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INSIDE THE ARCHIVE

THOUGHTS ON ACCURIZING THE M1 GARAND

A "GOOD" GUN-CONTROL LAW? • WORKING THE NEW NAA GUARDIAN PISTOLS • SOLICITING WORK FROM GUN RETAIL...

ORIGINAL METHODS. MODERN ACCESS.

ARCHIVE EDITION 045

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FROM THE ARCHIVE

A “Good” Gun-Control Law?

BY AMERICAN GUNSMITH EDITORS AUGUST 2007

ORIGINAL PP. 2

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Earlier this year, after Seung Hui Cho went on his rampage at Virginia Tech, I wanted to write about no, I wanted to scream about’t he need to keep guns out of the hands of these nutjobs and about my frustration at the inability of NICS to put the nix on gun sales to these young wackos. In the end, I changed my mind and wrote only about the sorrow we all felt from the tragedy and the shame we felt at how the anti-gun lobby tried to use the incident to further its own agenda.

I changed my mind and the topic of my previous editorial because, first of all, I realized I’m not qualified to write on the subject of mental illness; I know next to nothing about psychiatry or how to identify someone who is potentially dangerous to himself or others. And I changed my mind because, as concerned as I am about ending these violent episodes, I’m equally concerned with the individual’s personal liberties and the individual’s right to privacy.

I hoped, in any case, that cooler, smarter heads would address the problem, and something positive would come out of the Blacksburg shootings’s omething that might restrict the rights of the criminally insane, without further restricting the rights of the rest of us. It looks to me like the “something” I was looking for is in the

works as we go to press with this issue. It’s known as HR 2640, the “NICS Improvement Act,” which overwhelmingly passed the U. S.

House of Representatives by a voice vote last week (early June). The Democrat-backed legislation, written in coordination with the National Rifle Association, supports measures to prohibit firearm purchases by those who have been adjudicated by a court as mentally defective or as a danger to themselves or others.

HR 2640 would provide financial incentives to states to make records of prohibited individuals available for use in the NICS, and would also require federal agencies to provide such records. (Note that those individuals blocked from buying a gun by these newly provided and updated records’s uch as Cho’ are already prohibited under current law from owning firearms.) Additionally, the bill makes some much-needed improvements to the National Instant Criminal Background Check System (NICS), according to the NRA.

For example, certain types of mental health orders will no longer prohibit a person from possessing a firearm, and adjudications that have expired or been removed from a person who has completed treat-

ment and has been released with no further supervision will no longer prohibit the legal purchase of a firearm.

This provision also addresses concerns about disability decisions by the Veterans Administration, and would restore the 2nd-Amendment rights of thousands of discharged military personnel who had their rights taken away by the Clinton/Gore administration.

Like current federal law, HR 2640 would not prohibit gun possession by people who have voluntarily sought psychological counseling or checked themselves into a hospital; records of voluntary treatment also would not be available under federal and state health-privacy laws. Similarly, voluntary drug or alcohol treatment would not be reported to NICS. The bill is now headed to the Senate.

The NRA promises to monitor the legislation throughout the congressional process to ensure that any changes to the bill will benefit lawful gun purchasers and restrict only those presently adjudicated by the courts as mentally defective. I don’t know if this bill could have prevented the tragedy at Virginia Tech, but I do know one thing: It’s the first piece of gun-control legislation I’ve ever supported. Editor Keith Lawrence Technical

PISTOLS

Working the New NAA Guardian Pistols

The Guardian can still be classified as a “baby auto-loader,” but, ballistically, the newer versions are in a class by themselves.

BY CHICK BLOOD AUGUST 2007

ORIGINAL PP. 3-6

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Physically, the new versions of the NAA Guardian are the same size as the older versions' like that of any small-caliber concealed-carry pistol. And the little auto-loader still comes in .32 and .380 ACP calibers, neither of which are considered “bone crunchers.” So what’s happened to the Guardian that sets it apart? Actually, nothing has happened to it mechanically, but plenty has happened to its ammunition. The new Guardian comes in .25 NAA and .32 NAA calibers. Still kind of puny, you say?

Well, let’s look at the difference between “ACP” and “NAA.” A typical .25 ACP factory load pushes a 50-grain FMJ out the muzzle at about 810 fps and produces 73 foot-pounds of energy. The .25 NAA, however, takes a .32-caliber case and necks it down to hold a .25-caliber 35-grain JHP. And ah-ha! The muzzle velocity jumps to 1,200 fps and energy to 112 foot-pounds. The .32 ACP with a 71-grain FMJ doesn’t do much better at 850 fps and 100 foot-pounds.

But the .32 NAA, which is a .380 case necked down to deliver a .32-caliber 60-grain JHP produces over 1,200 fps and 192 foot-pounds of energy. So the .25 and .32 NAA rounds aren’t so puny after all—especially if you’re one of those who subscribes to the theory that the three most important factors in ballistics are velocity,

velocity, and velocity. Adding to the difference in these new NAA cartridges is the fact that they were developed by Corbon. You’ve heard of Corbon ammo, I’m sure.

The name Corbon comes from a process developed by Peter R. Pi that bonds the lead core of a bullet to its copper jacket to deliver higher weight retention and deeper penetration. The company that evolved from the cartridge has an enviable list of achievements. Among them is the Corbon 9mm +P 115 grain JHP, the 400 Corbon, the 440 Corbon, and the .450 and .500 S&W Magnums.

Six years ago, the company added to its family of cartridges by purchasing Glaser Safety Slug of California, whose pre-fragmented ammunition is the round of choice for the U. S. Sky Marshall program. Three years ago, Peter Pi was awarded a patent for his latest brain-Kahr does the machining on these components for North American Arms. child’t he Pow RBall. These unique rounds, .380 auto to .45 auto +P, have a copper jacket bonded to a hollowpoint lead core that’s topped by a polymer ball.

They hit like a FMJ (or harder), expand like a JHP, and feed with 100-percent efficiency in the most finicky of pistols. The cooperation with Mr. Pi and

WORKING THE NEW NAA GUARDIAN PISTOLS CONTINUED

ORIGINAL PAGE 5

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The parts comprising the system are included on the drawing and, when engaged, make it impossible to fire the pistol. Control its movement forward as it separates itself from the frame. When the slide has totally cleared the frame, the recoil-spring assembly should drop out. If it doesn't, tilt the frame/barrel assembly down and tap the end of the frame on your bench top. Detailed Disassembly Insert a 1/8-inch punch through the firing-pin retainer (#4) to depress the firing pin (#3).

Push the retainer down with the tip of the punch enough to capture the firing pin. Pull out the punch and then slide the retainer down and out of the slide. Pick the firing pin and its spring (#5) from their tunnel in the slide. The extractor (#6) is retained in the slide by its plunger (#7), and you'll need to make a special tool to disengage these two parts. Take a 3/16-inch piece of drill rod about 2 inches long and grind or file a flat on one end.

The plunger has a flat, too, and the re-worked end of the drill rod is what you'll use to depress the plunger and give it half a turn. This will release the North American Arms Guardian Semi-Automatic Pistol (Specifications subject to change without notice) 1 Frame 2 Slide 3 Firing Pin 4 Firing Pin Retainer 5 Firing Pin Spring 6 Extractor 7 Extractor Plunger 8 Extractor Plunger Spring 9 Clip Release Body 10 Clip Release Retainer 11 Clip Release Spring extractor.

The extractor is removed by lifting it up and away from the slide. The plunger is under a certain amount of pressure exerted by its spring (#8) and could pop out once the extractor is removed. If it doesn't, tip the slide up and tap it on your bench. In most cases, the plunger and spring will fall free. If they don't, they're probably fouled in place.

Then you'll have to go in after them with a dental pick or other small tool. 12 Hammer 13 Hammer Push Rod 14 Hammer Push

Rod Spring Pin 15 Rubber Washer 16 Hammer Pin 17 Main Spring Pin 18 Hammer Spring Follower 19 Hammer Spring 20 Hammer Spring Plug 21 Slide Release Button 22 Slide Release Button Spring 23 Slide Release Spring Pin 24 Slide Release Bearing 25a Magazine 25b Magazine Finger Rest 26 Trigger 27 Drawbar 28 Drawbar Spring 29 Cover 30 Recoil Spring Large 31 Recoil Spring Small 32 Cover Bolt 33 Guide Rod 34 Grips 35 Grip Screws 36 E-clip The hammer pin (#16) is slightly elongated to accept an Eor C-clip retainer (#36).

You can pop it off with a small-blade screwdriver. Getting the clip back on won't be that easy. You'll definitely need a set of C-ring/E-ring pliers like the ones shown in the photo. Don't remove the hammer pin just yet. You're not through with the frame/ barrel assembly. Part #32 on the schematic is identified as the "cover bolt." It's not a

WORKING THE NEW NAA GUARDIAN PISTOLS CONTINUED

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The clip can be popped off easily with a small straight-blade screwdriver. bolt; it's a screw. Turn it out counterclockwise to release the frame cover (#29). Once you've lifted the cover away, you'll get a really good look at what lies ahead. It includes the drawbar (#27), drawbar spring (#28), trigger (#26), part of the hammer-spring (mainspring) follower (#18), and the hammer push rod (#13) "more commonly known as a hammer strut. Take advantage of the good look you're getting.

Notice how the L-shaped end of the drawbar spring fits into the bottom of the hammer. Also note how the looped end of the spring is captured between the cover bolt and cover, as well as how the spring and trigger interrelate. If you have a Polaroid or digital camera, I suggest you snap a photo of how the parts are arranged in the frame; you might need it as a reference for reassembly. Now go ahead and remove the aforementioned parts and then lift off the trigger't he trigger, not the trigger pin.

It's press-fit in place. It's possible you could drive it out and you could get it back in with an arbor press, but you'd risk damaging the frame. It's best to leave it alone and turn your attention to the hammer. (It's still under spring tension.) With a 1/8inch punch, a bench block, and a fourounce hammer, drift the pin (#16) downward and leave the punch in. Stand the frame up on

its butt or secure it between protected vise jaws and drive out the mainspring pin (#17).

Be ready to catch the hammer-spring follower (#18), the spring (#19), and the spring plug (#20) as they fall out. It's okay to pull the punch now so you can lift the hammer (#12) and pushrod (#13) from the frame. Only two subassemblies remain. The first is the magazine release (#9, 10, & 11). Press in halfway on the button, and turn the screw counterclockwise. The whole assembly comes out then. The second, and final, group to be removed is the slide release (#21), its spring (#22), and bearing (#24).

This entire assembly is retained by the slide-release spring pin (#23) located in front of the hammer and on top of the frame/barrel assembly. It's possible to drift this roll upwards by putting a 30-degree bend in a roll-pin punch. (The bend is needed because of the angled magazine well.) If you'd rather not mess up a good roll-pin punch, drift the pin downward until the slide-release assembly can be taken out. But don't drift the pin totally out.

In reassembly, the pin can be aligned with its cutout in the release by carefully attacking it with an untouched roll-pin punch from inside the magazine well. Care must be taken since the gun has to rest on its barrel during this operation, but if you leave some of the pin in its frame hole you

can get it back in without damage to the pistol or the punch. The Guardian I worked with here was not equipped with an internal locking system, but parts for the system are shown in the schematic.

Reassembly Tips What you removed last goes back in first. Follow this by dropping in the hammer subassembly and installing the hammer pin. To reinstall the hammer spring, preassemble parts #18, 19, and 20, and insert them into the grip tunnel. The hammer push rod (strut) must be seated in the follower. Press down on the follower to align the hole in the mainspring plug with its hole in the grip frame, and push pin #17 through.

If there's anything fussy in reassembling the Guardian it's with the cover and its associated parts. The trigger goes in first, and the draw bar connected to the trigger and the cover screw are started in. Position the screw over the loop in the drawbar spring. Capture the spring and cover by partially tightening the screw. Engage the L-shaped hook on the spring with the hammer prior to tightening down the screw and securing your work.

Find those C-clip/E-clip pliers, install the clip on the hammer pin, screw on the grips, and cycle the pistol with dummy rounds. The Guardian isn't complex. Keep it clean, remove internal burrs, and it will easily live up to its name. I

FROM THE ARCHIVE

Soliciting Work From Gun Retailers

To build your gunsmithing business, you'll want to build relationships with other small-business owners' and beware of wasting time with "dealers."

BY ARTHUR J. HUNT AUGUST 2007

ORIGINAL PP. 7

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As a gunsmith, how often have you been approached by someone who said something like this: "I'm a dealer. What will you charge me to blue this gun?" This usually means that this person has an FFL and sells a few guns out of his house or at gun shows. And he thinks he deserves a discount from you.

Let's look at what constitutes a "dealer," and I'll tell you how I feel about "discounts." First of all, I don't believe that the mere possession of an FFL makes anyone a "dealer." A "hobby dealer" may be able to buy guns from wholesalers and resell them, and he might have the necessary city, county, and state licenses and a sales-tax license. If he does, fine, he's a dealer; if he doesn't, I consider him just an individual with an FFL, and he qualifies for nothing in the way of discounts or special prices from me.

I explain to the "dealer" that I first need copies of any licenses that are required in the area. If he has them, I then explain to him that I like to work for people like him, and offer to give him an "X-percent" discount on all work, including bluing after he's reached \$500 worth of work (or any figure you like) per year. I will then credit his account with the discount I against future work. This usually takes of care discounts for the part-time dealer who wants a few guns worked on from time to time.

The bottom line here is that there's no legitimate reason for anyone to get special consideration from you unless he can provide you with a substantial volume of work. Remember the dealer is not going to tell his

customers what a great gunsmith you are or even that it was you who did the job. In effect, you are "ghost gunsmithing" for him. In a case like this, I'd just as soon turn him down completely, because I'd probably end up getting the work anyway through one of my legitimate dealers.

Now let's now look at what I call a "legitimate dealer." This is usually a gun shop or sporting-goods store. They are established businesses, and have a lot of customers. They usually want to be a full-service store, offering repairs, rebluing, recoil pads, sight mounting, and so forth. If they approach you, how do you handle them? This could be a good deal for you these people sell a lot of guns. But do you offer discounts? No. Why no? Because you don't have to.

You're going to do several things to increase the dealer's business. If the dealer can offer your services, the shop becomes a full-service store. They can offer their customers any modifications or repairs on a guaranteed basis, with fast service (more about this later), and they'll make more money. How will they make money if you don't discount your services?

Right away, they're going to add 20 percent (or more) to whatever you charge them on every job, plus they are assured of a profit on the sale of mounts, sights, scopes, pads, etc. You've given them a profit on a gunsmith shop with no overhead, let alone any investment. And what do you give them in addition to the 20-percent markup? Plenty. You'll pick up and deliver once or twice a week, and they can plan on this service.

They'll get your best work and your highest priority because their volume rates this kind of treatment. And they'll actually sell more guns, thanks to you. Why? Because when the customer wants a recoil pad or sling swivels or a scope, they can tell the customer: "No problem. Our gunsmith will have this done in a few days," thus more and bigger sales. What do you get? Depending on the store, you could get many thousands of dollars in work each year.

The store will be working for you as your sales force, and you'll be working for them as their gunsmithing department. That's a win/win situation that's hard to beat. How does this kind of deal work? For your part, you'll need to pick up and deliver on a regular schedule. You'll furnish the store with prices for common procedures, and supply prompt quotes for all other repair jobs. You'll give them priority service and your best quality.

In exchange, the store should agree to pay you upon delivery of each gun. (Call ahead, if you must, so they're prepared.) My rule is "no credit regardless." You should ask the store to agree to give you all of their gunsmithing work, and ask them to put a sign in the store offering gunsmithing services (your name need not be on it). Also, ask them to mention "their" gunsmithing services in their newspaper and phone-directory advertising.

Now that, my friends, is the kind of business deal you can earn a living from and one that makes a lot more sense than giving discounts to kitchen-table gun dealers.

FROM THE ARCHIVE

Scope-Ring Alignment: A Critical Accuracy Factor

The best scopes call for the best mounting methods, and that means the use of special tools and techniques for ensuring the proper alignment of the mounting rings.

BY NORMAN E. JOHNSON AUGUST 2007

ORIGINAL PP. 8-9

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As the owner of a firearm test range, I mount dozens of scopes each year. I get to see first hand how they perform, as well as the performance of scopes mounted by others. The two main complaints I hear about scopes usually center around those that fail to remain sighted in or group poorly on target. These complaints are usually very well founded. Most complaints about scope mounting are the direct result of poor scope-ring alignment and the accuracy-robbing stresses inherent between metal parts.

These stresses pull and twist, causing the scope to move and to become misaligned. The scope never really settles down as bullet point-of-impact changes over time or even as a target group is being fired. Further compounding the problem is the fact that there are perhaps a score of scope base and ring manufacturers, all trying to eliminate tolerance errors in their attempt

to match the manufacturing specifications among the myriad of firearms out there being scoped.

This is a daunting task, and the manufacturers are often unsuccessful. Identifying and Solving The Alignment Problem In essence, what is happening as we mount a scope is a stacking of tolerances: the scope base to the firearm receiver, the rings to the base, and the scope to the rings. As close as today's scope and firearms manufacturers have come in the elimination of tolerance errors, scope-ring alignment should be a fundamental part of scope mounting.

There is a sure way to precisely check the coaxial alignment of a pair of mounted scope rings. This is accomplished by using a set of sleeved scope-alignment rods. If used correctly, these precision alignment rods will readily show the slightest alignment error. (Alignment rods are available from Brownells.) Using Scope-Alignment Rods As sure as you may feel about your ability to mount a scope correctly, you

should always follow the scope manufacturer's instructions in mounting the base and rings.

Mounting systems vary, so pay close attention, particularly if you are not totally familiar with the system you're installing. Be sure the base doesn't rock or shift as it is pressed against the receiver. Then tighten the base screws alternately and evenly. Be sure no long screws protrude through the threaded holes in the receiver. Then, with the base mounted, follow the directions for mounting the rings.

Where there are laterally opposing adjustment screws for windage adjustment on the scope base—like those on Leupold, Redfield, Conetrol, and others—try to have the rings evenly spaced from right to left. Don't tighten these screws firmly at this time. The two alignment rod sleeves can Even a .001-inch movement of the scope shifts the reticle a full minute of angle, or about an inch at 100 yards.

SCOPE-RING ALIGNMENT: A CRITICAL ACCURACY FACTOR CONTINUED

ORIGINAL PAGE 9

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Original caption: Right top: The sleeved scopealignment rods are seen here mounted in position on a Winchester Model 70 rifle receiver using a Redfield base and rings. The sliding rods are pointing toward each other indicating good ring alignment. Right bottom: As described in the text, the longer of the two alignment rods slides through both sleeves, ensuring perfect ring alignment. Note the one-inch sleeves being used herewith the 30mm diameter as an integral part of each sleeve. now be placed in the scope-ring saddles.

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They fit both 30mm and oneinch rings. Then place the scope ring caps in position and tighten the screws with moderate torque. Both alignment rods are then placed in position with the pointers midway between the sleeves, barely touching. Then you can see if coaxial alignment exists. The two rod pointers should come together to ensure a 5-20X scope on a Remington Model 700 action. This is one of the most rigid scopemounting systems made. It actually adds stiffness to the rifle receiver.

Brownells' scope-alignment rods were used to produce a stress-free scope mounting here. coincident axis. If they aren't coinciding, see if the movable rear ring can be moved right or left to improve the alignment. Once the pointers seem to be in near perfect contact, it's time to test if the rings are truly coaxial. This is done by removing the shorter alignment rod, and checking to see if the longer alignment rod will enter the opposite sleeve.

If this can be accomplished, there is absolutely no misalignment of the two rings. To my knowledge, there is no other way to check

the precise coincident axis between the two rings. It's worth noting that 0.001 inch of scope movement will cause about one minute of angle of scope reticle movement on the target. So it's easy to see why a poorly mounted scope, inherent with stress, will leave you pulling your hair.

Making Corrections For Poor Ring Alignment
Where minimal misalignment is present between the rings, a simple reversal of the rings by rotating them (continued on page 21)



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180 degrees often produces better alignment. Base shimming can also be used, but I believe this is a compromising effort—a makeshift fix at best. Using the scope-alignment rods to manipulate the scope rings can do wonders to align the rings. Here the rods are installed with points toward one another, and a reasonable manipulative force is used on the offending ring (or rings) to bring the pointers together. This can be performed on both rings in moderation. It actually reduces stresses as the rings are aligned.

But don't attempt too great a correction in this way. Brownells also offers a scope-ring alignment lap. This tool actually removes metal by lapping and fitting the

rings. Clymer Reamers offers what they call a "ring-alignment reamer" for the same purpose. This dual-end reamer is clamped lightly into the rings and rotated to align them. Conclusions In my experience, only a relatively small percentage of scope rings are mounted in true alignment. This results in stresses that cause accuracy deficiencies.

Fortunately, scope rings can readily be checked for precise alignment, and are quite easily corrected where misalignment exists. Where the best accuracy is sought and scopes are expected to remain sighted, there's no substitute for the proper alignment tools. I

PEOPLE & COMPANIES

Adjusting the Remington 700 Trigger

Although the new Model 700 trigger is a complete redesign of the old, adjusting it for pull weight, travel, and sear engagement is still as simple as A, B, C.

BY CHICK BLOOD AUGUST 2007

ORIGINAL PP. 10-11

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Original caption: Right top: This close up of a trigger assembly from the Model 700 schematic shows the configuration of the firing system that helped earn Remington rifles the reputation of "best out of the box." Right bottom: The new Remington X-Mark Pro is a redesign of the classic Model 700 trigger.

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In the last year or so, I've answered so many emails and phone calls to the "Tech Hotline" about making adjustments to Model 700 rifle triggers that my ears are weary of listening and my fingers are sore from punching computer keys. So here's the straight skinny on adjusting Remington 700 triggers in one fell swoop. I trust you'll tear this out and file it under Remington triggers to keep for all time. Except for the Model 788, all Remington bolt-action trigger housings wear three screws. Two are in front.

One is in the rear. The original and basic design of the Remington rifle trigger is largely responsible for Remington's reputation as "best out of the box." The trigger remained unchanged until after World War II, when a newer one was introduced on the Models 721, 722, 700, and their close relatives. When this trigger is pulled, it moves the connector forward, leaving the sear unsupported against the cocked firing pin.

Without support, the sear cams down under pressure exerted by the spring-loaded firing pin to release the pin and impact the primer. In the hands of a hunter who maintains the rifle properly, the older firing system presents no problems. But in careless hands, especially in cold weather and with the safety "on," impacted dirt or lube that had turned gummy within the housing can and does interfere with free movement of the trigger.

If this fouling is severe and the trigger is inadvertently pulled, it can rotate forward and stick there. The gun won't fire because the safety is still blocking the sear. When the safety is placed in the "fire" position, however, the safety moves from under the sear which then moves downward, releasing the firing pin to discharge the gun. This, of course, was in no way satisfactory to Remington, and a redesign was called for.

The newer version of the Remington trigger features a safety pivot link that automatically pushes the safety under the sear. This

prevents the sear from disengaging the firing pin until the trigger is pulled. When the trigger is released, the safety link returns to its support position, blocking both the sear and trigger. Though the new trigger does resemble the old one externally, the new system is called the X-Mark Pro. Extremely close tolerances have been held with its internal components.

THESE PARTS WEAR A MIR-

It features a safety pivot link that automatically returns to position, blocking both the sear and trigger after the trigger is pulled. Mirror-like finish, are corrosion resistant, allow for lower factory trigger-pull settings, and the X-Mark is, indeed, adjustable. In the latter respect, there's been no change. Two screws in front, one in back. Years ago, we're told, every Model 700 came with instructions for making trigger adjustments with those three screws.

But too many unskilled adjustment attempts and too many legal concerns caused the instructions A C

ADJUSTING THE REMINGTON 700 TRIGGER CONTINUED

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Above left and Two screws in front and one in back of the housing adjust pull, travel, and sear engagement respectively. to be eliminated, and all trigger work was restricted to the factory or an authorized service center. It still is. But things got worse. The factory pull-weight and sear-engagement settings were heavied up sufficiently to eliminate any possibility of an accidental discharge. In fact, pulls became so heavy they caused problems with trigger control.

Moreover, seals made of a proprietary compound were added to the screw heads to instantly signal any unauthorized tampering on a rifle returned for service by Remington technicians. The seal on the rear screw that controls sear engagement remains in Right and far In the photo on the right, it is disengaged. Note the slicker interior finish in the new trigger assembly, which provides a high-

er degree of smoothness and a crisper break. place on the X-Mark Pro I received from Remington.

It resembles transparent red nail polish. If you break it, at least try to replace it with one of the same color. Also, check the factory trigger for weight of pull, travel, and sear engagement before making any changes, and keep a record of your readings. If the rifle ever has to be returned to the manufacturer, make certain it gets shipped with a trigger that duplicates the characteristics you measured.

Fail to do so and the work that you did'and your customers' money'will be wasted, because neither of you will ever see the adjusted trigger again. What you'll get is a X- Mark Pro readjusted to factory standards. So, forging ahead, the two front screws control

weight of pull and travel. (Remember: the one in back controls sear engagement.) Let's call the upper front screw "A," the lower front "B," and the rear screw "C." Keep track of counter-clockwise and clockwise turns.

If you rotate screw A counter-clockwise, pull can be reduced from a factory-set 4-1/2 pounds down to 2 pounds. Adjust travel by turning B clockwise until there's no release of the firing pin when the trigger is pulled. Hold the trigger back and turn B counter-clockwise until the sear releases the firing pin. Sear engagement is reset by first backing out C, say, three or four turns. Cock the action, don't touch the trigger, and screw C back in until the sear releases.

Recock the action and back out C enough, perhaps as little as a smidgen, so the (continued on page 21)



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sear doesn't release while your finger's off the trigger. After you've adjusted the pull, if the gun fails to "fire" on closing, you have to turn in C, this time maybe half a smidgen to reset the trigger. If the guns fails to "fire" with the chosen pull weight, either turn in Cto gain sear contact or increase the pull with A. But don't rush

things. It can take considerable back and forth tweeking with A and Cto secure a light, but safe, creep-free trigger.

You simply have to keep at it until you've got it right. It's worth mentioning that the X- Mark Pro can be retrofitted to all Model 700 rifles currently wearing Remington triggers. It's also important to mention, I the Model

RIFLES

Thoughts on Accurizing the M1 Garand

Volumes have been written on accurizing and sporterizing the Garand, but everything starts with a careful and thorough initial disassembly and inspection.

BY ROBERT K. CAMPBELL AUGUST 2007

ORIGINAL PP. 12-15

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This rifle needs little introduction, but a gas-operated semiautomatic military rifle is always a bit more challenging to work with than most sporting rifles. The Garand uses an en bloc clip rather than a box magazine, and is very reliable with proper loads. But like many rifles, the Garand was produced quickly on a wartime footing, and variations are to be expected in the original WW II production. The tolerances are designed to allow mass production more than precise accuracy.

Just the same, the Garand is a wonderful rifle and a good shooter, and deserves the respect it's earned as part of our American heritage. When you work on a customer's rifle, you'll always want to be certain from the outset that you understand his needs and how he intends to use the rifle. You should be aware or your customer should be that certain modifications can disqualify the rifle for basic rifle matches under DCM rules.

In the case of the rifle I worked with for this report, the owner simply wanted a more accurate rifle for casual shooting. He was also anxious to find out if he'd gotten a good buy on what he originally thought of

as a "parts gun." As it turned out, the modest price he paid had delivered a good rifle. The primary variations in wartime production are generally in the gas tube and the wooden parts.

A buyer can't do much picking and choosing on these used service rifles, but the 1950s production was standardized and seems the choice when available. The rifle illustrated here features Beretta parts, except for an Americanmade cast receiver. The Garand was adopted by the Italian armed services after World War II, and Beretta production has an excellent reputation. The initial inspection should turn up any problems with the rifle that need to be addressed.

Even well-worn rifle bores are usually acceptable for casual shooting, but a replacement barrel may be needed for match use. I suggest a shooter get some experience with his rifle before deciding on expensive modifications. The Century rifle used here arrived relatively free of preservatives. Department of Civilian Marksmanship rifles will often be coated with a thick appli-

cation of cosmoline. Regardless of how it arrives, the rifle must be disassembled, cleaned, and inspected.

Basic Disassembly and Testing To disassemble the Garand, the trigger guard is lifted up and to the rear. This rifle was very tight, and I used a wooden dowel for leverage to move the trigger guard. The trigger group can be removed at this point. Then carefully tip the stock up and remove the barrel and receiver. The barrel and receiver pull out in one piece along with the hand guard.

Old lubricant and powder ash sometimes forms a type of varnish that can "glue" the rifle together and require a bit of effort to break. As the rifle is field stripped, I check the stock for cracks and the moving parts for wear. If the rifle checks out okay with no obvious aberrations, I reassemble and test fire it. The Garand isn't necessarily going to like any old .30-06 softpoint hunting ammunition you have left over around the shop.

The rifle does feed soft points, but the cycle of the rifle is tailored toward a specific pressure curve. Handloads with slowburning powder may not be appropriate. I always use Federal American

THOUGHTS ON ACCURIZING THE M1 GARAND CONTINUED

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Eagle .30-06 for testing. This is highquality ball ammunition that always gives good results in the Garand. The rifle should be lightly lubricated prior to firing. Be certain you use quality en bloc clips, and never attempt to load the Garand with a single round. This can produce slam fires, which I'll discuss later. If the rifle functions properly, proceed to the next step. Detailed Inspection And Modification After the firing test, disassemble the rifle again.

The operating rod should be tested for proper drop into position. The cutout holding the rod pretty much defines the proper travel for the operating rod. More detailed disassembly begins by unhooking the operating rod by moving the spring and follower rod towards the muzzle. Without pressure on the operating rod, you can once again move it, looking for pressure and binding. Many long-time Garand shooters have told me the operating rod is the source of most malfunctions.

A bent rod is often the result of too-hot ammunition, although rough handling can also be to blame. At the same time you're testing the op rod, be certain the bolt locks into place smoothly. There are The trigger pin may require some effort to remove, but the hammer pin is often quite easy to push out. occasional rubbing problems with sur-

plus guns. Careful sanding can relieve the travel area of the operating rod. A dirty gas cylinder also produces problems. Cleaning it will usually cure sticky operation.

Next, take a look at the receiver. Turn it upside down and press out the follower pin that holds the bullet guide. This is not a roll pin, but a straight pin with a head like a nail. With the muzzle side of the receiver to your right, the head of the pin is oriented left. Once the pin is tapped out, all the receiver parts are easily pulled free. There is a clearance cut for the operating rod in the back rear of the receiver. Apply pressure to the rod until it moves into place just over this clearance cut.

Little effort is usually required to pull the rod free. Now you can inspect the bolt and bolt face. It is possible the bolt face may be pitted or damaged from firing. While the rifle illustrated here features a new receiver, it's still a "parts gun" requiring close scrutiny. Again, the rifle passed this test. An indent resembling a cartridge head on the bolt face is a sure sign that too powerful loads have been used. A pitted or rough bolt face can be carefully polished to aid feed reliability and function.

If the rifle bolt is dirty with varnished oil and powder, a thorough cleaning is needed. Now, let me offer a few words on the prop-

er use of the Garand's en bloc clip. This is not gunsmithing, per se, but anyone who works with or shoots the M1 needs to know how to avoid the dreaded "M1 thumb." The en bloc clip is loaded with eight cartridges.

The cartridges must be loaded so that the cartridge case head is square against the rear of the clip. (There is no front or rear; you pick the rear of the clip when you load it.) The cartridges are slightly staggered. The bolt is locked to the rear and the clip is pressed in with the thumb until the clip locks in place. Then the thumb is quickly removed and the bolt pressed to the rear in a sweeping movement. If you're not quick, your thumb can be slammed forward, producing the M1 thumb.

When the cartridges are fired, the en bloc clip is ejected. If you want to unload the rifle prior to firing the complete load, a lever on the left side of the receiver is the clip release. This will eject the clip and any round in the chamber when the bolt is pulled to the rear. Now, back to the receiver and disassembly: To remove the clip latch, you'll need to tap the long pin at the rear of the receiver. Tap it forward. There is a spring involved that can be lost if you're careless with this step.

IT IS NOT NECESSARY TO REMOVE THE

THOUGHTS ON ACCURIZING THE M1 GARAND CONTINUED

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sights unless you're going to replace them. However, sometimes the sights are stuck or in need of cleaning. It is amazing what military service can do to a rifle. The adjustment screw on the left side of the rifle sight is loosened. This allows loosening of the slotted nut on the right sight. All parts can then be lifted away, and the sight cover pushed off. The pinion and nut that control adjustment should be sharp and clear with well-defined detents.

Moving to the trigger group, I recommend giving it a careful study if you're not already familiar with it. This is a military two-stage trigger designed for safety and longevity. There are two areas of concern. One pin holds the hammer assembly and the other holds the sear and trigger group. The hammer must be released prior to disassembly. It can't remain cocked, as great pressure is exerted on the pins when the hammer is in the cocked position. On the left side of the trigger group, you'll see the trigger pin.

If the pin is at all difficult to drift out, you'll want to move the trigger group forward and compress the trigger spring. With the trigger pin removed, the trigger, trigger spring, and related parts can be lifted out. The hammer pin is never difficult to remove, in my experience. At this point Examine the lug carefully; it's sometimes found to be broken or cracked. Parts of this rifle were made by Beretta. all parts should be checked for wear or cracks, which indicate the need for replacement.

Glass bedding the Garand is more difficult to do than with most boltaction rifles, but is well worth the effort if superior accuracy is the goal. But, again, be certain your modifications don't disqualify the rifle from certain types of matches. The Century rifle used for this article was quite accurate as received, giving us some incentive to try to produce an even more accurate rifle. The rifle's bedding is complicated by the need to address the handguard and gas cylinder.

I learned through some research that the bedding compound needs to be anchored in bedding grooves. While various publications of the DCM and NRA outline the anchor points, by laying the receiver in the stock and marking the meeting points between receiver and stock, you can judge your bedding points. At these points, grooves for the bedding can be made with a Dremel tool. A cut shaped like a horseshoe is engraved in the area below the rear of the receiver to aid in stock fit.

I use a cut about 1/4-inch deep and perhaps 1/8-inch wide. This handles the rear of the receiver. Two grooves are inletted into the stock. One is cut for the clip release and the other is cut for the operating rod. The side cuts will also be 1/4 by 1/8, again watching out for the clip-release inlet. The receiver bears attention as to fit in the lower stock. Don't cut over the trigger channel, but the housing covering the magazine and the trigger-guard areas can receive anchoring cuts.

When cutting the inletted portions, by comparing photographs in some NRA publications, I realized that this receiver is a bit beefier than some. I was told that the maker had experience with the Garand and beefed the receiver up where he had seen problems with the original Garand. Conventional wisdom tells us the bedding cuts on the rear of the stock are the main anchor points. We're simply trying to ensure that the rifle returns to battery in exactly the same way time after time.

Next, we must be certain every possible hole in the receiver is found and filled with clay. The recess for the clip latch and all slots must be filled. Remember to line the receiver and trigger housing with release agent. Don't skimp with the clay in covering the working parts and don't skimp on the release agent. The receiver lugs demand careful attention here. I use Accu Glas, but your favorite bedding compound will be fine.

Use enough to do the job and be certain you've filled the cutout slots and that there's plenty in the interior recesses. I use a painter's mixing paddle to help in "painting," as I call it. I've placed a bolt-action straight into the wood, but with the Garand I find the best leverage is realized when the right side of

THOUGHTS ON ACCURIZING THE M1 GARAND CONTINUED

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This stands for Pietro Beretta, the maker of Garand rifles for the Italian army. The sight cover is in front of the sights, covering the spindles. The stock is up and secured in a vise, unless you have a helper and can make it a two-person job. As with any bedding job, press the receiver in straight and never pull the barreled action out. You must be familiar with the Garand to do this smoothly. Wait a few minutes and turn the rifle over and insert the trigger group, checking constantly for proper alignment.

After letting the compound cure overnight, you can remove the barreled receiver the next morning and trim up the bedding. I know from experience that tapping the barreled action away must be done carefully' mistakes can result in a ruined stock. After removing the action, clean the modeling clay and release agent from the action. Standard procedure calls for allowing the bedding to cure for at least a week before test firing.

Troubleshooting Problems The two problems I've found to be most common with the Garand are short cycles and slam fires. I would much prefer to have to deal with short cycling rather than slam fires, but here are some thoughts on both problems. The Garand is reliable and durable because of a well-designed gas system. But the gas system is much like an automobile engine. When the pistol or cylinder become worn, you get blow-by, meaning that worn or corroded parts are letting gas slip by.

The result is that not all of the gas is being used to operate the action, and problems in cycling are the result. Short cycling is simply the operating rod failing to move the bolt far enough to the rear to fully function the rifle. While polishing a problem cylinder can sometimes solve the problem, the best choice is to install anew gas cylinder. The guide lug on the operating rod is used to rotate the bolt out of battery. This lug can become peened or cracked and give problems.

The lug can be ground off and anew one welded on, or the whole rod can be replaced. The grind-and-weld option is recommended only for those gunsmiths with the proper equipment and experience. Slam fires occur when the rifle fires out of battery or fires when the bolt goes home on a chambered cartridge. The most common cause is poor ammunition. Handloads with high primers can produce slam fires as the bolt goes home. This is a twofold problem, since the Garand has a floating firing pin.

Often, if you remove an unfired cartridge from the Garand's chamber, you'll find the primer has a small dimple from the firing pin. It doesn't seem to hurt anything, but you can imagine what would happen in the case of a handload with a high primer. As such, handloads for the Garand must be of the proper dimensions. Additionally some concern is voiced by competitive shooters regarding primer selection.

The CCI #34 military specification primer is dictated by many for Garand use, as it features a harder primer than some and one that will endure the Garand's floating pin. Another concern is improper loading of the Garand. The Garand is designed to feed and strip a cartridge from the magazine. It is not intended to be single-loaded.

When the bolt is allowed to slam forward on a chambered cartridge, much more force is exerted and this could give extra impetus to the firing pin, causing a slam fire, thus the importance of following the proper procedure when loading. This applies to the M14 and M16 as well. Even if a single round is to be tested, the round must be fed from the magazine.

There are devices available similar to the Garand's eightround en bloc clip that allow firing a single cartridge, such as the "Sled." There are also specialty en bloc clips with a twoor five-round capacity. Another possible cause of slam fires in the Garand is a return spring that's too heavy. If the return spring is too heavy, it returns the bolt forward too forcefully, and the firing pin is almost guaranteed to take a run forward. Still, operator error is the usual suspect in slam fires.

The gunsmith must look for mechanical causes, but counseling the shooter will usually solve the problem. I

PEOPLE & COMPANIES

Working the Marlin Model 1894

Thanks largely to interest from cowboyaction shooters, this once-popular leveraction has been rereleased and is gaining in popularity once again.

BY DAVID R. CHICOINE AUGUST 2007

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We've come to think of Winchester as the pioneer of lightweight rifles chambered for pistol cartridges, but they weren't the only gun maker to do so. The iconic American firearms maker, Marlin first introduced a lever-action rifle built to accept revolver cartridges in 1888. Known by the year of its introduction, Marlin made roughly 4,800 the Model 1888 rifles. The next year, the Model 1888 was improved and became known as the Model 1889.

The 1889 was manufactured for the next 10 years, with a total of about 55,000 rifles produced. But the most popular and successful version of this medium-frame rifle series'and

also the final version'was the Model 1894, introduced in 1894 and manufactured from 1894 to 1935. Marlin's 1888 and 1889 models were chambered for 32-20, 38-40 and 44-40 Winchester cartridges. When the 1894 was introduced, these same popular calibers were available, plus they added 25-20 to the list.

Some- Top of page: Marlin's new Model 1894 Cowboy is shown here in .45 Colt. The rifle looks and operates much like the original 1894, but with the addition of across-bolt hammer-block safety. Author photos. Look inside to be sure there is no cartridge in the carrier or in the barrel. thing on the order of

250,000 of these first-production Model 1894s were produced in many variations'as carbines and rifles, with both round and octagon barrels, and barrel lengths that ranged from 20 to 32 inches long.

All of Marlin's early rifles, the 1894 included, used a square breech bolt. They also incorporated more practical safety features than the rifles of any of their competitors, resulting in a strong following for simple and robust design. In the latter part of the 20th century, the Model 1894 was reintroduced by Marlin, and appears to be just as popular today as it was a hundred

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This makes barrel and chamber cleanup easy. years ago. Today, however, the rifle comes in more modern pistol calibers, including .45 Colt, as well as .357, .41, and .44 Magnum calibers. Disassembly Instructions The take-down procedure I'll outline here applies specifically to the new Marlin 1894 models, but since their operation is very similar, these instructions can also be applied to older 1894 models.

The only difference will be that the earlier rifles are not equipped with the cross-bolt-type hammer-block safety.

1. Let's be absolutely certain this weapon is unloaded before beginning any work. Holding the rifle firmly around the barrel and forearm with your left hand, point the muzzle in what you're sure is a safe direction, and use your thumb to gently pull the hammer (#35) back until you hear one audible click.

On newer 1894 models, put the hammer-block safety on "safe" by pushing it from left to right (with the rifle viewed from the rear). Now open the action by pulling the finger lever (#15) all the way down with your right hand. Look now to be certain there is no cartridge in

the barrel's chamber. Check also to make certain there is no cartridge laying in the carrier (#7) down in the action. If you can see a cartridge in the carrier block, when you close the lever, you will be loading the rifle.

In order to safely unload a rifle with a loaded magazine, again keep the muzzle pointed in a safe direction and keep your finger away from the trigger. Operate the lever to the full open and full closed positions several times to expel the cartridges in the magazine. Repeat this action until no more cartridges are expelled from the action. 2. The next step is the removal of the Marlin's lever, the breechbolt, and the buttstock.

Start by pulling the lever (#15) about halfway down and unscrewing and removing the lever screw (#19). Now you can pull the finger lever down and out of the receiver (#62). Next, slide the breech bolt (#2) all the way to the rear and then out of the receiver. You can now simply lift the ejector (#9) out of its recess in the receiver. Unscrew and remove the tang screw (#67) from the upper receiver tang, and pull the

WORKING THE MARLIN MODEL 1894 CONTINUED

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Marlin Model 1894 Lever-Action Rifle (Specifications subject to change without notice) *Restricted availability'Part sent to qualified gunsmith only. **Restricted availability'Parts installed at factory only. ***Nonrestricted availability'Part may require some final fitting, sanding, or filing. 1 Barrel 2 Breech Bolt 3 Bullseye 4 Buttplate/Buttpad 5 Buttplate/Buttpad Screw (2) 6 Buttstock 7 Carrier Assembly 8 Carrier Screw 9 Ejector w/Spring 10 Ejector Spring 11 Extractor 12 Extractor Retaining Pin 13 Extractor Spring 14 Extractor w/Spring 15 Finger Lever 16 Finger Lever Plunger 17 Finger Lever Plunger Pin 18 Finger Lever Plunger Spring 19 Finger Lever Screw 20 Firing Pin, Front buttstock (#6) to remove it straight off to the rear. 3.

Before disassembling the receiver, on newer 1894 models, push the safety to the "off" or "fire" position. Lower the hammer (#35) so it's all the way down.

On newer 1894 models, use a 21 Firing Pin, Rear 22 Firing Pin Retaining Pin (2) 23 Firing Pin Spring 24 Forearm 25 Forearm Tip 26 Forearm Tip Tenon 27 Forearm Tip Tenon Screw (2) 28 Front Band 29 Front Band Screw 30 Front Sight 31 Front Sight Base 32 Front Sight Base Screw (2) 33 Front Sight Hood 34 Front Sight Insert 35 Hammer 36 Hammer Screw screwdriver to push down on the top of the mainspring-adjusting plate (#38), and slide that plate out to the side of the action along with the mainspring (#37).

Use care to keep the spring captive, as it is still under some tension.

On early 1894 models, unscrew and remove the mainspring 37 Hammer Spring (main-spring) 38 Hammer Spring Plate 39 Hammer Spur Complete (Includes parts #40 and 41) 40 Hammer Spur Screw 41 Hammer Spur Wrench 42 Hammer Strut 43 Hammer Strut Pin 44 Loading Spring 45 Loading Spring Screw 46 Locking Bolt 47 Magazine Tube 48 Magazine Tube Band 49

Magazine Tube Band Pin 50 Magazine Tube Assembly 51 Magazine Tube Follower 52 Magazine Tube Plug 53 Magazine Tube Plug Screw 54 Magazine Tube Spring 55 Magazine Tube Stud 56 Rear Band 57 Rear Band Screw 58 Rear Sight Assembly 59 Rear Sight Base 60 Rear Sight Elevator 61 Rear Sight Folding Leaf 62 Receiver 63 Safety Button Assembly 64 Scope Mnt.

Dummy Screw (4) 65 Sear 66 Swivel Stud, Rear 67 Tang Screw 68 Trigger 69 Trigger and Sear Pin 70 Trigger Guard Plate 71 Trigger Guard Plate Latch Pin 72 Trigger Guard Plate Screw 73 Trigger Guard Plate Support Screw 74 Trigger Safety Block 75 Trigger Safety Block Pin 76 Trigger Safety Block Spring 74 Ten-Shot Plug screw (not shown), and lift out the leaf mainspring. At this point, you'll want to make careful note of the relationship of the hammer and trigger parts for later reassembly.

Next, unscrew and remove the hammer screw (#36). After depressing the trigger-safety block (#74), pull

WORKING THE MARLIN MODEL 1894 CONTINUED

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It and the forearm are shown here disassembled. the trigger (#68) to the rear, then lift the hammer assembly (#35) up and out through the top of the receiver. Unscrew and remove the trigger-guard plate screw (#72) from the bottomfront of the trigger guard, and remove the trigger-guard plate-support screw (#73) from the left side of the receiver. Now the trigger-guard plate assembly (#70) is loose, and can be pulled down out the bottom of the receiver.

By unscrewing and removing the carrier screw (#8) from the right side of the receiver, the carrier (#7) and locking bolt (#46) can be removed through the bottom of the receiver. Unscrew and remove the loading-spring screw (#45) and lift the loading spring (#44) out of the receiver. 4.

Before disassembling the forearm and magazine, note that Marlin has used several different methods to secure the magazine and forearm on different models over the years, so your rifle may differ somewhat from what you see in the photos here. This procedure applies to the carbine: Unscrew and remove the magazine-tube plug screw (#53) from the bottom-front of the magazine tube.

The magazine-tube plug (#52) along with the magazine spring (#54) and magazine-tube follower (#51) can be withdrawn from the front of the magazine tube (#47). But watch out; these parts are all under spring

tension. Next, unscrew the front band screw (#29) and slide the front magazine band (#28) off to the front. Unscrew and remove the rear band screw (#57), then slide the forearm wood (#24) along with the rear band (#56) forward up the barrel just a bit. You can now remove the magazine tube by pulling it forward.

Next, slide the rear band off the forearm and tilt the forearm down to remove it. For rifles (illustrated): Unscrew and remove the magazine-tube plug screw from the bottom-front of the magazine tube. Unscrew and remove the two forearm-cap screws (#27), and slide the forearm cap (#25) forward so it disengages the tenon (#26). Hold your thumb tightly over the magazine-tube plug while you pull the magazine tube down and away from the barrel slightly.

Once the tube is clear of the magazine stud (#55) on the barrel, the magazine-tube plug is loose and can be removed out the front. Out with it will come the magazine spring and its follower. The magazine tube can be withdrawn forward, and then the forearm wood (#24) can be removed from the barrel. 5. Before disassembling the trigger-guard plate, take a moment to note the relative positions of these parts for reassembly. Use an appropriately sized pin punch and hammer to drive out the trigger/sear pin (#69).

The trigger (#68) and sear (#65) can now be removed from the trigger-guard plate. To remove the trigger safety, you first have to drift out the triggersafety block pin (#75). After that, the trigger-safety block (#74) and its spring (#73) can be lifted out the top. 6. Disassembly of the breech bolt and the lever begins by removing the extractor (#11) from the breech bolt (#2) by carefully driving out the extractorretaining pin (#12) with an appropriately sized pin punch and hammer.

Once the pin is out, the extractor (#11) and the extractor spring (#13) can be withdrawn out the front of the bolt. Next, remove the rear firing-pin retaining pin (#22) by drifting it out from top to bottom, after which the rear firing pin (#21) and the firing-pin spring (#23) can be removed. The front firing pin (#20) can be removed after first driving out the front firingpin retaining pin (#22). The firing pin is now loose and will slide out to the rear of the breech bolt.

To disassemble the lever, the finger-lever plunger (#16) and its spring (#18) can be removed by using an appropriately sized pin punch and hammer to drift out the finger-lever plunger pin (#17). Further disassembly is not required for normal maintenance. And, as always, you reassemble the rifle in the reverse order of the above. I

MAINTENANCE & REPAIR

Reader Forum

BY AMERICAN GUNSMITH EDITORS AUGUST 2007

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Replace Model 742 Extractor I have a book on the Remington Model 742, but it doesn't go into detail on my problem. What I need is this: I have a broken extractor, and don't know how to get the old one out. Can you help me with removing the breechbolt? Close the action and remove the magazine. Disassemble the barrel, forend, and operating handle from the action. Pull the action-bar sleeve forward to slide the bolt carrier, bolt, and ejection port cover from the receiver.

We're assuming you're faced with an extractor that is riveted in to the bolt. You'll need a replacement extractor and rivet. Drive or drill out the rivet from outside to inside. Pry up the extractor from its inner rim on the face of the bolt to remove both the extractor and the rivet. Now squeeze the new extractor ends together slightly to tension it. Snap the extractor under the bolt rim, and align its rivet hole with the one in the bolt.

Insert the rivet with its flathead against the extractor, support the rivet head, and stake it from outside the bolt. Finally, smooth up the staking to blend in with the bolt body. Unsafe Luger Safety A friend has given me a

.22-caliber Stoege Luger semi-automatic pistol with a "non-working" left-side safety lever in the hope that I can figure out the problem. When the gun is cocked, it will fire whether the safety lever is on "F" for fire or "S" for safe.

I'm reluctant to disassemble the gun without some guidance, and I'm not familiar with this type of weapon. Do you have any suggestions for a cause and/or possible repair? The owner's manual has a parts list and an exploded view (schematic), but no instructions for "deep" disassembly and reassembly are given.

There are instructions for field stripping the gun, and it mentions that when reassembled to make sure it will not fire when the lever is indicating "safe." Is it possible that it may have not been assembled correctly from a field strip? Or do you think it may have a broken part or something missing? I would appreciate any help you can give me. Thanks. Tom Rush Henryetta, Oklahoma We think the problem is related to wear and parts must therefore be replaced.

READER FORUM CONTINUED

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The copy of the original owner's manual we have goes no farther than yours, but takedown for the pistol has been simplified compared to the German Luger. Instructions for the latter appear in Gun Digest's book of disassembly/assembly for automatic pistols. Purchasing the book would be a good start, and Jack First, Inc. lists parts for the Stoeger. Since Stoeger Industries has been acquired by Benelli USA, we've lost contact with the gunsmith we used to turn to when we ran into a stone wall.

But if all else fails you can call Benelli USA Sig Pro Trigger Replacement I am about to take on the task of replacing the original trigger on a Sig Pro SP2340 with a short trigger (a Sigarms factory part). Does one of the available back issues of American Gunsmith or one of the AGI video courses contain the disassembly/re-assembly guidance I'll need for the job? Thanks either way. Ray Leisner Prattville, Alabama Both the January 2000 and August 2001 issues contained pieces on Sig pistols.

The January article was on servicing the P-Series. The Sig Pro is one of them, although its decocking lever spring is part of its fire-control unit and not separate as it is in the P220 and P229. Nor does the Pro have a trig-

ger spring, that part being replaced by the trigger-bar pusher. In addition, the Pro's grip panels are not screwed onto the grip frame. They're snapped in and must be removed by applying pressure from the inside of the magazine well.

We don't believe reprints are still available for the issues named above, but you can call AGI to see if their videotape addresses the differences between the Pro and other Sigs. Remington French Lebel Parts I'm looking for a bolt extractor for a Remington French Lebel Berthier rifle. Any help would be appreciated. Thanks. Merle Smith Tamewolf@webtv.net The Remington-Lebel bolt-action (Model 1899) was produced from 1899 to 1907 in military rifle, military carbine, and sporting rifle configurations.

Present value in very good condition is listed as \$750. No parts are shown in the Jack First or Gun Parts Co. catalogs. We suggest you call Remington for the current address of the Remington Society. It's a large group of collectors, one of whom may be able to help in your search for parts. Unlocking the Winchester M12 I have a Winchester Model 12 trap gun in the shop that has an unlocking problem. When fired, it requires forward pressure on the forend to unlock the slide for ejection.

According to the serial number, it's amid-1930s gun. Otherwise, it's in very good condition, with very little wear on the moving parts. The barrel-to-frame fit is tight and all controls are smooth. I know that the Model 12 does not unlock when dry fired, but this one will not unlock when fired unless you push forward on the forend after firing. Can you help me out? Ed Wallace Oak Harbor, Washington With a somewhat significant exception the Model 12 operates much the same as other pump guns.

In other words, moving the slide handle back and forth unlocks the breech bolt, extracts/ejects a fired shell, cocks the hammer, transfers alive round from the magazine to the chamber, and re-

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locks the breech bolt behind the new shell. The exception with the Model 12 is that the action slide must be disengaged from the action bar by moving the slide handle slightly forward. If the shotgun has been fired and the hammer is fully forward, the same motion must be made before the slide is moved to the rear. This is because the descending hammer of the fired gun has already partially disengaged the lock.

If the hammer is cocked, however, it becomes necessary to press upward on the slide release prior to moving the action bar to the rear. The bottom line here is that having to push forward on the slide handle is not an indication that something has gone wrong with your Model 12; it's the way the gun was designed. XP 100 Stock Repair I have a Remington Model XP 100 in 7mm-08 with a loose rear action nut. The laminated stock is epoxy bedded.

As I tighten the rear action screw, the milled-out slot for the T-nut is split on the side. Should I epoxy the nut in place, and have the epoxy come up the sides to meet with the existing bedding material? Or do you have a better repair procedure? Thank you. *alter* We covered the XP 100 in the June 03 issue and think you're referring to the rear receiver screw and T-nut. Yes, match the color of the epoxy to the stock as best you can and re-secure the nut.

Taurus C85 Problems My friend brought me a Taurus C85 .38 Special. I have two problems with it. The first is that the hole in the frame through which the firing pin protrudes is elongated. There was also a tremendous burr around it. I used a Dremel tool to smooth that out, but the elongation worries me. Does that indicate the gun has other problems? The second is more serious. With the sideplate off,

everything works wonderfully. As soon as I put the sideplate on, the trigger stops at the rear.

The cylinder advances, the hammer falls, and everything appears to work fine, except the trigger doesn't return. Nominal pressure on the trigger pops it forward and then it's ready for the next firing cycle. The screwy thing is, with the sideplate on but not tightened, everything works. As soon as any pressure is placed on the front of the sideplate, the trigger stops. If anyone has any experience with this, I'd appreciate some feedback.

The Taurus Model 85 has no firingpin or hammer bushing at the rear of the frame like a S&W, and no firingpin stop like a Colt. So the elongation is worrisome. Perhaps it is related in some way to the large burr you mentioned. But your friend has managed to damage the firing pin channel at the rear of the frame. If the revolver had bushings, a repair might be possible by replacing the bushing. As it stands, you'll have to drill out and sleeve the channel. Of greater concern is the problem with the sideplate.

Is it bent? Check it for wobble on a dead-flat surface. If it isn't bent, the problem may not be serious and might simply indicate a weak or broken trigger-return spring. If the plate is bent, you might be able to purchase a replacement, but we have our doubts. The condition of this revolver brings to mind an experience we recall with a lightweight Colt Police Backup .38 Special. The Lieutenant who owned it had been told it would be okay to fire +P rounds in the gun.

By the time we got it, it was frozen up solid fore and aft, the cylinder-stop slot in the bottom of the frame was shaped like a

Banjo, and there wasn't a stud inside the gun that wasn't bent. The Lieutenant had to purchase another gun. We hope your friend doesn't have to resort to the same solution.

Replacing Ted's Throat I have a Ted Williams (1200 Win.) 20 gauge in my shop with a broken magazine throat. I've looked at exploded drawings and found that the magazine looks to be pressed in. What puzzles me is that it looks like it is threaded on the end. The magazine throat looks like it is a single piece of plastic. Is the mag tube pressed through the receiver and into the plastic? How does it come out? Any advice would be very much appreciated. And thanks for a great publication.

Yes, the 1200s mag tube is press fit. It may or may not have a one-piece throat; some have a two-piece—one upper, one lower. In either case, purchase an extra magazine end cap and fabricate a slide hammer to fit over the mag tube. (Sometimes, a box or open end wrench can substitute for the hammer if it is heavy enough.) Screw on the extra end cap, remove the firing mechanism, place a wooden block in the rear of the receiver to prevent crushing, and secure the receiver between padded vise jaws.

With a rubber or rawhide mallet, drive the mag tube into the receiver until you can reach in and remove the throat(s). Next, remove the extra cap, install the slide hammer, and then replace the extra cap. Position the new throat(s) on the tube. Using the slide hammer (or heavy wrench), impact it in a forward motion against the extra cap to capture the throat(s) between the tube and receiver. Double check for throat position and continue the

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(continued from previous page) forward impacts on the cap until the tube and throat(s) are flush with the interior of the receiver. Finally, remove the extra cap and replace it with the original. Note: Be careful to avoid damaging the end-cap threads of the mag tube during the series of impacts. Marlin Takedown Have you done an article on the Marlin Model 25-20? I have one in my shop and can't find anything on the takedown and assembly procedures.

I've taken it down pretty much internally, but can't quite figure out how to remove the magazine tube inner and outer piece. The reason I'm taking this rifle apart is because the customer wants it blued. Any help would be appreciated. After researching Marlin Firearm History (by Brophy), we know you don't have a Marlin-Ballard rifle. According to the book, they weren't made in .25-20 caliber. The same holds true for the Models 1881, 1885, 1888, 1892, and 1893.

The first Marlin lever-action chambered for the .25-20 (except for one in 1889) was the Model 1894 in November of that same year. We've done several articles on Marlin leveraction rifles, but you'll need to determine the model number, not just the caliber, to see if any of these articles apply to your rifle. If the model number isn't indicated on the rifle itself, the aforementioned book would be helpful in identifying it. Rebluing Winchester Receiver I have a Y-serial-numbered Winchester Model 12.

I've been trying to touchup some spots on the receiver with cold blue, but I'm not having much luck. I have completely refur-

bished numerous Model 12s and never had a problem getting Brownells cold blue products to work. This includes completely refinishing all the metal on a half dozen or so. I have tried Oxphobblue cream and liquid, Dicropan T-4, Birchwood Casey Perma blue and Super blue. I have heated the parts up and still the metal does not take the blue.

Is there some strange metallurgical quirk that I do not know about in the metal on these receivers? I vaguely recall that they might have been investment cast. I have used these bluing products on Ruger firearms with good effect, so I don't see how that makes a difference. Could you explain what my problem is and/or recommend a product that will work? In one of their takeovers, Winchester was acquired and managed by an offshore conglomerate.

Not long thereafter, problems surfaced with the rebluing of Model 1894 receivers. They started coming out of the tank purple. Your Model 12 predates that specific problem by roughly 30 years, but we believe the problems are related. Although all our old contacts in New Haven have retired and Winchester is now Browning-Winchester, we're still in contact with a couple of people at a former Winchester Authorized Service Center that is still in business and we spoke with them.

The Y-series Model 12 shotguns did indeed have cast receivers. Silicone sand was used in the casting process, and therein lies the problem. The sand leaves a deposit that's resistant to cold blue. Unless 44-40 touch up (Brownells) will attach itself to your

shotgun—it's worth a try; your only remaining choice would be hot bluing. One last hope: If the spots are really small, you might be able to touch them up with a fine-tip permanent black marker.

DW Revolver/Rust Removal I enjoyed the article in the March 07 issue on the Dan Wesson Model 15. I've been shooting one for over 30 years and it still groups well. I replaced the original grips with a onepiece grip from Pachmayr and recently installed a Wolff spring set which lightens the double-action trigger pull. I own other handguns, but this one is still my favorite. I would like to add a technique to Mitch Hobler's suggestions for rust removal in the Reader Forum section in the same (March 07) issue.

When confronted with an older gun with a rusty barrel that still has some bluing under the pits and bumps, I apply a good oil such as Kroil or Clenzoil and rub the barrel with 0000 bronze wool (from Brownells). This soft abrasive does not leave scratch marks and will remove the rust without removing the remaining blue. Once the rust is gone, I degrease the barrel and if necessary, use a cold bluing to bring back a good color.

I have had very good success using this technique with older, less expensive guns, where the customer doesn't wish to spend the money for polishing and hot bluing. Bob Schmuck Republic, Michigan Thanks, Bob, for the feedback.

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