by this "revela tion." Unless the sales staff is blessed with competition shooting experience or have similar, active shooting backgrounds, its not likely everyone behind the counter is intimately familiar with the tools of the trade.

More than one editor at other publishing companies has complained to me in private about having folks in the office with little to no experience with firearms. The needed resume items included skill with photo editing and magazine layout. Shooting skill and firearm knowledge was a distant, secondary requirement. A sales staff at a retail store would likely have the same problem. Having someone on-site intimately familiar with the internal workings of firearms is a huge resource.

When that person can also do repairs for customers, for a profit to the business, it is an additional income source as well. Even if a business can't add you as a full-time staffer your services are still useful to them. Bob Thacker, director of the Pennsylvania Gunsmith School, describes two additional arrangements a gun business can make with a gunsmith to provide services: Leasing on-site space to an independent gunsmith, or engaging in a relationship with an established off-site gunsmithing business.

An on-site concession-based gunsmith lets the retail store or range bring repair work to you while remaining an independent, albeit an in-store 'smith. An off-site arrangement lets you stay in your current shop, but establish an agreement with another retail operation.

Regardless of the decision made about offering gunsmithing services, it's a facet of business that should be considered, debated and investigated by every range because it is better than not having a relationship with a professional who can provide additional customer service. Failing to do so is a loss of a potential profit center or customer service. By remaining an independent 'smith you can outsource your services to local businesses that can't afford to put you on salary.

Many firearms businesses say, "Fix guns, build guns and customers will come." Whether you're full-time or an independent, be the reason why those customers return.

PEOPLE & COMPANIES

Disassembly, Reassembly of the SSG 3000 Rifle

An offshore-built tactical marvel, the German-built SSG 3000 is an impressive import from Sig Arms.

BY CHICK BLOOD MAY 2010 ORIGINAL PP. 3-7

Just to let you know you're faced with a precision piece of hardware, the "SSG" stands for scharfschützengewehr ("sharp shooter rifle") manufactured by J. P. Sauer & Sohn of Eckenforde, Germany. As imported to these shores by Sig Arms, the SSG 3000 is chambered for .308 Winchester, wears a four-groove, shock-absorbing, flashsuppressed sniper barrel 23.5 inches long, an adjustable Mc Millan fiberglass stock and has a trigger pull of three pounds that breaks like an ice sickle.

Weighing in at twelve pounds, and with an even heftier price tag, the rifle is offered in three tactically-oriented packages. The basic, Level I, has a carrying case but no optics. Level II includes a Leupold Vari-X III 3.5-10x40mm Du plex reticle scope, Harris bipod and carrying case. Level III ups the scope to a Leupold Mark IV M1 10x40mm Mil Dot, Harris Bipod and case.

At any level, the cost of these packages limits the chances of servicing an SSG Sig Arms tells us purchasers of these guns lean heavily towards those who prefer to do their own maintenance. This is not unexpected. The rifle was designed, is built to and serves primarily as a tactical weapon with Law Enforcement and military Special Operations world wide. There's still hope.

When price is no factor, as it can be amongst wellheeled trophy hunters, serious target competitors capable of devastating High Power rifle matches and those among them who hanker to carry their centerfire skills into smallbore competition with the same rifle, the possibilities increase in your favor. Reason? The versatility of the rifle. It can down a prize mountain ram at 400 yards or better, win Across- The-Course matches and there is a It is also uniquely versatile among them.

sub-MOA .22LR caliber conversion available that the owner can install. Well, that always depends upon the self-held respect said owner has for their personal gunsmithing expertise. For that and other factors I'll address, including the adjustable trigger, these over-ambitious types often end up facing you wearing a puzzled expression and toting a problem. So, you're not entirely out of the picture with any SSG 3000 happening to drop.

Because all of them are mechanically the same regardless of level, I'll concentrate here on providing information for the base rifle. Field Stripping Plus I've never stated this previously in fourteen years worth of these articles: The owners' manual for the SSG 3000 is the best I've ever read. Its detail is unsurpassed. To be admittedly picky, the information provided even goes too far when addressing trigger adjustment. I'll get deeper into concerns about that later and trust you'll remember my words of caution.

Unfor A B It requires only mild encouragement. Above center and When reinstalling it in the receiver the position must be uncocked. tunately, few gun owners bother with the manual and, as a result, mistakes will be made. A very smart tool for working on this rifle appears on page 402 of Brownells catalog #62. It is a drive torque T-handle, specifically part #792-212-065AC. It's great for removing all the hex head screws you'll encounter and perfect for reinstalling them.

These screws are tightened to a manufacturers spec equaling sixtyfive inch-pounds of torque. Once the screw being turned in reaches that specification, the T-handle "breaks," Assemblies are available only as complete replacements. See text for comments on trigger adjustability. Bspinning freely and tightening no further. Here is yet another whydidn't-I-think-of-that idea. Remove the magazine by depressing its ejector button, check the chamber and put on your eye protection.

With the bolt open about half way, engage the safety (313) and withdraw the bolt from the receiver (300). You may have to rotate the bolt to the left by placing the safety back on with its button next to the trigger in order to avoid bumping into the stock cheek piece and complete the withdrawal. Slacken off pressure and remove the A

rear (514) and front (512) stock screws, in that order. There's a filler piece that the magazine ejector button and forward stock screw passes. Carefully insert a 5/16" punch in the forward stock screw hole and tap down on the filler piece. It doesn't take much to dislodge from its stock recess. Lift the barreled action from the stock. The trigger group (700) will remain attached to the receiver.

If the barrel is badly fouled or the chamber shows a need of some polishing, loosen the two rear clamping screws and completely remove the front one (306). The order here is center, rear, front. Pull out the insert (308). This key-like part locates the barrel relative to the receiver and fits in a barrel slot. The barrel itself is a snug slip fit. Separating it may call for more than a slight tug. All the above goes a little beyond basic field stripping but it sets you up nicely for going further.

Detailed Disassembly The schematic is divided up according to subassemblies. #100 is the bolt group, #200 the scope mount, #300 the receiver, #400 the barrel, #500 the adjustable stock, #600 the magazine and #700 the trigger mechanism. Begin with the bolt. The cocking piece, or lock (313), is not threaded and is secured in the bolt (109) by a cam. Close and open the bolt a few times to get familiar with the location of the cam when the action is cocked and uncocked.

Secure the bolt between padded vise jaws and rotate the cam to its cocked position. You may have to insert a 5/32" punch into the hole in the cocking piece to do this. Afterwards, you can withdraw the complete firing pin assembly for cleaning (101, 102, 103, 104 and 105). Comb offset via two recessed screws (A), height via locking screws (B) and adjustment nut (C). Length is changed by adding or removing spacers inside the butt plate.

The extractor (111) and ejector (106) are retained by roll pins (108 and 110) which drift in either direction. I suggest you only drive the pins out far enough to free up the related part to make reinstalling the pins much easier and greatly lessen the prospect of damage. The extractor is removed in a manner similar to a Remington 700. Depress the plunger to compress the extractor spring, pivot out the extractor and control the spring pressure on the plunger.

Once the ejector pin is out of their way there is nothing to prevent the ejector and its spring from escaping. Be prepared. So far, so good. There isn't a lot to dismantling the receiver beyond the magazine catch (307), its guide pin (309), compression spring (310) and pressure bolt (311). The catch is removed first. It has tabs in the bottom that rest in the receiver's catch recess and it retains the guide pin, spring and pressure bolt.

No retaining pins or tools are involved in removing or reinstalling this assembly. The trigger group is a different proposition. As you can see it has upward of twenty internal components held together by pins (714) and a rocker lever (718). Contrary to what has been published in the manual, among other places, don't believe setting the trigger takeup and letoff points is easily accomplished or even possible without an experienced Sig Arms technician planted at your side.

Does that mean this trigger isn't adjustable as advertised? No. Anyone can adjust it for position along its longitudinal axis. This allows a change in the space existing between the front of the trigger (710) and trigger guard to accommodate the wearing of heavy gloves in cold weather. Or, should it exist, a really fat trigger finger. However, in its most forward position the trigger must not contact the unlock slide (708).

In the rearmost position the trigger must likewise be clear of any contact with the adjustment screw (709) identified in the accompanying photo. A complete replacement trigger assembly can be had from Sig Arms to correct problems created by people who've attempted take-up/let-off alterations. Individual parts are not available. Similar adjustment limitations do not exist with the stock. This puppy is owner adjustable for height, offset and length.

Recessed in, but easily accessible via the top of the cheek piece, are two release screws for changing offset. Back each of these off four turns to slide the piece left or right as required, then tighten both to sixty-five inch-pounds. Two locking screws extend from the right side of the stock. Slacken both to set the desired height with the stock adjustment nut, then tighten both screws to maintain it. Changing length of pull is a matter of adding or subtracting butt plate spacers.

These are not your usual spacers. To do this, back out the butt plate screws enough to pull the entire unit slightly to the rear. Push the top of the spacer to be removed to the left, rotate it downward and extract it from the bottom. When that suffices in lessening LOP sufficiently, tighten the plate screws. Naturally,

SSG 3000 Ri le (Specifications subject to change without notice) 101 Cylinder Pin for Firing Pin 102 Striking Pin Nut 103 Brazed Nipple 104 Firing Pin Spring 105 Firing Pin 106 Ejector Pin 107 Ejector Spring 108 Extractor Pin 109 Bolt 110 Pin for Extractor Spring 111 Extractor 112 Cocking Handle Knob 113 Cocking Piece 201 Rail 202 Mount 203 Counterpiece 204 Clamping Screw 205 Allen Screw 301 Magazine Ejector Spring 302 Magazine Ejector 303 Receiver Housing 304 Set Screw 306 Clamping Screw 307 Magazine Catch 308 Insert 309 Guide Pin 310 Compression Spring 311 Pressure Bolt 312 Roll Pin 313 Safety Lock 401 Barrel, 7.62x51 NATO 402 Flash Suppressor 403 Retention Screw 501 Stock 510 Sling Swivel 513 Washer 514 Pan Head Screw 601 Magazine Case 602 Magazine Feeder 603 Magazine Spring 604 Magazine Floor Plate 701 Bolt Stop 702 Bolt Catch 703 Trigger Sear 704 Trigger Sear Compression Spring 705 Rocker Lever 706 Trigger Lever 707 Trigger Shoe 708 Unlock Slide 709 Set Screw 710 Trigger 711 Pan Head Screw 712 Trigger Spring 713 Collar Stud 714 Straight Pin 715 Trigger Housing 716 Spring Bolt 717 Trigger Spring Set Screw 718 Rocker Lever 719 Spring Pin 720 Magazine Catch Spring 721 Spring Counter Bearing

ORIGINAL SOURCE PAGE

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A B Cto increase LOP you add to the stack and additional spacers are not on Sig Arms restricted list. The .22 Caliber Option There's more than one reason this is offered. Law Enforcement departments and the military can reduce costs by using .22 rimfire in their training programs. A High Power competitor can hone skills using cheap 40 grain pills in the same gun normally fed with match-grade 168 grain hollow point boat tails.

From a weight, trigger pull and stock fit standpoint this is of significant advantage to serious shooters, tactical or otherwise. This package includes a barrel, bolt, magazine adapter, .22 magazine and all required mounting screws. A few changes are needed before the conversion can be completed. First, remove the .308 barrel. Next, you'll be working with the receiver. Refer to drawings A, Band Cin that order. Press down on the magazine ejector spring (301) to unhook and let it relax.

Unhook the lower claw of the magazine ejector (302). Lift the bottom end of the ejector, pivot it to the left and withdraw it from its upper aperture.

The slot under the barrel's breech end should be facing downward when 22 LR caliber conversion. (A) After removing the barrel, remove the magazine ejector and unhook the magazine ejector spring (301) downwards from the upper retainer. (B) Unhook the lower claw from the magazine ejector (302) and remove it. (C) Lift the bottom end of the magazine ejector, swing it to the left and remove it from the upper aperture. it is aligned with the receiver's barrel slot.

Insert the barrel, install the insert (308) from below the receiver, lightly tighten the clamping screws and remove the .308 magazine. Install the magazine adapter upward and into contact with the barrel. Secure it in place with the adapter screw (656). Be certain the screw is well seated, then check on barrel location by rotating it lightly in both directions. Insert and cycle the bolt completely a few times to assure smooth travel, lock-up and set headspace.

Tighten the clamping screws to sixty-five inch-pounds and reunite the action with the stock. Insert the .22 magazine until it snaps in place. Congratulations, you've just transformed a trophy-downing, Acrossthe-Course match winner into a sub- MOA, smallbore tack driver. And you can turn it right back into a trophy getter any time the owner wants. Reassembly Tip If the bolt isn't uncocked, it cannot be inserted into the receiver.

When rejoining the barrel to the receiver after maintenance or conversion, start in one clamping screw (306) from the left. Install 308 and turn the screw into contact with it. After contact is made, give the screw one-eighth additional turn. This spreads the receiver making it easier to insert the barrel. Before moving the screw to the right side to tighten it and its two compan ions to sixty-five inch-pounds, install, close and turn down the bolt.

This will pull the barrel to the rear and reestablish the correct headspace. Now tighten all the screws.

RIFLES

Working the .22 Rifle

A very common task facing professionals is the repair of rimfire rifles. The ins and outs of repairing them are best learned with time and study, not a heavy hand and iron will.

BY ROBERT K. CAMPBELL MAY 2010 ORIGINAL PP. 8-11

While I will address .22 Long Rifle firearms specifically in this article, the following information also applies to .22 Magnum and .17 rimfires as well. These guns are often produced from the softest metal possible and are easily "pranged," as one senior gunsmith put it. The most common problems include complete disassembly and working your way through accumulated crud and varnished oil. Lets take a look at the basics of keeping the rimfires working.

Rimfire Construction Few shooters, even the good ones, are adept at much more than running a patch down the bore but you'll still find the fellow who may take it upon himself to detail strip his rifle. He takes all the screws out, forces the forend off of the barrel and loosens all the screws he can find. Then he turns the rifle upside down and shakes it until something or everything falls out. He may get the parts clean but getting it back together is another matter.

There is a significant difference in the design and manufacture of rimfire rifles that we must take notice when working them. The firing pin and chamber are obviously different from centerfire rifles, but compared to centerfire rifles, .22 caliber rimfire firearms are manufactured from mild steel. Stampings are common. There is little in the way of heat treating in many cases, particularly when dealing with older rifles. Let's think about this situation logically before tearing into that .22 on your bench.

One warning is that the screw holes will be easy to wallow out. You had best think hard before putting a rimfire rifle in a vise! Cross threading threads is common and can be done with little effort. You have to work a 22 caliber rifles are relatively simple. Often, a simple cleaning will work wonders. This Marlin 39A has roughly five decades of oil inside the action. 22 caliber bolts differ considerably in complexity.

The bolts here are, left to right, a Ruger 722 .22, a Cooey .22, and a Howa .223. little to cross thread a centerfire rifle with its hardened steel but mild steel that isn't heat treated is another matter. Manufactures like to discuss certain grades of stainless steel but few will discuss metallurgy in .22 rifles. So, proceed with caution. I have examined rifles of soft steel that were a little frightening to work with but the better guns from Winchester and Ruger area different breed with better steel.

A Few Tools You must have the correct tools before you begin. Properly cut, sharp screw drivers are essential. I have used the handy Chapman Gunsmith's Screwdriver Set with excellent results. I have also used the purpose-built gunsmith screwdrivers from Grace USA. These screwdrivers feature scalloped

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Above center: A simple brass hammer and punch of the appropriate size are only tools required to take down the .22 caliber magazine tube. 22 would represent a considerable difficulty. A bent screwdriver fashioned from an Allen wrench works just great. handles that make handling firm and secure. With the proper screw heads and properly dimensioned tools you will be ahead of the game and able to deliver a competent, respectable job.

There are also jobs that are not always done with factory bought tools, so sometimes improvisation is important. For example, the simple stamped metal trigger guard of some .22s can be difficult to address. A number of cost-efficient manufacturing tricks are particular to the .22 such as inverted trigger guard screws. The trigger guard in a .22 rifle is usually rolled-over sheet metal and the screw that holds the trigger guard to the rifle is seldom accessible by normal methods.

You'll need a special tool like a bent screwdriver or, better still, an Allen wrench with the short end ground into a properly-cut screwdriver. The Allen wrench is already bent and it is plenty hard enough to last awhile. Tightening Take Down Rifles Rimfires are available in all action types including pump, bolt action, lever action, single shot and automatic. All have their quirks. Some require more than simple parts replacement.

As an example I have recently ran across a number of older take down models that had become quite loose. Take down rifles were very popular through the mid Twentieth Century and certainly have a degree of nostalgia. While sales figures indicate this design no longer has the appeal it once did, a number of Marlin, Browning, Winchester and other makes are available as take downs. The Taurus pump action and the Marlin 39 are the most common modern examples.

Most take down rifles are secured by a big knurled bolt or ring and the only means we have to tighten such a rifle once it becomes worn and loose it to peen the parts. To do so, carefully mark the rifle's mating parts with a permanent marker. Use a brass hammer and punch to peen (raise) the contact points. The Marlin 39A is responsive to such measures. Extractors and Feed Problems Any action that reciprocates will eventually wear and have function and feeding problems. Extractors area common trouble point.

They are pretty soft in the case of older .22 caliber rifles. Quite a few older rifles feature dual extractors. As viewed from above, the left extractor is seldom operative and acts as a simple feed guide instead. The secondary extractor forces the case into the primary extractor and keeps it from slipping. When a rimfire fails and I suspect the extractor, my first thought is to thoroughly scrub the gun. .22s are not cleaned very often and they rarely get the attention a fine centerfire hunting rifle does.

There is a considerable argument they don't need much cleaning, however, accumulated crud, congealed powder, lead and old lubricant eventually cause problems. If a clean gun with a clean chamber still isn't extracting, the extractor may not be broken but simply be stuck. Sometimes corrosion forms between the bolt and extractor. Remove the extractor to clean the bolt and rid the piece of rust. Check extractor pressure first by pressing outwards on it.

There is a small spring behind the extractor in most designs supplying pressure. Typically a small pin holds the extractor in and a small punch is One is practically non-functional, serving only as a guide.

this pin out. A few rifles feature a collar similar to Mauser 98. Lastly, is the type just stuck in the bolt pressed in with no pin. These types area tight friction fit. Be certain to soak the bolt in good solvent before you attempt to pry an extractor loose. An overnight soaking is sometimes needed to remove the varnish from years of powder, lead and lubricant congealed on the bolt. Don't forget to cup your hand over the extractor as you pry it loose to capture the extractor spring.

Sometimes the thorough soaking is all that is needed to restore function. If the extractor has been removed and is well worn, then some attention is needed. It is possible to recut the extractor groove. The original shape of the extractor is usually preserved even in well-worn specimens, even after actual groove that captures the rim of the cartridge case is rubbed away. A bit of needle file work will bring these pieces back up to par.

Mainspring and Firing Pin It is common to see mainsprings left cocked and at the ready for long amounts of times. Some are cocked from the first day they are brought home and remain so for the life of the gun. Some shooters feel it is better not to drop the firing pin on a rimfire chamber and simply leave the firearm cocked when in the safe or at rest. This sometimes leads to the spring weakening and inconsistent firing pin impact.

The mainspring must be strong for proper function and a simple test will often give you a clue as to the strength of the mainspring. If you are able to cock the piece with practically no effort or resistance the mainspring is weak and needs replacing. Brownells should be able to help with these. Firing pins themselves seldom need replacement. Part of the reason is that they area little harder than anything else in the .22 caliber rifle and often damage the chamber if dry fired excessively.

Yes, the firing pin is produced of stronger steel than even the barrel. One reason shooters avoid firing the piece empty to alleviate mainspring pressure is to avoid damage to the chamber when the strike is not deadened by rim in the brass case. Despite this, its been my experience that mainspring problems are more common than chamber problems.

Feed Problems Feed problems are universally the fault of a faulty feed device (magazine.) Until the advent of the Ruger 10/22 and its brilliantly designed With the propensity of which these rifles are likely to be used, the lock plunger at the bottom of the receiver that holds the rifle together is best left alone. Soft steel is easily cross threaded. 22s are broken stocks.

Less expensive rimfires do not have the highest quality stocks, but may be repaired easily. rotary magazine almost all rimfires used tubular magazines. The few repeating rifles with removable magazines were never as popular and the sheet metal used to construct them did not yield good reliability. Rifles using tubular magazines mounted under the barrel or in the buttstock hold plenty of ammunition and can be very reliable.

While tubular magazines sometimes suffer the loss of a tube, it is less common than the loss of a detachable magazine. I have lost count of the .22s I have seen with lost detachable magazines and some magazines are difficult to find replacements for. Gun Parts Corporation is an ideal place to start hunting for the missing magazines of more obscure rifles. The best advice is to replace a detachable magazine if it gives trouble, but a tubular magazine may be repaired.

Weak springs and dents in tubular magazines are common problems. Spring replacement is not difficult. Dents in the body are handled by inserting an appropriately-sized wooden dowel or steel rod into the magazine and tap out dents in the tube with a plastic hammer. I used

The two lower rifles use brass inner magazine tubes, the rifle at the top uses a steel inner rod. The steel rod is less likely to become damaged but more likely to fall victim to corrosion. The spring protrudes from the action and the locking piece features pins that are about equal in length. These lock the magazine in place in the stock of a Browning-type automatic rifle. the Quinetics inertia bullet puller as the hammer on my last project and it worked just fine!

It is easy to handle and it was available in the shop. Note that is type of magazine has both an inner and outer tube. The outer tube remains on the rifle. If the inner tube is removed and the rifle upsets, the fall may bend the outer tube. This is a bit more difficult to repair. After removal, disassembly of the inner tube is easy with a small punch. Find the retaining pin and drive the pin out that holds the cap on the tube. The follower and spring will then slide out of the tube.

Care must be taken in dealing with these parts as they are small and easily damaged. These magazines tubes are commonly of brass construction for the inner tube and steel for the outer tube. However, a very few rifles have a steel inner tube. When steel inner tubes are used, the chances of damage may be lessened but the danger of corrosion is far greater as they may actually rust inside, requiring some effort to remove. There are also a few variations on this design.

As an example, the Browning .22 automatic features a buttstock tube with an exposed cartridge pusher and spring. The magazine tube also features a pin that protrudes on both sides rather than the traditional one side and both are This is the least likely of all take down rifles to actually be taken down and this vintage example appears to have never been. Care must be taken in assembling these rifles. Sometimes a bit of peening is required to tighten them up. needed to properly secure the magazine.

A bit of finesses is needed in working this magazine. Rimfire rifles are an important part of any gunsmithing business. Practically everybody owns one! Be certain you know the ins and outs of these common firearms and your work will be straightforward and profitable. AG

MILLING

A Bedding Pillar For Long Action Remingtons

Attaining top accuracy from a long-action bolt rifle can be difficult, but it can be accomplished through careful bedding and proper use of the central action screw. It may involve the use of a different stock as well.

BY NORMAN E. JOHNSON MAY 2010 ORIGINAL PP. 14-15

When asked if I could duplicate Remington Model 40X target rifle accuracy with a run-of-the-mill caliber .260 Remington Model 700 long action rifle my answer was, "I can come very close." I got the job. Correct Procedure Gets Results Getting the green light to put the Remington long action into a different stock presented no problem. For this project a Bell & Carlson varmint/tactical stock was the choice. These stocks have a built-in aluminum bedding block throughout the receiver extending into the forend.

This alone would add to the action stiffness, but would not be enough to bring the action up to its highest accuracy potential. With the magazine cutout and the added length of a Model 700 action the extended barrel tends to add spring to the action. This is particularly true of varmint or target barrels. Here the proper use of a central action screw and bedding pillar can do wonders in additional stabilization. When a third (central) action screw is utilized, the bedding must be without flaw.

Where the bedding is low at center, the receiver springs downward as the central screw is torqued. The Model 70 Winchester is a good example of this with its full-size central screw. The Bell & Carlson aluminum bedding block has a very sturdy integral web lo cated immediately behind of the magazine cutout just forward of the trigger housing. This is a perfect position for a bedding pillar at the central action screw.

The challenging part is getting a precision fit between the underside of the radiused receiver and the stock web to form a perfect bridge. Making the Central Pillar I used aircraft aluminum for the bedding pillar due to its high strength and the ease with which the material can be machined. The finished, flat-base, half-moon-shaped part is 1.060" wide x 0.300" thick and is milled out to the exact diameter of the Model 700 Remington receiver.

A Woodruff keyseat cutter was used to form the radius of the bedding pillar. The part is carefully milled to exact receiver radius and is finished by lapping. Care must be taken to be sure the depth of the part from the extreme bottom of its radius to its contact with the aluminum bedding block isn't cut too short. Individual rifle stock tolerance may vary a few thousandths. When finished the part measured 0.225" from the bottom of the radius to the flat bedding-block surface.

Placing a straight edge placed across these three receiver bedding supports and using a feeler gauge to test for contact accurately reveals how the central pillar is fitting. Ultimately, the part must form a precision fit when completed. It will be necessary to mill a few thousandths at a time off the flat surface of the

The threaded flat-head screw is later used to attach the pillar to the web on a Bell & Carlson stock. The standard floor plate equipped with rifle can also be used. pillar as the part is carefully fitted. In this project I am fitting the radiused central pillar to the exact plane of the tang at the rear and the receiver ring at the front. As the pillar is finished a countersunk flat head 6-32 screw is used to hold it in position. The pillar hole is threaded as this retaining screw enters from the underside.

This may seem like a lot of discussion over such a small part, but it is the heart of a bedding system in a three-screw action and is key in delivering improved accuracy on open-magazine, long-action Model 700 receivers. In addition to the pillar, a special brass floor plate with an attached lug allows the central screw to be torqued via the forward trigger guard screw hole.

As the three guard screws are tightened there should be no palpable action movement at any place between metal and wood on loosening or tightening of the screws. The smallest amount of such movement of the action is easily felt by the thumb or fingers and is an excellent way to test the actionto-stock fit in any rifle. Conclusions The real proof of bedding improvement lies in accuracy testing the finished product.

In this case, the .260 Remington grouping was improved from an average of 1.20" five-shot groups at 100 yards to an average of 0.542" with three different loads. Improved accuracy on a standard Model 700 Remington to that of a target rifle can be achieved and is worth the time, effort and cost of doing so. Careful inspection of the bedding around the recoil lug and rear tang, along with the addition of a central bedding pillar, is one of the best ways to accomplish this. AG

RIFLES

Build Your Own Mauser Holding Fixture

Commercial holding fixtures for Mauser receivers are available, but any 'smith can build his own with common shop scrap.

BY WENDELL DEANER MAY 2010 ORIGINAL PP. 16-17

Good Mauser actions suitable for sporting rifle conversions are becoming as scarce as nice used double rifles chambered in .470 N. E. selling for less than ten thousand dollars. Well, maybe not that scarce, but the fact is these wonderful actions that were once plentiful and cheap as military surplus are becoming harder to find. Mitchell's Mausers (Mausers.org) is advertising what they claim are the last 98 Mauser rifles available from Europe.

Century Arms International (centu ryarms.com) have a few complete rifles and some actions for sale. Other sources are gun shows, pawn shops, and some of the online auction houses. However, prices are getting steep and only going higher as the supply dries up. As I write this, Mitchell wants $399 for a complete rifle and the representative guns I've seen from this company are well worth the money.

Since the guns have been reworked, with both the metal and wood refinished, the collector value is diminished, but these rifles are too nice to cut up. Unless some hidden cache of arms is discovered — as we have recently seen in Nepal — I would guess that the quality of Mauser actions available to us in the future will be cosmetically challenged to say the least. Of course, we gunsmiths know how to remedy that.

To rework a Mauser action that is mechanically sound but looks as if it has been dragged behind a pack mule on the battlefields of Europe Holding fixtures can be used to mount the receiver at different angles. we must have some way of holding it rigid in a solidly mounted vise. While perusing my favorite wish book (Brownells catalog) I noticed a Mauser Receiver Holding Fixture advertised at $86.99.

They claim it will securely hold a Mauser receiver in a bench vise, milling machine, or drill press while the gunsmith drills and taps for mounting scope bases, polishes, laps the bolt, and any other action work. This is exactly what we need. However, as much as I trust Brownells and know that their merchandise is of the first order, I have been using a perfectly serviceable holding fixture that I made myself. The cost was literally nothing more than my time and some common shop scrap.

I took apiece of one-and-a-halfinch piece of angle iron and cut it to a working length of thirteen inches. Using a bastard file, the cut ends were dressed and then beveled smooth with a Dremel tool and sanding drum to eliminate any sharp edges on the fixture. Why a length of thirteen inches? A Mauser 98 action is almost nine inches long. This allows two inches of clearance on both ends and much more leeway to secure the action in a vise. The Brownell's fixture doesn't seem to have this feature.

Picking a "top" is easy as either side can be used. The fixture can be clamped anywhere along the length, allowing the action to be held in almost any position desired. Since the action screw holes on a Mauser receiver are nominally 7-7/8-inches apart on center and we are going to hold the receiver to the fixture with the stock-action screws, we start by drilling two holes to match that

measurement on one of the flats of our angle iron. The holes cannot be centered on the flat because the rear screw seats in the tang end of the receiver and the front screw is seated in the middle of the integral recoil lug almost 11/16-inches back from the front of the receiver. Love it or hate it, this a feature all large and small-ring Mausers share.

Some gunsmiths feel that this is a detriment to accuracy when glass bedding the action to the stock because both the rear and bottom of the Mauser recoil lug is bedded in the glass. Other rifles that secure the action screw in the front receiver ring allow the lug to be clear all the way around except for the very rear side. Having bedded many rifles of both types, all things being equal, I can't tell the difference. If done right with a clear understanding of technique, good results can be obtained.

The Mauser recoil lug is also cut flat on the bottom. This means the front hole should be started approximately 2-5/8-inches from the front edge of the angle iron and the rear hole should be started 2-1/4-inches from the rear edge of the piece. This will give us the needed clearance of at least two inches on either end to clamp in our vise or milling machine. Let's be clear, we are not fabricating a precision instrument in thousands of an inch, nor are we intending to. That would defeat the purpose of this project.

Allow yourself about one half hour of shop time and go to it. The whole point of making this fixture is that it saves time and money. The holes must be spaced properly to allow the receiver to be easily mounted with extra space at both ends, but if you are off a quarter-inch on the ends of the fixture it will still work fine. This extra two inches or so at both ends is very important. It allows us to hold the receiver securely at different angles depending on how we need to work it.

This can be a real time saver — and back saver — when polishing some of the tighter curved areas we encounter on these actions. Mauser action screws are 1/4inch in diameter, but one of the keys to the stability of this project is to drill a 3/8-inch front hole just large enough to accept the front receiver screw seat and allow the flat recoil lug to bottom on the angle iron. The rear hole is 1/4-inch and accepts the rear receiver screw.

The holes should be a slip fit to accommodate any small variations we may encounter and the receiver doesn't need to be held so tightly that we need to beat it loose with a mallet. In the rear, a regular stock ferrule serves as an excellent spacer between the stock screw and the bottom of the angle iron. Two small 1/4-inch, flat washers under the receiver on top level and hold it tight.

Although almost anything will work for a spacer in the front, when I was making mine I spied an empty 9mm Parabellum case lying on my bench. Hmmm … I quickly drilled a 1/4 inch hole through it lengthwise and it worked great and I've been using it ever since. The brass might even have a little "give" in it to help cinch the holding screw tight without any damage occurring. At any rate, it will be easy to replace when need be.

After making this holding fixture I made another for the Model 96 Mauser and other small-ring actions. Using these same principles it works as well as the first. Every time a Mauser action comes across your bench you will find yourself using this tool.

Whether you are lapping the bolt lugs, cutting the rear of the bolt race with an end mill, smoothing the inside races for slick bolt travel, holding the action to a grinder to shape the rear ring for scope bases, or simply polishing all the spaces that need cosmetic intervention, this inexpensive, homemade tool can do it all. I simply cannot do without it. Despite the fact that good Mauser receiver holding fixtures can be purchased, making your own is more satisfying both intellectually and to one's pocketbook. AG

PISTOLS

S&W Model of 2000 Schofield .45 Revolvers

After 123 years, S&W re-introduced the famous Schofield in 2000. While not a perfectly faithful replica, this is a very shootable revolver.

BY DAVID R. CHICOINE MAY 2010 ORIGINAL PP. 18-22

When it was introduced in 1875, S&W's top-break .45 Schofield model was the cat's meow of single action revolvers. This remarkable revolver was based on designs by US Army Cavalry officer Major George W. Schofield that improved Smith & Wesson's Model No. 3 American for military use. A novel feature is a barrel catch that is pulled rearward to open the revolver allowing it to be opened for loading with one hand, a real advantage for mounted cavalry troops.

The Schofield shared other advanced features with all other S&W top-break revolvers, such as simultaneous, automatic ejection of the spent cases. Another Schofield feature the Army liked was the extraction system, which was far simpler and more dependable than the mechanisms used on earlier S&W's, notably the American and Russian models the Army had previously tested. Schofield's were chambered for a center-fire cartridge that is now called the .45 S&W.

The 45 S&W was bit shorter than the standard .45 Colt service cartridge and carried a lighter bullet (230 grains as opposed to the 250 grain bullet used in the Colt) and 28 grains of powder as opposed to the original Colt's loading of 40 grains. Model of 1873 Colt service revolvers could chamber and fire the S&W cartridge but the Schofield S&W could not accept the longer .45 Colt rounds.

Not long after the adoption of the Schofield S&W into service, the Army shortened its .45 caliber service cartridge to S&W 2000 Schofields have a modern, frame-mounted pin. Modern Schofield: S&W re-released this classic with updates. length, also switching to the lighter bullet and powder charge of the S&W cartridge to reduce recoil. About eight thousand S&W Schofield revolvers were manufactured for the US Army from 1875 through 1877, with only 684 of the model made for civilian sale.

For awhile, Schofield S&W's were issued alongside Colt Single Action revolver, seeing service on the frontier with units

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Removing the rear screw from this latch and loosening the front screw lets you lift the rear of the frame latch up and the cylinder assembly off. The washer-like part ahead of the frame hinge is the ejector washer (extractor cam.) like the U. S. 9th and 10th Cavalry. Today, original Schofields command very high collector premium prices and they are among the most highly sought after of frontier-era weapons.

In more modern times, the comparatively new sport of Cowboy Action Shooting has created a large demand for all firearms used in the old west, not to mention a few that weren't. To that end, Navy Arms introduced the first modern replica of the Schofield in .45 Colt and 44-40 calibers, manufactured by Uberti in Italy, this version is still being sold under several importers names. Though not a faithful copy of the S&W, the Uberti is a reasonably dependable revolver.

In the mid-1990's Cimarron Firearms introduced a more faithful version of the S&W Schofield produced by Armi San Marco in Italy. The ASM version was also offered in .45 Colt and 44-40 but could not get through the teething stages and was dropped after only a few years due to various mechanical problems that the maker simply never solved. The real deal? Smith & Wesson themselves briefly became involved in the reproduction market by rein troducing a "new" Schofield at the 2000 Shot Show.

From afar the new S&W looks much like the original, however, when comparing the year 2000 S&W side-by-side with the original 1875 S&W Schofield, several not-so-subtle differences exist. These include a shorter lock frame and cylinder, a removed cylinder gas ring and the barrel/cylinder gap is placed almost directly over the front of the cylinder axis. That fact makes this a smokeless-powder-only gun due to the powder-fouling that results from firing black powder with this arrangement.

The chambering is still 45 S&W. All of the year 2000 revolvers were patterned after the 1st Model Schofields, a model manufactured in 1875 with production totaling 3,035 revolvers. The new S&W version also makes use of several off-the-shelf parts from modern side-swing S&W revolvers. In addition, the reintroduced Schofield

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Pliers compress the spring, disengaging the top of the spring from the hammer stirrup. Correct re-assembly of the hammer into the frame requires careful attention to the positioning of both the hammer block safety assembly and the hammer itself. uses a frame-mounted firing pin in place of the original which was an integral part of the hammer. She also sports a rather ingenious transfer-bar type, hammer-block safety that is not like anything else.

My friend Larry Bradway up at the S&W Customer Service Department tells us the factory produced somewhere between 3,000 and 3,300 of these guns between 2000 and 2003, with the last few built in November–December of '03. The first 150 guns were auctioned off on the S&W web site with the first gun, serial number GSW 0001 (GSW for George Wheeler Schofield) selling for $12,000.

A seven-inch barrel was standard, as was a blue finish with color case hardened trigger guard, hammer, barrel and cylinder catches, although about 150 were offered in nickel. I am told about 300 were made with five-inch barrels, 150 each in nickel and in blue. While these reintroduced Schofields don't look as much like the originals as we might like, to be fair, all of them that I have fired are very dependable and good in the accuracy department.

The only complaint I've had with Notice the cylinder stop spring as you remove the guard. All critical parts (trigger, cylinder stop and ejector lever) are held in place by domed pins that also act as pivot points. The U-shaped spring still inside the action is the barrel latch spring. any of them is that the front sights are all too low, with most guns hitting six to eight inches high at 50 feet when using the proper (lower) sighting notch.

Please note: While trying to assemble a parts nomenclature for this gun we were disappointed to

) It is actuated by both the hammer and the trigger. find a numbered parts picture was not available from the S&W Parts or Service Department, however they were able to supply a partial list of the parts. As result, and to simplify the illustration, we have taken the last two vital numbers from most of the parts on the S&W lists and have numbered our blow-up photo thusly. Add the prefix 247 to the two digit parts numbers to get the correct part number. As of this writing S&W still does have some parts in inventory.

The factory changed the names of some of the more familiar top-break parts and in the interest of avoiding confusion, we have included their original 00 frame 01 cylinder 02 hammer 03 trigger 04 latch spring 05 trigger spring 06 barrel 07 front sight 08 connector pin 09 barrel latch 10 barrel latch screw 11 frame latch screw 12 frame latch 13 connector screw 14 ejector washer 15 ejector release lever 16 ejector release spring 16a cylinder stop spring 17 ejector release 18 extractor 19 extractor rod 7685 extractor collar 7594 extractor spring 22 cylinder stop 24 cylinder stop pin 25 trigger guard 26 trigger guard screw 28 hammer block assembly 28a transfer bar 28b hammer block spring 29 trigger spring pin 30 hammer stud 32 hand 34 stirrup 7792 stirrup pin 36 strain screw 37 sideplate screw (2) 37a sideplate 38 alignment post 41 center pin 7464 center pin spring 24744 grips, pair 45 handspring 52 firing pin 21814 firing pin retainer 60 firing pin spring 70 mainspring handspring pin (not numbered) names in brackets as they appear in the text with the new names.

Disassembly Instructions The first step; please be certain the weapon is unloaded before you handle it for any reason. Grasp the revolver by grip firmly, be sure you keep those fingers off the trigger (03) and keep the muzzle pointed in a safe direction. Gently pull back on the hammer (02) slightly, one click, to set the hammer in the half-cock or loading position.

Incidentally, the factory has cautioned that to avoid damaging the weapon this is the ONLY position the hammer should be in when you are either opening or closing the barrel. Pull back on the barrel latch (09). Now tilt the revolver barrel (06) down to open the action. You have exposed the rear of the cylinder (01) and you may now check to be certain the cylinder is unloaded. If cartridges are present remove them now and place them in a secure location away from the weapon.

If you will continue to open the barrel until it is all the way open, the automatic extraction system will raise and retract the extractor (18). Now, let's move on to the disassembly. Remove the cylinder (01). With the barrel still in the opened position, loosen and remove the rear-most screw (11) in the frame latch/cylinder catch (12) and loosen the front screw.

You may now tilt the cylinder retainer up slightly and pull the cylinder (01) to the rear, withdrawing the cylinder assembly off the alignment post/base pin (38) toward the rear. If required, the frame latch can now be removed from the barrel by simply unscrewing its front screw and lifting it off. From experience, most of these screws seem to be hand-fitted and I suggest keeping them in the hole they came from to avoid difficulty later.

To remove the barrel, unscrew and remove the connector pin/joint pivot screw (13) from the left side of the hinge on the frame, while holding in on the connector pin (08). Next, use an appropriate-sized straight punch to drive the connector pin out of the frame toward the right side. Stop here to take notice of the small cog on the S&W year 2000 Scho ield (Specifications subject to change without notice) For two digit numbers, add the prefix "247" for factory ID

inside of the connector pin head and locate the place where this cog must align with the notch on the inside of the frame hole for reassembly later on. The barrel (06) is now free to be lifted out of its joint with the frame (00). The ejector washer/cam (14) is located between the ears of the barrel hinge. The ejector washer may be pulled straight down and removed from the barrel. Be sure you make note of the ejector washer's correct positioning for reassembly later.

Should it be necessary to remove the front sight (07) the sight is held in place in a machined slot in the barrel rib by a small domed pin passing through the barrel rib. Remove the grips, barrel latch and the sideplate. Unscrew and remove the grip screw (not numbered) and lift the grips (24744) off the frame. With the hammer (02) still in the loading position, unscrew and remove the barrel latch screw (10).

You may withdraw the barrel latch/catch (09) from the top by pulling up and pivoting it slightly to the rear. Unscrew and remove the two side plate screws (37). Turn the frame over on its side, holding it by the hinge with the sideplate facing up over a padded surface. Strike the side of the grip area of the frame with a sharp blow or two with a plastic or hardwood mallet to shock the sideplate, causing it to jump up out of its seat in the frame for removal. Never, ever attempt to pry off the sideplate.

You can do serious damage! Now, remove the mainspring and the hammer. Using a pair of spreader pliers, compress the top of the mainspring (70) and disengage it from the hammer stirrup (34). Rotate the stirrup forward and out of its seat between the claws at the top of the mainspring. You may release the tension on the mainspring now. Loosen the strain screw (36), the screw located in the bottom-front of the grip strap area on the frame and withdraw the mainspring from the frame side.

Carefully rotate the top of the hand (32) to the rear using a screwdriver as a lever, hold the hand toward the read while depressing the trigger (03). The hammer assembly (02) can now be rotated about half-way back and carefully pulled upwards, off of its hammer stud (30) and out of the frame. Pay special attention to the hammer block safety mechanism part (28, 28a, 28b). You won't find a device like this in any other single action, so its assembly-disassembly deserves your scrutiny.

Notice how the assembly fits together. Look at the back (right side) of the hammer and you will notice a cut-away area. During re-assembly, you will have to rotate the hammer block assembly in order to align the hammer block spring ends carefully with this cut-way area or you will not catch the spring and the hammer will refuse to drop back in. Remove the trigger guard. Unscrew and remove the trigger guard screw (26) and remove the trigger guard (25) by pulling down on its front.

The cylinder stop spring (16a) is fitted into a small hole in the top of the guard. Be careful not to lose it! For the remaining action parts, using a correctly-sized cup-tipped pin punch and small hammer, drift out the cylinder stop pin (24) and push the cylinder stop #22 out toward the bottom by passing a small punch through its window in the frame. Note the center of the three pins passing through the frame from side to side.

Now use a cup-tipped punch and hammer to drift out the trigger pin (17), which is the rear-most of the three pins passing through the frame. The trigger spring (05) is mounted inside the front grip strap and it is held in place by across-pin (29) running through the frame. Drift out this pin and remove the trigger spring. The trigger (03) is pulled out the bottom of the frame. Use the same punch and hammer as before to drive out the front pin in the frame (17).

This frees the ejector release lever/extractor pawl (15) and its spring (16). Should it be necessary to remove the barrel latch spring (04) push it out with a small punch inserted through its hole on the right side of the frame. Be careful as this is under considerable tension. Under normal circumstances it should not be necessary to remove the hammer stud (30) or the grip pin (7022).

The firing pin may be easily removed from the frame by first using a small pin punch and hammer to drive out its retaining pin (21814). With the retaining pin out, the firing pin (52) and firing pin spring (60) may be removed toward the rear. To disassemble the cylinder, insert six fired cartridge cases into the chambers to help support the extractor.

Grasp the ejector rod (19) in the jaws of a lathe or drill press and rotate the cylinder in a clockwise direction (this is a left-hand thread, just like modern S&W extractor rods) to unscrew the extractor rod (19) from the extractor (18). The center pin (41), center pin spring (7464), extractor spring (7594) and extractor collar (7685) are now free to be withdrawn out the front. The extractor is pulled out the rear of the cylinder. Don't worry, it's designed to go back in only one way.

We will now disassemble the hammer. Rotate the hand (31) about 180 degrees forward to lift the tension from the handspring and then pull it straight out of the side of the hammer. Notice the hand shaft. On its right side half of the round has been milled away. This is used to reengage the handspring and to facilitate re-installation of the hand.

Support the hammer on a suitable bench block with holes in it and use a small pin punch and hammer to drift out the handspring pin (not numbered) from the center-front of the hammer. That pin holds in the handspring (45). Slide the handspring out of its recess in the hammer. The stirrup (34) may be removed by drifting out its pin (7792) from the rear of the hammer. Be sure you take note of the position of that stirrup for re-assembly, the curve faces down. Re-assemble the revolver the in reverse order of above. AG

METALWORKING

Reader Forum

BY AMERICAN GUNSMITH EDITORS MAY 2010 ORIGINAL PP. 23-24

Colt Light Ri le I have a Colt Light Rifle chambered in 7mm Magnum in my shop. It needs an extractor, extractor plunger, and extractor spring. I called Colt and got the run-around of other numbers to call. None of them knew anything about parts and one even started laughing at Colt using their phone number as a reference. Any ideas where I can get these or what other brand of extractor might interchange with this one? The gun appears to have never been fired and was possibly shipped from Colt in this condition.

I hope this guy is not stuck with a wall ornament. Daniel P. Horn Huron, SD Robert Rockweiler You can check with Jack First If you get a no-go there, call Brownells for a free copy of their parts source list on out of production guns and warm up your fingers for a lot of walking. Annealing Brass Since the rush on components started I've seen several articles and references concerning annealing brass to prolong usage. What is the recommended procedure for annealing brass, specifically, temperature and time?

Is there a difference in the process for rifle and pistol brass? I've seen reference to immersing cases up to the shoulder in water. It seems to me that the water would boil away in short order. As always, I appreciate your help and American Gunsmith. Jim Codling There is a magnificent book by Dr. Ken Howell entitled Designing and Forming Custom Cartridges for Rifles and Handguns. Though intended primarily for wildcatters, it contains sophisticated guidance for all facets of reloading.

Among its many chapters, the fourth ("You Don't Need Magic") delivers great detail on the best annealing methods. Joe Wilson Macon, GA The book contains over 900 precise cartridge drawings from the .14 Walker Hornet to the 12.7 x 64 HK. The book can be purchased from the author by writing him at Stevensville, MT 59870-2515. Stevens Favorite Parts I have a Stevens Favorite .22 caliber rifle and believe it to be the 1894 model due to the flat mainspring.

I am trying to find a good source of parts and information about this model. The barrel was shot-out and the muzzle is now an oblong shape from cleaning and firing. A barrel sleeve has been installed to return the firearm to usable condition. The mainspring screw head was badly damaged from previous owner. Before I try to remove the screw, I want to ave a replacement.

Gary Coles Try contacting Rudi Prusok at the American Single Shot Rifle Association 1890 Winchester Where can I find a schematic and detailed disassembly procedures for a 1890 Winchester Rifle, 2nd model? George Butler The NRA Guide to Assembly for Rifles and Shotguns provides instructions and a schematic for the Model 62A. Follow these for the Model 1890.

Gunsmithing Schools I've been trying to sort out the best gunsmithing school value available short of becoming a full-time resident student attending a campus such as the Colorado School of Trade. I have schools trying to draw me on board for their programs but am confused about accreditation and which program would be considered, by manufacturers or potential clients, to be a quality, professional program.

What would you recommend as a program that includes advancement to a master gunsmith status and would be well received in the gunsmithing community? I am pursuing this as a career and to supplement the services that we provide at the gun shop I currently own. In the firearms business, Colorado School of Trades rates highest. As you probably know, its resident program is far less expensive for residents of the State than it is for out-of-staters.

As far as the Master status is concerned you won't earn it until you're long out of school and have proven yourself by your work. Those that do usually end up as members of the American Pistolsmiths Guild or American Gunmakers Guild. More about both is on the Web. AH Fox Sterlingworth I have a customer's 12-gauge AH Fox Sterlingworth double gun in my shop, and I need some help. Two questions: Do you know of a schematic on the Sterlingworth that I can access?

My research efforts to date have been unsuccessful, and I've not located a smith in my area that is experienced with the Sterlingworth. Also, can you tell me the proper technique for removing and installing the hammer springs? I've disassembled the action down to the point of removing the hammer springs, but have not figured out how to reinstall them once the hammer pin is pulled.

Charlie Gass Call the NRA Sales Office and order yourself a copy of The NRA Guide to Firearms Assembly, both handgun and long gun editions. There-in you'll find considerable information plus a schematic on Fox doubles. Of particular interest to you will be paragraph #6 which describes a tool you can make and use on the Fox and, with adaptations to its short end, many other double guns.

Remington Peerless Shotgun I am working on a Remington Peerless Shotgun and cannot get a takedown manual from Remington or any other source I have tried. I have all the parts out except the locking bolt, top lever and actuating rod. How do I remove the firing pins? Richard T. Debick It has been a good many years since the Peerless was last made and there is little to no relationship between it, the 3200, 396 and 320 over/under guns so far as interchangeability or servicing is concerned.

An engineering pal of ours at Remington dug out and sent usa copy of a page from afield service manual on the Peerless. To get the pins out, the top lever has to be removed. This requires a special tool. A working drawing of the tool and what it takes to remove the lever appears in the field service manual. Email your snail mail address, request a copy of "Manual Page on Peerless Shotgun" and we'll mail you a copy. Remington 1100 Carrier Issue I have Remington 1100 that with a carrier that will not lift up.

The shotgun will fire, lock the bolt, eject spent hulls, advance the next shotshell out of the magazine tube and on to the carrier. The path is clear to the carrier latch. If I depress the latch with a tool, the cycle will continue. The only thing I see is that the magazine tube spring is over 23.5-inches long and appears to be weak. The tube does contain a plug. Jon Fory Tom Hourt Remove the plug. Install anew spring and follower.

Rebuild the carrier assembly concentrating on the carrier release and all related springs. Replace the plug. AG

SEARCHABLE ISSUE RECORD

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