



AUG 2006

DIGITAL ARCHIVE
EDITION

PRECISION ARMS WORKSHOP

AND THE AMERICAN GUNSMITH ARCHIVE

A TECHNICAL JOURNAL OF CRAFT, REPAIR & RESTORATION

08

ARCHIVE ISSUE NUMBER

INSIDE THE ARCHIVE

INSTALLING BLENDED ADJUSTABLE SIGHTS ON AUTO- LOADING PISTOLS

BLOOMBERG STRIKES AGAIN • TAKING DOWN THE AK-47 • GUN KOTE: A PRECISION COATING • CHANGING CALIBERS: ...

ORIGINAL METHODS. MODERN ACCESS.

ARCHIVE EDITION 033

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 • AUGUST 2006

ISSUE RECORD

ORIGINAL DATE	August 2006
VOLUME	Archive volume not stated
ISSUE NUMBER	08
SOURCE ID	ag-15c9bbbb9156491e4b2218a8

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 August 2006.

2 Bloomberg Strikes Again
NEW YORK DAILY NEWS • ORIGINAL PAGES 2

3 Taking Down the AK-47
CHICK BLOOD • ORIGINAL PAGES 3-6

7 Gun Kote: A Precision Coating
CHICK BLOOD • ORIGINAL PAGES 7-9

10 Installing Blended Adjustable Sights
on Auto-Loading Pistols
DENNIS A. WOOD • ORIGINAL PAGES 10-13

14 Changing Calibers: Revolver
Cylinder Reaming
DAVID R. CHICOINE • ORIGINAL PAGES 14-18

19 Fitted vs. “Drop-In” M1911 Barr
ROBERT K. CAMPBELL • ORIGINAL PAGES 19-22

23 Reader Forum
AMERICAN GUNSMITH EDITORS • ORIGINAL PAGES 23-24

FROM THE ARCHIVE

Bloomberg Strikes Again

BY NEW YORK DAILY NEWS AUGUST 2006

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-1E4B2218A8-A1138-P02-F01. Know the rights holder? Please ask them to contact us.

AG-1E4B2218A8-A1138-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-1E4B2218A8-A1138-P02-F02. Know the rights holder? Please ask them to contact us.

AG-1E4B2218A8-A1138-P02-F02

New York Mayor Michael Bloomberg has been making quite a name for himself with his anti-gun antics. (The first name that comes to my mind has seven letters and begins with an “A.”) His latest media event was the unveiling of his new crusade against “coloration kits,” which he believes are intended to “make guns look like toys.” “Just think about how sick it is,” Bloomberg said. “What possible reason can you give to want to paint a gun so it looks like a child’s toy gun, other than to put a police officer in one of those impossible positions? “People will do a lot of twisted things to make a buck,” he says about companies that sell firearms finishes. “This probably sets anew low and we are going to stop it.” The penalty for violating his ban on the use or sale of “gun-coloration kits” is a year behind bars and/or a \$1,000 fine.

The legislation will be put to the New York City Council around the time this issue goes to press. At Bloomberg’s press conference, he displayed a variety of products in bright fluorescent shades from three companies we know well—KG Industries, Brownells, and Lauer Custom Weaponry. Joe Fazio, owner of KG Industries, told a New York Daily News reporter he found the mayor’s rebuke “slandorous.” “It’s unfortunate that Mayor Bloomberg chose to disparage good people for his own political gain.

He knows nothing about my business, Fazio said. Steven Lauer of Lauer Custom Weaponry said, “I’m not aware of anybody ever using our product to do something other than good.” Lauer said his company offers 80 different colors and that they’re used by hunters, competition shooters, rangemasters, and governments.

City Council Speaker Christine Quinn (D-Manhattan) and Councilman Peter Vallone (D-Queens) voiced strong support for the legislation and the mayor’s crusade. “We want to do everything we can to circle wagons around the problem of guns in our city and make sure we are on the cutting edge of preventing the flow of illegal guns into this city, Quinn said. Personally, I’m sure I must have missed something in Bloomberg’s argument that brightly colored guns create an additional risk for policemen.

But, if you use a firearm in robbing a liquor store, I’m all in favor of adding extra prison time and a heftier fine if your gun is painted fluorescent orange. That’s just plain tacky. Anyway, I’ll let you ponder the mayor’s wisdom while you read Chick’s article on TR Gun Cote, which begins on page 7 of this issue. Editor Keith Lawrence Technical

FROM THE ARCHIVE

Taking Down the AK-47

More than 70 million of Kalashnikov's World War II-era 47s have been manufactured inside and outside of the former Soviet Union.

BY CHICK BLOOD AUGUST 2006

ORIGINAL PP. 3-6

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-1E4B2218A8-A1139-P03-F01. Know the rights holder? Please ask them to contact us.

AG-1E4B2218A8-A1139-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-1E4B2218A8-A1139-P03-F02. Know the rights holder? Please ask them to contact us.

AG-1E4B2218A8-A1139-P03-F02

Mikhail Timofeevich Kalashnikov is an impressive name for a Russian peasant who never went beyond the 9th grade. After leaving school, he went to work for the Turkistan-Siberian railway. After being drafted into the Red Army in 1938, he completed the Tank Mechanical School near Kiev. Combined with Kalashnikov's innate intelligence, the experience he gained there enabled him to devise several improvements for armored warfare.

These included a counter for the number of rounds fired from a tank's main battery as well as an ammeter that recorded a tank's running time. His inventiveness caught the attention of C. I. C. General Georgi H. Zhukov, and Kalashnikov was ordered to Leningrad where his inventions were put into practice. With the onset of World War II and the subsequent Nazi attack on the U. S. S.

R., Kalashnikov, now a Senior Sergeant and a tank commander, mixed it up fiercely with the Panzers until being seriously wounded in October of 1941. If not for this eventuality, the AK-47 might never have seen the light of day, because it was while

he was hospitalized that Mikhail had the idea for a new submachinegun. During a six-month recovery leave from the Army, Kalashnikov worked up his rough idea with some old comrades in the Turkistan-Siberian shops.

The prototype went along with him to the Moscow Aviation Institute, wherein a second prototype was developed. This one was sent to the Dzerzhimski Ordnance Academy. The Academy's top scientist didn't think enough of the gun as it was to recommend it for military service, but he thought so highly of its inventor that he arranged for his transfer from tank commander to service with the Main Ordnance Directorate of the Red Army. There, in 1944, Kalashnikov put together an experimental model of his submachine gun.

The weapon excelled in brutal and extensive competitive tests, was titled the AK-47, and was finally adopted for service with the Soviet Army in 1949. Over the years, the AK design has been modified and modernized to become a heavy machine gun, an armored-vehicle machine gun, a light machine gun, and, more recently, a self-load-

ing hunting carbine known as the AK-12. Top of page: Field stripped as shown, this AK-47 doesn't appear complicated enough for a submachine gun.

That's due to the absence of pertinent parts, the presence of some that must be U. S. made, and still others that can't be removed outside the factory. As the "Saiga," AK calibers include the 5.56 X 45 NATO, the 5.45 X 39, and the popular 7.62 X 39 (roughly 2,280 fps). I have no idea nor will I try to guess the number of rounds that have been loosed skyward from AK-47 barrels in protests or celebrations that erupt "spontaneously" these days on a worldwide basis.

I am, however, certain that all those slugs must inevitably fall back to Earth. So...heads up. Officially, a total of over 70 million Kalashnikovs in various forms were made in Russia and in other countries under license. I say "officially," because no one will ever know how many have been made by gun pirates. Mikhail Timofeevich Kalashnikov never patented his design (whatever he invented belonged to the State), but then patents have never stopped

TAKING DOWN THE AK-47 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-1E4B2218A8-A1139-P04-F01. Know the rights holder? Please ask them to contact us.

AG-1E4B2218A8-A1139-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-1E4B2218A8-A1139-P04-F02. Know the rights holder? Please ask them to contact us.

AG-1E4B2218A8-A1139-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-1E4B2218A8-A1139-P04-F03. Know the rights holder? Please ask them to contact us.

AG-1E4B2218A8-A1139-P04-F03

The hydraulically pressed-on gas system (#31) is another element that stays put if you lack the equipment and fixtures to remove and replace it. counterfeiter and pirates anyway. Field Stripping Remove the magazine, pull the operating handle of the bolt carrier (#8) to the rear. Check the chamber, release the handle, and pull the trigger. Press the rear of the recoil-spring guide (#65) into the slot in the receiver cover (#63). Hold it inside and lift off the cover by its rear.

Push the guide forward to disengage it from the receiver and barrel assembly (#62). Lift up the rear end of the guide before pulling it from the bolt carrier. Leave parts #64, 66, and 67 attached to the guide for the present. Pull the operating handle to the rear and lift the bolt carrier upward slightly. Remove the carrier and bolt (#7) by pulling them rearward. Press the bolt into the carrier until the bolt's operating lug can be twisted from its cam path in the carrier. Pull the bolt straight forward and out.

Rotate the handguard latch (#81) upward to free the gas-cylinder tube (#80), and lift upon the rear of the handguard to remove it along with the tube. The stock is held on by two tang screws (#82). The pistol grip (#49) employs a screw (#51) and cap (#50). Underneath the butt plate (#9) is the cover base (#11), cover (#10), cover pin (#12), and cover spring (#13). These elements serve to restrain the accessories-case spring (#1) and accessories case (#5).

Within the case are the cleaning tools, consisting of a bore brush (#2), a combination tool (#3), and a jag (#4). They all attach to the rifle's cleaning rod (#16). They should be used each time the gun has had a few rounds put through it, but they can remain in the stock as far as field stripping is concerned. Detailed Disassembly The AK-47 I'm working my way through here is Romanian-made and imported by Century Arms.

It is a BATF-compliant weapon inclusive of certain components, and lacking others, to allow its sale on this side of the pond (except, perhaps, in California and perhaps a few

states on the East Coast). Among those "certain components" is the gas piston (#29), which is welded in place but still accessible for cleaning purposes. As you would expect, there is no bayonet mount present.

I don't know why there's no lower handguard ferrule (#41) on this gun; perhaps it was eliminated for economic reasons by the original manufacturer. Let's move on. The hammer has to be in its fired position or fully forward. Insert a flat-blade screwdriver between the left side of the receiver and the receiver-pin lock spring (#56). Carefully pry the spring toward the trigger pin (#79) to release the spring from its groove in the pin.

A pin punch of the same diameter as the right end of the trigger pin is used to drive the pin, smartly, from right to left. This will free up the trigger/sear (#75), disconnecter (#69), and disconnecter spring (#70). Before you pull out your punch, study the relationship of the parts in this assembly. Immediately adjacent to it is the receiver-pin lock spring, the first receiver component to be taken out in detail stripping of the AK-47.

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-1E4B2218A8-A1139-P05-F01. Know the rights holder? Please ask them to contact us.

AG-1E4B2218A8-A1139-P05-F01

AK-47 Semi-Automatic Rifle 1 Accessories Case Spring 2 Bore Brush 3 Combination Tool 4 Jag 5 Accessories Case 6 Accessories Case Cap 7 Bolt 8 Bolt Carrier 9 Buttplate 10 Buttplate Cover 11 Buttplate Cover Base 12 Buttplate Cover Pin 13 Buttplate Cover Spring 14 Buttplate Screws (2) 15 Buttstock 16 Cleaning Rod 17 Rear Sight Elevating Slide Catch 18 Slide Catch Spring 19 Extractor 20 Extractor Pin What you remember will help you reinstall them, and you'll probably want to make use of a slave pin when that time comes.

21 Extractor Spring 22 Firing Pin 23 Firing Pin Spring 24 Firing Pin Retaining Pin 25 Front Sight Base 26 Front Sight Base Pins (2) 27 Front Sight 28 Front Sight Adjusting Block 29 Gas Piston 30 Gas Piston Pin 31 Gas Port Block 32 Gas Port Block Retaining Pin 33 Hammer 34 Hammer Pin 35 Hammer Spring 36 Barrel Pin 37 Lower Handguard 38 Lower Handguard Band 39 Lower Handguard Clamp 40 Lower Handguard Lock 41 Lower Handguard Ferrule Once you've removed the justmentioned parts from the top of the receiver, you'll note that the pin-lock spring (which looks like a shep-

herd's 42 Magazine 43 Magazine Catch 44 Magazine Catch Pin 45 Magazine Catch Spring 46 Barrel Bushing 47 Barrel Bushing Lock 48 Barrel Bushing Lock Spring 49 Pistol Grip 50 Pistol Grip Escutcheon 51 Pistol Grip Screw 52 Pistol Grip Base 53 Pistol Grip Cap 54 Bayonet 55 Bayonet Pivot Pin 56 Receiver Pin Lock Spring 57 Rear Sight Base 58 Rear Sight Elevating Slide 59 Rear Sight Pin 60 Rear Sight Leaf 61 Rear Sight Spring 62 Receiver & Barrel Assembly* 63 Receiver Cover 64 Front Recoil Spring Guide 65 Rear Recoil Spring Guide 66 Front Guide Retainer 67 Recoil Spring 68 Safety Lever 69 Disconnect 70 Disconnect Spring 71 Safety Lever Stop 72 Front Swivel 73 Rear Swivel 74 Rear Swivel Screws (2) 75 Trigger/Sear 76 Trigger Guard 77 Front Trigger Guard Rivets (2) 78 Rear Trigger Guard Rivet 79 Trigger Pin 80 Upper Handgrd.

Gas Cylinder 81 Handguard Latch 82 Tang Screws (2) *Restricted crook) is still attached to the hammer pin (#34). Get a close-in grip on the spring with a pair of needle-nose pliers, preferably of the smooth-jaw vari-

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-1E4B2218A8-A1139-P06-F01. Know the rights holder? Please ask them to contact us.

AG-1E4B2218A8-A1139-P06-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-1E4B2218A8-A1139-P06-F02. Know the rights holder? Please ask them to contact us.

AG-1E4B2218A8-A1139-P06-F02

ety, to slide the shepherds' crook forward and off the hammer pin. Tap out the pin and wiggle the hammer free of the bolt rails before removing it. More wiggling is done with the safety lever (#68) to separate it from the righthand side of the receiver. Before we go any further with disassembly, let me say a few words about this AK-47 trigger.

It has a lot of take-up, but it isn't "heavy." Of course, "heavy" is subjective, but I'm certain as I'm sitting here before my beloved computer that you're going to get requests for "trigger jobs." Make them easy on yourself. Get on the internet and instruct Google, Yahoo, or your favorite search engine to bring up "AK-47 triggers." The screen will show you along list of choices and sources.

The one that interested me the most was from DPH Arms, which included a trigger system from Tapco claiming a reduction to between 3 and 4 pounds. I can't say whether that claim is for real, but I did make a note of the source for future reference. Onward. The magazine-catch pin (#44) is flared, or staked, at each end. Using a good nylon or steel bench block and an appropriately sized punch, drive the pin out from either side by giving it a smart whack.

Leave the punch in the hole for the moment and place a couple of fingers over the front end of the magazine catch (#43). By doing so, you'll prevent the loss of the catch spring (#45) when you pull out the punch. Yes, you'll probably want to use a slave pin for reassembly of the magazine-catch assembly. Once the spring and catch have been captured on the slave, you can push it out

with the OEM pin which you will not forget to restake. Rear sight removal requires the use of a screwdriver with a 1/4-inch blade.

Insert the driver in the groove in the center of the sight leaf (#60) and tap the end of the driver with a light hammer. The "ears" of the sight leaf are encased between a figure-eight shaped cutout in the assembly, so when you tap, make the tapping in a downward and slightly rearward direction. The downward pressure will depress the rear-sight spring (#61), which holds the sight upward and into the smaller diameter of the figure-eight opening.

When reinstalling the sight leaf, you have to press down on the spring and tap the rear of the sight back into the opening. To remove the front sight, you could use the multi-purpose tool in the butt kit, though it is easier on your hand if you grind the blade off a junk screwdriver. The front-sight adjusting block (#28) can be driven out from either side, as can the barrel-bushing lock (#47), but be aware that the lock spring (#48) will have nothing to keep it in place once the lock is removed.

Once the lock is out of the way, any muzzle brake present can be unscrewed. They wear a left-hand thread. The technique is equally helpful for capturing springs on other guns. The gas system is hydraulically pressed on using a special fixture. It is tight, tight, tight. I suggest that if and when a need arises to remove/replace it, the rifle be returned to the importer in this case, Century Arms. Turn the bolt upside down. The widest flat on the bottom should be facing upward.

The firing-pin retaining pin (#24) is located in the bolt cam. Secure the bolt cam in a padded vise and drive the pin downward.

The firing pin (#22) and its spring (#23) can now be pushed out to the rear from the bolt face with a small diameter rod or punch. The extractor pin (#20) can be found under the bolt's right-hand locking lug. This pin is tapered and must be drifted out toward its larger hole on the left side. The extractor (#19) and extractor spring (#21) are removed to the front.

To take down the recoil-spring assembly, lock the rear of the spring guide in your padded vise. Pull the spring back far enough to expose an inch or two of the front guide (#64) and hold it there by clamping a pair of long-nose locking pliers on the guide. The front-guide retainer (#66) can then be separated from the guide's "double fishhook" end to complete the disassembly of the recoil-spring assembly. Though you'll see a hole for one, you'll find no gas-piston pin (#30) on this AK-47.

Its American-made gas piston is welded in to comply with BATF import regulations. Should it ever have to be replaced you guessed it't he rifle goes back to the importer for another Yankee piston. Of course, you can do the job yourself if your welding skills are up to the task and you can locate a legally acceptable gas piston. There are no such complications for removing the upper handguard (#80) from the gas cylinder. Merely lock the metal rear of the guard in your vise, grab the wood, and twist it 180 degrees.

The lower handguard band (#38) normally remains on the rifle, but occasionally its lock (#40) gets broken. If and when it does, remove the old one from left to right and stake in the replacement. I

FINISHING

Gun Kote: A Precision Coating

TR Gun Kote allows the gunsmith to easily apply an attractive, corrosion-resistant finish inhouse, and best of all, it doesn't interfere with close tolerances.

BY CHICK BLOOD AUGUST 2006

ORIGINAL PP. 7-9

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-1E4B2218A8-A1140-P07-F01. Know the rights holder? Please ask them to contact us.

AG-1E4B2218A8-A1140-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-1E4B2218A8-A1140-P07-F02. Know the rights holder? Please ask them to contact us.

AG-1E4B2218A8-A1140-P07-F02

“**m**I not telling you anything you don't already know when I say that maintaining close tolerances is of paramount importance when building a custom handgun. To the custom gunmaker, being off by .01 inch is unacceptable, and the master practitioners of this trade dedicate themselves to holding critical dimensions to the thousandths. For example, the industry standard for slide-to-frame fit is plus or minus .003 inch.

The masters' requirement is plus or minus .001 inch, and while a match barrel on a .45 would have a plus .003 tolerance at the bushing, it would be .001 inch at the rear of the hood. This can present some concerns, particularly in cases where the gun being worked up is in the white (wearing no finish whatsoever) or has had its finish removed for the duration of the build.

When sent out for plating, coating, or bluing, the piece can come back with a finish so thick some of the previously taken The upper is finished in gunmetal blue, while the frame is a custom-blended metallic gold. To say it is gorgeous in color would be

an understatement. steps toward precision have to be taken again. Though I don't vainly count myself as equal to these best gun builders, I faced the aforementioned problem recently when a Springfield Armory M1911A1 was returned to me after a plating job.

The slide-to-frame fit was all out of whack and entirely too tight to assure mechanical repeatability. As a result, the fitting had to be done over, and the plating company was promptly removed from my list of suppliers. If I'd known then what I know now, I wouldn't have lost money on the job. Now I know about TR Ten-Ring Precision A high-tech abrasi d nt polymer coating, it was first developed for military weapons and used initially by Navy Seal teams. One reason?

It can withstand a 500hour salt-spray test and still meet machine-gun firing requirements. More reasons? It has proven to be resistant to chemicals, oils, and solvents used in the automotive, aviation, and machine-tool industries and withstands temperatures up to 500 degrees F and down to

minus 250 degrees. Finally, Gun Kote loses little to none of its capability even when applied in a coating as thin as .0004 inch, which is ideal for close tolerance work.

What I like most about the product is that it's a precision coating I can apply myself. The gun I'm working on never leaves my sight. What You'll Need Most well-equipped shops will have the necessary items for using Gun Kote on hand. If you don't, you can build or purchase most of what is required at reasonable cost from local sources.

The list includes an airbrush or touch-up spray gun, a sandblast cabinet, #2 or finer blasting sand or 100-grit aluminum oxide, latex gloves, a fume filtering mask, a well-ventilated working area, and a homemade oven with thermostatic control (details to come). Since the solvents that you may be using are flammable, work with a cautious awareness of that fact. Applying the Finish Disassemble the firearm completely including all pins and screws. Plug the bore and breech with a cleaning

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-1E4B2218A8-A1140-P08-F01. Know the rights holder? Please ask them to contact us.

AG-1E4B2218A8-A1140-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-1E4B2218A8-A1140-P08-F02. Know the rights holder? Please ask them to contact us.

AG-1E4B2218A8-A1140-P08-F02

patch. Do the same with any openings you don't want to finish such as the chambers of a revolver cylinder. Shake the can of Gun Kote for two minutes before pouring any into the reservoir of your sprayer. Any spills can be cleaned up with alcohol. Slip on the gloves, and degrease every part of the gun with TR Cleaner/Degreaser. Don't handle the degreased parts without gloves on; the finish is only guaranteed if TR Cleaner/Degreaser is used prior to proper blasting.

The latter follows immediately to remove all scale, rust, previous finish residue and other surface deposits. Blow the parts off with clean air. Don't chemically degrease the parts again. At this point it's a good idea to use another product from Ten-Ring, K- PHOS, to spray on the metal at room temperature. This gives you a phosphate finish, which is a first-class primer for Gun Kote that makes the final finish even tougher. Place the degreased, blasted, and phosphated parts in the oven.

Hang and place them so they don't touch one another. Wires attached to small-diameter welding rods inserted through the side walls of the oven work well for this purpose. Heat the parts to about 120 degrees (or 100 degrees if applying the stainless-steel finish). Still wearing gloves, remove apart from the oven by its wire and spray Gun Kote over it using fast, light passes to

cover the entire surface. When the spray touches the warm metal, any solvent it contains should evaporate immediately.

For parts subject to heavy wear, a second coat can be applied after placing the part back in the oven for 20 to 30 seconds and spraying it again. A coating of .001 inch on outside surfaces is fine, but on close inner tolerances, .0004 to .0005 is best. Note: When applying the stainless-steel Gun Kote, hold the applicator about 4 inches from the work to prevent the coating from drying before it reaches the metal.

Immediately after coating the parts, run alcohol or acetone through your sprayer to clean the nozzle and prevent it from being useless next time you need it. Use alcohol to clean your skin, followed by a good-quality hand lotion if you want to keep your fingers free of cracks that invite infection. Bake the coated parts at 300 to 325 degrees for one hour. The stainless-steel finish is cured at a constant 300 degrees for the same length of time. Aluminum and magnesium parts are baked at 275 degrees for 90 minutes.

After removing all the cured parts from the oven, reassemble the gun. If the coating you have applied is too thick in tight-fitting places, buff it lightly with 0000 steel wool, but be careful not to buff the corners to the point where bare metal shows. By the way,

sharp corners provide no surface to stick to and should be beveled or rounded for best adhesion. This work is completed prior to blasting, of course.

Building a Homemade Oven The housing for a very efficient oven could be a cheap gun safe or a standup locker approximately 4 to 6 feet high. Cut out (Optional) Universal Thermostat Bricks tall by about 18 inches square. It should be insulated with at least 1-inch-thick air-conditioning duct board with the foil side facing inward. A large electric range-top coil fastened to the bottom of the oven or raised on fire bricks makes a perfect heat source.

A universal 120/220 thermostat controls the temperature and a 1/4-inch-diameter hole in the center of the front door accommodates the installation of a Brownells bluing thermometer so you can read the interior temperature and regulate the thermostat accordingly. Have a look at the accompanying drawing that approximates your end result. What it doesn't show are the transverse insertion of 1/4-inch gas Gun Shop Oven Dayton 1/100 Horsepower Motor W. W.

Grainger Fan and Extension Shaft (You make the extension shaft.) Bluing Thermometer 220-Volt 10" or 12" Electric Range Coil

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-1E4B2218A8-A1140-P09-F01. Know the rights holder? Please ask them to contact us.

AG-1E4B2218A8-A1140-P09-F01

welding rods from which part-supporting wires are hung, or the use of high-heat tape to seal up any interior seams in the insulation, or the oven door seals which, if installed around the door, will make the oven more efficient. Troubleshooting Gun Kote Finishes If it turns green, the part has been left in the oven too long or the temperature got too high. If the coating beads up or comes out rough on the metal when first applied, the metal is too hot.

When a solvent such as acetone takes off the finish, the coating isn't properly cured and should be returned to the oven for at least 45 minutes. There is no known solvent for cured Gun Kote. Its removal can only be accomplished by blasting. Use nothing coarser than 120-grit aluminum oxide; heavier grits could change part dimensions. When the finish chips or peels, the surface has been incorrectly prepared, oil has leached out of the surface, or you made the mistake of blasting with glass beads.

If the coating beads up on the surface or sprays out in strings, the mix is too thick. Add MEK solvent to thin it out. If the finish cracks when two parts are screwed together, such as a compensator and slide, you applied excessive coating at their interface point(s). If the stainless-steel finish turns out rough, the metal was too hot or you held the sprayer too far from the surface. You could also have too much air and not enough coating passing through the sprayer.

Increase the flow of Gun Kote and/or decrease the air flow. Finally, if you get "fish eyes" or bubbles in the coating, there's oil

or another contaminant either on the surface or present in the sprayer's air supply. About MEK and Gun Kote You will seldom if ever have to use MEK (methyl ethyl ketone) to thin out Gun Kote unless the coating has been standing idle on a shelf for a year or so and the solvent has evaporated from the container. MEK can be found at any ACE Hardware or Home Depot store.

Now I'd like to make a request. Take another look at the photo of the Colt pistol on page 7. It was built by one of those master gunsmiths mentioned earlier. Has it been plated or blued? The answer, of course, is: Neither; it's wearing Gun Kote. As you can see, it's a two-tone finish. The slide wears Gun Kote in gunmetal blue, which looks like the old Smith & Wesson carbona blue. I saw this extended-slide Colt close up at the SHOT Show earlier this year.

No picture could do it justice, and I was even invited to handle it and check out the action job. Magnificent. The well-todo gentleman, I presume, who paid for the build chose the colors from Gun Kote's broad spectrum, which includes flat black, semigloss black, flat and semigloss OD green, flat or semigloss light or dark gray, flat white, stainless steel, brown, tan, gold, red, international orange, royal blue, and clear. This by no means completes the list of possibilities.

By mixing primary colors, virtually anything is possible. How about a purple SIG or a pink Lady Smith? A Few Final Thoughts When I cycled that pistol at the SHOT Show, it wasn't just smooth; it was silky

smooth. Much of that was due to the skill of the builder, but he told me about another contributing factor, Kellube M12, a 100-percent synthetic gun lubricant. Unlike petroleum oils, it doesn't encourage carbon buildup, thereby lengthening time between cleanings.

It coats metal with a protective film that eliminates oxidation and corrosion. It doesn't thicken up at low temperatures or thin out at high ones, or so the builder said as he handed me a one-ounce bottle of M12. The bottle flew back home with me and I've been using it ever since. You know what? The gun builder was right. Let me leave you with a little advice about air brushes. For a number of years, I've owned a Paasche model designed for use by professional artists.

It's been indispensable for touching up stock finishes or laying down original wet-on-wet camouflage patterns. Its spray width is very controllable, but it's too small for quickly applying Gun Kote to a pistol or revolver frame, let alone a barreled rifle action. So I looked around and found exactly what I was looking for in the Eastwood A & Supplies catalog Their #11612 Grav Style Airbrush is adjustable from a fine line to a 2-inch-wide fan pattern.

The same company offers oil-less compressors and a little item called a filter regulator that controls the pressure to the airbrush and cleans the air before it reaches the sprayer's feed line. If you don't already have an airbrush and a source of clean, dry air, these products are highly recommended. I

PISTOLS

Installing Blended Adjustable Sights on Auto-Loading Pistols

An adjustable rear sight on the slide of a large caliber semi-automatic pistol must be strong and sturdy, and the installation must be equally solid and secure.

BY DENNIS A. WOOD AUGUST 2006

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-1E4B2218A8-A1141-P10-F01. Know the rights holder? Please ask them to contact us.
AG-1E4B2218A8-A1141-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-1E4B2218A8-A1141-P10-F02. Know the rights holder? Please ask them to contact us.
AG-1E4B2218A8-A1141-P10-F02

The selection of aftermarket adjustable rear sights for large-caliber auto-loading pistols is quite extensive. Most of these sights are a worthwhile investment, while a few represent a questionable compromise between price and quality. Of course, the more you know about which sights work best for the intended purpose, the better you'll be able to help your customer with his choice. Choosing A Sight Which sight would be most suitable for a pistol with the recoil energy of a .45 auto shooting hardball ammo?

If the pistol is fed a steady diet of the same ammo, a solid, fixed rear sight will serve just fine once the sights have been targeted to the particular ammo. For experimenting with various bullet weights and different powder charges, impact will shift and the fixed sight may not be the best choice. A regular diet of 230-grain hardball ammo has been known to destroy some of the wimpy adjustable rear sights that are made to fit the factory dovetail.

Granted, recoil springs are available in a multitude of weights to produce the desired recoil absorption, but slide-return velocity can take its toll on a rear sight that's not securely attached to the slide. Bo-Mar, STI, Wilson, and Pachmayr all market a very sturdy, accurately adjustable, rear sight that can be "melded" into the back end of the slide with a few milling cuts. When done properly, this sight will stay in place and service the gun's owner for any available loading of choice.

These sights will work on any pistol slide that has at least .225 inch of material above the firing-pin tunnel and at least 1.500 inches from the face of the breech to the rear face of the slide. Getting The Measurements All of the sights previously mentioned are very similar in design with slight variations in dimensions. The example I'm using here involves a 70-Series-style, stainless-steel slide and the Pachmayr adjustable rear sight with an overall length of about 1-1/2 inches.

The distance from the front edge of this sight to the widest edge on the front of the dovetail is .433 inch as measured with a depth-recording stem on a digital caliper. The width of the dovetail, front to back, along the bottom (widest part) measures .374 inch. Adding half the dovetail width to the .433 dimension, we get a nominal dimension of .620 inch. Record this dimension for future reference.

Another dimension we need requires that the sight be taken apart by drifting the spring roll pin out of the front end of the sight. Measure from the front edge of the top half of the sight, just in front of the roll-pin hole, back to the shoulder just in front of the windage-adjustment screw. Record this dimension. In this case, the dimension is 1.036 inches. The last dimension is 1.000 inch back from the breechface.

INSTALLING BLENDED ADJUSTABLE SIGHTS ON AUTO-LOADING PISTOLS

CONTINUED

ORIGINAL PAGE 11

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-1E4B2218A8-A1141-P11-F01. Know the rights holder? Please ask them to contact us.

AG-1E4B2218A8-A1141-P11-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-1E4B2218A8-A1141-P11-F02. Know the rights holder? Please ask them to contact us.

AG-1E4B2218A8-A1141-P11-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-1E4B2218A8-A1141-P11-F03. Know the rights holder? Please ask them to contact us.

AG-1E4B2218A8-A1141-P11-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-1E4B2218A8-A1141-P11-F04. Know the rights holder? Please ask them to contact us.

AG-1E4B2218A8-A1141-P11-F04

mension we need is the depth of the dovetail's bottom face to the inside bottom face of the sight base, which is almost always around .100 inch. Setup for Milling Once you've safely disassembled the slide from the frame and removed all internal parts including the original rear sight, you're ready to set the slide up in the milling-machine vise. When doing this work, I use a Wessinger slide-holding fixture. This fixture has rails that the slide is mounted on similar to those on a 1911-style frame.

Two set screws are turned from the bottom of this fixture and tighten the slide down onto the fixture. Before I had this fixture, I made up a piece of bar stock .099-inch thick, .750 wide, and 6 inches long that slid into the slide-rail cutouts in the slide. The outer sides of the slide were then taped to prevent any surface scratching. This flat stock will prevent the slide walls from pinching together, which could ruin the slide-to-frame fit.

With either fixture, the slide is checked with a machinist's level to verify that the top of the slide is dead level. Using the depth-recording stem on your caliper, measure from the upper, top face of the slide down to the bottom of the dovetail cut that held the factory rear sight. This dimension should be around .093 inch or so. For the first milling cut, a 1/2-inch, four-flute carbide endmill, run at around 300-350 rpm, will get the re-

INSTALLING BLENDED ADJUSTABLE SIGHTS ON AUTO-LOADING PISTOLS CONTINUED

ORIGINAL PAGE 12

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-1E4B2218A8-A1141-P12-F01. Know the rights holder? Please ask them to contact us.

AG-1E4B2218A8-A1141-P12-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-1E4B2218A8-A1141-P12-F02. Know the rights holder? Please ask them to contact us.

AG-1E4B2218A8-A1141-P12-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-1E4B2218A8-A1141-P12-F03. Know the rights holder? Please ask them to contact us.

AG-1E4B2218A8-A1141-P12-F03

quired metal removed in short order. Blacken an area with a felt-tip marker exactly 1.000 inch back from the breechface of the slide if you are dealing with a 70-Series-style slide. Using the jaws of your caliper that are used for recording outside dimensions, set the distance at 1.000 and scribe a line from the breechface back and into the area just blackened with the marker.

When dealing with the 80-Series style, this distance would need to be 1.100 inch to account for the firing-pin safety built into these slides. Begin milling off the metal from this line back toward the back face of the slide. For me, it works best when I take cuts of around .020 inch while flooding a lot of cutting oil onto the cutter and the area being cut. The oil is directed onto the cutter with a handoperated pump-oiler.

This helps to flood chips away from the cutting action and extends the life of the tool by not allowing it to get overly hot. Because the Wessinger fixture is holding the slide parallel to the longitudinal axis (left to right) of the mill, I use the cross-travel dial to get this part of the job accomplished by making the cuts across the slide. Once you reach the bottom of where the factory dovetail has been cut, quit with the 1/2-inch endmill. We're now finished with the first required cut.

The next milling cut will be made to remove material to lessen the burden for the dovetail cutter. Wipe the previously milled area clean

of any oil and use the black felt-tip marker to color an area around 5/8 inch back from the shoulder we just created with the 1/2-inch endmill. This would be from where we marked our first layout line. To make this mark, use the inside recording jaws of your caliper resting one jaw against the front shoulder while scribing the line with the other jaw.

This line will be the center of the dovetail distance from the front end of the sight base. At this point, a center finder (or as some call it, a pointed "wiggler") is used to line up the quill with the scribed line. Replace the center finder with a 7/32-inch (.218) endmill. Again, I prefer a carbide four-flute cutter for this operation. This endmill is used to remove the bulk of metal, lessening the burden for the dovetail cutter.

Feed the 7/32 cutter down and across, removing .020 of material at each pass while pumping cutting oil on the cutting action to help remove chips. We need to feed this cutter down until we reach the measured dimension we recorded earlier of the bottom of the sight dovetail to the inside bottom face of the sight base, about .093 to .100 inch. When you reach this depth, measure with your caliper to verify the dimension. It's better to be .001 or .002 inch short than it is to be too deep.

Once the cutter reaches our target depth of cut, the 7/32-inch endmill is replaced with the dovetail cutter to prepare a resting place for the new sight. It's obviously very important that you not move the left/right dial of your milling table. For the next part of the job, I again prefer the carbide, four-flute cutter with a 60-degree-included cutting angle and a diameter of .359 inch. Don't take the .359 inch diameter on the bottom of the dovetail cutter as literal; measure it yourself with a micrometer.

The first time I did this job, I used a high-speed steel cutter of the same dimensions, mainly because it was cheaper in price. Throughout the cutting process, I worried that the cutter would shatter and ruin an expensive Colt slide. The cutter made it through the job just fine, but I now use the carbide cutter because it cuts more freely into these hard slides.

I recommend that this cutter be run at not more than 600 rpm, but 300-350 rpm works fine for me with a slow feed, and again, flooding with lots of cutting oil. With the dovetail cutter tightly colleted in the mill and with the motor off, ease the cutter down until one of the cutter's bottom faces touches the slide where the cut from the 7/32 inch endmill ended. Lock the quill in this position and move the milling table toward you, which will move the cutter back and away from the

INSTALLING BLENDED ADJUSTABLE SIGHTS ON AUTO-LOADING PISTOLS CONTINUED

ORIGINAL PAGE 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-1E4B2218A8-A1141-P13-F01. Know the rights holder? Please ask them to contact us.

AG-1E4B2218A8-A1141-P13-F01

Original caption: Right top: Cutting scallops along the sides of the sight with a 1/4-inch ball endmill adds a nice cosmetic touch. Right bottom: Here, the job is finished with the sight in place, ready for business. slide. Turn the motor on and feed the carbide cutter into the 7/32 milled cut slowly while pumping oil onto the cutter and just ahead of the cutting action until the dovetail cutter comes through the right side of the slide.

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-1E4B2218A8-A1141-P13-F02. Know the rights holder? Please ask them to contact us.

AG-1E4B2218A8-A1141-P13-F02

The first pass with the dovetail cutter will probably not provide the needed fit for the sight base. Remember our earlier measurements? The bottom of the sight dovetail measured .374 inch and the bottom of the dovetail cutter measures about .359 inch or whatever dimension you measured it to be. The one I have measures .356 inch, so I need to subtract the actual cutter dimension from the .374 sightbase dimension to see how much material remains to be removed.

As an example, let's say we have around .018 inch left to remove. There are two options we can look at: 1) We can use the cutter with a dial indicator setup to mill the excess material away one or two thousandths of an inch at a time until we reach the fit we desire; or 2) we can mill material away until we have a few thousandths of an inch left and then fit the sight into the dovetail by means of a dovetail file.

Whichever method suits you, keep trying the sight base after each cut until you reach a fit whereby the sight base will almost be-

gin to enter the dovetail. Try tapping the base in with a plastic mallet gently to make any high spots on the sight base more visible. Swipe these areas lightly with a triangular dovetail file until the sight base goes in with help from the plastic-faced mallet. The last milling cut we need to make is for the top half of the sight that holds the rear sight blade and windage adjustment.

For this part of the job, a 3/16-inch ball endmill will work just fine, but I prefer to remove most of the metal with the 7/32-inch carbide endmill first, and then blend in the radius with the 3/16 ball endmill. This time, a two-flute endmill works best, as it isn't as likely to load up with chips as a four-flute would. The bottom front of the rear sight blade housing has a 45-degree chamfer at the bottom of the front face.

This can certainly be left as is, but it looks better to use a narrow pillar file to blend the corners of the 45-degree angle into a radius that fits the 3/16-inch endmill cut. The depth of the area to be cut will need to be the same as the measurement taken from

the bottom of the sight-blade housing just below the windage-adjustment screw to the inside bottom face of the top half of the sight.

Reassemble the top to the bottom half of the sight, and tap it into place with a plastic rawhide-face mallet until you have it "eyeball" centered. Using a depth micrometer or the depth-recording stem on your caliper, measure from the side of the slide to the side of the sight base on each side of the slide. Tap the sight base over with the plastic hammer until you get an equal reading on each side. Once this has been achieved, lock the sight into place with the set screw(s).

Depending on which sight you are installing, find a drill bit that will slip fit into the tapped hole in the sight base for the elevation screw. Twirl (continued on page 18)



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-1E4B2218A8-A1141-P18-F01. Know the rights holder? Please ask them to contact us.

AG-1E4B2218A8-A1141-P18-F01

this drill with your fingers to establish a witness mark for spot-drilling. Remove the sight and drill the spot with a #31 drill, being careful to stop just short of breaking into the firingpin tunnel. The Pachmayr sight has the sight base tapped at #6-48 for the elevation screw, so if you are using this sight, the hole just spotted does not need to be tapped but should be drilled with a #29 hole to allow the elevation screw some clearance here.

The firing-pin stop plate will need to be reduced in height after this cut is made. The easiest way to measure how much it needs to be reduced is to reassemble the stop plate in place along with the firing pin and firingpin spring, and then scribe a line along the back face of the plate. Remove it again and then either file, grind, or mill away the top so that it won't interfere with the downward adjustment of the sight.

There are two additional milling cuts that can be made with the 1/4inch ball endmill, but these are purely cosmetic additions and don't contribute to the functionality of the sight at all. Both cuts are made along each side of the sight base to create a transitional radius that blends the look along the side of the sight into the slide. On a stainless-steel slide, all that's necessary now is to bead blast the milling cuts with #270 glass beads for a satin finish.

If the slide is blued steel, it will now need to be blued.

Conclusions If you do much work on the 1911style auto and have access to a milling machine, installing these sturdy sights will be welcome news for some of your customers needing this type of service. The things to remember are, measure often and use lots of cutting oil while feeding the cutters slowly through the work. I

PEOPLE & COMPANIES

Changing Calibers: Revolver Cylinder Reaming

Revolver chamber alteration is a big job that you can actually do in a very small shop with a limited inventory of equipment.

BY DAVID R. CHICOINE AUGUST 2006

ORIGINAL PP. 14-18

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-1E4B2218A8-A1142-P14-F01. Know the rights holder? Please ask them to contact us.
AG-1E4B2218A8-A1142-P14-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-1E4B2218A8-A1142-P14-F02. Know the rights holder? Please ask them to contact us.
AG-1E4B2218A8-A1142-P14-F02

Back in the 1960s and 70s, there was a popular trend to convert large-framed handguns from smaller calibers like .357 Magnum to fire big-bore cartridges such as the venerable .44 Special and .45 Colt. Interest in the .44 Special was initially sparked by Elmer Keith. For years, Keith lauded the performance of the grand old .44 in his book *Sixguns* and in countless magazine articles.

It was Keith who whetted everyone's appetite, but it was the articles written by the late Skeeter Skelton, covering caliber conversions he had gunsmiths perform on various revolvers, that really piqued the interest of shooters and experimenters and began the caliber-conversion craze in earnest. You didn't necessarily need anew cylinder to convert a large-frame revolver from a smaller caliber.

The big N-frame Smith & Wessons, the Ruger Blackhawk, and Colt Single Action Army cylinders are all fairly large in diameter and have enough parent material to allow them to be re-bored to the larger caliber and then re-chambered for the specific cartridge. Once the cylinder chambers are enlarged, dealing with the barrel is a matter of changing the small-caliber barrel for either a factory or custom-made barrel in the larger caliber.

In some cases, the existing barrel can be bored out and re-rifled to the larger caliber by a barrel maker. Another option is to have the original barrel "lined" to the new caliber. Lining, of course, is where the inside of a barrel bore is drilled out to a much larger diameter, then anew barrel liner is permanently installed into the original barrel shell. This may sound suspect, but when it's done right, lining can work very well. The U. S.

Navy has used this technique on heavy-caliber rifled barrels for more than a hundred years. Converting a revolver cylinder chamber from a smaller caliber to a larger one is normally at least a twostep process. It doesn't matter much what the final caliber is, the process used is still basically the same—one of enlarging the holes. In a nutshell, it involves a "size-reaming" first. Sizereaming enlarges the basic diameter of the chamber to the chamber-mouth diameter of the new cartridge.

After On the left is a Clymer .44-caliber finishing reamer, while on the far right is a special-made Clymer cylinder sizereamer with an extra pilot bushing. The Colt SAA cylinder on the left has been converted to .45 S&W Schofield. To its right is a Colt 32-20 cylinder, and on top is an S&W 32-44 cylinder from the 1880s. size-reaming comes "chamber-reaming," which is where the actual new chamber is cut. Right about now, I know someone

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-1E4B2218A8-A1142-P15-F01. Know the rights holder? Please ask them to contact us.

AG-1E4B2218A8-A1142-P15-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-1E4B2218A8-A1142-P15-F02. Know the rights holder? Please ask them to contact us.

AG-1E4B2218A8-A1142-P15-F02

will be asking: "Why do I need expensive reamers? Can't this job be done with twist-drills of the appropriate size?" The answer is, yes it can and the gun would shoot; but no, this is not the right way to ream a cylinder. Twist drills are designed to simply remove a lot of metal quickly, so the surface finishes produced by drills are normally very rough when compared to the much finer finished holes produced by reamers.

What's more, the chances of producing six accurately and consistently sized chambers with drills are, to say the least, pretty darned slim. Over the years, I've run into lots of older revolvers with chambers that were enlarged by drilling, and every one of these guns gave poor performance. In many of these, the cylinder had been effectively ruined for future use (at least in that caliber), and I've seen a few guns that were actually unsafe because the chamber dimensions were so far off.

Here's an example: A Colt SAA came into the shop a few years ago.

The owner's complaints ranged from spitting lead, to inaccuracy, to bulging cases on at least two chambers, and three other chambers where the bulged-fired cases would stick and From left to right, the reamers are: cylinder size .357 inch to .430 inch solid pilot, cylinder size .358 inch to .401 inch with pilots, cylinder size .320 inch to .358 inch with pilots, .38 S&W

Special finish, 10mm automatic finish, .44 S&W Special finish with pilots. were difficult to extract.

Believe it or not, his biggest complaint was that the revolver ruined his brass, which cracked after only one or two loadings. This old Colt had been converted by a previous owner from 32-20 to .45 Colt. The person who did the work had installed anew factory .45 Colt barrel.

It was readily apparent that a twist drill in a drill press had been used to enlarge the chambers out to about .45 caliber (the outside of the cylinder still showed vise-jaw marks), and the cylinder had been "final chambered" with another drill. A quick look showed that some of the chambers appeared to be closer together than others, especially at the front of the cylinder, an indication that the drill bits were not held in exact alignment with the chamber centers.

When I measured the chamber mouths, instead of .451 to .454 inch, their diameters ranged from .458 to .470 inch. That and the off-center chambers would account for both the spitting of lead and the accuracy complaints. The chambers themselves should have been roughly .480 to .482 inch; instead they ran the gamut from .505 inch down to about .499 inch.

It looked like someone had used a standard 1/2-inch drill bit to produce these "chambers," which were not only grossly oversized, but were all different in both length

and diameter. Also, the surfaces of the chamber walls were full of deep cut marks and gouges. After looking this gun over carefully, I told the owner that the cylinder was ruined and he was lucky that bulging, cracked, and sticking cases were the only problems he had.

Once the cylinder was replaced with the correct factory part, the revolver performed normally and accuracy was restored. Back to reamers: They cut much slower than drill bits and normally remove less metal, so we can use reamers to produce a fine finish and to bring the hole to an exact size. Because of their design, reamers can remove a very specific amount of material.

Pay attention to the difference in the size and shape of the chips produced by each method and you will see that, where the twist drill quickly tears out strips of material, the reamer slowly "shaves" bits of steel. Yes, this shaving process does take longer than drilling'actually much longer'but it also produces a far smoother surface and greater consistency. This helps to ensure that each chamber is an exact duplicate of the ones on either side.

As to keeping the holes straight, reamers that are designed specifically for this work are piloted. The pilot guides the reamer through the original hole, making it so much easier to stay on center. As I mentioned, the first step in cylinder re-chambering to a larger

CHANGING CALIBERS: REVOLVER CYLINDER REAMING CONTINUED

ORIGINAL PAGE 16

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-1E4B2218A8-A1142-P16-F01. Know the rights holder? Please ask them to contact us.

AG-1E4B2218A8-A1142-P16-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-1E4B2218A8-A1142-P16-F02. Know the rights holder? Please ask them to contact us.

AG-1E4B2218A8-A1142-P16-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-1E4B2218A8-A1142-P16-F03. Know the rights holder? Please ask them to contact us.

AG-1E4B2218A8-A1142-P16-F03

caliber is called cylinder “size-reaming.” This step is where a special reamer is used to take the chamber from say, .357 inch (.38) caliber to a basic larger caliber, which for arguments sake, we’ll say is .430 inch or .44 caliber. Size-reamers are specially made and are piloted so that they’re guided straight into the chamber. They are also step-tapered to take the smaller caliber out to the larger caliber.

The beautiful cylinder-size reamers shown in this article were special-ordered facturing Co. hester Hills, By its very nature, a sives a lot of metal; however, it is turned and fed slowly with lots of oil and is removed often for cleaning. The next step in re-chambering is the actual “chamber-reaming,” where a finish reamer of the appropriate caliber is used to slowly cut anew chamber into the raw .430-inch chamber.

Converting a single-action cylinder, like a Colt or Ruger, involves altering the cylinder chambers only. With its separate extractor, bringing a Smith & Wesson to a larger caliber requires that the extractor star be installed in the cylinder so it is reamed right along with the chambers. Recently, I had some very in-

teresting caliber-change projects in the shop. These involved the conversion of both types of cylinders to some rather unusual calibers.

Here’s how the work was accomplished: Reaming can be done in the lathe or by hand. In the interest of showing the average small shop that this work is within your capabilities, I’m going to illustrate the hand method. I’ve heard some say that the lathe method is faster, although having done this both ways, I strongly doubt it, and in the end, it’s quality rather than speed that we’re after. The cylinder has to be held tightly.

I clamp it firmly in a small bench vise that has its jaws padded with leather to protect the surface against damage. You’ll be using lots of oil, so you want to think about how to mount the cylinder so you don’t end up with a huge mess. I mount the vise at the end of the bench so the cylinder can drain straight down into a five-gallon bucket. (The container should be large enough to hold lots of steel chips, too.) The work is still messy, but this setup helps keep the mess contained.

The oil you use is up to you, but it should be something that is produced specifically as a cutting oil for machine work. Cutting oil not

only lubricates cutting edges of your tool, but it helps to move chips out of the way of the tool. I’ve used a product called Brownells Do-Drill in the shop for years with terrific results, and there’s another readily available cutting oil known as Tap-Magic that also works well.

With the cylinder mounted in the vise between padded leather jaws, we’ll start with an appropriate cylinder-size reamer. The reamer shown in the photo has removable pilots, so if we desired, we could enlarge a chamber with a .312-inch mouth (like a .32 S&W) or one with a .320-inch mouth, such as the S&W 32-44 caliber, New Model No. 3 from the 1880s that I’m working on here.

Once reamed all the way out, the cylinder will have straight chambers in .3575-inch size, which is the correct chamber-mouth diameter for the .38 Long Colt I eventually want to end up with. To use the reamer, you need some sort of tool handle. You can use a commercially available tap wrench or your own variation. I made my own many years ago to suit the way I like to use cylinder-chamber reamers. In the photos, you can see my shop-made wrench that was fash-

CHANGING CALIBERS: REVOLVER CYLINDER REAMING CONTINUED

ORIGINAL PAGE 17

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-1E4B2218A8-A1142-P17-F01. Know the rights holder? Please ask them to contact us.

AG-1E4B2218A8-A1142-P17-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-1E4B2218A8-A1142-P17-F02. Know the rights holder? Please ask them to contact us.

AG-1E4B2218A8-A1142-P17-F02

38 Long Colt. 38 Long Colt chambers produced by the Clymer finish-reamer. Ioned from a 3/8-inch square-drive socket extension. I use the female end (the 3/8-inch-square hole) to drive the reamer, and have added a couple of #6-48 set-screws to hold the reamer in the tool. The handles are about 4 inches long, made from 1/4-inch drill rod, with the ends padded with plastic tubing to make it easier on the hands.

You could use longer handles on the wrench, but I find the shorter handles keep me from overdoing it when I am turning the reamer. Always keep in mind that you never want to push too hard or turn too fast when reaming. This is a gentle process. Here I think it's important to interject a valuable tidbit about reaming' one that you should never forget. In fact, if you don't remember anything else from this article, try hard to hold onto this: Never, under any circumstances, try to reverse the direction of a reamer.

As a general rule, reamers are made to cut and turn clockwise. If you turn the reamer backwards, you run the risk of pulling steel chips back under the edges of the tool. This will both scar (as in "ruin") the tool, and will gouge up the beautiful hole you are trying to cut. So, even when you are reversing pressure to remove the reamer from the hole, always turn the tool in the same direction. Also, be gentle and steady as you use the reamer.

Use a light but constant downward pressure applied evenly with both hands. If you encounter resistance, stop. Pull the tool out of the hole and clean everything before proceeding any farther. So let's get started. Don your safety glasses; you'll be making thousands of tiny chips, and there is no sense asking for trouble. Insert the reamer with the tap wrench attached into the chamber, and be sure to try to guide the tool to keep it pointing as close to straight down into the hole as possible.

Remember, that pilot isn't long enough to reach the chamber mouth, so it can't guide the reamer perfectly straight yet (it will once you have cut down into the old chamber a little way), but for now try to be conscious of keeping the reamer straight. Pour some oil around the reamer and push down lightly as you turn the tap wrench with both hands. I make a habit of turning the handle one-half turn at a time, and I repeat this six times.

At that point, I have turned the reamer three full turns, after which I've accumulated a fair amount of shredded steel bits that need to be removed. Remove the tool and use a soft toothbrush to brush all the chips in the reamer into the trash pail. If you have compressed air in your shop, blow the reamer clean. Swab the chamber well with a soft bore brush, being sure to remove any

remaining chips. If need be, run a tight cleaning patch through the hole but get that hole clean.

Reinsert the reamer, squirt some oil down around the flutes, and repeat the process. The work will get a little easier as the reamer enters the chamber far enough for the pilot to engage the chamber throats. When that happens, the pilot will do most of the work to keep the reamer aligned, and you'll notice the cutting will get smoother and you'll be cutting more material. This is not brain surgery, but like brain surgery, it takes patience and consistent adherence to the method.

So go slow, use lots of oil, remove the tool frequently to keep the hole and the tool free from chips, and be sure to maintain that slow, light, constant pressure with both hands. Once the chambers have all been size-reamed'in other words, reamed out to the size of the chamber mouths of the final cartridge we can begin reaming the actual chambers. Our finish chamber reamer also has a pilot at its front end. That pilot should be compatible with the inside diameter of the chambers you have just reamed.

The pilot of this reamer is intended to slip into the .3575-inch holes we just cut into the S&W cylinder. Ream the chambers using exactly the same

CHANGING CALIBERS: REVOLVER CYLINDER REAMING CONTINUED

ORIGINAL PAGE 18

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-1E4B2218A8-A1142-P18-F01. Know the rights holder? Please ask them to contact us.

AG-1E4B2218A8-A1142-P18-F01

.44 Russian after de-burring. All it needs now is a good cleaning, methods that you used for size-reaming the cylinder. You simply repeat the process, using lots of oil and remembering to remove the reamer often and keeping everything free of chips. When cutting revolver chambers for rimmed cartridges, you would normally turn the reamer in until the edges of the rim portion of the reamer just “kiss” the rear of the cylinder. Then stop.

This particular job called for .38 Long Colt chambers, which are identical to .38 S&W Special chamber. The gauge was slipped over the reamer body and up against the rim cutting edge so that when the washer contacted the rear of the cylinder, I knew I had a finished chamber. I also converted some other cylinders while this article was being written. You will notice that one of the cylinders in these photos is a Colt Single Action Army .357 that is being reamed to accept the .44 S&W Russian.

Per the owner's request, I size-reamed this cylinder to .428 inch, a smaller diameter than the normal .430 inch. This was done by using a series of smaller reamers. Then I cut the final chamber with a Clymer .44 S&W Russian reamer equipped with interchangeable pilots. These chambers were sized specifically to fit a revolver, except for being .13-inch shorter in length. To cut these chambers, I used a brand new Clymer .38 Special reamer that I got from Brownells.

To be sure I cut the chamber to the correct depth using this slightly longer reamer, I made up a washer-like stop gauge that was just .130 inch thick with a barrel that has a .427-inch groove diameter, which the owner intends to hand-load for. I also altered another S&W cylinder, a 32-44 caliber New Model No. 3 into an obsolete .41 S&W Special. (Yes, Smith & Wesson actually made such a beast for a short time in the 1880s.

Only two original guns are known to exist in this caliber.) The chambers for this unusual caliber were size-reamed to .401 inch using a size-reamer I had Clymer make for me. I had to get creative with this one; the final chambers were cut using a Clymer 10mm automatic finishing reamer I obtained from Brownells, and then I finished it off with a series of straight-chucking Industrial Suplville, NY. This took the chamber thousandths to their final size.

Reaming through a cylinder's chambers will nearly always leave those chambers with sharp edges, so as a final step on any reaming job, you should carefully de-burr both the front and rear edges of the chambers. Don't actually chamfer the edges; you just want to gently knock off the burrs. I used a medium-grit Cratex wheel mounted in a rotary tool. The only step that remains at this point is to prepare and blue the cylinder if desired, since after this machine work the chambers will, of course, be bright steel. I

MAINTENANCE & REPAIR

Fitted vs. “Drop-In” M1911 Barr

In many cases, there really is such a thing as a “drop-in” barrel. Nevertheless, in most cases, the fitted barrel produces superior results.

BY ROBERT K. CAMPBELL AUGUST 2006

ORIGINAL PP. 19-22

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-1E4B2218A8-A1143-P19-F01. Know the rights holder? Please ask them to contact us.

AG-1E4B2218A8-A1143-P19-F01

Original caption: Right top: A match-grade barrel is most often delivered with a prefitted barrel bushing.

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-1E4B2218A8-A1143-P19-F02. Know the rights holder? Please ask them to contact us.

AG-1E4B2218A8-A1143-P19-F02

Original caption: Right bottom: This is a Kart barrel after fitting. Note the clean lines of the locking lugs. drop in with most Colt and Springfield pistols. Conversely, a pistol supplied with a fitted barrel will often require a match-grade barrel to be fitted as a replacement if the original wears out. Before we proceed, let me issue a warning: If you're not completely familiar with how the 1911 pistol functions, don't attempt to precision fit a barrel.

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-1E4B2218A8-A1143-P19-F03. Know the rights holder? Please ask them to contact us.

AG-1E4B2218A8-A1143-P19-F03

Over the years, I've replaced a dozen or so 1911 pistol barrels for various reasons. When military pistols were more common, wear and corrosion was a consideration. Later, the increased accuracy afforded by custom match-grade barrels from Bar Sto Precision was a leading factor. Today, some pistols come from the factory with match-grade barrels, but, of course, these are expensive highend pistols. At the other end of the spectrum, service-grade pistols often come with a cost-cutting two-piece barrel.

These pistols use a barrel that is brazed together, with one half meeting the other about at the chamber and barrel lug line. While serviceable, these barrels are less than ideal. I've ordered “drop-in” barrels that require a mini-

mum of fitting, such as the Roto Barrel from Sarco, Inc. I've also fitted match-grade Bar Sto barrels that required considerable effort.

All of the barrels I have used from Sarco, Bar Sto, Nowlin, and Kart have given good results, but often the improvement in accuracy has been a function of the amount of time spent in fitting the barrel. Recently, when working with a Springfield M1911A1, I ordered a Bar Sto barrel and specified drop-in dimensions. My experience with Bar Sto is that these barrels do actually

These barrels offer top-flight accuracy when properly fitted.

In other words, this is not a good first project. Let's look at some different barrels, both drop-in and fitted, and consider the op-

tions in ordering and fitting barrels. Not long ago, I found a decent older 1911 at a fair price in a pawn shop. The popularity of the .400 Cor Bon cartridge is reflected in the fact that we are now seeing used pistols with conversion barrels in this caliber. The barrel was an Ed Brown drop-in. The pistol functioned fine, but it was well worn and lacked good sights.

I wanted to use the high-quality Ed Brown barrel in another pistol, and replace the barrel in the pawnshop 1911 with another barrel. I ordered a Roto Barrel from Sarco, Inc. Advertised as a drop-in, the Roto Barrel is both affordable and well made of good material. I consider it a good choice for replacement in older 1911s. In this case, it plugged in and came out firing. A word on barrel fit: As long as the

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-1E4B2218A8-A1143-P21-F01. Know the rights holder? Please ask them to contact us.
AG-1E4B2218A8-A1143-P21-F01

Test Pistol Barrel Ammunition 25 yd. Group/ Rock Island Armory GI Original Black Hills 230-grain RNL 3.25 in. Roto Barrel Black Hills 230-grain RNL 2.8 in. Bar Sto Black Hills 230-grain RNL 2.25 in. Bar Sto Cor Bon Performance Match 2.0 in. High Standard G-Man Original Black Hills 230-grain JHP 1.25 in. Bar Sto Black Hills 230-grain JHP 1.35 in. Ed Brown Cor Bon 150-grain .400 C/B 1.65 in. pistol locks up in the same manner every time the pistol fires, we'll have an accurate handgun.

The locking lugs and the barrel bushing must be reasonably tight. Older 1911s sometimes rattle when shaken, and this means the piece is loose enough for good feed reliability. But just the same, a pistol with tight lugs and bushing can be accurate, but all points must be accurate. A well-fitted lug does nothing if the bushing is not also tight. Sometimes, a match-grade barrel bushing alone can increase accuracy.

If you wish to replace a pitted or wellworn barrel in a GI or Mil Spec-type, the Roto barrel should give good results, especially if you also fit a King's match-grade barrel bushing. Let's take a brief look at a comparison of the accuracy of several 1911s with different types of barrels (see Figure 1). These test results are not definitive, as only

two types of ammunition were used, but I carefully recorded the results firing from a solid bench rest.

I think the results are interesting and a good reflection of the inherent properties of different types of barrels. From the test results, you can see that the Bar Sto really shines and, in most applications, it does drop in. In fairness, the High Standard .45 is a high-end pistol fitted at the factory with a match-grade barrel, so the dropin Bar Sto was not likely to equal this Figure 1. Ithaca-Frame 1911 Roto Barrel Black Hills 185-grain JHP 2.5 in.

Bar Sto Black Hills 185-grain JHP 2.0 in Ed Brown Cor Bon 150-grain C/B 2.2 in. Springfield Mil Spec Original Cor Bon 230-grain JHP 3.5 in. Roto Barrel Cor Bon 230-grain JHP 3.0 in. Bar Sto Cor Bon 230-grain JHP 1.8 in. Ed Brown Cor Bon 150-grain .400 C/B 2.0 in. level of accuracy. The G-Man is an individual defense pistol, not a general service pistol, as it requires a bushing wrench to be field stripped.

So barrel fitting in the old-fashioned way can produce excellent results'but so can a drop-in high-quality barrel. Good sights and a good trigger compression affect practical accuracy while the barrel affects intrinsic accuracy. The only 1911 pistols I've owned that approach a true one-inch 25-yard group have been those fitted with a

match-grade custom barrel. 5 Shots First, understand your lockup points. There are four lockup points on the barrel.

These are the locking lugs, the barrel bushing, the sides of the hood, and the bottom lugs. Let's begin with a quality barrel that is ordered as a match-grade unit. In other words, oversize. The barrel hood is larger than the breechface opening and must be fitted. When filing, be certain of two things: You must have .003-inch clearance on each side, and the hood must remain parallel to the breechface sidewalls. Straightforward, sure, but this still requires some attention to detail.

The barrel extension is also longer than drop-in, and must be measured with a hood gauge and properly shortened. Carefully cut the barrel on a lathe until the hood is about .003 longer than the hood-gauge measurement. At this point, the handwork comes in. Carefully file the barrel until the unit slides into the lugs with no excess movement'a good tight fit.

I normally use Bar Sto barrels, and am most familiar with this type, but the general rules apply to Nowlin (another fine barrel) and the Storm Lake and Wilson Combat barrels as well. (Kart barrels are a special case to be covered at another time.) The rear cut of the Bar Sto controls upward motion and must be carefully inspected during

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-1E4B2218A8-A1143-P22-F01. Know the rights holder? Please ask them to contact us.

AG-1E4B2218A8-A1143-P22-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-1E4B2218A8-A1143-P22-F02. Know the rights holder? Please ask them to contact us.

AG-1E4B2218A8-A1143-P22-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-1E4B2218A8-A1143-P22-F03. Know the rights holder? Please ask them to contact us.

AG-1E4B2218A8-A1143-P22-F03

The ramped Kimber barrel (lower part of the photo) is also a good barrel. Ramped barrels adhere to the same principles as standard barrels'with a bit more complication. fitting. The time-honored method of fitting begins with placing the upper lugs in the slide slots, and carefully and slowly tapping the bottom lugs with a brass hammer. Tap toward the muzzle for proper fit. Simply put, filing the barrel allows it to move more fully into contact in the locking recess.

You can smoke the stainless barrel, and file where the smoke is rubbed off. Sight black can also work. Be certain your strokes are perfect, with metal filed away and moved evenly. You wish to reach a point where the barrel rests in its locking lugs without springing away from the locked position when pressed into place. In short the barrel must be properly fitted and also perfectly centered in the slide.

I find binding on the slide stop less common with modern barrels, but it This bushing offers a good fit and delivers fine accuracy with a stock Colt barrel. can happen. This is especially true of extended slide stops for some reason; I suppose they area bit larger overall to support the added weight of the gas-pedal-

type slide lock. The hood must be centered and the bottom lug must not bind on the slide stop, but must ride smoothly against it and square properly.

There has been some confusion concerning the proper length of the link. I'm surprised it is not understood more thoroughly. Once the barrel lower lugs are properly filed and smoothed, with a proper fit to the slide stop, measure the length from the link-pivot hole to the area that has been polished. Next, measure the area between the two holes of your swinging link. These measurements must be the same. If not, the link will not be properly fitted.

When using a larger diameter slide stop this measurement becomes critical; but I have had to use the Chip McCormick oversize slide stop on occasion with off-specification 1911 pistols in order to ensure proper function, and, while not related to barrel fitting, to snug up certain upper-unit caliber conversions. You really have to understand the relationship between link-length and barrel to locking lug to slide-stop measurements to do this.

When the upper assembly is placed on the pistol and checked for smoothness and function, any drag will normally be from the lower lug against the slide stop. This is addressed by filing and smoothing. As for the barrel bushing, normally a fitted bushing comes with the barrel. When using a King's or National Match bushing, we need to fit the bushing to the barrel. An improvement in accuracy is always realized when fitting a tight bushing.

The bushing is oversize in inner dimensions and the barrel is turned to achieve a good fit. A fitted bushing works best with pistols that are already pretty accurate, and will not make up for a sloppy pistol. Let me leave you with a few thoughts on "accuracy." Accuracy is a qualitative expression that attempts to describe the measured degree of precision an instrument exhibits. When measuring the accuracy of a time piece, for example, it's possible to ascribe a true value since that value is known.

The true value of an accurate handgun will probably never be measured. Nevertheless, the skilled gunsmith can always improve on any handgun'even one that is already highly accurate. I

MAINTENANCE & REPAIR

Reader Forum

BY AMERICAN GUNSMITH EDITORS AUGUST 2006

ORIGINAL PP. 23-24

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-1E4B2218A8-A1144-P23-F01. Know the rights holder? Please ask them to contact us.

AG-1E4B2218A8-A1144-P23-F01

Misfiring Winchester 1300 I have a Winchester Model 1300 12gauge shotgun serial #L27660XX that occasionally misfires. The misfires show light primer hits. The cartridge usually fires after the second attempt. I have replaced the firing pin, and the problem still occurs. Comparing all of the parts and their fit to another similar shotgun, there are no obvious differences in parts wear or free play. What do you recommend as a next step? Thank you.

Terence Rybak Pinckney, Michigan Since the gun does not fail to fire consistently on the second shot and shows a primer hit, we don't suspect improper assembly of the firing mechanism. At least that doesn't appear to be the culprit from what you have said. Make certain no foreign matter or other obstruction in the breech is interfering with the bolt going fully into battery. If that doesn't solve the problem, replace the firing-pin spring and hammer spring.

AMT Backup Modifications I have a stainless AMT Backup in .45 ACP. I would like to experiment with changing the geometry of the hammer and trigger in order to reduce trigger pull. What kind of stainless steel would work best to fabricate the hammer and trigger in order to withstand the stresses and hold up the shear angles? Any other advice you can toss in would be appreciated. You'd want to use ordnance steel, if you can find it in stainless.

First, however, we're concerned that changing the "geometry" of the hammer and trigger indicates you're going to alter their engagement angles. This is a nono. You can reduce them slightly, polish them brightly

without changing them, but you really shouldn't be attempting to create a light trigger pull for a purely defensive pistol anyway. There's too much of a chance for misfires, as we keep telling policemen who bring their duty weapons in complaining of heavy trigger pulls.

Universally, they go away happy after we've worked over their guns by reducing as much friction as possible with a medium to ultra-fine-grit polishing. We even polish hammer/trigger/sear pins. The pull feels lighter because it's smoother, while the gun's reliability is unchanged. You're further advised to have spare parts on hand for your Backup, in case you go too far with your geometric alterations.

As this issue goes to press, your best chance of finding them is Survival Enterprises, Coeur d'Alene, Idaho Browning Stock Finish I need to touch up a stock repair on a Japanese Browning Citori. What material will bond to the original Browning finish? I believe it is epoxy-based. The repaired area will be too large to use the super-glue trick. If we knew for certain which finish was applied to the stock in its manufacturing process we could advise you. But we don't.

These things are changed from time to time for a multiplicity of reasons. In your case, we suggest you call Browning provide the serial number of your shotgun, and ask them about the finish used. Since you are not inquiring about mechanical changes, they should have no qualms about providing the information. Powder Coating Warning In the article on powder coatings (March

06), the writer stated a kitchen oven or smaller kitchen appliance could be used to cure the coating.

He failed to mention three significant facts: (1) The oven or appliance must be electric, never gas; (2) ventilation must be superior; (3) the oven or appliance can never thereafter be used in the preparation of food. Fumes may or may not be a severe risk to health depending on the formulation of the coating.

Please pass this along to your readers. John Rodelbaker Texas Thanks for the heads up, John. Installing Muzzle Brake Is there any way to install a muzzle brake properly without using a lathe? There are muzzle brakes held to the barrel with screws, for which case you'd need a reliable drill press and a drill-table vise. Use a drill-depth stop to ensure you won't break through the bore. The B-Square Tru-Taper is the perfect tool for threading the holes.

Scope-Mounting Advice I have really enjoyed AGA's American Gunsmith, but need some specific help. Would you have a recommended book that would cover scope mounting or a back issue that has a comprehensive article? I have purchased an .06 in a Mauser large-ring action. A previous owner had mounted a scope on it but misaligned the Weaver bases so the front base has a shim on one side where the scope ring attaches. The rear mount doesn't seem to really mount flat on the receiver either.

I need to raise the scope a little to clear the bolt with a Butler Creek snap cap cover installed. I was going to just shim the whole system up but my gun dealer said this would make the mounting screws

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-1E4B2218A8-A1144-P24-F01. Know the rights holder? Please ask them to contact us.

AG-1E4B2218A8-A1144-P24-F01

(continued from previous page) more easily sheared off in recoil. Since the mounts aren't really square anyway, he suggested using Leupold mounts, and filling the current holes and drilling new ones in new metal. I, being cheap, am thinking of just using a mill to slightly egg the holes in the new mount, getting a scope-alignment tool from Brownells, and squaring them up that way. Since I'm only shooting in the dark on how, I thought I'd ask for any suggestion you may have. Thank you.

Sounds like you're a perfect candidate for "The Poor Man's Method for Scoping Ex-Military Rifles" by Russell Corbitt in the January 05 issue. But rather than "egging" the mount holes (we know of no egg-shaped mounting screws to fill them) we recommend you fill the existing holes with blind screws (Brownells) and redrill/tap per the instructions in the aforementioned article. Spanner Wrench Tip Here's a simple technique for making a spanner wrench for guns with bushed firing pins.

Start by brushing a thin coat of paint or nail polish on the bushing. Before the coating dries, place a piece of paper over and press it evenly against the bushing. Paint will adhere to the paper except where the bushing holes are located. This is your template. Remove it and let it dry. Tack glue that template to whatever round stock you plan to use. Steel is recommended. Bring out your drill bits and select the one that is a perfect match for the bushing holes in the template.

Determine the drilling depth by measuring the depth of the bushing holes, then drill the stock in use to the same depth with the chosen drill bit. Some drill bits are softer on the non-cutting end. If that's so in your case, they'll make perfect new pins for your spanner. If not, use drill rod of the same diameter and press fit them into the tool head. For the best support, the pins should be the same length as the depth of the holes in the tool. Eugene Kilcomins South Amboy, New Jersey Great idea, Eugene. Thanks.

Repairing Water Damage I've been asked by a friend who lived in St. Bernard Parish, Louisiana, to try to save her deceased husband's gun collection. St. Bernard is one of the areas devastated by Hurricane Katrina and hit hard again by Hurricane Rita. The guns sat for over a month after being submerged twice by toxic flood waters before she was able to return home to salvage them. They were the only thing she saved from her home. They are rusted badly, some to the point that I can not manipulate the actions.

I would appreciate any help or suggestions you can offer for freeing them, rust removal, and surface preservation. I've sprayed them thoroughly with Rem Oil several times with little effect. Thanks. For more details, you'll want to look for George Roghaar's article on restoring water-damaged guns in the March 06 issue. But briefly, you should remove all wood and submerge the remaining metal in penetrat-

ing oil for several days. Lacking a sufficient quantity of oil, use kerosene or mineral spirits.

Occasionally flush out the bolts and firing mechanisms with a squeeze bulb full of the fluid. Once you are able to field strip the guns, continue the soaking and flushing of all metal parts and assemblies. Filter the bath to remove collected fouling that has fallen to the bottom of the container or replace the fluid. Employ the mildest of steel wool or ultra fine emery cloth to remove surface rust. Don't bear down; doing so can scrub off bluing.

Ideally, each gun should be detail stripped so all internal rust can be brushed, the parts examined for additional damage and, where necessary, replaced. Dry the cleaned gun with compressed air, and lightly lubricate internally with a Teflon-based product.

External metal can be wiped down with a clean cloth moistened with water-dispersing oil (Brownells) or sprayed with Birchwood Casey's Sheath or Dura Coat Clear Inter Arms Mark X Parts I'm trying to find parts for an Inter- Arms Mark X, especially the safety screw and friction ball. I haven't had any luck with Numrich Arms. The last information we had indicated that Charles Daly (KBI, Inc.) was stocking and selling the Mark X Mauser. The phone number is If you strike out there, try M&M Gunsmithing at

SEARCHABLE ISSUE RECORD

Archive index

Bloomberg Strikes Again New York Daily News	2	Changing Calibers: Revolver Cylinder Reaming David R. Chicoine	14-18
Taking Down the AK-47 Chick Blood	3-6	Fitted vs. "Drop-In" M1911 Barr Robert K. Campbell	19-22
Gun Kote: A Precision Coating Chick Blood	7-9	Reader Forum American Gunsmith Editors	23-24
Installing Blended Adjustable Sights on Auto-Loading Pistols Dennis A. Wood	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