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INSIDE THE ARCHIVE

DISASSEMBLY AND REASSEMBLY OF THE WALTHER P22 PISTOL

FBI BACKGROUND CHECKS FOR FIREARM PURCHASES HIT 100 MILLION • IMPROVING THE GLOCK MODEL 23 WITH AFT...

ORIGINAL METHODS. MODERN ACCESS.

ARCHIVE EDITION 066

DIGITAL ARCHIVE EDITION

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FROM THE ARCHIVE

FBI Background Checks for Firearm Purchases Hit 100 Million

BY AMERICAN GUNSMITH EDITORS JUNE 2009

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Just as this issue went to press in April, the Federal Bureau of Investigation, the agency responsible for running the National Instant Criminal Background Check System (NICS), announced the completion of the 100 millionth instant background check since the inception of NICS 10 years ago.

The announcement drew praise from various industry associations, including the National Shooting Sports Foundation (NSSF), and comes amid the extended surge of firearm sales across the country that began after the November 08 election and has continued for the fifth straight month. "We congratulate FBI-NICS on this milestone," said NSSF President Steve Sanetti. "For 10 years and 100 million transactions, the FBI-NICS team has minimized complications and delays of firearm purchases, thereby benefiting America's retailers, law-abiding gun owners, and the general public.

As you know, FBI background checks are required under federal law for all individuals purchasing firearms from federally licensed retailers. Background checks conducted under NICS not only prevent sales to individuals prohibited by law from possessing firearms, but the system also serves the industry as a strong indicator of actual sales. The NICS 100 millionth transaction cor-

responds with a 27.1-percent increase in firearm sales for the first quarter of 2009 over the same quarter last year.

The timing of the record 100 millionth transaction overlapped with a celebration of the 10-year anniversary of NICS. NSSF Senior Vice President and General Counsel Lawrence G. Keane joined FBI Director Robert S. Mueller III and West Virginia Governor Joe Manchin III at a ceremony in West Virginia to congratulate the FBI- NICS team.

At the ceremony, Keane addressed the 100 millionth NICS check. "As firearm sales continue to skyrocket across the country and the FBI-NICS team celebrates its 100 millionth transaction, the professionalism and outstanding customer service offered by FBI- NICS continues to flourish," said Keane. "A sincere congratulations is due to our friends in law enforcement. To that, I would add: A sincere congratulations'and thanks'is also due to our friends in the new administration in Washington. Need Some Extra Cash?

If you would like to turn your gunsmithing ideas and expertise into cash (we pay pretty handsomely), I would like to discuss your article ideas with you. Contact me, Keith Lawrence, Editor, at: American Gunsmith, Merritt Island, FL 32954; email voice fax Editor Keith Lawrence Technical

METALWORKING

Disassembly and Reassembly Of the Walther P22 Pistol

With most of its firing system contained between two inner sideplates, this Walther is one of those “busy” little pocket pistols.

BY CHICK BLOOD JUNE 2009

ORIGINAL PP. 3-7

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When I say this is a “busy” pistol, you only have to look at the schematic to see what I mean. With the exception of the trigger-locking key (#29), almost all the parts from #6 to #34 will be found in the right sideplate (#3). Among those parts that are not part of this subassembly are the slide-stop lever (#15) and its spring (#16). They’re located on, but not pinned to, the left sideplate (#2).

A few things have to be done before you can get at those sideplates, and getting at them is a must for detailed cleaning or part replacement. Field Stripping The first step is field stripping. But here’s the rub: For some unexplained reason, at least unexplained to me, the field-stripping instructions in the P22 owner’s manual are woefully inadequate. We’re not, for example, even told in which direction to rotate the takedown lever (#17). Actually, it’s not really a lever and you don’t rotate it.

After you engage the safety, remove the magazine, and check the chamber to be sure it’s empty, you grasp what I’ll call the “takedown block” “a more appropriate description for the part” cock the hammer, and pull the block down toward the bottom of the triggerguard. It doesn’t go all the way to the bottom and you’ll probably have to wiggle the frame back and forth to get the block moving. It will be particularly stubborn with a brand-new pistol.

The one I worked with here was fresh from the factory and “stubborn” isn’t even the word. I had to “encourage” downward movement of the block by inserting a wooden tongue depressor between its upper end and the slide. To see how far down the block has to go, check the fieldstripped photo on page 4. Sometimes, I’m told, it only has to be moved enough to allow the slide to be pulled back far enough so its back end can be lifted clear of the cocked hammer.

Then it can be controlled in its forward movement and separated from the receiver, leaving behind the 4-inch barrel. A 5-inch barrel is available for shooters preferring a longer sight radius. mainspring (#22) and guide (#21). The P22’s frame is polymer, and to avoid confusion between it and the sideplates, from here on out I’m calling it the “housing.”

Since the housing and takedown block are polymer and the slide is nicely finished metal, you won’t want to use anything harder than a wooden or plastic wedge as a lever to get the takedown block started. Housing damage, damage to the block, and a scratched-up slide are almost certain to be the result of using anything harder. At this point with many smallcaliber handguns, you can go after

DISASSEMBLY AND REASSEMBLY OF THE WALTHER P22 PISTOL CONTINUED

ORIGINAL PAGE 4

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Original caption: Right top: To avoid damage and to make reinstallation easier, the pins retaining the sideplates in the housing should not be drifted completely out.

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Original caption: Right bottom: In this exterior view of the right sideplate, its retaining screws are clearly visible. Nothing larger than a #0 Phillips-head driver or bit should be used in removing them. Either direction. Everywhere it says "dowel pin" on the parts list it should read "roll pin." So wherever you see a dowel pin identified, reach for your roll-pin punches. The dowel pin (#32) that retains the breech block (#31) drifts in either direction.

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any fouling that has accumulated with an aerosol solvent. Not so with the P22. A harsh solvent such as carburetor cleaner could weaken (or melt) the polymer housing and polymer parts. So I suggest you go after fouling with a toothbrush dipped in dishwashing detergent and then degrease with denatured alcohol. After that, you can proceed to the next step. Detailed Disassembly Both safety levers (#39 and 40) are retained by screws (#41). Both levers house a detent ball (#42) and spring (#43).

These are pressed in and are normally retained in the levers when the retaining screws are backed out counter-clockwise. With the screws gone, the levers can be withdrawn from the safety block (#38) which, be-

ing captured by the firing pin (#36), will stay in the slide. There it will remain until you push the firing pin forward and push out the block in

Once the pin has This basic takedown is inadequately addressed in the owner's manual, but is thoroughly explained in the text. The arrow indicates the magazine release, which pivots downward. cleared, tap the block forward to remove it from the housing. Turn the block over. The firing pin, firing-pin safety (#44), and safety spring (#45) will drop free. Be sure to keep track of the safety and spring. They're much easier to lose than the firing pin.

Invert the slide and drift out the extractor pin (#35) from the bottom upward. When you do this, keep an eye on the extractor (#33) and its spring (#34) that are housed in their respective slide recesses. If the pistol has come to you with complaints of inaccuracy and you're reasonably certain the problem isn't being created by shooter errors, you can remind your customer that the 3- 1/2-inch barrel that usually comes on the pistol can be replaced with a 5-inch barrel that's more appropriate for target use.

The owner's manual describes in good detail how that longer barrel is installed, along with the stabilizer assembly (#52) that comes with it. (I think the stabilizer does more cosmetically for the P22 fitted

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1 Receiver 2 Sideplate, Left 3 Sideplate, Right 4 Stove Bolt 5 Stove Bolt 6 Trigger Assembly 7 Trigger Pin 8 Hammer Assembly 9 Sear 10 Sear Spring 11 Ejector 12 Magazine Catch 13 Straight Pin 14 Dowel Pin 15 Slide Stop Lever 16 Slide Stop Spring 17 Takedown Lever 18 Dowel Pin 19 Dowel Pin 20 Retaining Pin with a longer barrel than it does to improve accuracy.) Of course, the pistols's owner has probably already lost the manual, but a free one by calling and asking for "cus- " The phone will be 21 Spring Guidance Rod 22 Mainspring 23 Magazine Safety 24 Magazine Safety Spring 25 Trigger Lock 26 Trigger Lock Spring 27 Backstrap 28 Backstrap, Large 29 Trigger Lock Key 30 Slide 31 Breech Block 32 Dowel Pin 33 Extractor 34 Extractor Spring 35 Extractor Pin 36 Firing Pin 37 Firing Pin Spring 38 Safety Block 39 Safety Lever, Left answered "Smith & Wesson," but it's not a wrong number.

That legendary company is very much involved with Walther these days. Moving on to other possible accuracy complaints, the rear sight is adjustable for windage.

You don't have 40 Safety Lever, Right 41 Screw 42 Ball, Safety Lever 43 Spring, Safety Lever 44 Firing Pin Safety 45 Firing Pin Safety Spring 46 Barrel, 3.4 Inch 47 Barrel Sleeve 48 Barrel Nut 49 Barrel Nut Spanner 50 Barrel, 5 Inch 51 Barrel Sleeve, Long 52 Stabilizer Assembly 53 Allen Key 54 Allen Key 55 Magazine Body 56 Follower Walther P22 Semi-Automatic Pistol (Specifications subject to change without notice) 57 Magazine Button 58 Magazine Butt Plate 59 Magazine Spring 60 Butt Plate Retainer 61 Magazine Butt Plate, Large 62 Rear Sight 63 Rear Sight Screw 64 Washer 65 Front Sight #3 66 Front Sight #2 67 Front Sight #4 68 Filler Plug 69 Dry Fire Simulator (not shown) 70 Mounting Pin 71 Worm Screw (not shown) 72 O-Ring 73 Magazine Catch Spring to use much force, and shouldn't, to turn the adjusting screw (#63) in moving the sight to the right when rounds are printing to the right or to the left when they're printing left.

The front sight can be lowered if rounds are printing low or high, but not by ad-

DISASSEMBLY AND REASSEMBLY OF THE WALTHER P22 PISTOL CONTINUED

ORIGINAL PAGE 6

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Original caption: Below top: Here you can see the shallow recesses in the left plate for the slide-stop lever (A) and its spring (B).

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Original caption: Below bottom: Indicated here are the locations of the ejector pin (A) and the breech block (B). The pin is drifted from this point of view upward for removing the extractor and extractor spring. Now we can turn our attention to the housing and what lies within.

justing it. You replace it. For low hits, install a lower sight, and for high hits, replace it with a higher one. The sight to be replaced is removed by pressing it forward from the slide. After all is said and done, the best way to determine exactly what needs to be done to solve an accuracy complaint is to accompany the customer to a range and observe how he or she is handling the pistol during a livefiring session. In the process, check to see how the gun fits the hand.

Besides extra front sights, Walther provides an extra back strap in the box with every P22. This is a great idea. A pistol that doesn't "settle into" a shooter's hand comfortably is certain to raise accuracy complaints, and changing from one back strap to the other is very simple. Drift out the dowel pin (#14), swap part #27 for #28 (or vice versa), and reinstall the pin.

A couple of approaches to retaining these parts during reassembly are discussed in the text.

Detailed Disassembly Of the Housing and Sideplates The trend with German handgun designers seems to be to place firing systems in a "frame within a frame." I'll have to admit, however, the way this is done on the Walther P22 is nowhere close as complex as that of the Sig Sauer Mosquito I re-

ported on a couple of months ago in the March 09 issue. And you don't have to have a factory fixture to work on the Walther. With the P22, both sideplates are held to the housing by dowel pins (#18 and 19).

Note: #18 is slightly longer than #19. These can be drifted out in either direction, but I suggest they only be drifted far enough to free the sideplates and remain protruding from the right side of the housing. Lift both plates from the housing, but keep a finger over the slide-stop lever and spring on the left plate. Otherwise, they'll drop off. No pin secures them. They are held in place, barely, by their plate slots.

It's a good idea to place a strip of tape over the stop and spring to keep both from escaping, thereby saving you time searching for them later on. Place the adjoining plates on their right side. Drift the trigger pin (#7) inward until it disengages with the upper (left) plate but remains connected to the trigger. On the right side of the combined plates are two fasteners identified as "stove bolts" (#4 and 5), one longer than the other. They are, in fact, aluminum machine screws.

Using anything larger than a #0 Phillips driver bit to back them out will risk tearing up their heads. Removing both stove bolts allows separation of the sideplates. When

doing so, no matter how little wiggling is done to the left plate in finalizing a parting, the ejector will probably be dislodged from the right plate. Place that plate flat on your bench and the "guts" of the P22 will be staring you in the face. Working from your right to your left, start disassembly with the hammer assembly (#8).

Pull the hammer slightly to the rear and press down on the upper arm of the sear (#9). This relieves any pressure on the hammer and allows easy control when moving it forward. With the hammer forward, there's no pressure on the components associated with it and you can continue. Lift out the hammer assembly.

I recommend not taking it down further unless a broken or damaged part is evident, and I'll get into how the hammer spring should be reinstalled in the upcoming section on "Reassembly Tips." Next in line are the sear and its spring. They ride on that pin floating in space in front of the ejector (#11). That pin doesn't run completely through the plate. It fits in a hole and works in combination with a second pin, this one permanently affixed in the plate stud, to retain the ejector.

BUT AS YOU MAY HAVE REALIZED BY NOW,

DISASSEMBLY AND REASSEMBLY OF THE WALTHER P22 PISTOL CONTINUED

ORIGINAL PAGE 7

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Original caption: Right top: In this after-reassembly view of the right plate, the ejector (A) has fallen from its dual mounting pins, but the sear (B), trigger bar (C), and leg of the hammer spring (D) must be as pictured. Right bottom: Here, the trigger assembly has been partially detached from the plate to show the magazine safety (arrow) and its spring. In its present position, the spring lies flat in the safety recess.

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Correctly positioned, it tilts up at about a 45-degree angle. the arrangement doesn't retain said component very well. (Note to the designer: How about giving us a little more of that stud pin to hang onto?) Drift pin #7 out in either direction (it isn't a roll pin), and remove the trigger assembly (#6). Set it aside. The spring in the trigger assembly, I am told, is prone to losing its tension even in the experienced hands of factory repair people.

Beyond that, the spring and all other components of the assembly are not available separately. Walther has elected to resolve any damage to them by making a complete replacement assembly available. So, if any breakage or tampering shows up in a trigger group, the only "fix" for it is to order and install another assembly.

Before getting into reassembly, I'll interrupt this message to mention the "P22 bible." It's not a book, but if you key those words into your computer's search engine and punch the "enter" key, you will be rewarded with a sizable and profusely illustrated downloadable file that provides an incredible amount of detail on the P22.

After learning of the bible from the Walther technician who briefed me on this pistol, I referred to it more than once while working on this article to ensure I was not omitting anything critical regarding take-down and reassembly of the pistol. Reassembly Tips The outer housing and other parts are polymer, the sideplates are aluminum alloy, and all pins and threaded retainers are steel. This combination of ingredients means that you must work carefully.

You began taking the right sideplate down with the hammer assembly, and you begin putting it back together with the sear/sear spring. Then drop in the hammer assembly. If for any reason this assembly has been stripped all the way down, the hammer spring has to be retensioned by using a small tool to swing its lower, straight leg over and behind the curved recess near the rear of the plate (see photo). The ejector has two holes. The lower one is for the pin nub in the sideplate stud.

The upper one is for the floating pin to pass through on the way to its sideplate hole. I want to mention the safety-lock key (#29) setup. The key turns the trigger lock (#25)

to block the trigger. The lock itself holds the long leg of the lock spring (#26). There's a hooked Dend to the spring and a depression for it in the right plate. To reinstall the trigger assembly, put it in position and install its pin from the right just far enough to capture the trigger.

Align the trigger pin with its hole in the left plate and finish installing it to be flush on both plates. Now reunite the plates with the stove bolts. A drop of blue Lok Tite on the ends of the bolts will keep them from vibrating loose later on. Don't overtighten those screws. Remember what I said about their heads? Now flip over to the left sideplate.

Assuming you taped the slide stop and spring in place earlier, start installing the plate after tilting the hammer to the left to get everything aligned. (You'll probably hear an audible click when all is lined up). Push both plates into the housing and slowly pull off the tape, replacing the tape with a (continued on page 17)

finger. Continue pushing both plates down until the housing can take over for your finger, and then quickly seat both plates. Reinstall their two dowel pins. In case you didn't tape in the stop and spring as suggested earlier, there's away they can be installed prior to joining up the plates with the housing.

The slide-stop spring should be back in the plate where it came from. (You didn't forget to take a close look at this arrangement before disassembling the left plate, did you?)

The spring's bent end attaches to the hole in the slide stop located under the center tab, and the stop seats somewhat in the groove for it on the plate. Then you can tape them down so you can proceed as directed above. I found that trying to hold everything together without using the tape was impossible.

At least I couldn't have done it without having several more hands. When reinstalling the breech block, a dab of Vaseline will retain the firingpin safety and spring in the block. The slide should be inverted in preparation for rejoining it to the housing. Place the mainspring and guide rod in the housing.

Start the slide on, and compress both guide and spring with the mounting pin (#70) until the slide can be moved far enough rearward to be lowered into engagement and controlled to its full forward position. Doing this is easier if you cock the hammer before starting the final reassembly. By the time you've got the Walther P22 all back together, you'll be asking yourself the same question I did: Why can't these little rimfire pistols be simplified? I

PISTOLS

Improving the Glock Model 23 With Aftermarket Parts

What Glock claims is “the safest handgun system available” can still be made more accurate and easier to shoot with some simple modifications.

BY DENNIS A. WOOD JUNE 2009

ORIGINAL PP. 8-13

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Back in 1986, when the Glock Model 17 first became available in the U. S., the talking heads on the nightly news were in a frenzy over this new polymer-framed pistol, claiming it was “the skyjacker’s dream come true.” According to these self-proclaimed experts, the Glock could not be detected by airport X-ray machines or metal-detectors because they were made of “plastic.” None of the wizards making these claims took the time to actually see what an X-ray of a Glock might look like.

As you can see from the X-ray photograph below, the Glock’s metal parts show up so clearly that any third-grader would know it’s a pistol, so it should present no problem to a trained security agent. And, of course, it contains more than enough metal to set off any metal-detection system. With all that flap be-

ing history now, the Glock has gone on to capture a huge chunk of the law-enforcement market as well as the interest of many conceal-carry permit holders.

In this report, I’ll go over some of the aftermarket parts that are available for customizing or “slicking up” the Glock Model 23. I’ll tell you which of these parts, in my experience, are actually beneficial to the form, fit, and function of this handgun, and I’ll cover the fabrication of a couple of special tools that you’ll find useful when working with the Glock. Many of the comments I’ll make and tips I offer will be applicable to other models in the Glock line.

A number of aftermarket parts are available to make it more user-friendly. Modifying the Slide Before beginning any disassembly, make

sure that the magazine is out of the pistol. Pull the slide to the rear and check to see that the chamber is empty. Make sure your work area is clear of any live ammunition, and because we’ll be dealing with pins and springs, be sure you’re wearing your safety glasses.

With that completed, point the pistol in a safe direction and pull the trigger so the firing pin is in the relaxed, forward position. Retract the slide slightly and, while doing so, pull down on both sides of the slide lock. The slide can now be pushed off toward the front. The slide assembly contains the barrel, recoil-spring assembly, firing-pin group, extractor, and the sights. To remove the recoil-spring assembly, position the slide so that the bottom side is up and push the rear

IMPROVING THE GLOCK MODEL 23 WITH AFTERMARKET PARTS CONTINUED

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end of the recoil spring unit toward the muzzle end slightly and lift it up and out. The barrel can now be removed from the slide. The factory recoil-spring assembly is a captured unit, with a plug on the front end of the guide rod that holds the recoil spring in place on the rod. The factory guide rod is made from polymer and does flex a bit under recoil. Some Glock owners feel that a steel replacement guide rod creates a more rigid condition and therefore better accuracy.

The steel aftermarket guide rod shown here is made by Wolff Gun Springs and requires the use of Wolff's 17-pound recoil spring. That's because the Wolff guide rod has an outside diameter of .270 inch, while the poly-

mer factory guide rod has a diameter of .230 inch. You'll notice that the Glock recoil spring has flat coils.

If you choose to use this spring with an aftermarket steel guide rod, you'll need to make sure that the replacement guide rod has a diameter of .230 to .232 inch to fit into the inside diameter of the original spring. The one problem I found with the Wolff guide rod is the lack of an assembly-pin hole. It's extremely tough to try and hold a compressed recoil spring in place on a guide rod under 17 pounds of stored energy and then slip the assembly into place.

The solution to that problem is to first drill a 1/16-inch-diameter hole through the guide rod about 1/4 inch back from the front end.

The Wolff guide rod is quite hard, so the use of a carbide drill is recommended to get this done. I made up a handy little tool to push the recoil spring down so a straightened paper clip can be slipped into the hole that you just drilled. This tool is made of aluminum with an outside front diameter of .437 (7/16) inch at a length of 1 inch.

A letter "I" drill is then used to cut a hole into the front end of this tool to a depth of 1.000 inch. A 1/8-inch-wide slot is then milled (or filed) on the centerline of the tool for a length of 1/2 inch. A plastic handle with a 1/4-20 threaded shank is then installed into the pushing end of this tool. In use, the tool pushes down on

IMPROVING THE GLOCK MODEL 23 WITH AFTERMARKET PARTS CONTINUED

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the recoil spring until the front face of the spring passes the 1/16-inch-diameter hole in the guide rod. While the spring is held in place, a straightened paper clip is inserted into the hole holding the spring back. The guide rod with the spring captured by the paper clip is then put into place below the barrel. While holding the recoil guide rod and spring in place with your hand, the paper clip is pulled out and the tension from the recoil spring keeps it there.

If the pistol's owner prefers a captured, shock-absorbing buffer system, the dual-action buffer-spring system like the one offered by Fire Dragon can be considered. This is a drop-in system that will cut down on muzzle flip, making target acquisition much quicker. If part of the upgrade calls for replacing the

front sight with one of the fiber-optic types or one of the various styles of night sites now available, this would be a good time to get that done.

In the example shown here, the front is being replaced with a fiberoptic sight from Novak. To make the swap, start by securing the slide in a vise with protected jaw faces, making sure you have access to the front end of the slide. To remove the factory front sight, you'll need to get a pointed pick in through the recoil-spring guide hole and pry the tiny plug out of the center of the split shank on the bottom of the factory front sight.

The front sight is an expendable component, which will probably be ruined when removed, but a replacement sight from Glock

only costs around a dollar and a half. Once you have the little plug out, you can either push the front sight out from the inside of the slide or use needle-nose pliers to twist it out from the top of the slide. Use caution here to not mar the slide's top surface. The Novak fiber-optic front sight Reassembly is in reverse order. uses a tiny hex screw to secure the replacement sight in place.

A driver bit is easy to make up if you desire to do so. When making the one shown here, I started with a 3-inch-long, 1/4- 20 hex-socket machine screw. These screws require the use of a 3/16 inch hex wrench, which is exactly the size of the hex-head screw that secures the

IMPROVING THE GLOCK MODEL 23 WITH AFTERMARKET PARTS CONTINUED

ORIGINAL PAGE 11

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Above left and Novak sight in place. For the one I made, the outside diameter of the head was turned to a diameter of around .270 inch, but this could be ground down just as easily. I then drilled and tapped a black-plastic handle to accept the 1/4-20 thread, held in place with permanent threadlocking compound. I also applied a little dab of threadlocker to the threaded shank of the Novak sight, and then used the driver bit to snug the sight into place after verifying that it was set parallel to the bore line.

In some cases, changing the front sight may also require replacing the rear sight. A low-profile, adjustable replacement rear site is available from Glock. This sight has an outside envelope almost exactly the same as the fixed rear site provided by the Glock factory, and it comes with a little screwdriver to adjust windage and elevation. Factory sights are made of polymer and don't take kindly to being drifted back and forth with a metal drift. This is where the Glock rear-sight pushing tool will come in handy.

This tool will handle all of Glock's factory rear sights and can be used to install or remove these sights without damage. To remove the firing pin, you first need to remove the slide cover plate. Push down on the firing-pin safety and then push the tail on the firing pin forward. Using a small

flat-blade screwdriver, work the blade of the screwdriver into the gap at the top of the cover plate and the rear face of the slide.

Watch that the firing-pin spring doesn't come flying out as you push the cover plate downward. The firing pin and spring, along with the extractor-depressor plunger and spring, can now be removed from the rear end of the slide. Once you have these components out of the slide, the firing-pin safety, firing-pin safety spring, and the extractor can be removed from the slide. If you plan to refinish the slide, the firing-pin channel liner will need to be removed.

The easiest way to remove the channel liner is with the factory removal and installation tool. Note that there are two tiny cups that hold the firing-pin spring on the firing pin, and use caution to not lose them. Look over the end of the extractor that engages the cartridge-case rim for any chips or burrs, and either remove the burrs or replace the extractor.

One good thing about Glock pistols is the fact that factory parts are virtually always a drop-in proposition, because of the extremely tight tolerances that are held during the manufacturing process. Upon re-assembly, the factory firing-pin safety and

spring will be replaced on this pistol with a Lightning Strike titanium safety plunger with a nitride coating.

Glock does not recommend that the safety plunger be lubed, so the self-lubricating properties of the titanium-nitride coating on the new plunger will ease its operation and make operation of the safety plunger more efficient. The factory slide cover plate furnished by Glock is made of polymer with some metal reinforcement along the outside rails. Should your customer desire to replace it, Lightning Strike also offers a solid-aluminum cover plate.

Frame Modifications When disassembling the Glock pistol frame, the sequence of how the pins are removed needs to be understood completely. Referring to the photograph at the bottom of page 10, the locking-block pin (A) is removed first by drifting this pin from left to right. The trigger-housing pin (B) is next, and only needs to be pushed out from left to right. The last pin, the trigger pin (C), is pushed out from the left to the right according to the Glock Armorer's manual.

I've pushed this pin out from the right side and had no problems with it. This pin has radial grooves on each end, and it might be necessary to wiggle the slide stop around as you drift this pin out until the pin passes through the slide-stop

IMPROVING THE GLOCK MODEL 23 WITH AFTERMARKET PARTS CONTINUED

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hole. The locking block can now be lifted up and out of the receiver frame. Then the trigger housing can be lifted up and out of the receiver. For this particular Model 23, the plan included replacing the magazine release with an extended release sold by Vickers Tactical. If you peer into the magazine channel in the grip frame, you'll see a straight spring on the inside wall, behind the front outside face of the grip.

This is the return spring for the magazine release, and it can be removed by positioning the groove in the magazine release toward the middle of the magazine channel. Carefully pry this spring up and over into the groove in the magazine release with a small flat-blade screwdriver.

Next, pry the top of the spring up and out of the groove in the magazine release. The original magazine release can now be removed from the frame and the extended magazine release installed. Except for the target models, all Glocks are shipped with a 5.5-pound connector.

With the trigger components out of the frame, if you plan to replace it with a 3.5-pound connector, this would be the time to do it. For the Model 23 I used in preparing this article, the trigger pull was simply smoothed up rather than lightened. This was done by cleaning up some of the rough edges from the stamping die. The areas depicted in the photos show where to clean things up using 400-grit emery paper on a polishing stick.

Here, we just want to clean the surfaces up and not remove any more metal than necessary. Once these areas have been polished, the trigger housing can be reinstalled into the frame. On this pistol, I installed an extended slide release to get the rear end of the release closer to the operator's thumb and to I gain a bit more leverage to activate the release of the slide.

After installing the extended slide release, I installed the locking block back into its place in the frame and then replaced the trigger pin in the frame from the right side. You may need to wiggle the slide release a bit to get this pin through, but you need to make sure the slide release fits into the

groove in the left end of the trigger pin. The last pin to be replaced is the first pin we removed, the locking-block pin.

This pin is inserted into the right side of the frame and drifted into place until it reaches the area where the top tail of the slide-release spring is seen. Reach in from the front of the locking block with a small flat-blade screwdriver and push the top end of the slide release spring-end down until you can drift the locking-block pin past it. The top of the slide-release spring needs to rest on the bottom of the left end of the locking-block pin.

Finally, reinstall the slide assembly into the frame and operate the slide several times to ensure the striker cocks properly. Conclusions Once understood, the disassembly and reassembly of Glock pistols is very straightforward. Just be sure you adhere to the sequence in which pins are removed and then replaced. Because Glock pistols are machined to very tight tolerances, factory parts can usually be replaced without fitting. It's no wonder that their ads boast of "Glock Perfection."

FINISHING

Producing a “Faux-Parkerized” Finish with Dura Coat

Lauer Custom Weaponry’s spray-on coating will produce not only a durable substitute for Parkerizing, but a rainbow of colored finishes and camouflage patterns.

BY CHICK BLOOD JUNE 2009

ORIGINAL PP. 14-15

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The elderly gentleman walked in as straight as the barreled action he pulled from a gun sock and placed on the counter.

One glance at the stampings on the 20-inch barrel, flecked end-to-end with tiny rust spots and almost devoid of its original blue finish, told me the gun was a Mossberg Model B. (In case you’re not familiar with it, the Model Bis a boltaction single-shot .22 that didn’t cock on closing and went out of production in 1932.) Some quick mental arithmetic told me the gun was as old or older than my customer.

The customer told me his father had given him the rifle in 1931 and now he wanted to pass it along to his preteen grandson. I could only guess how many tin cans, bottles, and towndump rats had fallen before the old Mossberg, but its bore was still bright and sharp, its muzzle had no nicks or dents, its sights were undamaged, and the trigger was still crisp. Obviously, the old Model B had received decent care over the years.

This put it in the category of the first rifle that never dies or fades away, but just keeps movin’ down through the genera-

tions. As we talked over the options forgiving the rifle a face lift, Grandpa decided against rebluing. He wanted more durability, and more resistance to rust and the bumps the rifle was sure to receive in younger hands. He thought he wanted it Parkerized instead, in a matte gray like the military rifles and pistols of World War II.

This presented a problem for me, since I wasn’t set up for Parkerizing. For that matter, I’m no longer set up for bluing. Draconian local ordinances covering the use of bluing salt solutions plus the cost of disposing of those solutions had forced me to outsource all my bluing work for the last several years. Equipping myself to do a Parkerizing job’t he only such request I’ve gotten in the last 10 years’ didn’t make economic sense. And, no, a touch-up bluing job wouldn’t suffice for this rifle.

I mentioned all this to my customer and told him I’d scout around for a reasonable alternative to Parkerizing, but I warned him we might have to ship the rifle to the one outfit I know of that still does Parkerizing. If it becomes necessary to thin down the mixture for spraying, be sure to use only

the specially formulated reducer (center). After the customer left, I opened the Brownells catalog.

A few pages after the bluing materials, I spotted the “Lauer Custom Weaponry Dura- Coat Painting System.” Then I remembered that in our February 06 issue, I’d done apiece on using Steve Lauer’s products to do in-house custom camo work. I called Steve and outlined my problem. He advised that one of his coatings (#100-001-003AA) known as “Dura Cote Parker” was a good substitute for Parkerizing and could produce the durable finish we needed.

Steve advised me against using anything to thin the Dura Coat except its specially formulated reducer (#100-000-996AA) and asked me what kind of spray equipment I had. I told him I had a Paasche airbrush and a small oil-less compressor, which he said would be fine. Over the years, I’ve gotten plenty of practice with my Paasche touching up scratches and applying fresh polyurethane to old stocks. All I was facing here was a barreled action with the bolt out. Since the

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Any oil-less compressor or "canned" propellant can be used as an air source. Model B preceded the use of plastic gun parts by nearly 100 years, I could safely use anything for degreasing, even carburetor cleaner. I chose to use denatured alcohol, accompanied by a pad of fine synthetic steel wool. Surface prep for Dura Coat doesn't demand sanding or aluminum-oxide blasting.

Having worked previously with the product, I knew the synthetic wool would be abrasive enough to prepare the metal and improve the adhesion of the coating. After masking off the breech and plugging the muzzle with cleaning patches (no, I didn't forget to remove them later), I mixed up the Dura Coat Parker according to the supplied instructions. Well, not exactly. The instructions call for one part hardener to 12 parts Dura Coat to produce the optimum mixture.

Adding more hardener makes for a glossier end result, and less makes a flatter finish. In this case, I decided that flatter would be better. So instead of using a full teaspoon. After mixing the coating and

hardener together, you have roughly six to eight hours to complete the job. This is more than enough time. However, if you use an air brush as I did, you may have to thin the mixture a bit to a sprayable consistency. In doing so, use only the Dura Coat reducer.

Anything else could compromise the durability of the coating. The Dura Coat/hardener mixture can be thinned with reducer up to 20 percent by volume. To test the flow of the mixture through the air brush, I made a couple of passes on a degreased scrap of steel flat bar. Twenty minutes later't he dry-to-the-touch stage for Dura Coat' it was time to tackle the Mossberg. I put on a respirator, and holding the airbrush nozzle about 2 inches off the barrel, laid down an even pass of the coating from end to end.

After waiting about five minutes for the surface solvents to flash off, I made another pass, and then another. spoon of hardener to four tablespoons of Dura- Coat, I only used In retrospect, I probably should have "hung" the barrel so I could have worked

my way around it. Not having thought that far ahead, instead I waited the 20 minutes before turning the barrel to its uncoated side. I didn't have to worry about parts holding close tolerances here, which would require a thinner coating.

So I kept on making close passes until I was sure the workpiece had been thoroughly and evenly covered for maximum impact protection. (Wear isn't a concern with Dura Coat; the cured finish is so hard it doesn't wear.) For the last couple of passes with the airbrush, I backed off to about 18 inches. What this does is deposit tiny "balls" of the coating, which, when dry, produces a textured surface that looks a lot more like a Parkerized finish.

Steve Lauer told me that when this textured coating is given a onceover with an application of gun oil, the oil soaks in and the result looks even more like Parkerizing. And he was right. Regarding the durability of the finish, you might well wonder what (continued on page 17)

would happen if the kid drops his newly transformed Model Bon a granite boulder. How about touch-up? Solving that particular problem isn't as serious or as difficult as it might seem'and is certainly easier to solve than with a blued gun.

To make a repair, you simply mix up another batch, degrease the damaged area with alcohol, lightly sand it with 1200-grit paper, blow off the dust, and respray the wounded area. (The shelf life of Dura Coat is 18 months and 6 months for the hardener.) When Grandpa came in to pick up his grandson's newly refinished barrel, I placed it on the counter next to a military M1911-A1. He liked how close I'd come to duplicating the finish of the old war horse.

And while it wasn't actually Parkerized, it will sure look and wear like it is. I

FINISHING

Metal Finishing: Polishing with Abrasive Stones

While cloth and paper-backed abrasives are most commonly used in finishing metal prior to bluing or color case hardening, abrasive stones offer some distinct advantages.

BY K.C. ERICKSON JUNE 2009

ORIGINAL PP. 16-17

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Over the years, I've attended a number of the NRA's one-week gunsmithing classes, both at Pine Technical College in Minnesota and the gunsmithing school in Trinidad, Colorado. My interest has been in work related to rifles exclusively, and these classes have been rewarding and useful to me as a hobby gunsmith. One of the classes I took was taught by a member of the Guild of Custom Gunsmiths, whose work was restricted to metalsmithing.

Besides guiding us through the making of jigs and fixtures for detailing metalwork, we spent significant time learning to do metal finishing. This is where we learned to appreciate and use stones to preserve corners and edges while bringing the surfaces to the required polish for bluing or color case hardening. The stones we used are widely used in the tool-and-die industry for polishing injection molds for plastic parts, among other things.

As beginners, the instructor furnished us with stones that were 1/4 inch square by 6 inches long and made of soft silicon carbide in grits from 100 up to 320. The stoning

was done with a thin oil, which quickly worked up into a slurry that must be wiped off periodically in order to see our progress. It didn't take us very long to appreciate how efficient and effective these stones are in metal finishing.

I've always considered polishing metal by hand to be an onerous chore've ry time consuming and labor intensive'especially if you want to get the results seen on the best custom rifles. I've found that, due to fatigue, I'm not able to do this for long periods of time; an hour or two at a time seems to be my limit. The main reason for this is, in order to exert the pressure needed to make the stone cut, they're held in the hand and fingers much like you would hold a pen or pencil.

Later, I ordered a stone holder, and found that this accessory makes using the stones a lot easier on the fingers. By using the holder, you will also get more use out of the stone before it has worn down too much to be useful. When I got home from the class, I sent fm Congress Tools the company from for the class were obtained. I ordered a goodsized assortment of stones

that will last me along time, and didn't even cost as much as a 100sheet pack of abrasive cloth or paper.

Congress offers a huge variety of stones' silicon carbide, aluminum oxide, India, ruby, ceramic, and so on'all in a great range of grits, sizes, and shapes. I stuck with what the instructor recommended, and bought mostly soft and medium-hard silicon carbide, 1/4 by 6 inches long, in grits from 100 up to 400. I also purchased a few round stones and a few in hard aluminum oxide and India just to try. These have all worked well for me for many years now, and I've found no need to change.

As an aside, though, some years ago I took a short class in single-shot riflesmithing from a highly regarded gunsmith who mentioned that he did not use stones. Instead he uses strips of wood about 15 inches long or so, indifferent shapes and sizes, with abrasive cloth glued to them. I tried this and they do indeed work very well. The handle, also available from Congress, makes the stones considerably easier to handle.

By cross polishing when changing to the next finer grit, you will be able to see the scratches and stoning marks to remove them, but on some convex surfaces this will be difficult to accomplish. The soft silicon-carbide stones quickly wear to fit the contour you are stoning and the adjustment attained makes it easier to stone convex or concave surfaces. This is a nice feature.

When the surface is stoned to the degree of polish desired, a few minutes with 320-grit abrasive cloth or paper will blend the stoning, and the metal should then be ready for bluing or color case hardening. The I but I found these strips to be time consuming to make up and the abrasive cloth wears out quickly, whereas the stones last for along time. It's imperative, of course, to keep the work flooded with a thin cutting oil or else the stones will quickly load up and become unusable.

I've found that kerosene mixed with a little brown cutting oil works very well. I apply the oil to the metal and start the stoning, constantly wiping the metal off when a thick slurry starts to accumulate so that I can see my progress. I don't dip the stone in the oil, because the abrasive dust will quickly contaminate the oil. Instead, I use an eye dropper to drip the oil onto the metal. instructor in the NRA course told us that, if we planned to cold-rust blue, there was no need to polish finer than 320 grit.

For my purposes, I've found this to be true and have done both cold-rust and hot-dip bluing and can see little or no difference when the metal is polished to 320 grit. Over the years, I have accumulated some nice buffing equipment which is very effective, but I no longer use it very often except on non-gunrelated projects. Once you've seen the results from hand polishing, you'll be spoiled, and you'll come to appreciate the fine finishes found only on the highest quality custom guns.

MACHINING

Working the Winchester Model 1897 Slide-Action Shotgun

More than 100 years after its introduction, the Model 1897 dominates today on the cowboy-action courses as it once did in the fields and trenches.

BY DAVID R. CHICOINE JUNE 2009

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Thought of by many as the ultimate in “cool,” Winchester’s famous Model 1897 pump shotgun was introduced in that year as an improvement to the Model 1893 designed by John M. Browning. The Model 1897 started with serial #32,151 in the earlier Model 1893 numbering series. This new design used a unique, heavy machined-steel cartridge carrier that doubled as the locking bolt.

The operation of the 1893 and the 1897 models is similar, however, with the 1897 having a stronger, beefed-up receiver with material added so the spent shell was thrown out to one side. A new slide lock was added to the later design, requiring the shooter to make a slight forward motion with the slide handle before the action would unlock. Though a seemingly insignificant change, this modification was important for safety reasons, and solved the problem of the 1893s action unlocking too soon after firing.

Originally, the Model 1897 was only made with a solid frame (with the barrel permanently screwed to the frame) but shortly after its introduction, a takedown model was

introduced. The 1897s were equipped with a tubular five-shot magazine and made in both 12- and 16-gauge versions.

Standard barrel lengths ranged from 26 through 32 inches, with shorter barreled variants available in the form of a 20-inch riot gun and a similar model introduced during WWI known as the “Trench gun.” The special Model 1897 Trench gun had a short barrel and a bayonet lug with a perforated-steel handguard that wrapped over the barrel to protect the soldier’s hand from the hot barrel. Winchester continued to sell the Trench gun up through 1945.

The classic 1897 was an extremely rugged and successful slide-action shotgun, and was the last Winchester pump shotgun to use an outside hammer. Model 1897s were manufactured continually for 60 years, right up through 1957, with a total of something over one million weapons produced. Today, the ‘97 is as popular as ever, especially in cowboy-action shooting, which has actually spawned a copy of the old Model 1897 that’s being imported from China.

Unlike most modern pump or slide-action
Top of page: The Winchester Model 1897 is the prototypical American riot gun. This

one, from the Ed Wade collection, has a solid frame and was manufactured in 1941. Author photos. shotguns, the Model 1897 is far from a simple design, making disassembly a rather long and complex process and requiring a good deal of attention to detail on the part of the gunsmith. Disassembly Instructions Two basic versions of the Model 1897 exist.

One is known as the “solidframe” model, with a barrel that’s permanently screwed into the receiver. The other is called the “takedown” model and, as the name implies, has a barrel that’s easily detachable from the receiver. The weapon shown in the photographs is a solid-frame version, although the takedown version is also shown in the parts diagram. 1. As always, be certain the weapon is empty before proceeding with the disassembly.

Holding onto the grip area of the stock, and keeping your fingers away from the trigger, point the muzzle in a safe direction. Push in on the action slide-lock-release plunger pin (#3297). This is the button or buttons which may be found on one or both sides of the receiver. Doing this will allow any shells in the mag-

WORKING THE WINCHESTER MODEL 1897 SLIDE-ACTION SHOTGUN CONTINUED

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Original caption: Right top: Here, the front of the magazine tube on the solid-framed gun is disassembled. Right bottom: The Winchester's solid-frame magazine tube is unscrewed and the action slide is removed.azine to be pushed out the bottom of the receiver under pressure of the magazine spring. Now move the action-slide handle (#1597the wooden forearm) to the rear as far as it will go and look into the loading port in the receiver to be sure there is no cartridge in the barrel's chamber or sitting in the carrier (#9597).

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When you are sure the shotgun is empty, return the action slide to the forward position, hold back on the hammer (#13197) with your thumb, and pull the trigger. Then allow the hammer to ease forward, supporting it with your thumb. 2. For solid-framed guns (pictured), unscrew and remove the magazineband screw, then slide the magazine band (#14597) forward and off the barrel (#4197). Unscrew and remove the magazine-plug screw (#15597) from the front side of the magazine tube (#14297).

Use caution here; the magazine spring is pushing forward on the magazine plug, so be sure to hold the plug in place with your thumb as you remove the screw. Then ease the magazine plug (#15497) forward and out of the magazine tube. The magazine spring (#16397) and magazine follower (#16597) are now removed out the front of the tube. Next, unscrew and remove the magazine-retaining screw (not shown) from the side of the receiver. Now you'll be able to unscrew the magazine tube in a counter-clockwise direction.

Once the magazine tube has been unscrewed, pull forward on the action-slide handle (#1597), causing the magazine tube and action slide assembly to withdraw for-

ward and off the gun. Further disassembly of this component group is not normally required. For takedown guns, push in on the magazine-plug locking pin (#15312) and make use of the long end (now sticking up) to rotate the magazine tube (#14297) counter-clockwise for about one-half turn or until it will pull forward.

Pull the magazine tube forward as far as it will go, and then push forward on the action slide handle. You can now rotate the barrel assembly one-quarter turn counter-clockwise, at which point the barrel/magazine-tube assembly can be withdrawn off the front of the receiver. 3. Start the disassembly of the action by unscrewing and removing the carrier-pin stop screw (#10897) from the rear of the receiver. This is the screw located just behind and to the left of the hammer.

Working with the hammer down, push down on the carrier (#9597) and then cock the hammer. Next, use a pin punch to drive out the carrier pin (#10797) in either direction. Unscrew and remove the cartridge-guide stop screw (#8197) from the lower right side of the receiver. The entire carrier assembly is now ready to be lifted out the bottom of the receiver. The breech bolt (#5897) can be disengaged from the action-

slide hook (#3597) by unscrewing and removing the action-slide hook screw (#3697).

This screw will be found on the lower front of the breechbolt. Use a small screwdriver to pull the action-slide hook down and away from the breech bolt. You can now pull the breech bolt out the rear of the receiver. Reach into the receiver and retrieve the action slide hook, being careful to note the position of the action-slide hook for reassembly later on. 4. To remove the buttstock and the trigger group, unscrew and remove the two buttplate screws (#9112) and lift off the buttplate (#7397).

Using a large, long-shank screwdriver, reach into the center hole in the buttstock (#6297) to unscrew and remove the buttstock bolt along with its washer (#7097.) The buttstock is now free to be pulled off the rear of the receiver. Using a pin punch and small hammer, drift out the trigger pin (#18297). The trigger-guard bow assembly (#13097) is now ready to be pulled straight out the rear of the receiver. The trigger (#18197) is loose and can be removed.

NOTE THAT YOU WILL NEED A SLAVE PIN, THE WIDTH OF THE GUARD AND

WORKING THE WINCHESTER MODEL 1897 SLIDE-ACTION SHOTGUN CONTINUED

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With the hammer cocked, the carrier is pulled out the bottom. no wider, to help you in reassembling the guard bow assembly back onto the Winchester's receiver. The steel slave pin should be .125 inch diameter and .900 inch long. 5. Disassembly of the sub-assemblies comes next. For the barrel on takedown models, unscrew and remove the two magazine-plug screws (#15597), while being careful to hold your finger over the magazine plug (#15497) which is under tension from the magazine spring (#16397).

Carefully remove the magazine plug and the magazine-plug stop (#15697) from the front of the magazine tube. Make careful note of the position of these parts for reassembly. Next, unscrew and remove the two magazine-band bushing screws (#14897) and pry the magazine band (#14597) apart slightly.

This will allow you to slide the entire magazine and action-slide assembly forward and then off the barrel.

The magazine band now slides off to the front of the magazine tube. (Be certain to make note of how the band and its bushing come off.) Further disassembly is normally not needed, but if it is required, a special spanner wrench will be needed to remove the action-slide sleeve screw cap (#2597). 6. When disassembling the breechbolt, the firing pin (#12497) is removed by first unscrewing the firingpin lock screw (#12797) and then removing the firing-pin lock (#12697) and its coil spring (#12897).

Next, the firing-pin stop pin (#12997) is driven out of the breech bolt (#5897) from either side using a suitable pin punch and

hammer. Once out, the firing pin can be withdrawn out the rear. For normal cleaning and maintenance, the extractors need not be removed. Should removal be necessary for part replacement, the right-hand extractor (#10997) is pivoted to the rear and upwards slightly.

At the same time, you must force the right-hand extractor plunger (#11397) to the rear and hold it there with a dental pick or a tiny screwdriver. At this point, the right-hand extractor can now be pivoted forward and pulled straight out of the breech bolt. In this operation, the extractor plunger is under heavy spring tension, so ease it forward and then pull it and its spring (#11497) out of the breech bolt. The left-hand extractor (#11197) is removed by using a pin punch and hammer to drift



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Winchester Model 1897 Slide-Action Shotgun (12-gauge part numbers shown) 297 Action Slide 1597 Action Slide Handle 2597 Action Slide Sleeve Screw Cap 2697 Action Slide Lock 2797 Action Slide Lock Joint Pin 2897 Action Slide Lock Joint Pin Stop Screw 2997 Action Slide Lock Spring 3097 Action Slide Lock Spring Screw 3197 Action Sld. Lk.

Release Plunger 3297 Action Slide Lock Release Plunger Pin 3397 Action Slide Lock Release Plunger Pin Spring 3497 Action Slide Spring 3597 Action Slide Hook 3697 Action Slide Hook Screw 3797 Action Slide Complete 3312 Adjusting Sleeve, Takedown 3897 Adjusting Sleeve Lock, TD 3997 Adj.

Sleeve Lock Screw, TD 4197 Barrel 4597 Barrel Chamber Ring, Takedown 4797 Barrel Chamber Ring Retaining Screw, Takedown 5497 Breech Bolt 5897 Breech Bolt, Complete 6297 Buttstock 7097 Buttstock Bolt & Washer 7397 Buttplate 9112 Buttplate Screw 7797 Cartridge Guide 7997 Cartridge Guide Friction Spring 8097 Cartridge Guide Rivet 8197 Cartridge Guide Stop Screw 8297 Cartridge Stop & Spring, Right 8397 Cartridge Stop & Spring, Left 9097 Cartridge Stop Spring 9197 Cartridge Stop Screw, Right 9297 Cartridge Stop Screw, Left 9597 Carrier 10797 Carrier Pin 10897

Carrier Pin Stop Screw 10997 Extractor, Right 11197 Extractor, Left 11397 Extractor Plunger, Right 11497 Extractor Plunger Spring, Right 11597 Extractor Pin, Left 11797 Ejector Spring 11997 Ejector Spring Screw 12097 Ejector Pin 12297 Extension, Takedown 12397 Extension Stop Screw, TD 12497 Firing Pin 12697 Firing Pin Lock 12797 Firing Pin Lock Screw 12897 Firing Pin Lock Spring 12997 Firing Pin Stop Pin 13097 Guard Bow 13197 Hammer 13297 Hammer Pin 13397 Hammer Stirrup 13497 Hammer Stirrup Pin 13597 Mainspring 13697 Mainspring Strain Screw 13797 Mainspring Pin 14097 Magazine Tube, Takedown 14297 Magazine Tube Complete, TD 14597 Magazine Band, Takedown 14897 Mag.

Band Bushing Screw, TD 15097 Magazine Band Bushing, TD 15497 Magazine Plug, Takedown 15597 Magazine Plug Screw, TD 15697 Magazine Plug Stop, Takedown 15897 Magazine Stop, Takedown 15312 Magazine Lk. Pin & Spring, TD 15512 Magazine Locking Pin Spring 16397 Magazine Spring 16597 Magazine Follower 16897 Receiver, Takedown 17697 Receiver Shank 17797 Sear 17897 Sear Pin 17997 Sear Spring 18097 Sear Spring Screw 18197 Trigger 18297 Trigger Pin 18397 Trigger Spring 18497 Trigger Stop Screw 17812 Spanner Wrench

WORKING THE WINCHESTER MODEL 1897 SLIDE-ACTION SHOTGUN CONTINUED

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Original caption: Above top: The Model 1897 bolt is shown here with the firing-pin mechanism removed. The only part not shown is the firing-pin lock spring. Notice the left-hand extractor is still on the bolt. Above bottom: The instructions for removing the Model 1897's mainspring might sound complicated, but the process will seem easy once you have done it. out its pin (#11597). Then the extractor is lifted out of its recess in the bolt. 7.

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The carrier can be disassembled by unscrewing and removing the searspring screw (#18097) and the searspring (#17997). Using a suitable pin punch and hammer, drift out the sear pin (#17897) and lift the sear (#17797) out from the bottom of the carrier. Drift out the mainspring pin (#13797) and then loosen the mainspring-strain screw (#13697).

With the hammer moved all the way forward, use a small punch to drive the mainspring to make it slide toward the front of the carrier (#9597) and then reach up through the sear opening with a small screwdriver to disengage the mainspring from the hammer stirrup (#13397). Lift up on the cartridge guide (#7797) as far as it will go and use a 1/8-inch pin punch to push the hammer pin (#13297)

out towards the left side of the carrier. Lift the hammer (#13197) out through the top of the carrier.

The action-slidelock release plunger is now lifted out the right side of the carrier. Further disassembly of this subassembly is not normally required. The small part to the lower left is the actionslide-lock release plunger, which lives behind the cartridge guide. 8. To disassemble the receiver, work from the left side and unscrew and remove the ejector-spring screw (#11997) and lift out the ejector spring (#11797). The ejector pin (#12097) can now be pushed in from the outside.

Note the position of these parts for reassembly. Looking up at the bottom of the Winchester's receiver, unscrew and remove the left-hand cartridge-stop screw (#9297) and lift out the cartridge stop and left-hand

spring (#8397). Be sure to keep this screw with the cartridge stop and put them in an envelope marked "left." Now unscrew and remove the right-hand cartridge-stop screw (#9197) and lift out the right-hand cartridge stop (#8297).

Like before, keep this screw together with its cartridge stop in a separate envelope. The action-slide-release plungers (#3297) are held in by the actionslide-release plunger-pin springs (#3397). Pry up on the portion of the spring farthest away from the pin to remove its tiny bent head from its hole in the receiver. The spring can be pulled out of the pin and the pin pushed out of the receiver. That completes the disassembly of the Winchester Model 1897 slide-action shotgun.

REASSEMBLY PROCEEDS IN THE REVERSE ORDER OF ABOVE. I

FINISHING

Reader Forum

BY AMERICAN GUNSMITH EDITORS JUNE 2009

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Rust-Removal Caution Having just finished the February 09 issue, I want to bring to your attention a caution about the article on electrolytic rust removal—namely a phenomenon called “hydrogen embrittlement” that can occur in heat-treated parts when immersed in any kind of electrical bath (i.e., for electroplating, cleaning, etching, etc.). Parts over about 40RC in hardness will absorb hydrogen, and in the process become extremely brittle, usually catastrophically so.

I have seen this many times in a lifetime of plating. The remedy is to simply bake all parts at 375 degrees F for 4 hours. This can be done in a kitchen oven. (We use one all the time to bake small lots of plated parts.) For my part, I would be inclined to bake all parts so treated, as this temperature will not harm heat-treated parts, and will add greatly to peace of mind, not to mention safety. Stephen G. Schultz Orangeville, Pennsylvania Thanks, Stephen, for your input.

Temperamental Tikkas About six months ago, I found three Tikka 695 synthetic Whitetail Hunter-Series rifles, all in .30-06 caliber that appeared to be new at one of the local pawn shops. I was so impressed by the smooth bolt with almost no wobble and the crisp trig-

ger pull that I purchased one. It's stamped: “Imp'd by Stoeger Inc., Wayne N. J.” on the right side of the barrel, with the caliber on the left side.

The left side of the receiver is marked: “TIKKA M695, sn #975391,” with “391” also etched on the underside of the bolt. I went back to the pawn shop and purchased another M695 (sn #975394) as a gift for my brother. Recently, while my brother was shooting his Tikka at the range, he had several failures to feed with three different types of ammo. He would fire around and eject the spent round, but the bolt would occasionally slide right over the top of the next round in the magazine.

He asked me if I had experienced similar problems, but since I have yet to take my Tikka to the range, the short answer to his question was “no.” After a couple hours of online queries for “Tikka M695 feeding problems,” I came up empty on the negative end but was encouraged with the overwhelming number of positive comments. My curiosity finally compelled me to retrieve my Tikka from the gun safe and cycle a few dummy rounds to try and duplicate my brother's gripe.

READER FORUM CONTINUED

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Much to my dismay, my rifle would flawlessly feed the dummy rounds into the chamber, but was not positively ejecting them away from the receiver. It appears the claw of the extractor on my Tikka is not gripping the cartridge firmly enough on the rearward pull to enable the ejector plunger to perform its function. A quick phone call to my brother confirmed his Tikka was ejecting spent cartridges with authority.

But we both noticed that when our magazines were inserted into the receiver well, they had about a 1/8-inch gap at the rear just above the spring-loaded plunger in the bottom of the receiver. I understand we probably have two distinct problems, but I was hoping you might be able to provide additional information on similar complaints and potential remedies. Thanks in advance. Stoeger was "absorbed" by Beretta USA a few years ago, and with the deal came the right to import Tikka rifles.

We believe both rifles are experiencing bolt-override due to the magazine not being fully inserted and/or the magazine catches are worn and no longer maintain the fully upward position in the receiver. And from what you tell us, we suspect that the ejection problem with the one rifle is due to the need for anew extractor, extractor spring, or both. S&W Slide Hangup I have an

S&W Model 59 in the shop that will not close when the magazine is in the gun. When I pull the magazine, the slide closes as it should.

I've completely cleaned and inspected the gun, and couldn't find anything worn or broken, and the bolt face is not hitting the magazine. Help would be appreciated. Thanks. After a phone consultation with an instructor at the S&W Armorer's School, the suspicion falls upon the magazine depressor. Make certain it's in its fully upward position. And make sure it's not sticking and failing to go over the depressor lever. Is the lever bent? Finally, on occasion the lever gets stuck inside the magazine.

Hopefully, one of these will resolve the difficulty. Smith & Wesson Tune-Up I believe I recall an excellent article you folks published on tuning up the S&W revolver. Can you direct me to that article? Thank you, We've never published a general "tune-up" article, but S&Ws are all pretty much the same mechanically, with the exception of the J-frame guns and some current models with the built-in trigger-locking system. We have done several articles resolving specific problems, such as timing.

Unfortunately, most of them appeared several years ago and reprints are no longer available from the publisher. Therefore, we suggest you purchase Jerry Kuhnhausen's Shop Manual for S&W Revolvers (from Brownells). Sporterizing The Spanish Mauser I've started a project and wanted to get your input. I have a Spanish Mauser bolt-action in .308 in original military condition. I love this rifle. It's very clean and accurate and in awesome condition.

The only thing is it's already very heavy, and I would love to put a scope on it. Is there any possibility of sporterizing this rifle? I had

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(continued from previous page) thought of cutting back all the wood I could and removing the front lug, heat shield wood and band, and open sights. The receiver seems plenty thick enough to tap for a scope mount, but I'm not sure if the bolt, handle, and safety would clear a scope. What are your thoughts? Be careful of shortening the stock too much (length of pull) and remember to wear insulated gloves if you remove the upper wood.

The receiver certainly should be strong enough to drill and tap, and your concern with the bolt handle can be resolved more than one way. The first and (probably least appealing cosmetically) is to use very high scope rings. The next solution is the one most frequently chosen: use a propane torch and a bolt-bending/ welding jig from Brownells. Follow the instructions that come with the jig. A third option is to take the bolt to a welding shop that has the necessary heat-isolating materials.

Whether you decide to bend the bolt handle yourself or job it out, the bolt body must be stripped of all internal parts before heat is applied to the handle. Also, have you considered securing the services of an experienced gunsmith to shorten the barrel? Most sporterized military rifles have undergone this measure both to lighten the

gun and improve its balance when brought to shoulder. Shooting Steel Shot Safely I have a Savage Model 57, 12-gauge, 3inch chamber, fixed full choke.

Is it safe to shoot steel shot in it? The gun is in excellent condition. I bought it new for my son over 20 years ago, and it has seen little use as he joined the armed forces shortly thereafter. There's some debate on this subject. One side maintains that no damage can result in a fixed-choke gun, because the steel shot is contained in a plastic wad before exiting the muzzle. The other side maintains the opposite view.

While we might agree with the "disagrees" as it applies to screw-in or variable chokes, in your case, we tend to believe that some use of steel shot is not a problem with a fixed full choke. Adjusting Aftermarket Boxes I recently bought and installed Wyatt centerfeed boxes for a Remington 700. I would like to know any tips or tricks to adjust the lips for proper feeding. I am trying to feed a standard 284 Winchester cartridge, and no matter how I adjust it, I get scrape marks on the brass.

I've polished the inside of the lips, but it still scratches. This seems to be partly from the bolt sliding over the top of the round. I thought I once saw a video guide advertised in American Gunsmith, but I can't find it

looking back through my old issues. Any help would be appreciated. We assume you mean box magazines. We've never heard of the Wyatt, but a bolt dragging on the case is an indication the magazine is riding too high in the rifle.

You might be able to correct this with strips of thin shim stock applied and glassed in. (If possible, you should always check the fit feed of aftermarket boxes with dummy rounds prior to purchasing them.) As for the video guide, if there is one, it's available from the American Gunsmithing Institute AR-7 Reassembly I have a Charter Arms Explorer II for which I need a disassembly/reassembly instruction guide. I have it all assembled, but can't figure out how the ejector goes in. Thanks for your help.

The Explorer, also known as the AR-7, was previously made by Charter, Armalite, and Survival, and is now available from Henry Repeating Arms. Takedown instructions appear in the Gun Digest book on disassembly and reassembly of rimfire rifles. As for the ejector, the bent upper end faces forward. Its lower end has a hole through which the magazine-pivot pin passes. I can Gunsmith, address your email to a letter to American Gunsmith Merritt Island, FL 32954.

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