



NOV 2008

DIGITAL ARCHIVE
EDITION

PRECISION ARMS WORKSHOP

AND THE AMERICAN GUNSMITH ARCHIVE

A TECHNICAL JOURNAL OF CRAFT, REPAIR & RESTORATION

11

ARCHIVE ISSUE NUMBER

INSIDE THE ARCHIVE

GOOF-PROOF REMOVAL OF THE THOMPSON BARREL

GOV. SARAH PALIN: THE REAL DEAL • DISASSEMBLY AND REASSEMBLY OF THE MARLIN XL7 RIFLE • INSTALLING AND R...

ORIGINAL METHODS. MODERN ACCESS.

ARCHIVE EDITION 059

DIGITAL ARCHIVE EDITION

Preserved for the bench.

This edition presents the original American Gunsmith editorial work in a modern, searchable layout while preserving its issue, author, and source-page history.

ABOUT THIS EDITION

The article text comes from the original issue and has been reflowed for legibility. Obsolete subscription, ordering, association-service, and house-advertising pages are not reproduced.

Original article images appear only where permission has been confirmed. All other image positions remain visibly reserved so approved art can be restored without rebuilding the issue.

Report corrections or rights information to editor@gunsmithmag.com.



AMERICAN GUNSMITH

DIGITAL ARCHIVE EDITION • NOVEMBER 2008

ISSUE RECORD

ORIGINAL DATE	November 2008
VOLUME	Archive volume not stated
ISSUE NUMBER	11
SOURCE ID	ag-5dc5fb04e7798c563819170e

DIGITAL EDITION

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

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

IN THIS ISSUE

Contents

A complete guide to the searchable editorial work preserved from November 2008.

2 Gov. Sarah Palin: The Real Deal

AMERICAN GUNSMITH EDITORS • ORIGINAL PAGES 2

3 Disassembly and Reassembly of the Marlin XL7 Rifle

CHICK BLOOD • ORIGINAL PAGES 3-7

8 Installing and Repairing 1911-Type Grip-Screw Bushing

DENNIS A. WOOD • ORIGINAL PAGES 8-9

10 Dates Set for 2009 Gunsmith Career Fair

CHICK BLOOD • ORIGINAL PAGES 10-13

14 Goof-Proof Removal of the Thompson Barrel

RICHARD MACLEAN • ORIGINAL PAGES 14-17

20 Chamber Throat Reaming with A Precision Touch

NORMAN E. JOHNSON • ORIGINAL PAGES 20-21

22 Reader Forum

AMERICAN GUNSMITH EDITORS • ORIGINAL PAGES 22-24

RIFLES

Gov. Sarah Palin: The Real Deal

BY AMERICAN GUNSMITH EDITORS NOVEMBER 2008

ORIGINAL PP. 2

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-563819170E-A1326-P02-F01. Know the rights holder? Please ask them to contact us.

AG-563819170E-A1326-P02-F01

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-563819170E-A1326-P02-F02. Know the rights holder? Please ask them to contact us.

AG-563819170E-A1326-P02-F02

The firearms industry has been celebrating the nomination of Alaska Governor Sarah Palin since she joined the McCain ticket back in late August. And as you would expect, the National Shooting Sports Foundation (NSSF), the National Rifle Association (NRA), and numerous other outdoorsmen's groups have been reminding hunters, sportsmen, and gun-owners to register to vote and to secure an absentee ballot if they plan on being in the field on Election Day, November 4th.

As you are no doubt aware by now, Governor Palin is a true member of the "hook and bullet" community, a lifelong hunter, sportswoman, and firearms owner. She's a life member of the NRA, with a clear record of supporting the American traditions of hunting and firearms ownership. Palin's record on Second Amendment freedoms stands in stark contrast to

Delaware Senator and Democratic vice presidential candidate Joe Biden, about whom the Brady Bunch says: "Sen.

Biden has been a consistent supporter of the Brady Campaign, and...was a key player in the fight for the federal assault-weapons ban that passed in 1994." In fact, Biden actually introduced his own "assaultweapons' ban in the Senate five years before the Clinton gun and magazine ban was imposed.

In 1989, Biden's bill proposed to ban the Colt AR-15 and eight similar firearms as "assault weapons," and to authorize ATF to come up with a list of "any other firearms, regardless of type, to be banned as "additional assault weapons. As lead sponsor of the Senate crime bill to which the Feinstein gun-ban amendment was attached, Biden was instrumental in the passage of the 1994 Clinton gun and magazine ban, and, in fact, took credit for authoring it in a debate earlier this year.

Biden voted to extend the ban in 2004, and recently introduced a proposal (S. 2237) to renew the Clinton ban on roughly 200 makes and models of semiautomatic rifles, shotguns, and handguns on the basis of things like the shape of their grips and magazines that hold more than 10 rounds. Biden, of course, voted against the law that prohibits lawsuits designed to bankrupt law-abiding firearm manufacturers and dealers. And along with Sen.

Barack Obama, Biden refused to sign a congressional friend of the court brief calling for an end to the D. C. gun ban. To put it simply, Sen. Joe Biden would be the most anti-gun vicepresident in American history. On the other hand, Gov. Sarah Palin would be one of the most pro-gun. The choice seems pretty clear tome. Of course, if you're a moose, I can understand why the Governor might make you a little nervous. Editor Keith Lawrence Technical

GRINDING

Disassembly and Reassembly of the Marlin XL7 Rifle

When this rifle comes your way as a plastic bag full of parts, there are some things you can do with it and some you can't.

BY CHICK BLOOD NOVEMBER 2008

ORIGINAL PP. 3-7

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-563819170E-A1327-P03-F01. Know the rights holder? Please ask them to contact us.
AG-563819170E-A1327-P03-F01

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-563819170E-A1327-P03-F02. Know the rights holder? Please ask them to contact us.
AG-563819170E-A1327-P03-F02

A centerfire bolt-action from Marlin? Aren't they known for producing rimfire bolt-actions and centerfire lever-actions? If you asked yourself those questions, then I have some news for you. This isn't the first centerfire bolt rifle Marlin has cooked up. If you have along memory, you might recall the Marlin MR7. From the ground up, it was designed to take all the best features of rifles already on the market and combine them in a single platform.

When the MR7 first rolled off the line in 1995, it had the flat bottom forging of a Model 70, basically the same means of trigger adjustment, and a three-position safety built into its damascened bolt sleeve. The MR7 had no barrel lug or nut and, as rifles went back then, it carried a comparatively high price combined with a promise of extreme accuracy. The retail price of the MR7 may have contributed somewhat to its lackluster sales.

Other factors could have been its less-than-comfortable walnut stock and a marketplace that was already saturated with rifles. In any case, production ended in 1996 after a run of only 25,000. Of course, due to the relatively small number produced, the MR7

is a highly priced collectible these days. So, considering its collectible status, I wouldn't call the MR7 a total failure after all.

And neither does the company that recently acquired Marlin, Remington, H&R 1871, and Bushmaster, and united them all under the name of American Heritage Arms, Gun Division.

I would have liked to have been a fly on the wall when the discussions took place on expanding the product line to protect Marlin's share in rimfire rifles from foreign and domestic competition. (I'm eagerly awaiting word of developments in that area.) At the same time, the decision was made to reenter the bolt-action centerfire business with a rifle rivaling the accuracy of the MR7, but selling at a lower price.

Basically, what Marlin was trying to do was to produce "a Cadillac at a Chevrolet price." The project began with considerable market research into exactly what hunters want in a hunting rifle besides its ability to hit and take down the point of aim. What that research revealed came as no big surprise to the designers and engineers.

Hunters told them the safety should have two positions instead of three, the rifle Top of page: The XL7 is only the second bolt-ac-

tion centerfire rifle to come from Marlin, the legendary maker of lever-action rifles. The first one didn't last long; the XL7 probably will. should beatop loader, it should be a good-looking piece of machinery, and it should come with a trigger system akin to the Savage Accu Trigger. And, of course, it should be extremely accurate and very, very comfortable to shoot.

Thanks to simplified production processes using high-quality massproduced components, hunters are getting exactly what they asked for with the Marlin XL7. Its receiver is machined from bar stock. The design of the recoil lug is borrowed from the old Marlin Model 512 slug shotgun. The trigger looks "Glocky" (as does the Accu Trigger), but is more closely related to the Marlin MLS system. The two-piece bolt includes a twoposition safety and cocking indicator.

When around is chambered and the gun cocked with the safety positioned to the rear, the trigger cannot be pulled but the bolt can be opened and closed. A wooden stock is coming. When it arrives, it will be pillar bedded with additional barrel stabilizing points in the forearm. It will have a cheek piece and a low-positioned recoil pad like the present composite stock. This

DISASSEMBLY AND REASSEMBLY OF THE MARLIN XL7 RIFLE CONTINUED

ORIGINAL PAGE 4

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-563819170E-A1327-P04-F01. Know the rights holder? Please ask them to contact us.

AG-563819170E-A1327-P04-F01

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-563819170E-A1327-P04-F02. Know the rights holder? Please ask them to contact us.

AG-563819170E-A1327-P04-F02

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-563819170E-A1327-P04-F03. Know the rights holder? Please ask them to contact us.

AG-563819170E-A1327-P04-F03

Make sure the spring rests within it on reassembly. The assembly should not be taken down further and can't be reassembled without a complex factory fixture. Stock configuration contributes to a straighter than usual sight picture down the bore line. Taken all together, this design results in a very lightweight rifle with less felt recoil than many other bolt-actions even when packing a potent round like the .30- '06. I'm guessing that hunters are going to like getting what they asked for with this rifle.

And knowing hunters like I do, I think it's likely you'll be seeing a few XL7s come in the door of your shop probably as a plastic bag full of parts. Field Stripping By the time you're handed that bag, the "disassembly" will have been done, but I'll assume you're looking at a complete rifle, and tell you how the takedown should have been done. The rifle should be confirmed as unloaded both chamber and magazine and the safety should be in the "on" position. Your safety glasses should also be in the "on" position.

Now slowly draw the bolt to the rear while depressing the bolt release, and withdraw the bolt from the receiver. Next, invert the rifle and remove the rear and front takedown screws in that order. (When reassembling, the front screw goes in first). Now reposition the rifle right-side up and lift the barreled ac-

tion from the stock. Note the placement of the magazine spring in the stock inletting, as shown in the accompanying photo.

At this point, the rifle is ready for a good cleaning and light oiling of all exposed metal. Don't neglect to place a small dab of grease on the cockingcam surface while you're doing the lubrication. The owner's manual recommends against any further disassembly a warning that was obviously ignored by any individual who hands you a bag of XL7 parts. The caution appears in the manual for excellent reasons most of which are about to become apparent.

Detailed Disassembly If you've glanced at the schematic, take another, longer look at it. Item #18A refers to the entire rear bolt assembly, which is housed in the bolt body (#3). Item #18A can only be disassembled and reassembled at the factory in North Haven, Connecticut. This is done using a highly complex fixture that employs miniature hydraulics, and can't be duplicated outside the Marlin factory walls.

Of course, if you're a good machinist, you could probably build one, if you could get your hands on a set of blueprints. But you can't. I hope this point has been well made: Without the mini-hydraulic, multiple-spring loaded, quadrupleclamped fixture, you can't take the firing-pin assembly apart. And even

if you managed to get it apart, you'd need the fixture to put it back together. All is not lost, however, because you can remove the entire assembly from the body quite easily and replace it just as easily.

But even this requires you to adapt a tool in order to accomplish the deed. The tool is a small hex wrench that fits the square cut in the bottom of the bolt sleeve (#7) and goes through the cocking piece (#10). The wrench should extend beyond the sleeve for leverage. Leave the angled end on the wrench. It will act as a handle for removing the assembly, re-installing it, and making any necessary adjustments of the bolt sleeve thereafter. These subtle rearrangements will be described later on.

Grasp the "handle" of your combo wrench/retaining pin and turn the bolt sleeve counter-clockwise. You may come up against a sleeve that has been torqued in very tightly. In this case, secure the base of the cocking piece between protected vise jaws, laterally pull the bolt body forward, and start unwinding. The threads are very fine, but the sleeve and firing-pin assembly will eventually let go of the bolt body. Don't withdraw the retaining pin. Set the assembly aside as a unit and address the bolt head (#5).

PRESS THE HEAD TOWARD THE REAR OF THE BOLT

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-563819170E-A1327-P05-F01. Know the rights holder? Please ask them to contact us.

AG-563819170E-A1327-P05-F01

Marlin XL7 Bolt-Action Rifle (Specifications subject to change without notice) 1 Barrel** 2 Barrel Nut* 3 Bolt Body* 4 Bolt Friction Washer 5 Bolt Head* 6 Bolt Head Retaining Pin 7 Bolt Sleeve 8 Bolt Stop* 9 Bolt Stop Spring* 10 Cocking Piece* 11 Ejector 12 Ejector Retaining Pin 13 Ejector Spring 14 Extractor 15 Extractor Ball 16 Extractor Spring 17 Fire Control Housing** 18 Firing Pin* 18A Firing Pin Assembly 19 Firing Pin Sleeve* 20 Firing Pin Spring* 21 Firing Pin Cocking Piece Pin* 22 Front Fire Control Mount Screw 23 Front Takedown Screw 24 Magazine Box body until you can push out its retaining pin (#6).

Remove the head forward and examine it. The ridge at its bottom mates up with a groove in the bolt body. Unless that marriage is made, the head cannot rejoin the body.

And, referring back to the head-retaining pin: In the unlikely event it 25 Magazine Box Screw 26 Magazine Follower 27 Magazine Spring 28 Rear Fire Control Mount Screw 29 Rear Takedown Screw 30 Receiver** 31 Recoil Lug* 32 Recoil Pad 33 Recoil Pad Screw 34 Retaining Clip breaks or becomes lost, the entire bolt

can still be rotated and opened on a chambered round. The head will retain the cartridge and withdraw it. This is an additional safety feature of the rifle.

The extractor (#14) slides in and out of a key slot in the head.

Under- 35 Retaining Ring 36 Safety 37 Safety Plunger 38 Safety Plunger Spring 39 Scope Mount Base 40 Scope Mount Base Screw 41 Sear 42 Sear Bolt Stop Pin 43 Sear Spring 44 Sear Stop Pin 45 Stock 46 Swivel Studs 47 Trigger 48 Trigger Guard 49 Trigger Guard Screw 50 Trigger Pull Adjustment Screw 51 Trigger Pull Jam Nut 52 Trigger Release 53 Trigger Release Pin 54 Trigger Release Pivot Pin 55 Trigger Release Spring 56 Trigger Safety Lever Pin 57 Trigger Spring *Parts available to qualified gunsmith only. **Parts installed at factory only. neath the extractor is a spring (#16) and ball (#15).

Depress the extractor to about mid-bolthead. Use a dental pick to cam the ball downward and watch out, or the extractor and ball will fly from the bolt face. After that, you can pull out the spring'carefully; stretching it would not be good. "

DISASSEMBLY AND REASSEMBLY OF THE MARLIN XL7 RIFLE CONTINUED

ORIGINAL PAGE 7

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-563819170E-A1327-P07-F01. Know the rights holder? Please ask them to contact us.

AG-563819170E-A1327-P07-F01

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-563819170E-A1327-P07-F02. Know the rights holder? Please ask them to contact us.

AG-563819170E-A1327-P07-F02

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-563819170E-A1327-P07-F03. Know the rights holder? Please ask them to contact us.

AG-563819170E-A1327-P07-F03

over 3 pounds for hunting, but can be lightened for target shooting. Doing this is quite simple—almost too simple. With the gun empty, the safety engaged, and the stock off the action, loosen the jam nut (#51) on the trigger housing. This releases the grip of the nut on the adjustment screw (#50). Insert a 3/32-inch hex key into the screw. Turn it clockwise to decrease or counter-clockwise to increase the weight of pull. When the desired weight has been reached, retighten the jam nut.

I can't imagine this happening, other than by error in the hands of an uninformed owner, but if the pull is increased too much the trigger cannot be pulled at all. Conversely, it has always been my shop policy never to lighten pull below 3 pounds on any hunting rifle.

Reassembly Tips Frankly, the only reason to remove the trigger is to clean up anything a flushing-out of the mechanism might leave behind. When reinstalling the trigger, keep that housing tilted down.

The part has to fit between and past the trigger and sear springs. Both trigger and sear are Teflon/nickel coated. Polishing could remove that coating. Excessive polishing definitely will. When reinstalling the bolt-sleeve/firing-pin assembly in the Marlin's bolt, remember those fine threads. They're left-handed and must be turned in until the assembly bottoms out. Then back it off one revolution. This should result in a perfect marriage between the cocking piece and its notch on the bolt handle.

Sometimes you get lucky. Sometimes you don't. When there's too much of a gap (no specification available) between the bolt sleeve and the bolt handle, back off some more until the desired union is complete. If you don't, you can expect misfires. When there's not enough gap (no specs here, either), bolt movement will feel tight, as will the movement of the bolt handle.

When the cocking piece and notch look ready to live happily ever after, remove the wrench/retaining pin. (Once you've inserted the pin, don't pull it out at any other time.) There's no way to skimp on fine tuning the relationship between the bolt assembly and body. It's the way things must be done when you're working with the Marlin XL7. I

MAINTENANCE & REPAIR

Installing and Repairing 1911-Type Grip-Screw Bushing

Whether you're building up a new 1911 frame or repairing stripped-out grip screws, there are a few things you need to know about those tiny little bushings.

BY DENNIS A. WOOD NOVEMBER 2008

ORIGINAL PP. 8-9

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-563819170E-A1328-P08-F01. Know the rights holder? Please ask them to contact us.
AG-563819170E-A1328-P08-F01

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-563819170E-A1328-P08-F02. Know the rights holder? Please ask them to contact us.
AG-563819170E-A1328-P08-F02

With the myriad of 1911-style semi-auto pistols available these days from concealedcarry guns on up to full-blown race guns, it's not surprising how often one style or another makes its way to your bench. You may even get a customer who requests that a 1911-style pistol be assembled to his or her particular desire. One of the pesky little problem areas with the 1911 frame is the gripscrew bushings.

Whether you're repairing a stripped or loose grip-screw bushing or installing bushings on anew-gun project, there are a few things you need to be aware of to produce a .236-60 tap to clean out the threads in the frame holes for the grip bushing, professional-looking end result and to ensure the bushings stay in place through the firing of thousands of rounds. Pre-Installation Preparation Grip-frame screws and bushings for the 1911 have threads that are extra fine by most standards.

The screws that hold the grips in place are .150-50 (that means .150 inch in diameter and 50 threads per inch) and the bushings

that fit into the grip frame and hold the grip screws are .236-60. Because fine threads such as these are quite shallow from root to crown, these extra-fine threads are easily (and often) stripped or crossthreaded.

The .150-50 grip screw threads are .012 inch from root to crown and the .236-60 grip bushing threads are .009 inch from root to crown, so you can imagine how easily these threads can get over-torqued to the point they fail to do their duty. Care needs to be exercised when fitting new screws with these shallow threads, making sure they go in straight when they get started into place.

With anew frame that's being used for anew gun build-up, I take the time to clean out the shallow threads in the grip frame with isopropyl alcohol to remove any grease or other debris that may be inside the root of these fine threads. I will then run a .236-60 fourflute tap into each of the four bushing threads in the frame.

This ensures the root of these threads are clear of any burrs or chips left behind from the manufacturing process, and will remove any burrs that have been rolled over into the threads from the straightline sanding done to the frame sides. Each of the four grip-screw bushings are then cleaned with alcohol to remove any rust preventative or grease that may be captured in the threads.

Once I feel safe that the mating threads are as clean as I can get them, each bushing is dry fitted into the frame by finger turning until the grip-screw bushing bottoms out to the frame face. Securing the Bushings Looking into the end of the grip-screw bushings that threads into the grip frame you'll see a chamfer cut into the inside edge of this diameter.

This internal chamfer is meant to be flared outward with a staking tool to keep the bushing in place and prevent its rotation when tightening or removing the grip screws. The grip-screw bush-

INSTALLING AND REPAIRING 1911-TYPE GRIP-SCREW BUSHING CONTINUED

ORIGINAL PAGE 9

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-563819170E-A1328-P09-F01. Know the rights holder? Please ask them to contact us.

AG-563819170E-A1328-P09-F01

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-563819170E-A1328-P09-F02. Know the rights holder? Please ask them to contact us.

AG-563819170E-A1328-P09-F02

ings are small and this chamfer is slight, so rather than rely completely on the staking process to keep the bushings in position, I'll add a drop or two of thread locker as added insurance. If the bushings ever need to be removed later on, it's a simple matter to warm the bushing up with a propane torch to loosen the thread locker so the bushing can be removed. The staking tool that has served me quite well over the years was purchased from Brownells.

This tool has been altered a bit on the width of the working end. The width on this end has been milled from .750 wide to .455 wide for a length of .750 inch to give a bit more side-to-side maneuverability during use. The replaceable staking tip is extremely hard and has a blind hole that will accept the front end of a 1/8-inch diameter punch. The punch, of course, is what gets whacked with the hammer during the staking process. Another must-have tool is a bench block that will support the side of the grip frame.

No attempt should be made to stake grip-screw bushings into place without a support block of some sort, as damage to the bushing and/or frame could result. Bench blocks for this purpose can be purchased ready made or one can easily be fabricated in the shop. The support block I use for this purpose is a simple little block made from 1/2-inch-thick cold-rolled steel, 2 inches by 1-3/4 inches. A letter "B" size

drill was used to drill a .238-inch diameter hole completely through this block from top to bottom.

A counterbore was cut with an altered 7mm drill to a depth of .040 inch to create a nesting place for the collar on the grip-screw bushing. The 7mm drill was altered so that the cutting tip would create a flat-bottomed shoulder. This counter-bored flat shoulder will allow the grip screw bushing to have a solid resting place while this side of the frame rests against the block for more support.

All four of the threaded holes in the frame are then cleaned with alcohol along with the threads in each grip-screw bushing. Place a drop or two of thread locker on one of the bushings and then finger thread this bushing into one of the holes in the grip frame as far in as it will go. Turn the bushing all the way with a Magna-Tip bit that has been especially made to accommodate these bushings.

This driver bit has a slotted end tip captured in a tube that surrounds the outside diameter of the bushing to prevent slipping and possible damage to the side of the grip frame. Insert this newly placed bushing into the nesting hole in your support block. Slip the staking tool head inside the grip frame where you would normally insert the magazine, placing the coned tip of the staking head into the grip screw bushing.

A 1/8-inch flat end punch can then be passed through the above bushing hole through the frame until it passes through the blind hole in the staking-tool head. Give the top end of the punch a couple of solid whacks with a hammer and then rotate the staking tool as far as space will allow and give the punch a couple more whacks. The idea here is to upset the chamfered inside of the grip-screw bushing enough to hold it in place.

There are gunsmiths who don't feel the thread locker is necessary when installing these grip bushings. My opinion is, it can't hurt, and I like the idea of the extra holding insurance the thread locker provides. When you come across a grip-screw bushing thread that's badly worn to the point where it's loose and won't tighten, or if you find one where the threads have been stripped or crossthreaded, there's a very simple fix to the problem.

Brownells sells a set of four grip-screw bushings with oversize threads along with a .255-60 four-flute tap to create anew thread for the bushings. The inside threads on these oversize bushings are .150-50 so the normal grip screws can still be used. As a final tip, when cutting new bushing threads for the oversized bushings, install the tap in a tap handle that has a center hole in the top end. Then chuck a center in your drill press and use this as a guide to help get these new threads started. I

FROM THE ARCHIVE

Dates Set for 2009 Gunsmith Career Fair

“How do I get to be a gunsmith and where can I get a job?” The answers to those questions can be found this spring in Altoona, Iowa.

BY CHICK BLOOD NOVEMBER 2008

ORIGINAL PP. 10-13

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-563819170E-A1329-P10-F01. Know the rights holder? Please ask them to contact us.
AG-563819170E-A1329-P10-F01

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-563819170E-A1329-P10-F02. Know the rights holder? Please ask them to contact us.
AG-563819170E-A1329-P10-F02

Gunsmithing is an art you never stop learning. And it's not an art that's easily learned, even if you're fortunate enough to be hired for a lengthy apprenticeship under the supervision of a successful master. For many future gunsmiths, attending a resident school often blazes the trail; while others take the rockier path of reading books, watching videos, or taking a correspondence course.

In times past (and to this day in some elite European schools), firstday students arrived in class to find a set of drawings, a block of steel, and a handful of files on each work bench. Each student was required to use those files and drawings to transform the steel block into a firearm receiver. Those succeeding at this challenge stood a chance of graduating from the school, and those graduating with honors stood a chance of being hired by an outfit like Purdy & Sons or Holland & Holland.

At Purdy, for example, the new employee would apprentice for seven years as a maker of either stocks, or locks, or barrels. Even after earning a permanent position, no individual gunsmith would ever be permitted to construct and assemble a complete “Purdy Best” from the ground up. And that remains true to this day.

As far as I have been able to determine, resident schools in the U. S. no longer welcome their new students with drawings, files, and a block of steel.

Overall curriculums have expanded and typically require about two years to complete. As students approach graduation, all of these schools strive to place students in their chosen profession, which for the most part has meant making phone calls and writing letters on a student's behalf. There was no program established to bring prospective gunsmith and prospective employer together' not, at least, until 2007.

The spring of 2007 was when Frank and Pete Brownell, top execs of Brownells Inc., held the first Gunsmiths “Job Fair” at their Montezuma, Iowa, headquarters. It drew 30 students and eight “vendors” (another term for prospective employers). The second annual Job Fair, held earlier this year, drew three or four times as many job seekers and three or four times as many vendors.

The basic idea was to create a com- The 2009 event, scheduled for April 17 and 18 in Altoona, Iowa, promises to be an even larger event. mon ground upon which students and graduates of resident schools as well as practicing gunsmiths who were seeking employment could network with businesses and other organizations, including some law-enforcement agencies. This is still the main focus of the event, but Frank Brownell

DATES SET FOR 2009 GUNSMITH CAREER FAIR CONTINUED

ORIGINAL PAGE 11

says they intend to expand the event to include providing gun-shop owners and working gunsmiths with education and ideas on expanding and growing their businesses. The advantages to this one-on-one meeting are numerous. For instance, a student soon to graduate would be able to determine what an employer required in the way of qualifications and thus could amend his curriculum to better meet those qualifications.

A graduate student would be able to directly approach a number of vendors in a single location, determine which would be most likely to offer him a job, and immediately fill out an application. The faculty of resident schools can gain other networking advantages from attending the Job Fair. Their instructors can move from vendor to vendor, explore their needs and their requirements, and are able to tailor their curriculums toward fulfilling both.

Something else that both students and instructors discovered at the last Job Fair is that some organizations' the National Shooting Sports Foundation is one have allocated scholarship money to assist deserving students attend a resident gunsmithing program.

For a practicing gunsmith, rather than simply casting about for "new opportunities" or "broader horizons," this event provides a means of networking with many vendors to find the best match between his existing skills and what, specifically, a vendor might be seeking. I personally know of a few who are seeking to escape the restrictions of the one-man shop in these tight times by linking up with a company and starting to draw a steady paycheck. Does networking work?

Judging from the number of applications filled out on the spot at the last event, yes. Judging by Brownells' realization that they

needed a much larger space next time around, yes. For the 2009 event to be held this April 17th and 18th, they've changed the name to "Gunsmith Career Fair," and booked Meadows Events and Conference Center at Prairie Meadows Racetrack and Casino in Altoona, Iowa.

This modern facility, with restaurants and hotels close by, is right off Interstate 80 a short distance from the Des Moines Airport. Beyond the networking, the event features several seminars. One I found particularly interesting last year paired an NRA representative and ATF inspector on the podium. A lively discussion ensued, with most attendees soaking it up like a sponge.

Many brows became furrowed when the inspector tried to answer my question about where gunsmithing stops and 2009 Gunsmith Career Fair Participants Businesses/Organizations Ahlmans American Pistolsmiths Guild Ballard Rifle & Cartridge Co. Caesar Guerini USA, LLC Caspian Arms Cylinder & Slide DPMS E. Arthur Brown Co.

Ed Brown Products Forster Precision Products Gander Mountain H-S Precision Iowa DCI Crime Lab Les Baer Custom Nowlin Manufacturing Power Custom Remington STI International Sinclair International Spragues Sports, Inc. Springfield Armory Custom Shop Turnbull Restoration U. S. Army Marksmanship Unit Volquartsen Custom Wichita Arms Wilson Combat Schools Colorado School of Trades Montgomery Community College Murray State Junior College Pine Tech College Trinidad State Junior College manufacturing begins.

I'd made the request because the language in the regulations is so vague that ATF has elected to leave its interpretation up to the inspecting individual. Let's say there are

1,000 such individuals on the ATF staff. According to my math, that means there are at least that many interpretations. No wonder an increasing number of gunsmiths are having to secure a manufacturer's license in order to avoid facing shut down, a fine, imprisonment, or all three.

Do you suppose it's possible ATF is being purposely vague about defining gunsmithing vs. manufacturing due to some form of top-to-bottom pressure applied by the revenuers?

Could be, since manufacturers must collect and pay excise taxes on their sold merchandise. (I'm still waiting for a black chopper to land on my lawn because I raised that question.) Even though the ATF agent didn't have a very good answer to my question, I found a pretty good answer in the April/May issue of Shot Business, and I'll paraphrase it for you: If you, the gunsmith, perform work on a firearm that has been requested by a customer, you are not manufacturing.

If you build or work on guns with the sole objective being to sell them later, you're manufacturing. In the latter case, you must have a manufacturer's license, collect excise taxes, and file quarterly reports on those taxes. Getting back to the 2009 Career Fair, a list of some of the schools and vendors who will be present appears at left.

If you're a gunsmithing student, a practicing gunsmith, a gunshop owner, or a vendor interested in attending the party Group-rate accom e made for registrants, and at least one breakfast, a lunch, and a wrap-up evening banquet will be provided at no charge. Frank and Pete Brownell deserve our sincere thanks and congratulations on the success of the first two events. I'm sure the one this April will be even better. I

HISTORY

Goof-Proof Removal of the Thompson Barrel

If you're ever lucky enough to work on a valuable original, you'll need some special tools and techniques that might not be necessary for working on the semiautomatic replica.

BY RICHARD MACLEAN NOVEMBER 2008

ORIGINAL PP. 14-17



Below top: The original and authentic Colt Thompson "Tommy gun" is a rarity these days, with a collector value of \$50,000 or more.

ORIGINAL ARCHIVE IMAGE • PERMISSION CONFIRMED



Below bottom: The Kahr Arms Thompson 1927A-1 is a longer-barreled, semi-automatic "near-replica" of the original Thompson.

ORIGINAL ARCHIVE IMAGE • PERMISSION CONFIRMED

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-563819170E-A1330-P14-F01. Know the rights holder? Please ask them to contact us.

AG-563819170E-A1330-P14-F01

Original caption: Below top: The original and authentic Colt Thompson "Tommy gun" is a rarity these days, with a collector value of \$50,000 or more.

Call it the "trench broom," "Chicago typewriter," or "Tommy gun," there's probably no other gun in the world more recognizable than the Thompson submachine gun. Today, the AK-47 or the M-16 might compete for military honors, but they just don't hold the same longstanding mystique as this vintage weapon. The fascination with these guns began with news accounts of the gangsters of the 20s and runs straight through to the M1A1 Thompson used by Tom Hanks starring as Capt.

John Miller in the 1998 movie *Saving Private Ryan*. Fascination, of course, creates consumer demand. But with the Hughes Amendment to the 1986 Firearm Owners' Protection Act, the supply of fully automatic weapons available for private ownership was

effectively frozen. And according to the laws of supply and demand, the inevitable has happened: the price for Thompson submachine guns has skyrocketed.

Original Colt Thompsons in good condition typically command in excess of \$50,000, and the Models 1928, 1928A1, M1, and M1A1 produced during World War II are not far behind. In 1986, these same guns would have been worth less than 10 percent of their current value. Not surprisingly, those market conditions combined with the regulatory restrictions in some states against fullauto and short-barreled guns have created a demand for semi-automatic Thompsons.

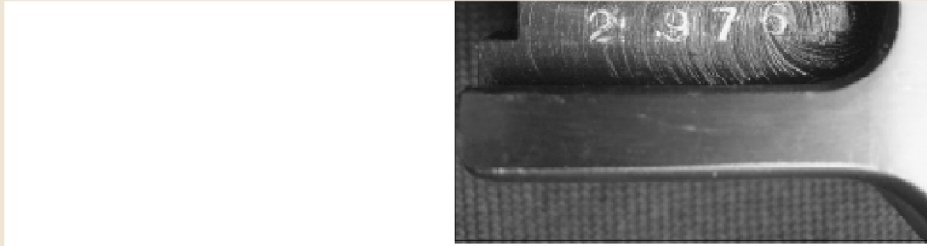
Numrich Arms Co. reregistered the famous Thompson bullet trademark and began manufacturing a semi-automatic version through

a division of the company they named the "Auto-Ordnance Corporation" after Col. Thompson's famous company. This division was subsequently sold in 1999 to Kahr Arms of Worcester, Massachusetts. What's the difference between the semiand the full-auto versions? The Thompson submachine gun fires from an open bolt, while the Kahr Arms semi-automatics fire from a closed bolt.

The Kahr come standard with a barrel length of 16.5 inches in conformance with ATF regulations, making it the same as any other semiautomatic rifle as far as the law is concerned. Kahr Arms also produces a 10.5-inch short-barrel version that's more in keeping with the original Thompson's appearance, which

GOOF-PROOF REMOVAL OF THE THOMPSON BARREL CONTINUED

ORIGINAL PAGE 15



Right: The visible serial numbers had once been removed from the authentic “gangster Tommy Gun” shown on page 14. Removing the barrel revealed the hidden third serial number on the receiver where the grip mount is attached.

ORIGINAL ARCHIVE IMAGE • PERMISSION CONFIRMED

makes this version a National Firearms Act (NFA) weapon. In states where allowed, consumers must purchase these NFA weapons through a Class 2 manufacturer or Class 3 dealer on a Form 4. A Few Words of Caution The aftermarket semi-autos and the original versions of the Thompson offer some unique gunsmithing opportunities, but there are potential legal and technical issues that must be understood and appreciated.

First, let’s talk about the legal issues: NFA weapons are not only regulated at the Federal level, but also at the state and local level. Before a gunsmith attempts to work on one of these, he should be thoroughly familiar with all of these potential legal restrictions. For example, an original Colt Model 1927 semiautomatic Thompson is still classified as a “machine gun,” since it’s built on an original, open-bolt Colt receiver, and select-fire components could be installed without modification.

It would also qualify as a shortbarreled rifle. These original “semi-automatic” guns are quite rare—only about 150 were produced—and few gunsmiths will ever encounter one. Nevertheless, my point is that there are odd twists and turns to NFA weapons. Working on any of these without the owner physically present at all times (no disappearances even for lunch breaks) would be a felony.

To work on any NFA weapon legally without the owner present, a gunsmith would need, as a minimum, the required licenses and possibly an approved Form 5 to trans-

fer the NFA weapon in and out of the business. What most gunsmiths elect to do is to check the identification of the owner and the Form 4, and have the owner physically present at all times. I’m not in position to provide legal counsel, but I can offer a warning: It’s up to you to determine these details for your local area.

The rarity of the Model 1927 semiautomatic also underscores the need for certain cautions extending beyond just the legal issues. As I mentioned Removing the barrel revealed the hidden third serial number on the receiver where the grip mount is attached. before, all of these original guns are expensive. But to further put this in perspective, the four original semiautomatic fire-control parts which can easily fit in the palm of your hand recently sold for \$3,000 at auction.

An original semi-automatic Colt can approach six figures, more than a fullauto in equivalent condition. My point in stressing the value of these guns is simply to remind you that the usual tools and techniques may not suffice when working on these expensive pieces of history. The most critical step in any gunsmithing on these rifles is barrel removal. That’s because it’s highly likely that you’ll mar the finish of an original using standard tools and techniques.

In addition, there is also the danger that the receiver can be distorted if it’s not properly supported. Why Remove the Barrel? The need to pull and replace a barrel can be due to all the usual reasons familiar to gunsmiths. And there are several

others that are unique to the Thompson. One of the strangest is to identify the original serial number of a real “gangster Tommy Gun.” Criminals of that period would sometimes obliterate the serial number on the receiver as well as the matching number on the trigger frame.

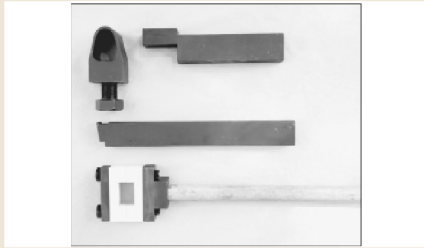
What they didn’t know was that there was another serial number hidden on the receiver. This matching number, concealed under the forearm grip mount on all original Colts, can only be observed by removing the barrel. A number of these guns with obliterated serial numbers were “amnesty registered” under the 1968 Gun Control Act and stamped by ATF agents with anew identifier for the Form 4. The original Colt Thompson used to illustrate the barrel removal process in this article was one such amnestyregistered gun.

There are also examples of these guns in museums, including the New York City Police Museum and the Rock Island Arsenal Museum. Gordon Herigstad, noted historian of Thompsons and author of *Colt Thompson Serial Numbers*, has researched the serial numbers of all of the guns bought for Al Capone’s gang and also those illegally provided to the Irish Republican Army.

If a gunsmith has a customer with an amnesty-registered Colt Thompson with an obliterated serial number, by removing the barrel and finding the original serial number, the gunsmith could possibly turn a valuable gun into an extremely valuable gun with a documented history. The second reason for barrel re-

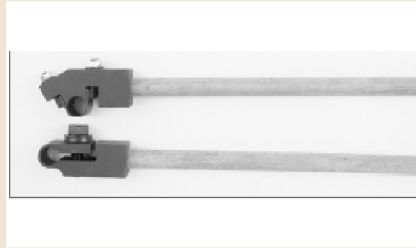
GOOF-PROOF REMOVAL OF THE THOMPSON BARREL CONTINUED

ORIGINAL PAGE 16



Above left: The Thompson tools made by Richardson include the Barrel Vise with associated tool (top), Grip-Mount Lever (middle), and Receiver Wrench (bottom).

ORIGINAL ARCHIVE IMAGE • PERMISSION CONFIRMED



Above right: Other Richardson tools include the Receiver Vise (top left), Grip-Mount Retainer (top right), Universal Barrel Wrench (middle), and Heavy-Duty Barrel Wrench (bottom).

ORIGINAL ARCHIVE IMAGE • PERMISSION CONFIRMED

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-563819170E-A1330-P16-F01. Know the rights holder? Please ask them to contact us.

AG-563819170E-A1330-P16-F01

The original barrel in these kits must be removed from the cut receiver and reinstalled on the dummy receiver. The third reason why you might be called on to remove a barrel relates again to the value of the original guns. In states where allowed, it's possible to rent fully automatic weapons to shoot on the premises of shooting ranges. Movie production companies also use Thompsons adapted to fire blanks.

Original, transferable NFA weapons have become so valuable that they are used only for very special occasions or auctioned off to the highest bidder. There is nothing more disheartening than witnessing a movie star throwing a transferable machine gun down on a pile of rocks. For example, Independent Studio Services of Sunland, California, has a Class 2 manufacturing license and is using newly manufactured Thompson receivers and parts kits to produce fully functioning guns for the movie industry.

These NFA weapons are, of course, not transferable to individuals and must be used under tightly controlled circumstances, but

compared to the originals, they are cheap and replaceable. In any case, gunsmiths with the right tools are needed to perform the aforementioned services. And the pricing for these operations is, of course, commensurate with the nature of the work. In other words, this is not your typical gun-servicing project.

The Right Tools First, let's talk about the tools used specifically for original Colt Thompsons and not the semi-automatic, Kahr Arms weapons. (Later on, I'll discuss gunsmithing the semi-automatic replicas.) Since these tools are quite specialized, the only known, Richardson of Thompson gunsmithing tools.

Those tools specifically used for barrel replacement are listed below and illustrated in the accompanying photographs: "Receiver Wrench" Receiver Vise "Heavy-Duty Barrel Wrench" Universal Barrel Wrench "Grip-Mount Puller" Grip-Mount Retainer "Grip-Mount Lever" Barrel Vise Headspace-Gauging Plug In the operation illustrated in this article, the receiver vise, grip-mount retainer, and universal barrel wrench were used

because the gun being worked on was an intact gun—not a parts kit with only a partial receiver (more about this later).

The receiver vise is designed to be held in a 6-inch bench vise or as an alternative, it can be bolted to a bench or other support. It firmly holds a complete, disassembled receiver with barrel without marring the finish or torquing the receiver as the barrel is removed. Once the receiver is clamped in the receiver vise, the grip mount is pulled back and held away from the barrel fins with the grip-mount retainer. This is to allow room for the barrel wrench jaw to pass between the barrel and the grip mount.

A standard gunsmith's barrel vise will usually not hold the barrel tight enough, since it only grips the barrel in two places. The wrap-around clamp of the Richardson barrel wrench actually deforms around the barrel and grips over approximately 150 degrees of

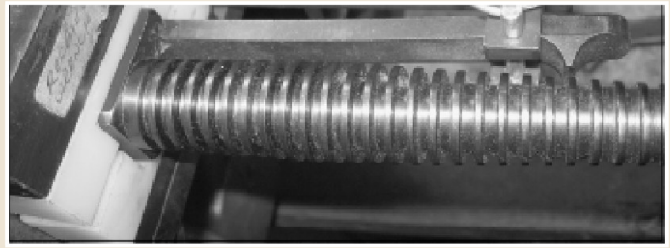
GOOF-PROOF REMOVAL OF THE THOMPSON BARREL CONTINUED

ORIGINAL PAGE 17



Right: Here, the Richardson Universal Barrel Wrench is positioned with the receiver clamped in a special vise.

ORIGINAL ARCHIVE IMAGE • PERMISSION CONFIRMED



Below: The grip mount is pulled out of the way with Richardson's special lever and held in place with the retainer.

ORIGINAL ARCHIVE IMAGE • PERMISSION CONFIRMED

the circumference. The body of the wrench provides additional gripping surface for a total of 300 degrees. This is particularly important in order to avoid damaging finned barrels. (This Universal Barrel Wrench works without the need to remove compensators or ring-style front sights from the barrel.) The body of the wrench is attached to the jaw, and the nuts and washers are secured tight enough to prevent the barrel from turning.

The assembly must be positioned so that it is all the way counterclockwise (as viewed looking down the barrel). This placement allows the barrel to be turned as much as possible before the wrench is again stopped by the grip mount at the end of the turn. Usually, one turn of the wrench from one side of the grip mount to the other will be sufficient to loosen the barrel enough that it can be fully removed by hand. It's not necessary to remove the grip mount to change barrels.

However, if it is removed, the mount must be pulled straight out the front end of the receiver. Nothing but the barrel and friction

hold the grip mount in place. That's not to say that the grip mount will fall out of the receiver. For a proper fit, it should have been driven into the receiver with force when installed. After having been there awhile, dirt and rust may also be holding the grip mount in place.

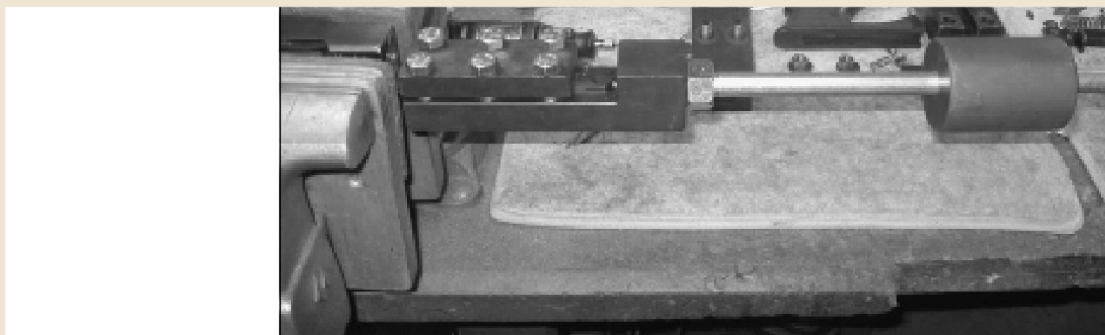
It's critical to remove it without bending or damaging its projection that fits behind the barrel (which is how it is held in place) or damaging the front end of the receiver. Place the body of the puller under the grip mount with the shaft and hammer in front of the receiver. Place the plate on top of the grip mount and bolt it to the body, clamping the grip mount in the body. From this point on, it's a straightforward application of the slide hammer to pull the grip mount out.

The critical consideration is not to put any bending stress on the grip mount. If a barrel is to be removed from a parts kit with a cut receiver, the Receiver Vise, Grip-Mount Retainer, and Universal Barrel Vise illustrated in this article cannot be used, because there is not enough of the receiver to

enable it to be held properly. In this case, Richardson recommends heating the receiver nose piece red hot with an acetylene torch. Do not apply the flame to the barrel or grip mount.

After the nose piece has completely cooled, try to unscrew the barrel by clamping the barrel in a large (6-inch) bench vise between blocks of softwood and try to turn the receiver nose piece with an open-end wrench. Gunsmiths might try using their standard barrel vise to hold the barrel, since the heating should make it easier to remove the barrel. If all else fails, Richardson manufactures a special barrel vise to grip the barrel.

The Grip-Mount Lever can be used to pry the mount away from the barrel to enable the barrel vise clamp to pass between the barrel and grip mount. Since a used barrel being assembled onto another receiver will usually not tighten up with the front sight in the proper position, the compensa-



Above: The Richardson Grip-Mount Puller, shown in position here, is essentially a type of slide hammer.

ORIGINAL ARCHIVE IMAGE - PERMISSION CONFIRMED

1. To Change Your Address If you are moving, please attach your present mailing label to this form, and enter your new address here:

NAME

COMPANY

STREET

CITY

STATE ZIP

2. TO JOIN/RENEW TO JOIN, OR EXTEND YOUR CURRENT

18 AMERICAN GUNSMITH # NOVEMBER 2008

RIFLES

Chamber Throat Reaming with A Precision Touch

A special throating reamer can be used to lengthen the throat or change the leade angle, resulting in greater flexibility in bullet seating and ultimately in improved accuracy.

BY NORMAN E. JOHNSON NOVEMBER 2008

ORIGINAL PP. 20-21

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-563819170E-A1331-P20-F01. Know the rights holder? Please ask them to contact us.

AG-563819170E-A1331-P20-F01

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-563819170E-A1331-P20-F02. Know the rights holder? Please ask them to contact us.

AG-563819170E-A1331-P20-F02

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-563819170E-A1331-P20-F03. Know the rights holder? Please ask them to contact us.

AG-563819170E-A1331-P20-F03

On more than one occasion, the use of a throating reamer has resulted in increased accuracy from the rifle I used it on. Moreover, the reaming allowed for a wider selection of bullets that could be used in the rifle. Nevertheless, if a common reamer is used to make the chamber, it may not result in the desired leade to fit the bullets being used. As a result, a special throating reamer maybe needed. Over time, I've developed a method for using a throating reamer that has proven to be very successful.

And I've adopted a few modifications to the usual technique that have been helpful in using the throaters for optimal precision. Let me start with a typical example of how I lengthened the leade on a short-throated .221-caliber Remington Fireball factory rifle chamber. I was unable to use the handload

bullets that are commonly used in benchrest shooting without seating them very deeply into the case.

This, in itself, was a deterrent to best accuracy, and it significantly reduced case capacity, which affected the case/bore expansion ratio as well. I talked with Larry Weeks at Brownells, who was very helpful in providing me with good information and a throater to lengthen the chamber leade. This particular throater was a spiral five-flute t mer Reamers, Inc. Five spiral flutes ei- 221 Remington case, used as a reamer guide. Below that is the reamer stop, shown next to a test cartridge.

Note the darkened area on the ogive of the bullet used to show seating depth. bility of the flutes dropping into the rifling, which

could cause obvious problems. As a means of precisely controlling the reamer's advancement into the leade and at the same time promoting perfect reamer alignment, I used a modified, fired cartridge case as a bushing and T-handle stop. I drilled and bored a hole through the base of a fired cartridge case to the exact shaft size of the reamer.

The forward section of the reamer was guided by the case neck, as the bored out case head served as a guide for the reamer shank. This provided perfect coaxial alignment with the bore. As a positive stop for the throater entering the bore, I used a bushing between the case head and the Thandle into the leade section to the nearest thousandth of an inch. This stop was made by drilling a hole the size of the reamer shaft through a

CHAMBER THROAT REAMING WITH A PRECISION TOUCH CONTINUED

ORIGINAL PAGE 21

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-563819170E-A1331-P21-F01. Know the rights holder? Please ask them to contact us.

AG-563819170E-A1331-P21-F01

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-563819170E-A1331-P21-F02. Know the rights holder? Please ask them to contact us.

AG-563819170E-A1331-P21-F02

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-563819170E-A1331-P21-F03. Know the rights holder? Please ask them to contact us.

AG-563819170E-A1331-P21-F03

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-563819170E-A1331-P21-F04. Know the rights holder? Please ask them to contact us.

AG-563819170E-A1331-P21-F04

Clymer makes a spiral reamer to prevent the flutes from entering the rifling, round length of plastic (or metal) and faced off squarely at each end. The length of the stop is determined by the span between the T-handle and the shaft of the reamer extending from the mouth of the bored cartridge case. This is usually about an inch in length.

Prior to setting up the throater, I loaded a match bullet into a .221 Remington Fireball case seated to overlength, and chambered the round to test how far the existing rifling would further seat the bullet. I coated the bullet ogive (curved point) with blackening material to indicate where land/ I bullet contact is made and as a means of showing how deep I needed to recut the rifling leade.

When setting up the throater for cutting the leade, I fully inserted the bored-out cartridge case and gently advanced the throating ream-

er to land contact. At this point, I put the Thandle on the reamer shank and tightened the laterally opposing screw on the T-handle. Then, by gently turning the T-handle, I could perceptibly feel the reamer land contact, which was freed by a dusting of metal removal from the lands. Further depth adjustment was accomplished by adjusting the stop.

At this point, a measurement is made at the juncture of the T-handle and the extended portion of the reamer shank. This is a very important measurement, which is used to determine incremental reamer advancement. It's important to know that the maximum leade lengthening will be but 0.025 inches, so advancing the reamer a few thousandths at a time using the T-handle bushing stop is the best way to go. Cutting too deeply cannot be corrected short of setting the barrel back.

At this stage, I examined the leade with a Hawkeye borescope, and by seating a bullet I checked for land contact and overall bullet seating depth. Finally, I lapped the throat to eliminate the reamer marks which appear as a sort of sawtooth configuration. This is said to produce a plasma-like gas as copper material is shaved from the bullet. This material is deposited throughout the bore as copper fouling, sometimes requiring extensive cleaning to remove it.

Conclusions Lengthening the chamber throat on a firearm enables the shooter to use different bullets and loads. A special throating reamer does an excellent job, but careful attention is required in using it. Using the aforementioned technique ensures a good job with total control over the leade depth.

PEOPLE & COMPANIES

Reader Forum

BY AMERICAN GUNSMITH EDITORS NOVEMBER 2008

ORIGINAL PP. 22-24

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-563819170E-A1332-P22-F01. Know the rights holder? Please ask them to contact us.

AG-563819170E-A1332-P22-F01

Ruger 44 Gas-System Check I have a Ruger 44 carbine that will not eject the spent round. The slide only comes back about three-quarters of the way and then returns forward. I've checked the operation of the slide by hand and it's smooth. I don't feel the bolt hanging up on anything, and there are no marks on the spent rounds. Is there a test I can do on the piston and piston-block plug to check for any leaks? Thank you. We assume this malfunction is occurring with factory loads.

As far as a test, make certain no fouling or damaged components exist in the gas system. If so, locate anew or good-as-new replacement in the aftermarket and install it. Convert Rolling Block? I have a quick question concerning changing the caliber of a rifle. My father-in-law has an old Remington rolling-block rifle, chambered in .25-10. I was wondering, seeing as how there is not much ammo available for the rifle, how hard would it be to convert it to .22 caliber?

Would one be able to "sleeve" it with a .22 liner, or is the difference in caliber too great? Also, was the .25-10 a rimfire or centerfire caliber? I've looked on several different web sites for ammo, and none have anything about the 25-10. I'm sorry I don't have the model number of the rifle, but I didn't think to look for it when my father-in-law showed me the rifle. I do know there is a lever on the right side that rotates about three-quarters of the way around, and the barrel and forend come off the receiver.

Any help you can give will be greatly appreciated. Your question might seem like a quick one, but it took us a lot of digging

through a large number of books to come up with the following: The only volume mentioning the caliber of your father-in-law's rolling block is Roy Marcot's formidable history Remington, America's Oldest Gunmaker, published by Primedia Special Interest Publications and available, we believe, from Remington.

Therein, the rifle is identified as a Remington #7 Target/Sporting model (1903) in .25-10 Stevens rimfire caliber. Due to the designation, we have to believe it was a blackpowder round. We don't foresee pressure problems by converting to .22 LR, but there could be extra expense in doing so if the bore isn't large enough to accept a liner. The bullet diameter of the .25 is .251 inch, and the outside diameter of the liner could be no larger than that or the bore would have to be opened up to accept it.

Generic Parts I have a question concerning an article in the March 01 issue titled "Generic Parts." In the list of O-rings you mentioned a number 33 O-ring for the Remington 1100 12 gauge. Is the generic number you have listed the "dash number" of the O-ring? If so, then the number 33 is a 2-1/8-inch O-ring which is too big. I am also interested in the rest of the list. Are they correct, or am I going about this with the wrong info on my part. Thanks for your time. This subject has reared its head previously.

The word "generic," as used in the article, refers to a substitute for a factory part that will serve as well but cost a bit less, like a generic drug. Unfortunately, the generic part number doesn't apply to all O-rings made

by all O-ring manufacturers. What's a #33 to one could be a #3 or #35 with another. So forget about the part numbers.

Instead, measure the OD of the tube or part from which the old ring or seal was taken, measure the thickness of the old ring or seal, and take those dimensions to a hardware store and find the appropriate O-ring. By the way, Remington and Brownells both carry factory-spec parts for the Model 1100. Remington Model 12 Jams I have an old Remington Model 12, takedown .22 rifle (serial #295159).

Stamped on the barrel is "Pedersen's patents, Jan 5, 1909, Oct 12, 1909, Mar 8, 1910, Nov 21, 1911, Apr 16, 1912" under the "Remington UMC" line. This little rifle has the problem of canting the cartridge from the magazine to the left and stubbing the nose into the left side of the barrel, about 1/2 its diameter from the chamber mouth, thus causing a jam. This jam occurs about 30 to 40 percent of the time. The rest of the time it aligns the cartridge perfectly and functions normally.

When it jams, if I wiggle the slide back and forth slightly several times, the cartridge sometimes aligns itself properly and can then be inserted into the chamber. I've cleaned and inspected the bolt, extractor, and firing pin/ejector and find no signs of excessive wear or abuse, yet the problem persists. I have tried CCI Mini Mag, Federal, and Remington ammo with the same results. (Long Rifle only; I haven't tried Shorts or Longs.) Any advice on how to cor-

READER FORUM CONTINUED

ORIGINAL PAGE 23

rect this problem? Also, is a diagram of this rifle available anywhere? This is a personal gun which I purchased recently at a gun show, so I know nothing of its history, but it appears to be in good to very good condition. The original finish is 80 to 85 percent, with a brown patina on the barrel and underside of the receiver with no rust or pitting. The stock is a bit dinged, as would be expected of a gun this old. Can you tell me the manufacture date of this gun? Thanks for your help. John D.

Pedersen was awarded over 50 patents between 1903 and 1941. He was one of Remington's greatest gun designers. Your rifle was among his creations. It may be a Model 12C, rated NRA Target Grade, and intended exclusively for the .22 LR. Extensive use of .22 Shorts in this, or any rifle with a .22 LR chamber, can cause cavitation and hard (or no) extraction. In your case, we suspect the carrier and/or its associated parts. A loose carrier will cant to one side or the other, causing the stubbing you describe.

Other things to look at: The cartridge retainer could be loose or badly worn; the carrier-dog spring might be weak; the cartridge stop could be loose; or the carrier dog might just be exhausted. You'd also want to look closely at the other springs in the rifle. Your rifle was made between 1909 and 1936. To determine the exact date, you'd have to contact Remington and give them the serial number. Rohm Model 63 Refinish I'm working on a Rohm Model 63 Single Action in .22-caliber LR.

I was asked to "see what I can do with it." Well, most of the finish is worn off, and the aluminum frame is a dull oxide color. I want to use aluminum black and produce a uniform matte finish. I don't want to remove the oxide of aluminum, as it is

stronger than the base metal. The remaining "black" on the finish is paint of some type. Acetone removes it with a lot of rubbing. The fumes get to me pretty quick and I have to stop, so I need a paint remover that won't destroy the aluminum (or me).

My slightly altered memory tells me that an article was done on this pistol at some time in the past. A schematic would be a useful thing to have. So far, searches of Brownells' and Numrich Gun Parts' websites and threads on line have not turned up anything I can use. Any help and guidance will be greatly appreciated.

Common paint remover (the hardware-store type) will not destroy the metal, and a chemical respirator (same source) will help guard your health, but the most important thing is to apply the solvent or paint remover outdoors or in a well-ventilated area. We suggest you try Gun Kote (from Brownells) for the matte finish you want. We've never covered this imported revolver in American Gunsmith, but we think Bob's Gun Shop might have a booklet containing disassembly instructions.

Clayco Model 4 Magazines I'm trying to locate a spare magazine for a Clayco Model 4 .22-caliber rifle. This is a five-shot, detachable-box magazine, bolt-action rifle that was apparently imported by Clayco Sports awhile back. It's marked "Made in China at Norinco Zhongzhou Factory" on the right side of the barrel, forward of the rear sight. This a nice-shooting little rifle, but it would be nice to have a spare magazine or two for it. The magazine inserts from the bottom and the magazine release is in front of it.

The magazine appears very similar to the older Winchester, Remington, and Savage magazines. I tried a Savage mag, but it

would require extensive modification to work properly. I haven't been able to locate anything current on Clayco, so they maybe out of business or bought out by another company. My understanding is that Norinco firearms can no longer be imported into the U. S.; however, I don't know if replacement parts have been banned. Can you help me out here? Thanks.

We don't know what happened to Clayco, but we've heard some stories about Norinco. One reason we've heard about the end of Norinco imports involved some big trouble with ATF when a shipment of Norinco SKS rifles arrived on these shores capable of full-auto fire. In any case, you should try Tom Forest in Lakeside, California, for spare magazines. Uberti 1873 Revolver Barrel I have to swap a barrel on a 44-40 Uberti 1873 Colt clone. I have the barrel blocks and I did swap one a few years ago.

My problem is that I've misplaced my manual and can't remember if the barrel threads on clockwise or if it has a reversed thread. The customer is going from a 7-1/2-inch barrel to 5-1/2 inches, and I don't want to cause any damage by trying to unthread the existing barrel in the wrong direction. Thanks for any help you can give me, The Uberti barrel is "lefty loosey, righty tighty." Nylon 66 Woes Help! I'm working on a Remington Nylon 66 tube-fed rifle.

I've had the gun apart and can find nothing wrong, but whether I shoot one or five shells' it doesn't matter how many it goes full auto. The firing pin is not sticking. Can you help? Thank you. Based on the number of queries we've received in the past, we have to conclude that this is a troublesome rifle. Generally, when a rifle doubles or

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-563819170E-A1332-P24-F01. Know the rights holder? Please ask them to contact us.
AG-563819170E-A1332-P24-F01

(continued from previous page) goes full auto, it means one of several things: The trigger is damaged or binds; the sear notch is damaged; the trigger spring is damaged, missing, or out of engagement; the sear spring is damaged or dislocated; or the disconnector assembly is damaged or dislocated. We believe you will require at least some, if not all, of the above-mentioned parts to return the rifle to safe operation.

And we're reasonably certain you'll have to locate them in the aftermarket, because Remington dropped production of the Model complete instructions for disassembly/reassembly of the Model 66 appear in Gun Digest's book on rimfire rifles. Ruger Mk II Info I need info on replacing the barrel of a Ruger Mk II and the preferred holding method, etc. Thank you. Few manufacturers turn their pistol barrels in tighter than Ruger does, and the frame of the Mk II isn't entirely machined from a solid block of steel.

For those reasons, you'll need a solidly mounted barrel vise that conforms to the barrel contour (available from Brownells) and a receiver wrench that conforms to the frame (also from Brownells). You may also need some rosin to keep the barrel from slipping in the vise and a cheater bar that fits over the wrench to extend its handle

and provide greater leverage. The good news is that once you get the barrel started on its way out, the rest is fairly easy.

And don't forget to use the right gauges when establishing proper headspace. Disassembling H&R Spur-Trigger Revolver I am looking for an article about disassembly and reassembly of the H&R spur-trigger revolver made in the 1870s (patented May 23, 1876). This model is a Vector No.3. Do you know if any of the back issues of American Gunsmith have such an article? Is your H&R atop-break that ejects its spent shells when the action is opened?

When introduced to the public in 1878, these were identified by H&R as "auto-ejector" or "auto-ejection" models. Takedown instructions' pur hammer or otherwise' appear in the Gun Digest book of disassembly/reassembly instructions for revolvers. If, however, your revolver is not a top-break and, instead, has a center pin or is an H&R swing-out-cylinder model (unlikely, since this design came along much later) takedown info appears in the combined shoulder arm/handgun edition of The NRA Guide to Firearms Assembly. We did an article on H&R revolvers many years ago'over 14 years ago to be exact'but reprints are no longer available from the publisher.

Winchester Scope Alignment I have a bolt-action .218 Bee Winchester Rifle. I believe it's a Model 43. It has side Weaver scope mounts, which are apparently misaligned. Is there a method of aligning the scope mounts on this rifle? Thanks. The Model 43 was last produced in 1957. If yours has non-factory-drilled mount holes, you can deduct 40 percent from the possible value of \$500 to \$650 in very good condition. At the other end of the scale'poor condition't he range is \$175 to \$200.

With the exception of a few, late-production rifles, Winchester did not drill and tap either the Sporting or Special Models. We therefore have to conclude that someone other than a factory technician did the drilling on yours, thereby probably creating the misalignment problem. For a permanent fix, we recommend installing blind filler screws in the existing holes, then redrill and tap for the existing mount and reinstall the scope. However, you can probably do some adjusting with the present setup.

If the rifle prints to the left when bench-rested and fired, install a shim under the rear of the mount. If it prints to the right, the shim goes under the front of the mount.

SEARCHABLE ISSUE RECORD

Archive index

Gov. Sarah Palin: The Real Deal American Gunsmith Editors	2	Goof-Proof Removal of the Thompson Barrel Richard MacLean	14-17
Disassembly and Reassembly of the Marlin XL7 Rifle Chick Blood	3-7	Chamber Throat Reaming with A Precision Touch Norman E. Johnson	20-21
Installing and Repairing 1911-Type Grip-Screw Bushing Dennis A. Wood	8-9	Reader Forum American Gunsmith Editors	22-24
Dates Set for 2009 Gunsmith Career Fair Chick Blood	10-13		

Rights and corrections. Images without confirmed permission remain reserved in place. Authors, photographers, and rights holders may contact editor@gunsmithmag.com. Corrections to searchable text are tracked against the source-page record.



American Gunsmith

The complete searchable archive of a technical journal devoted to craft, repair, maintenance, machining, and restoration.

GUNSMITHMAG.COM • EDITOR@GUNSMITHMAG.COM