



OCT 2005

DIGITAL ARCHIVE
EDITION

PRECISION ARMS WORKSHOP

AND THE AMERICAN GUNSMITH ARCHIVE

A TECHNICAL JOURNAL OF CRAFT, REPAIR & RESTORATION

10

ARCHIVE ISSUE NUMBER

INSIDE THE ARCHIVE

MEET THE RUGER MARK III: A GUIDE TO DISASSEMBLY AND REASSEMBLY

SENATE PASSES REFORM TO STOP 'JUNK' LAWSUITS • A SCOPE-MOUNTING SYSTEM FOR .22 RIMFIRE SEMI-AUTO HAN...

ORIGINAL METHODS. MODERN ACCESS.

ARCHIVE EDITION 023

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 • OCTOBER 2005

ISSUE RECORD

ORIGINAL DATE	October 2005
VOLUME	Archive volume not stated
ISSUE NUMBER	10
SOURCE ID	ag-8f6c05d9b95a5f5cfbea6cc7

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 October 2005.

2 Senate Passes Reform to Stop 'Junk' Lawsuits

AMERICAN GUNSMITH EDITORS • ORIGINAL PAGES 2

3 Meet the Ruger Mark III: A Guide to Disassembly and Reassembly

CHICK BLOOD • ORIGINAL PAGES 3-7

8 A Scope-Mounting System for .22 Rimfire Semi-Auto Handguns

NORMAN E. JOHNSON • ORIGINAL PAGES 8-10

11 In-Shop Barrel Porting And Lapping-In One Process

TOM GOODISON • ORIGINAL PAGES 11-15

16 'Slicking Up' the Kel-Tec Semi-Automatic Pistol

ROBERT K. CAMPBELL • ORIGINAL PAGES 16-18

19 Reworking the Beretta U22 Neos Trigger

DAVID GRIZZLE • ORIGINAL PAGES 19-21

22 Reader Forum

AMERICAN GUNSMITH EDITORS • ORIGINAL PAGES 22-24

RESTORATION

Senate Passes Reform to Stop 'Junk' Lawsuits

BY AMERICAN GUNSMITH EDITORS OCTOBER 2005

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-5CFBEA6CC7-A1067-P02-F01. Know the rights holder? Please ask them to contact us.

AG-5CFBEA6CC7-A1067-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-5CFBEA6CC7-A1067-P02-F02. Know the rights holder? Please ask them to contact us.

AG-5CFBEA6CC7-A1067-P02-F02

Just prior to this issue going to press, Congress took a major step toward restoring fairness and integrity to the nation's judicial system, as the Senate passed a landmark bill to block lawsuits that seek to hold firearms manufacturers liable for the criminal misuse of their lawfully sold products. The Protection of Lawful Commerce in Arms Act (S. 397) will prevent wrongful civil-liability lawsuits against law-abiding companies and end years of abuse of America's legal system by anti-gun-industry forces.

The bill was passed by a bipartisan vote of 65-31. A House of Representatives version (HR 800) has 257 co-sponsors and is expected to quickly pass. President Bush, who has promoted legal reform in order to protect America's economy, has said he would sign the bill if it reached his desk. Since 1998 more than 30 municipal lawsuits have been filed against the makers and sellers of firearms by anti-gun organizations and anti-gun politicians.

The misguided efforts attempted to blame firearm companies for the illegal actions of criminals—the equivalent of attempting to hold a car manufacturer liable when a criminal uses an automobile in a crime. These illegitimate suits have cost the firearms industry hundreds of millions of dollars in legal defense fees and threatened to bankrupt companies. “This legislation restores and reaffirms the common-sense notion that no manufacturer should be held liable for the criminal misuse of its products.

We are pleased that the Senate has passed this important reform measure. No industry should be threatened by “junk” lawsuits based, not on established legal principles, but driven by extreme political agendas,” said Doug Painter, president of the National Shooting Sports Foundation (NSSF), the trade association representing firearms and ammunition manufacturers.

The bill provides protection for manufacturers, distributors, retailers, and importers of all legally sold firearms and ammunition.

“These lawsuits put thousands of jobs at risk and attempted to drive an entire industry out of business. Such abuse of our judicial system invited this historic legal reform,” said Lawrence G. Keane, NSSF's senior vice president and general counsel.

Realizing that any industry, not just the firearms industry, could be the target of such harassing lawsuits, America's business community weighed in strongly for the bill, with letters of support coming from the National Association of Manufacturers, U. S. Chamber of Commerce, National Federation of Independent Businesses, National Association of Wholesalers-Distributors, National Association of Sporting Goods Wholesalers, United Mine Workers of America, and other business groups and unions.

The Department of Defense also encouraged passage of the bill because of national-security concerns. Editor Keith Lawrence Technical

PEOPLE & COMPANIES

Meet the Ruger Mark III: A Guide to Disassembly and Reassembly

Don't make the mistake of assuming it takes down and goes together like the Mark I and Mark II. The new Mark III is a decidedly different animal.

BY CHICK BLOOD OCTOBER 2005

ORIGINAL PP. 3-7

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-5CFBEA6CC7-A1068-P03-F01. Know the rights holder? Please ask them to contact us.
AG-5CFBEA6CC7-A1068-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-5CFBEA6CC7-A1068-P03-F02. Know the rights holder? Please ask them to contact us.
AG-5CFBEA6CC7-A1068-P03-F02

For starters, the Mark III isn't the same on the outside as the familiar Mark I and II. Compare the magazine latch and grip configurations with those of its earlier brethren. Inside, several new wrinkles are present for which patents are pending. These include the internal lock, loaded-chamber indicator, and magazine disconnect. The pistol featured here is the Standard Model.

Variations on its theme are the Government Target Model with a heavy laser-targeted barrel, the Competition Model with a slab-sided heavy barrel, and the 22/45. The 22/45 has 22 pistols, the exterior differences alone are enough to tip you off that there are significant differences in Ruger's new offering. Its own, dedicated magazine sold only for it and no other Mark III. Since it differs so greatly from the other Mark III pistols, it will be addressed separately in a future article.

And while I'm thinking of it, I should point out that no other Ruger .22 auto magazine can be used in a Mark III. It won't function the bolt stop or the magazine disconnect. The disconnect is anew feature that keeps the trigger from being pulled if the magazine is removed. Another new feature is the loaded-chamber indicator. When the chamber is empty, the indicator lies flush with the left side of the barrel/receiver assembly.

If a cartridge remains chambered, the indicator protrudes, showing a red dot and the word "Loaded." The third newcomer is the internal lock, a key-operated device that secures the manual safety in the "S" position. To activate the lock, the pistol must be cocked with the safety engaged. The key supplied with the pistol is placed in the keyway located just under the manual safety cutout in the frame and is rotated clockwise until it stops.

The safety can't be disengaged and though the bolt can still be retracted to clear the chamber, the rest of the action is frozen. Before the safety can be deactivated, the key is inserted and turned counterclockwise until it stops. Basic Disassembly Mark III pistols have been designed to be field stripped without the use of exotic tools. Handy to have available, however, particularly with brand new pistols, are a rubber or leather mallet, a 1/8- to 1/4-inch-diameter wooden dowel, and a husky paper clip.

As usual, start by making sure the gun is empty. Fully insert an empty magazine and disengage the internal lock if necessary. Place the manual safety on "F." Pull the trigger to make sure the hammer has fallen. It has to be in its fired, or forward, position for the pistol to be disassembled. Remove the magazine, insert the paper clip into the oval recess in the mainspring housing, and work the clip in behind the housing latch. Take a

MEET THE RUGER MARK III: A GUIDE TO DISASSEMBLY AND REASSEMBLY 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-5CFBEA6CC7-A1068-P04-F01. Know the rights holder? Please ask them to contact us.

AG-5CFBEA6CC7-A1068-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-5CFBEA6CC7-A1068-P04-F02. Know the rights holder? Please ask them to contact us.

AG-5CFBEA6CC7-A1068-P04-F02

Figure 1. firm hold on the pistol elsewhere to swing the latch outward and down, then use it as a handle to pivot the housing away from the grip frame. Regrip the latch/housing assembly and pull it downward to remove the bolt-stop pin. On new pistols, it may be necessary to tap the top of the bolt-stop pin that extends from the back of the receiver with a wooden dowel during the removal process. Reinsert the empty magazine, tilt the muzzle at least 45 degrees upward and pull the trigger.

The bolt should slide out on its own, but if it doesn't, a little encouragement with finger pressure will pull it from the receiver. A rap on the rear of the receiver will start the barrel/receiver assembly off the frame. Basic Reassembly The manual safety is on "F." Keep your fingers off the trigger and push the hammer down to its cocked position (Figure 1). There are a couple of reasons why you may not be able to cock the hammer.

The first is that the hammer strut has become trapped behind the cross pin (see Figure 2). In this case, lift the hammer and move the strut in front of the cross pin. The other possibility is that the hammer has rotated too far forward, which makes it difficult to rotate backwards. Don't force it. Inserting an empty magazine fully will al-

low it to be cocked. Then remove the magazine. Hammer receiver assembly to the rear until it stops.

Ideally, under hand pressure alone, the assembly will come to a halt with the end of the receiver slightly overhanging the frame. In a less-than-ideal circumstance, the pistol should be placed muzzle down on a protected surface and the rear Before reuniting the barrel/receiver assembly to the grip frame, make certain the loaded-chamber indicator is still housed in the receiver. Place the assembly atop the frame so the square recess on its underside corresponds to the square lug on the frame.

Engage the two elements and push the barrel/ Figure 2. Hammer Strut Crosspin of the frame carefully tapped with your soft-face mallet just below the receiver. The empty magazine goes back in the pistol, the muzzle is tilted straight up, and the trigger is pulled. If gravity doesn't serve to return the hammer to a cocked state, reach into the back end of the receiver, push it down, and remove the magazine.

Don't reinstall the bolt in the receiver until you've checked to see that the firing-pin stop pin (#18) is present. If that part is missing, the first time the pistol is fired on an assembled gun the firing pin will put an irreparable dent on the chamber perimeter. Scratch one Ruger Mark III. Having eliminated that fatal scenario with your "pin-is-

in" check, slide the bolt with the recoil spring upward fully into the receiver. Once again, back in with the empty magazine, point the muzzle down, and pull the trigger.

The hammer should release to its fired position. It didn't? Okay, partially retract the bolt, push the hammer forward through the rear frame slot, and remove the magazine. Judging from the number of incorrectly or incompletely assembled Ruger .22 pistols sent back to the factory for "repair," this is the number one problem: the bolt pin/ mainspring housing. Because a "loosey-goosey" pistol results in a sadly inaccurate pistol, Ruger builds its .22s tight.

The boltstop pin is a tight fit through the bolt and the receiver. The barrel-lug engagement is tight. They have to be or the guns couldn't produce a decent group even when fired from a Ransom Rest. Anything you do, such as polishing the bolt-stop pin so it will install more easily, must be performed with extreme care. Otherwise, you'll be creating slop, and slop is the last thing you want to hand back to a customer.

That having been said, point the muzzle down, grasp the bolt stop/ mainspring housing as a unit, and insert the stop pin until it protrudes above the receiver (Figure 3). Your safe mallet can be used on the bottom of the housing to nudge the pin into

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-5CFBEA6CC7-A1068-P05-F01. Know the rights holder? Please ask them to contact us.

AG-5CFBEA6CC7-A1068-P05-F01

Ruger Mark III .22 Semi-Auto Pistol (Specifications subject to change without notice) 1 Barrel/Receiver Assembly* 2 Front Sight 3 Front Sight Screw 4 Barrel/Receiver Filler Screws (3) 5 Loaded Chamber Indicator 6 Loaded Chamber Indicator Spring 7 Loaded Chamber Indicator Pin 8 Rear Sight Bottom 9 Rear Sight Pivot Pin 10 Rear Sight Elevation Spring (2) 11 Rear Sight Base 12 Rear Sight Elevation Screw 13 Rear Sight Blade 14 Rear Sight Windage Spring 15 Rear Sight Windage Adjustment Screw 16 Rear Sight Base Set Screw 17 Bolt, Only 18 Firing Pin Stop Pin 19 Rebound Spring 20 Rebound Spring Support 21 Firing Pin 22 Recoil Spring Assembly 23 Extractor Spring 24 Extractor Plunger 25 Extractor 26 Grip Frame w/Trigger Guard* 27 Trigger 28 Trigger Spring 29 Trigger Spring Plunger 30 Trigger Pivot Retainer 31 Bolt Stop Assembly 32 Bolt Stop Plunger 33 Bolt Stop Plunger Spring 34 Trigger Pivot Pin 35 Safety Assembly,

Complete* 36 Hammer Assembly, Complete* 37 Magazine Disconnecter Spring 38 Magazine Disconnecter 39 Disconnecter Assembly* 40 Hammer Bushing 41 Sear Spring 42 Sear* 43 Bolt Stop Thumb Piece 44 Hammer Pin 45 Magazine Latch 46 Magazine Latch Spring 47 Magazine Latch Spring Plunger 48 Magazine Latch Screw 49 Sear Pin 50 Sear Spring Pin 51 Magazine Latch Pin (2 required) 52 Mainspring Housing Assembly 53 Lock Pin 54 Spring Back-up Pin 55 Detent Plunger Lock 56 Lock Plunger Detent Spring 57 Hammer Spring Plunger 58 Hammer Spring 59 Housing Latch Detent Ball 60 Housing Latch 61 Housing Latch Pin 62 Grip Frame Filler Front and rear sights for Target Models are not adaptable to Standard Models.

63 Grip Panel, Left 64 Grip Panel, Right 65 Grip Panel Screw (2) 66 Magazine, Complete 67 Internal Lock Key
*Indicates factory fitting required.

MEET THE RUGER MARK III: A GUIDE TO DISASSEMBLY AND REASSEMBLY CONTINUED

ORIGINAL PAGE 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-5CFBEA6CC7-A1068-P06-F01. Know the rights holder? Please ask them to contact us.

AG-5CFBEA6CC7-A1068-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-5CFBEA6CC7-A1068-P06-F02. Know the rights holder? Please ask them to contact us.

AG-5CFBEA6CC7-A1068-P06-F02

Figure 3. Figure 1. Push up until bolt stop pin protrudes here. place, but don't swing the housing into the grip frame just yet. Point the muzzle up and let the housing drop down. You ought to be able to see the tip of the hammer strut. The strut must seat in the oval recess on the housing as the housing is swung back into the grip frame. Got it? Good. Now hold the trigger to the rear and swing in the housing.

The latch can then be closed and, if all internal parts are aligned, you should feel some spring resistance before it snaps shut. To see whether or not you have an internal alignment problem, pull the bolt to the rear. If it fails to fully open, swing out the latch, remove the bolt pin/main spring assembly and reinstall it.

If retracing those steps become necessary, keep the following in mind: One, if the main spring housing pulls out of the pistol as you swing it inward, the barrel/receiver isn't seated properly to the rear on the frame; two, the hammer must be in its vertical, fired, position as the housing is shut or else the housing will be excessively hard to close; and three, the hammer strut must be properly seated in the housing.

To make your final basic reassembly check, insert the empty magazine, hand cycle the bolt, and pull the trigger. Detailed Disassembly Remove the grips from both sides of the frame and back out the magazine latch screw (#48). The latch (#45), latch spring (#46), and latch-spring plunger

(#47) can now be pulled out as a unit with your fingers. Drift or push the hammer pin (#44) from right to left.

If you turn the frame upside down at this point, the complete hammer assembly (#36), magazine disconnect spring (#37), magazine disconnect (#38), hammer bushing (#40), and bolt-stop thumb piece (#43) will fall out on your bench. I hope you took along look at how they were originally installed before you removed the hammer pin. And there's been a design change in the magazine disconnect. It's no longer like the one shown in the schematic.

Its back end has been extended to keep the disconnect spring from being overstressed. Now push the manual safety (#35) into the frame and catch it as it drops out. The sear pin (#49) can be drifted in either direction to release the sear (#42) and sear spring (#41). Catch them, too.

The disconnect assembly (#39), trigger (#27), trigger spring (#28), trigger-spring plunger (#29), bolt-stop assembly (#31), bolt-stop plunger (#32), and plunger spring (#33) will all free up when the trigger-pivot pin (#34) is drifted out in either direction. Wait a second. Before drifting the trigger pivot, you have to depress its retaining spring (#30). Aside from that, the trigger assembly on the Mark III is the same as that of the Mark II.

So is the bolt assembly. (For fully disassembling these components, you can follow the instructions that appear in the NRA Guide to Firearms Assembly or Gun Digest's book

on automatic pistols.) While you're working on a Mark III bolt, however, you'll notice it has a slot on its front left side. It's there to accommodate the loaded-chamber indicator. This brings up another design change. The indicator in the pistol shown here bore little resemblance to the indicator in the schematic.

The indicator (#5) on new pistols has a polymer rather than a steel body, a metal tab (not shown), and two springs (#6). These are held in by an indicator pin (#7) and you use no tool to get it out. Merely take a firm grip on the barrel close-in to the receiver and tap the receiver bottom side down on your bench a few times. The pin will start to drift itself out. Frequently, it will self-drift enough for you to remove the indicator assembly.

If not, you can extract the pin a little further with your fingers, but don't pull it all the way out. That way, when reinstalling the indicator assembly, after you have placed it in its slot and aligned the pin hole, you merely have to push the pin back up to re-secure the indicator. This leaves the sear-spring pin (#50) and magazine-latch pins (#51) still in the frame.

I prefer to let the sear-spring pin remain untouched and can think of no reason to remove the latch pins unless the latch itself (#62) has been damaged to the point of replacement. If it ain't broke, don't fix it. Know what I mean? If the bolt were to be installed without this pin, upon firing, irreparable damage would render the pistol useless.

MEET THE RUGER MARK III: A GUIDE TO DISASSEMBLY AND REASSEMBLY CONTINUED

ORIGINAL PAGE 7

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-5CFBEA6CC7-A1068-P07-F01. Know the rights holder? Please ask them to contact us.

AG-5CFBEA6CC7-A1068-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-5CFBEA6CC7-A1068-P07-F02. Know the rights holder? Please ask them to contact us.

AG-5CFBEA6CC7-A1068-P07-F02

The internal lock keyway (C) is always unobstructed. For a totally different reason—call it covering my posterior—I’ve not included disassembly of the mainspring assembly. With the addition of the internal lock, it has become a vital safety feature and my rigid policy is never to defeat or tamper with the safeties on any gun. Chicken? Maybe, but it has spared me lawsuits and jury awards I don’t have the bucks to pay.

Reassembly Tips It’s impossible for me to show you detailed, interior photos of a Mark III grip frame. I don’t own and can’t afford the surgically small camera equipment necessary to do so. Therefore, I must rely upon your natural curiosity, your use of a high-intensity pen light and magnification to make your own examinations. I suggest these be made after each disassembly step is taken, because with each step, more is revealed.

For example, the trigger-pivot retainer, having thankfully done away with the nightmarish little E-clip trigger keeper on Mark I pistols, wears a small hook at one end. That hook fits under a pin, which is a permanent part of the frame and cannot be seen with the trigger assembly in place. The forward extension of the retainer fits in

a slot on the lower right-hand side of the frame’s barrel lug. The slot is masked by parts #31, 32, and 33.

You’ll want to make and use a slave pin, rounded at one end, which almost matches the hammer pin in diameter. Install the sear, sear spring, and sear pin. After that, position the manual safety in the frame and start in the hammer pin to retain it. Rotate the sear forward to lock it down. Position the disconnect in the frame, and start in the hammer bushing from the right. Spear the magazine disconnect and spring on the bushing, and start your slave pin through to hold them in place.

The hook at the top of the spring fits in a crescent area atop the disconnect. Add the hammer and tilt it forward. The tail of the magazine-disconnect spring has to eventually fit down behind the sear-spring stop pin. Doing that is the tricky part of reassembly, since you 22 pistols. The tool is described more fully in the text. B C A have to do the maneuvering after all the upside components you’ve been working with are in place.

I ended up using a length of small-diameter drill rod with a notch cut at one end to push that spring around, and I don’t sup-

pose you’ll have any more trouble doing it than I did. But “tedious it is,” as Yoda the Master Jedi would say. After breathing a sigh of relief, rotate the hammer back to its cocked position and allow the disconnect to get on top of the sear. Push out the hammer pivot with your slave pin.

Position the bolt on top of the top thumb piece over the slave pin, use the hammer pivot to push out the slave pin, and seat the pivot against the thumb piece. Reinstall the magazine-latch assembly, latch screw, frame grips, and function test the pistol with dummy rounds. One afterthought: The odd-looking pliers pictured here is a made-inhouse tool that assembly workers use to install the sear and sear spring simultaneously.

The tips of the pliers have been rounded and their faces milled out to match the shape of the sear body. A slot has been cut on the top side of the pliers to accommodate the sear spring. In use, the sear is held between the milled jaws, the spring placed in the slot, the pliers inserted into the frame down to the sear-pin hole, and the pin is pushed through. Ruger lent me one to work with and to show to you. It’s a gem. Feel free to make one of your own. ■

PISTOLS

A Scope-Mounting System for .22 Rimfire Semi-Auto Handguns

Scoping those fine .22 rimfire semi-automatic handguns may not be an everyday job, but if the need arises, there is a practical way to do it, and the results may amaze you.

BY NORMAN E. JOHNSON OCTOBER 2005

ORIGINAL PP. 8-10

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-5CFBEA6CC7-A1069-P08-F01. Know the rights holder? Please ask them to contact us.
AG-5CFBEA6CC7-A1069-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-5CFBEA6CC7-A1069-P08-F02. Know the rights holder? Please ask them to contact us.
AG-5CFBEA6CC7-A1069-P08-F02

Recently, I began a series of accuracy tests involving four .22 LR semi-automatic handguns. All four handguns had barrels just over 6 inches in length, and all had open sights. Each displayed excellent accuracy with open sights, but I wanted to see just how well these guns would shoot using some of the better match ammunition as well as standard-velocity bullets.

I didn't see any available commercial scope-mounting system to fit my needs, so I used a bit of innovation; I designed away to scope these miniature guns with items readily available to me or those I could make up. Here's how I did it: Preparing the Parts Though the method may be quite unique, the system turned out even better than I had anticipated. I simply 22 LR semi-automatic handguns were scoped using the mounting system described in the text.

From the top area Browning Challenger (made in Belgium) with 6-3/4-inch barrel, a High-standard Model 103 Supermatic Tournament with 6-3/4-inch heavy barrel, a Ruger Mark II Government Target with a 6-7/8-inch heavy-barrel, and a Highstandard Model 101 Duramatic with 6-1/2-inch standard-weight barrel. made an adapter to join two pairs of Conetrol horizontal split rings (www.conetrol.com; In normal usage,

Conetrol scope rings are designed to fit into a rifle receiver scope base, and are retained by two laterally opposing cone-point jam screws.

These scope-ring studs are very short and can be reversed and attached closely together, utilizing a special adapter. I used the Conetrol principle of ring attachment by making an adapter to accept the ring-base studs facing one another. In this way, one pair of rings would surround the scope and the other inverted pair of rings would surround the barrel with the special interfacing adapter between them.

Scope eye relief really didn't have to be perfect, and I wanted to use a small scope for the job to keep things in proportion. Here I used one of the older Redfield 4X Sportster scopes with a 3/4-inch tube. These small scopes were made for .22 rimfire rifles and looked right in place atop a small handgun. Matching things up would involve making split shims to adapt each barrel to the respective lower scope ring, as well as to the scope tube. This was easily accomplished using some 1-inch-diameter round nylon stock.

Then I drilled, bored, and split the shims, which didn't take much time. It's only necessary

A SCOPE-MOUNTING SYSTEM FOR .22 RIMFIRE SEMI-AUTO HANDGUNS CONTINUED

ORIGINAL PAGE 9

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-5CFBEA6CC7-A1069-P09-F01. Know the rights holder? Please ask them to contact us.

AG-5CFBEA6CC7-A1069-P09-F01

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-5CFBEA6CC7-A1069-P09-F02. Know the rights holder? Please ask them to contact us.

AG-5CFBEA6CC7-A1069-P09-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-5CFBEA6CC7-A1069-P09-F03. Know the rights holder? Please ask them to contact us.

AG-5CFBEA6CC7-A1069-P09-F03

22-caliber semi-auto handguns. The cone-pointed jam screws secure the rings to the adapter for a sturdy in-line mounting system. 22 LR semi-auto. to determine the barrel size at the scope-mounting position and make up the shims. Boring or drilling the parts is quite basic. I then made the ring adapters using shaped blocks of stainless steel.

I bored a 0.437-inch hole through the stainless block, which provided sufficient clearance so the two scoping studs would be just short of contact as they were placed into the holes with the ring flange flush with the adapter surface. The cone-screw hole in the block is #10-32, the same as that used in the Conetrol scope base, which provides side-to-side windage adjustment, if required, as the bases are also drawn down and held securely in place by the coned set screws.

It's important to position the set-screw holes in the block so they have some draw-down effect as they are tightened. Here the hole centers are drilled 0.110 inch below the top and bottom of the adapter surface. I used the same size cone screws as were used in the Conetrol mounting. The Conetrol ring-mounting system is very sturdy and provides excellent alignment along with a scope ring that draws down and fits precisely to the scope base.

In my opinion, no mounting systems are more attractive than Conetrol, and they are very rugged for any mounting application. I chose to use the horizontal split-type rings over the projectionless style offered by Conetrol, because in this particular application they are much easier to work with. This is particularly true where several varying size shims would be used on the pistol barrels, as well as the scope tube.

Each of the bored and fitted shims were marked to avoid any mixup, since they were used while the scope was mounted to the different size barrels. Changing the scope from one gun to the other was easy, and sighting-in each gun was well within the range of reticle adjustment for each handgun. In addition, there is major right-to-left adjustment within the adapter should reticle adjustment reach either extreme. This is accomplished by adjusting the lateral cone screws.

Mounting the Scope System As I used this unique scope-mounting system, I couldn't help but wonder if the same application had ever been tried and used before. Though it appeared different, it proved to be very effective in determining the true accuracy potential of these very 22 semi-automatic barrel. Note laterally opposing cone screws used to anchor the sets of Conetrol rings together. This is what makes the mounting system possible.

A SCOPE-MOUNTING SYSTEM FOR .22 RIMFIRE SEMI-AUTO HANDGUNS CONTINUED

ORIGINAL PAGE 10

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-5CFBEA6CC7-A1069-P10-F01. Know the rights holder? Please ask them to contact us.

AG-5CFBEA6CC7-A1069-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-5CFBEA6CC7-A1069-P10-F02. Know the rights holder? Please ask them to contact us.

AG-5CFBEA6CC7-A1069-P10-F02

Pictured here is a Hi-standard Tournament Model .22 semi-auto with a 4X Redfield Sportster scope. capable .22 rimfire handguns. Groups ranging around 1 inch or less at 25 yards are quite difficult to attain with open sights. Arriving at a true evaluation of handgun accuracy or ammunition potential, even with excellent visual acuity, is often difficult. This was not the case with the scoped handguns. Group sizes with the scoped pistols were reduced substantially, even compared to my best open-sight results.

No special method of hold or rest was required to shoot the scoped handgun. Resting the barrel on sandbags, using either a one or two-hand hold on the pistol grip, produced a steady position with excellent groupings. I also used the method where the triggerguard and frame of the gun are held against a medium-firm sandbag and the pistol barrel is quite free to move as the gun is fired.

I discovered that uniformity of hold is very important, even if the gun appears to be rock solid over the bags at the moment of

trigger break. With the use of a scope, groups of five-shots at 25 yards using a variety of .22 Long Rifle ammunition averaged from under 1 inch to around an inch, depending on the match between ammunition and barrel. There is no getting away from the fact that certain bullets do better in a given barrel.

As I would change from one brand or style of bullet I would fire a normalizing shot to condition the bore to that particular bullet. Not always, but sometimes, a semi-flyer would occur, and I could relate this to this first shot on several occasions. This may be a little known fact among high power rifle shooters as well. The coefficient of friction in a barrel can be changed with 22 semi-automatic handgun.

Conetrol scope rings, along with the special adapters used to join them, make a solid and attractive mounting system. different bullets, thereby affecting bullet impact as they are used. In the case of copper-jacketed bullets, total copper removal from the bore may be necessary using a good bore solvent. This may be a significant factor

where extreme accuracy is being sought. As I anticipated, the heavier model pistols would produce somewhat better accuracy, just as in much of the rifle shooting I do.

Here the heavier barrel, Hi-Standard Tournament pistol and the heavier barrel Ruger Mark II did very well, with the Hi-Standard holding a slight edge. But both the Browning Challenger and the lighter barrel, Hi-Standard Dura-Matic shot very respectably. Conclusion I learned a lot by mounting and using a scope on these smaller .22 semi-automatic handguns. It would have been impossible to determine the true accuracy potential of these guns with open sights.

The mounted scope looks attractive atop any of these .22 semi-automatic handguns—even for someone who wants to make this a permanent mounting. The Conetrol rings, in combination with this special adapter, proved to be a very effective means of getting the job done. ■

FROM THE ARCHIVE

In-Shop Barrel Porting And Lapping—In One Process

Here's a way to do two gunsmithing tasks at the same time—barrel porting and barrel lapping—which will save you time and impress your customer with enhanced accuracy and improved gun handling.

BY TOM GOODISON OCTOBER 2005

ORIGINAL PP. 11-15

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-5CFBEA6CC7-A1070-P11-F01. Know the rights holder? Please ask them to contact us.
AG-5CFBEA6CC7-A1070-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-5CFBEA6CC7-A1070-P11-F02. Know the rights holder? Please ask them to contact us.
AG-5CFBEA6CC7-A1070-P11-F02

One of the first things I do when a customer comes in and asks for a barrel to be ported is to find out why he wants it ported in the first place. As you may already know, people sometimes want things just because they've heard the latest "buzz word" in the industry rather than for any practical reason. I like to discuss the matter first and find out if the customer is having any accuracy or recoil issues which is fueling his request for the porting.

The first thing I point out to a customer is that any modification to a gun will automatically decrease its resale value, and may make it more difficult to sell. Usually this advice is shrugged off and the request is insisted upon. This is when I try to find out what in particular is causing their request for the porting. If it's recoil related, I first suggest a change in recoil pad or a change of loads.

Since I have always strived to be a 'moral' gunsmith, I try not to do work that, deep down inside, I know is not necessary and will cost the customer an unnecessary ex-

penditure. Case in point: A local retailer sold a rifle to one of my customers and talked him into porting the rifle as well. Since he hadn't even fired the rifle yet, there was no way he could know if the porting would solve any problem. Personally, I try to be a quality-driven gunsmith and not a dollar-driven gunsmith.

Preparing for the Job With that said, if the job is necessary and agreed upon, here's how I go about accomplishing two steps at once—both porting and lapping. First I strip the rifle down as much as possible to reduce any chance of damage to the stock, and to lighten the workpiece. For added security, I like to enclose the receiver and as much of the barrel as practical with a gun sock. The gun sock is put on after you've determined where your porting holes are going to be and they're marked on the barrel.

Of course, laying out the holes is a source of controversy. Most gunsmiths would agree that porting does work, but there seems to be little agreement on what

arrangement of porting holes works best. I'm not an engineer or firearms designer, but I have come up with an arrangement that seems to work well for me, and my customers say they're happy with the results.

My design is a seven-hole arrangement that consists of three holes of progressively larger diameters, with two sets of what I like to call "stabilizer" holes in between. I start with the largest diameter hole being closest to the receiver end, thus allowing exit of the majority of the escaping gases. Next in the series is the first set of two smaller-diameter stabilizing ports, which are set off center of the main three ports (see Figure 1).

The next port is the next smaller diameter main porting hole, followed by the second set of stabilizing ports, ending with the smallest diameter main (continued on page 14)

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-5CFBEA6CC7-A1070-P15-F01. Know the rights holder? Please ask them to contact us.

AG-5CFBEA6CC7-A1070-P15-F01

barrel and set it aside close to the work-piece. Once the lead is flowing, pour a small amount into the barrel to form the primary lap. You should leave a space about an inch or so from the end of the barrel opening. Now slide the cardboard separator into the barrel down to the top of the lap already poured in. Now pour the remaining lead inside the barrel to the top of the barrel and let the lead harden (see Figure 2). Once everything is laid out, it's time to start drilling.

The strength and stability of your drilling fixture cannot be overemphasized here. Any movement will ruin the lineup of the holes and will easily be visible, thus producing an amateurish job. I secure the barrel in my lathe vise (padded of course), with the centerline straight up and level. I then begin the holes by first using a small center drill. These are very stable bits and will not wobble off center.

They are also very cheap, so I like be overly safe and I buy them in quantity so I can use a brand new one on each porting job. (I'd rather pay \$10 for a set of bits than buy the owner anew barrel.) I center drill each of the three main porting holes to get them started. The diameter of the holes is another issue of debate, but I'm of the opinion that the largest diameter hole should not be more than 45 percent of the bore diameter.

Depending on the caliber you are working with, calculate the largest diameter and drill the first hole closest to the chamber

end first.

Don't forget to check the depth of your drill bit so that you don't drill all the way through into the opposite side of the rifling! Then drill the second hole with a smaller diameter bit, and finally the last hole with a smaller bit than the second. At this point you can save a step and chamfer the tops of the holes before removing the barrel to realign it for the stabilizing holes. You can chamfer the tops of the holes in a couple of different ways.

You can use a drill bit a couple of sizes larger than the drilled hole, and carefully "start" the bit into the hole so the flared end of the bit chamfers the top of the hole. Or you can use a Dremel tool with a ball grinding bit to chamfer the tops of the holes. Due to the curved surface of the barrel, the chamfered surface will have an oval shape to it. I find this look to be quite appealing.

After the top holes are finished, using the scale on the lathe vise, I rotate the barrel a few degrees to drill the stabilizing holes. Note the degree marking that you use so that you can repeat it for the other side of the barrel. For the stabilizing holes, I use the same size bit for all four holes. Drill two holes on either side of the main porting holes. Chamfer these as well. The lead lap that you have drilled into will keep the burrs to a minimum.

Once the drilling is complete, you will then push the lap • so that the secondary lap (the one that was drilled into) will be pushed forward out of the barrel taking the remaining small burrs with it. Don't push the primary lap out of the barrel. Push only far enough to exit the secondary lap up to the cardboard separator. Once the secondary lap is out, you can now use your lapping compound on the primary lap to begin the lapping process.

Use an extra fine grit so you will only put a nice polished finish on the inside of the barrel. Finishing Up Once you're finished, clean everything out, reassemble the rifle, and test fire it. One other option I offer is to do the same porting procedure on a custom-made add-on compensator. This way, the customer's rifle barrel will not have to be drilled and will thus retain its value, but porting the removable compensator can produce the same benefits.

If you choose this method, remember to drill the hole for the bullet approximately .004 larger than the diameter of the bullet. You can also dress up the exterior of the compensator by turning a couple of V-shaped grooves in the side of it for a nice effect. I also bevel the front and rear of it to give it a professional look. If you have the equipment, this is a valuable service you can offer your customers. And with the prices of machine porting, it can be very profitable for you.

HISTORY

‘Slicking Up’ the Kel-Tec Semi-Automatic Pistol

Pistols manufactured by Kel-Tec CNC Industries Inc. are compact, lightweight, inexpensive, and generally reliable. They can, however, benefit from the attentions of a gunsmith familiar with the pistol’s unique action.

BY ROBERT K. CAMPBELL OCTOBER 2005

ORIGINAL PP. 16-18

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-5CFBEA6CC7-A1071-P16-F01. Know the rights holder? Please ask them to contact us.

AG-5CFBEA6CC7-A1071-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-5CFBEA6CC7-A1071-P16-F02. Know the rights holder? Please ask them to contact us.

AG-5CFBEA6CC7-A1071-P16-F02

When addressing the general problems encountered with certain handguns, it’s important to know something of their operating history. Some handguns require a break-in period of between 50 and 200 rounds, while others may come out of the box shooting without exception. When a customer complains of malfunctions of the failure-to-go-into-battery type, we should be aware that certain handguns are prone to limp-wrist malfunctions. During the past few years, I have dealt with a number of Kel-Tec handguns.

I can give them a good recommendation as self-defense guns, but the operation and particulars of the handgun must be understood. I’ve discovered that, unlike some other makes of polymer-frame handguns, the Kel-Tec needs to be lubricated on a regular basis, though lubrication is probably not as critical with the Kel-Tec as with steel-frame 1911s or Browning Hi-Power-type handguns. It’s simply a minimal requirement.

Like many lightweight polymer-frame pistols, if the Kel-Tec is not grasped tightly in recoil, the pistol can “short cycle” or fail to completely close during firing. This is a result of the pistol recoiling against a foundation—the

shooter—that is not rigid enough. Many problems with the Glock were also blamed on the pistol when a weak-wristed grip was the real culprit. This may be the situation when a shooter complains of a short cycling with the Kel-Tec. Also, the pistol demands a break-in period.

The gun received poor marks in early examples from gun writers who did not take the time to thoroughly test the handgun. One of the .32-caliber Kel-Tecs I tested came out of the box shooting with any type of ammo. The second handgun to function after 100 rounds of Fiocchi ball ammunition, but seemed sluggish with other ammunition that was more lightly loaded. It did not function with jacketed hollowpoint ammunition until I performed certain modifications. The 9mm pistols seem to vary.

The newest 9mm I tested functioned with any type of load after a break-in with about 100 rounds of Fiocchi ball. The pistol now functions well with all factory ammunition. However, I would avoid the 147-grain loading, which produces less slide velocity and simply does not produce the needed impulse for proper oper

'SLICKING UP' THE KEL-TEC SEMI-AUTOMATIC PISTOL 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-5CFBEA6CC7-A1071-P17-F01. Know the rights holder? Please ask them to contact us.

AG-5CFBEA6CC7-A1071-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-5CFBEA6CC7-A1071-P17-F02. Know the rights holder? Please ask them to contact us.

AG-5CFBEA6CC7-A1071-P17-F02

The author found that a mirror finish on the ejector can help to eliminate the pistol's tendency to throw shells into the shooter's face. In some short-slide pistols. With these practical considerations covered, there are indeed areas in which the Kel-Tec pistol can profit from gunsmithing.

Let's recap the preliminary checks: • Properly lubricate the long bearing surfaces of the pistol. • Be certain the shooter is using a proper locked-wrist grip. • Use full-power ball ammunition such as Winchester's 124-grain NATO loads to test function. I recently made a special purchase of Winchester WCC 1989 vintage ball that is among the best choices for testing 9mm handguns. This ammo is now carefully hoarded.

Beyond Practical Considerations Recently produced Kel-Tecs have a lighter trigger action, and Kel-Tec offers a special kit to reduce the trigger action of older guns from 10 to 12 pounds to the current 8.5-pound standard. However, there are other ways to achieve a smoother, lighter trigger action. The junction of the hammer strut on the trigger bar should be inspected for rough spots and burrs and polished carefully to a smooth surface. This modification will bring a smoother action that is noticeable in operation.

Also, lubrication of the working parts with Tetra Lube produces good results, especially in combination with the aforementioned smoothing. Disassembly Once unloaded, taking the pistol down is straightforward. Lock the gun to the rear using the slide lock. Be certain the magazine is removed. Insert a case rim, screwdriver, or similar tool into the takedown lever and remove it. The slide will come off the front of the frame when the slide lock is released.

The recoil spring and guide rod are easily removed by pulling them out the bottom of the slide, and the barrel simply slips down. For detail stripping, you'll need a punch or a small bolt to get the job done. There are three polymer pins in the frame that must be removed by lightly punching them out from one side to the other. The hammer-spring clip is in the base of the butt. This removes the hammer spring. This part is a little difficult to remove, but with sufficient pressure it will move.

The frame itself is then removed from the polymer handle. The spring and retainer clip that pass through the magazine well and the aluminum frame assembly pulls free. Unlike many polymer guns, the Kel-Tec is actually a gun in a polymer stock—

not a gun embedded in polymer. The magazine catch and spring will fall out at this time, but it's not difficult to replace them.

The transfer bar serves the same purpose in the Kel-Tec as in the Beretta and other designs, transferring energy from the trigger to the hammer or striker. The Kel-Tec uses a geometrically designed hammer, not a Glock-like striker. The transfer bar simply pulls away, but be very careful in noting how the trigger-return spring wraps under the trigger bar. It catches on a small groove on the bottom-most section of the trigger bar. It rotates back into place and latches in place during reassembly.

If you wish to replace the hammer spring in order to bring about a lighter trigger action, the hammer and spring are removed by use of a punch. The pin holding the hammer is drifted out. Take care that the hammer spring does not fall away. Polishing There are two accepted methods of polishing the Kel-Tec trigger bar. One is to fire the gun perhaps a thousand rounds; the action of the bar and the This one shows nicks and knocks from the noses of various bullet styles.

While the gun functions, it seems likely that, without some smoothing up, a malfunction will occur eventually.

'SLICKING UP' THE KEL-TEC SEMI-AUTOMATIC PISTOL 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-5CFBEA6CC7-A1071-P18-F01. Know the rights holder? Please ask them to contact us.

AG-5CFBEA6CC7-A1071-P18-F01

Original caption: Right top and bottom: The Kel-Tec's spring-within-a-spring guide rod helps in controlling recoil and in producing reliable action in a short-slide handgun. It also produces some additional complication in field stripping and maintenance. Hammer seem to polish each other. The better method is to simply polish the bar early in the life of the pistol.

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-5CFBEA6CC7-A1071-P18-F02. Know the rights holder? Please ask them to contact us.

AG-5CFBEA6CC7-A1071-P18-F02

I think that if the gun were as well polished as a custom gun or a SIG it would have to cost just as much, but the little guns are reliable as issued and certainly can be made very smooth. Lightly polishing any obvious drag marks or burrs works well with the transfer bar. The transfer bar should be smooth on the side that lies against the frame; the outside doesn't really matter. Use stones when working with this part. A good knife-type polishing stone works quite well on this long surface.

There are usually some sharp edges, and these must be addressed. Some of my correspondents report polishing exposed areas of the trigger bar and hammer with a rod with light sandpaper attached, without even disassembling the gun. This seems to produce some improvement. If you attempt to polish the hammer, the same cautions apply as with any hammer—the angles and the shape cannot be changed. The hammer must be polished lightly only, removing any sharp edges, without changing the angle of the contact points.

This points out the need to test fire the gun before beginning, as wear points and sharp edges will show in a gun that has been fired. As for the trigger pin, I lubricate this part with Tetra Lube, but do not attempt to polish it. There are a couple of concerns you should be aware of. One of these is a trait seldom found in modern-production Kel-Tec guns, but very common with the early pistols. This is the propensity of the pistol to throw spent cases in the direction of the shooters eyes and forehead.

The consensus is that the ejector of the pistol in question is too high and sharp. It is true that these ejectors give vigorous and reliable ejection, but a hot case in the face is something to be avoided. The shooter's firing grip may contribute to this problem, but there is a simple solution. The cure is to carefully polish and shorten the ejector. Recognizing this problem, Kel-Tec has ejectors of different heights available that can be installed to cure the problem.

But this is a simple matter to address; simply polish and lower the ejector by a margin. This is a "fit and try" operation, reassembling the pistol and test firing the piece to ensure proper function. It is possible to shorten the ejector too much, but in my experience a slight effort cures this problem. Although quite vigorous, the Kel-Tec ejector does not bend or damage cases, as is common with many 1911 pistols. The final problem is one that does not affect function but clearly needs to be addressed.

Most Kel-Tec pistols will feed hollowpoint ammunition without any problem. My personal 9mm version is omnivorous, gulping up any wide-mouth hollowpoint, be it hand-loaded rounds with Sierra JHPs or factory Cor Bon ammunition. However, I have seen on occasion a problem in the feed cycle. This is a very compact handgun; and, of necessity, the barrel, feed ramp, and magazine are in close proximity. When firing, the barrel feed ramp sometimes returns to battery and gives the round waiting in the magazine a smack.

This results in the hollow nose being deformed, and sometimes the bullet is moved toward the rear in the cartridge case by a fraction. Bad things can happen when a bullet is moved to the rear. The seal at the cartridge case mouth can be broken, and this can lead to powder contamination by oil, solvent, or moisture. Modern American-made ammunition is usually "bulletproof," but a hard smack on the bullet nose can break the cartridge mouth seal. Driving the bullet closer to the powder can also increase pressure.

The potential for a tie-up from bullet deformation would seem to exist, although I have not seen it happen. This is an odd type of malfunction that is rare, in my experience, in other designs. Fortunately, it does not affect reliability in test firing a few dozen rounds, but I believe the potential exists for problems. The cure is simple. The center of the feed ramp can be polished away a certain amount, carefully preserving the original angle.

This is best done without the Dremel tool, using sandpaper or needle files only. Just a little is the rule. This is another cut and try operation, frequently reassembling the handgun for a function test. I've found that few handguns of this type will require an extensive polish. Conclusions The Kel-Tec is a reliable handgun, but more complicated than some modern handguns to work with, I feel. I've experienced some difficulty in disassembling the handgun.

SOMETIMES I'M UNSUCCESSFUL IN TRYING TO BRING THE (CONTINUED ON PAGE 21)

'SLICKING UP' THE KEL-TEC SEMI-AUTOMATIC PISTOL CONTINUED

ORIGINAL PAGE 21

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-5CFBEA6CC7-A1071-P21-F01. Know the rights holder? Please ask them to contact us.

AG-5CFBEA6CC7-A1071-P21-F01

takedown lever out with a case rim, and I end up using a hard tip from the Chapman screwdriver kit. After that, the individual parts will usually come apart in textbook fashion. When reassembling the pistol, the simple procedure of putting the guide and spring back in place under the barrel can also produce some difficulty. The problem seems to be the end of the spring locking on the slide and not allowing the guide rod to continue forward.

This can result in a tie-up, and difficulty in placing the rod and spring under the barrel. Finally, with some manipulation, it's possible to get the rod and spring back in place. This is the price we pay for a full-power handgun that's so compact. Overall, I believe the Kel-Tec pistol has many good traits, and these simple maintenance concerns are a small price to pay for a reliable gun that typically retails for about \$250.

Still, you can probably count on having these pistols coming into the shop for various improvements. ■

PEOPLE & COMPANIES

Reworking the Beretta U22 Neos Trigger

Known for a less-than-stellar trigger, the Neos can be improved with some attention to detail, attention to the takedown article that appeared here last year, and not too much attention to what you read on the internet.

BY DAVID GRIZZLE OCTOBER 2005

ORIGINAL PP. 19-21

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-5CFBEA6CC7-A1072-P19-F01. Know the rights holder? Please ask them to contact us.

AG-5CFBEA6CC7-A1072-P19-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-5CFBEA6CC7-A1072-P19-F02. Know the rights holder? Please ask them to contact us.

AG-5CFBEA6CC7-A1072-P19-F02

In the March 2004 issue, Technical Editor Chick Blood described the Beretta U22 Neos as a “space he ro’s ray gun.” Being from a different generation, I don’t know much about Chick’s radio-show heroes of the past like Buck Rogers and Flash Gordon; I fall into the Star Wars and Alien era of the big screen where colorful lasers drop storm troopers with one shot or blow nasty space monsters to chunky, acidic bits. Nevertheless, when I got a first-hand look at a Neos, I could appreciate Chick’s description.

It all started with a distant signal from a star system far, far away, on a planet fraught with terror and lawlessness.... All right, all right. So the signal was a phone call and it came from the next town here in the moderately quiet Midwest. The caller was a local gunshop I do work for. The shop owner said he had a customer with a Beretta Neos who wanted to know if I could do something to alleviate the gritty, lengthy, and heavy pull, and get it down to a smooth 3-1/2 pounds or so.

I’m sure he mentioned that it was a “Neos,” but that didn’t jog my brain; all I heard was “Beretta” and figured it was a

basic semi-auto. I told him I would take a look at it and do what I could.

Of course, when I picked up the gun and opened the box, my first thought was: “What the heck is this thing?” Inspection and Dissection Naturally, the first thing I do when receiving a gun for trigger work is to try it out and see if it’s as bad as the owner describes it. (To improve a trigger, you need to have a clear idea of what you’re starting with.) Having made sure that the gun was unloaded, I tried a few dry fires. The owner was not exaggerating; this trigger had a truly awful feel.

It crept a country mile, was exceedingly rough feeling, and felt downright heavy. I put some weights on it and it broke in the 6-pound range. I started by scanning my back issues of American Gunsmith to find Chick’s takedown instructions. Following all the standard precautions and instructions, I removed the barrel, slide, firing pin, and the associated springs. I got down to a serious investigation of what makes this thing tick.

It’s really a basic design: Squeeze the trigger and the trigger rotates and pulls the trigger bar; the bar pushes against the sear,

which rotates toward the shooter while pushing against the firing pin; the sear eventually drops clear, and the firing pin is sent forward by the firing-pin spring to strike the chambered round. Simple enough, right? It was obvious that the cause of the heavy pull came from the sear pushing against the firing pin and its spring.

I checked the usual sources for a spring kit and came up dry. That’s usually a good place to start for improving performance, but in this case I had no choice but to use what was there. I started out by polishing the firing pin. With a very fine polishing compound, I put a mirror shine on the high flat behind the notch. This was done to eliminate some of the creep and drag as the sear pushes its way past. The notch itself was polished in the same manner.

The next course of action was to get at the sear and its related parts. That’s easy, right? Just use the proper bit to remove the screw from the firing-pin guide, and all will be exposed for enhancement. Wrong. The screw wouldn’t budge. (Apparently, I missed the part in Chick’s article

REWORKING THE BERETTA U22 NEOS TRIGGER CONTINUED

ORIGINAL PAGE 20

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-5CFBEA6CC7-A1072-P20-F01. Know the rights holder? Please ask them to contact us.

AG-5CFBEA6CC7-A1072-P20-F01

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-5CFBEA6CC7-A1072-P20-F02. Know the rights holder? Please ask them to contact us.

AG-5CFBEA6CC7-A1072-P20-F02

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-5CFBEA6CC7-A1072-P20-F03. Know the rights holder? Please ask them to contact us.

AG-5CFBEA6CC7-A1072-P20-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-5CFBEA6CC7-A1072-P20-F04. Know the rights holder? Please ask them to contact us.

AG-5CFBEA6CC7-A1072-P20-F04

The spring on the right is for a Ruger MK II and was used in place of the factory spring to lighten the trigger pull. The large plunger on the left is the sear plunger, while the one on the right is the safety plunger that slides into the sear plunger. where he said the screw was put in with red Loctite.) Acting on the side of caution, I decided to leave the screw alone rather than risk damaging it or possibly damaging the grip in a vise. At least I could get to the sear.

Using the appropriate punch, I removed the pin that held it in. All sides of the sear that had contact with another part were polished to a high shine. The face and sides around the pinhole were my main points of focus. At this point, I reassembled the gun and tried the trigger. There was a difference but it was along way from 3-1/2 pounds. After some thought, I put a radius on the sear as shown by the arrow in the photo at the top of the page. This helped quite a bit, but the trigger still had some creep.

So... back to the firing pin. I polished the notch some more and changed it a little so it wasn't as straight but angled back a bit. With this done, I applied Microlon Gun Juice

(available from Brownells) to all the contacting parts. This worked to all but eliminate the creep and the roughness, but I could still only get the pull down to about 4-1/2 pounds. I knew it could be better, but without being able to get the guide screw out I could do no more.

I called the gunshop to let them know that the customer had a safe and reliable gun. Flash Forward A couple of weeks after returning the Neos, I walked into the same gunshop and observed two guys looking at and asking questions about some .22s. One mentioned that he had a Beretta Neos. I looked at his work ID and recognized the name. I asked him about his Neos, and what he thought of the trigger. He said he loved the gun and had a gunsmith do some work on the trigger but that it didn't help much.

The employee behind the counter quickly told him that it was me who had done the work. Darn, game over. We got to talking about the gun and the safety issues. He told me he had instructions from a website on how to do a trigger job on the Neos. He also mentioned that he didn't like the front sight and wanted to know if something could be

done with a fiber-optic sight. We hashed over some sight ideas, and I agreed to look at the gun again and his printout from the website.

All is not good in Cyberland, I thought when the gun was returned to me. I read the website's instructions and looked at the photos. Yikes! Most of it was basic stuff that I had already performed, but, when it came to the sear spring, things got scary. The website's instructions called for cutting off a certain amount of coils, replacing the original spring with a Colt Series-80 spring or a spring from a specific brand of disposable lighter. This left me with a cold feeling.

This sounded really dangerous to me, but a guy from the website said he had put thousands of rounds through his Neos with a 1-1/2-pound trigger with no problems. That's good for him, but not for me. I hadn't seen a Series-80 spring for awhile, but from the picture it looked like it was only about half the length of the factory Beretta spring. Not gonna do it. Trigger Job Two After disassembling the gun again, I noticed that the slot on the guide screw was messed up.

The owner had tried to remove it since I last saw the gun, butchered up the slot,

REWORKING THE BERETTA U22 NEOS TRIGGER CONTINUED

ORIGINAL PAGE 21

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-5CFBEA6CC7-A1072-P21-F01. Know the rights holder? Please ask them to contact us.

AG-5CFBEA6CC7-A1072-P21-F01

and now I couldn't get a bit to stay in it. I let him know that the only way to remove it was to drill it out. He said to do whatever it takes to get a 3-1/2-pound trigger. (The printout said that the screw was easily replaceable with an M3 6mm.) I put the grip in a vise on the drill press, chucked up a number 1 center drill, and drilled into the middle of the slot till the tip was no longer visible.

I stepped up to a number 2 center drill, and when it was about halfway in, the screw head popped off and the trigger bar flipped the guide up. The only thing remaining was the screw shank in the hole. After some effort, the receiver separated from the grip and, using a pair of locking pliers, I twisted out the remaining part of the screw in the grip. A quick trip to the hardware store produced a 6mm Phillips-head screw of the appropriate length.

With the guide out of the way, I was able to get to the rest of the parts. The first thing to look at was the sear spring. It fits in the safety plunger, which slides into the sear plunger. Both, obviously, are vital to a safe firearm. (I now seriously doubted the safety

of guns modified according to the printout from the website.) I went through my stash and came across some Wolff springs for a Ruger MK II. The firing-pin spring fit perfectly in the safety plunger, and was about one coil longer than the Beretta.

I polished the plunger inside and out, along with the guide where the sear is pinned in place and the end of the trigger bar that pushes against the sear. The next step was to reassemble the gun and try it out. I cocked the gun and squeezed the trigger. My efforts had paid off nicely this time. The trigger broke at just under 4 pounds. I disassembled everything again and put several coats of Gun Juice on all the parts that I had just polished and some extra on the others.

When I was satisfied that I had applied enough, everything was oiled and reassembled. I tried the trigger again—3-1/2 pounds—right on the money! I called the owner to tell him he had a 3-1/2-pound trigger and to explain some ideas I had for a fiber-optic front sight. We settled on milling the plastic blade down so it was flush with the barrel rib and then tapping

it. He delivered a Hiviz Compsight for shotguns that seemed like it would work well without being too large.

I milled the blade down and drilled and tapped it for the 3-56 screw that came with the sight. This turned out to be a nice addition to the Neos. To Infinity and Beyond Our story ends with a very satisfied customer, with me having gained some knowledge about another type of gun, and with these parting words: The Neos is a unique pistol in more than one way. The lack of a decent trigger pull and front sight most likely have to do with production costs.

With some improvements to both, this intergalactic warrior can provide the satisfaction that will make any space cowboy happy to own one. And incidentally, while I'm thinking about it, there was an article in AG about Microton Gun Juice in the March 2000 issue that prompted me to try some. Since then, I've used it many times on firearms and reloading dies. This dry lubricant works as advertised.

Barrel cleaning is much easier and faster after using Gun Juice, and I've had it reduce trigger pulls by 1/4 to 3/4 pound. ■

MAINTENANCE & REPAIR

Reader Forum

BY AMERICAN GUNSMITH EDITORS OCTOBER 2005

ORIGINAL PP. 22-24

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-5CFBEA6CC7-A1073-P22-F01. Know the rights holder? Please ask them to contact us.

AG-5CFBEA6CC7-A1073-P22-F01

High Standard Flite Plan? I'm writing to ask if anyone on the staff knows where I might find a breakdown or schematic for a 12-gauge Hi-Standard Flite-King Deluxe? I would appreciate any help on this matter. The gun is in excellent condition, but has never been broken down for a complete cleaning, and I don't want to try that without a "map" to go by. Thank you. Roger B.

Heim Rising Sun, Maryland A schematic for the Flite King appears in Jack First, Inc.'s parts catalog The company sells the two-volume catalog as well as parts. The "King" is in Volume II, but we'd recommend having both on hand as reference works—they're loaded. M1 Carbine Headspace I have a Blue Sky M1 Carbine on my bench that has a broken bolt. The hollow ear that houses the extractor is broken off flush with the outside diameter of the bolt. The bolt I have is the one with the flat on the top.

The owner claims he only uses factory ammo. I'm concerned about excessive headspace. Can I use the broken bolt to check for excessive headspace (nogo and/or field)? Or do I need to buy a bolt and then check it? Is the rifle worth fixing? Thank you. Tom Hourt We have no knowledge of Blue Sky's quality or the value of the carbine, but bolt faces of some M1s have been known to shatter. One cure for this is to silver-solder the face back together and smooth off any solder seams.

Using the broken bolt to check headspace might throw off your readings. If you can't fix the old bolt, we recommend finding anew one. Remington Nylon 66 Mag Tube I'm having trouble finding an outer mag tube for a nylon 66. Is there any other tube that will fit or one that can be modified to fit? Also, if I make one, what size tube and

wall thickness should I use? Thanks in advance. Allen We think the Model 66 is still being made. If so, Remington Customer Service can fill your order for anew tube.

If we're wrong about current manufacture, try Gun Parts Corporation or Pennsylvania Gun Parts Rebarreling Remington 742 Is it possible to change the barrel on a 742 Remington from .30-06 to .270 without major refitting of the barrel to receiver? Thank you. Ernest Hurst That depends on what you consider to be "major refitting." The barrel/receiver interface must be machined perfectly square to avoid misalignment and horrible accuracy.

However, if the barrel is Remington-made for the rifle, there will be no need for such machining—just the usual headspace checks. You're also fortunate in that the Model 742 uses the same bolt for .30-06 as it does for .270 and .308. On the other hand, if you're having the barrel made by someone other than Remington, then the barrel shoulder, barrel threads, and receiver must all be machined, as must the barrel extension, which is threaded on. Russian Break-Top Details?

I have a double-action Smith & Wesson break-top in .44 Russian that I am restoring. The gun is nickel, and I'm told that the hammer, latch, and trigger are case colored. The triggerguard is blue, isn't it? The serial number is 6701, circa 1881. Any help would be appreciated. Tony Levato As we're sure you know, the gun is nickel-plated, not made of nickel. But we doubt the parts you mention have been case colored; case hardened, perhaps, but not case colored—not originally, at least.

And there must be some trace of its original finish existing on the guard. Since we don't know, we suggest you speak with Jim Supica at Old Town Station in Lenexa, Kansas. He's great with details on old guns. Firearm Finishes Oftentimes I need to send out apart, magazine, or entire firearm to be refinished. I'm not sure I'm getting the best finish for my money. I don't recall any articles addressing this, so could you please point me in the right direction?

Many of my customers are military and/or law-enforcement officers, so I usually desire a black or matte-black finish that is very durable and darn near impervious to rust. I know some companies, such as Accuplate, claim enhanced performance and with that in mind, enhanced performance would be a great plus. Thank you in advance for any direction you could give me. Jay T. Livziey There is no all-encompassing response to your query.

The finish you need or want depends on the gun and what you have been asked to do regarding it. For example, if restoration is the requirement, the finish closest to the original would be the best finish. Should case hardening, slow rust blue or browning be called for, you get the quality you pay for. One of the best in the business for restoration metalwork we know of is Doug Turnbull As for your military and law-enforcement customers, we're quite certain their concern is primarily reliability.

Their cosmetic desires for a dull, tough surface could be satisfied with a baked-on finish (Brownells). This is something you don't need expensive equipment to apply. There is also hard-black chrome plating; we've yet to hear of rusting on a gun so treated. "Enhanced performance" is an interesting term, since it can be in

READER FORUM CONTINUED

ORIGINAL PAGE 23

terpreted in many ways. With your military/law enforcement clients, we'd tend to lean toward the reliability factor, perhaps in combination with a smoother action. Usually, the finishes applied by companies claiming better performance include a lubricant in their formulations. These days, it could be a compound known to bond with metal surfaces and decrease the friction between them. One such compound is molybdenum disulfide, but you don't have to rely on an outside supplier to provide its advantages.

Thoroughly mix two or three tablespoons of moly powder with a quart of automotive transmission fluid. Lightly apply the solution to slide/frame rails as well as other areas in the gun where metal bears against metal. For example, on trigger, hammer, and sear pins. Just how slick is Moly D?

If you're old enough to remember Andy Granatelli of turbine-powered Indy car fame and his TV commercials for STP, you'll recall how he used to dip a screwdriver in an open can of the product and prove the coated blade could not be squeezed between thumb and index finger without escaping. The magic ingredient in STP back then was molybdenum disulfide, and for years the product decal was worn by more racing cars than any other.

Beyond that, we're sure you're familiar with moly-coated bullets that increase muzzle velocity because they lessen friction significantly on their trip down the bore. Marlin 1895 Takedown Could you send me complete disassembly instructions for the Marlin 1895, caliber .45-70? My printer is down, I would appreciate having it mailed to me. Thank you. Earl Colson Troy, New York An article on the Marlin 1895 appeared in the August 2001 issue.

The example in the article wasn't stainless steel or in the same caliber as yours, but all Model 1895s made by Marlin take down identically. For a reprint, call AGA Customer Service at Hey Luigi, Why You No Shift? On my work bench I have a Luigi Franchi DU Edition 12-gauge O/U which fails to shift after the first barrel is fired. All parts are intact and move freely, and none are broken or missing.

The shifter appears to be inertia activated to the rear when firing the first barrel, and returns forward with the help of a flat spring. I can manually move the shifter to the rear and it will shift or I can press the selector button located in the trigger (crossbolt-type button) and it will fire the second barrel. The gun is clean and in excellent condition. Help me please. B. B. Valentine We think your problem lies with the inertial block and/or its associated parts.

If so, the complication will be finding replacement parts. Beretta USA has taken over sales for Franchi and Benelli, but we understand they have no parts for Luigi Franchi guns. If they did, we suspect the components you need would be on the "factory service only" list. We suggest you try Jack First Gun Parts Corporation or call Brownells and ask for a free copy of their parts source list for out-of-production firearms.

Shotgun Woes I'm getting a lot of shotgun work lately and I am surprised at the problems and variations I am seeing in basic models. First, I got what I believed to be an Ithaca Model 37 Deerslayer that would not eject spent shells. I thought the easiest thing to do first was to remove the barrel and install it on another M37, which I bought new in 1970, to see if it would feed and eject dummies. The barrel didn't fit quite right so I would never consider

shooting it with this barrel on, but it did feed, extract, and eject dummies with authority. I then tried to put my Deerslayer barrel onto the problem gun and it would not go on.

Both guns are in the same serial number range, but curiously, the forend on the trouble gun is rounder and the stock has rougher pressed checkering of a slightly different pattern. The grip has a Browning red plastic Buckmark cap, the recoil pad says "Ithacagun" and the barrel says "Deerslayer," but the scenes on the receiver are exactly reversed from my M37. That is, the scene on the right side of my gun is on the left side of the other gun and vice versa.

And, the scenes are rougher on the problem gun than on mine. Any idea what I may have here? Could it be a Norinco? When pumped with the trigger held, the hammer falls just as it does on my Deerslayer. My second question concerns the Stoeger Condor (apiece of junk, in my opinion). It will only fire one barrel, then the safety has to be placed on and then taken off for the second barrel to fire.

It's a single-trigger non-selective system that has a device attached at the top of the safety and at the bottom to the trigger. (I don't know what else to call it; it works like an inertia block, but it's purely mechanical.) When the safety is pushed forward into the firing position, this device, which is stepped on the face, contacts the rear of the sears. When the trigger is pulled, this device rotates up and releases the sear and the hammer, but then gets hung up on the bottom barrel hammer sear.

Placing the safety back in the on position rotates the device away from the sears and the bottom sear clears it. Taking the safety off again rotates this device

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-5CFBEA6CC7-A1073-P24-F01. Know the rights holder? Please ask them to contact us.
AG-5CFBEA6CC7-A1073-P24-F01

(continued from previous page) back under the remaining sear for firing the top barrel. I've changed all the springs and polished up everything I could polish, and still can't get it to work for love or money. I'm pretty sure it was made by Boito, but I can't find a model like it in the Gun Parts catalog. The receiver says E. R. Amantino. Any info? Thanks. Mike If it says Ithaca on the barrel, it wasn't made by Norinco.

It is possible it might have been made by Chinese imitators, which might explain why the tube didn't quite fit your 1970 Model 37 made by Ithaca. You were wise not to attempt to fire the resulting mismatch. Failure of the original barrel to mate raises a similar suspicion of the receiver, which could have been picked up at the bargain table at a swap meet; a suspicion that deepens in consideration of the cosmetic differences you mention. Frankly, we can't tell you exactly what you have.

Of course, there may have been unannounced engineering changes in the M37, but contacting Ithaca Gun could confirm or deny them. Stoeger Industries is now a division of Beretta, USA. The "Condor" model is mechanically the same as the identically named offering from IGA, still made in Brazil. Having no owner's manual on the shotgun, we're not familiar with how it is supposed to function. A call to Beretta will probably get you a manual to which you can refer.

While on the phone, we suggest you make gentle but persistent inquiries of customer service and/or technical personnel for an

explanation of your problem. We can only guess that relieving the interference point(s) of the device you mention could be one solution. Another might be replacing worn or broken parts in the selector-mechanism block system. Marble's Tang Sights I'm trying to mount a tang sight on anew-model Winchester 94. It has a tang safety.

I would like to use a Marble's tang sight; I need the windage adjustment. However, all of the tang sights I've seen for this rifle will interfere with or negate the safety. I have seen a picture of a Marble's sight that's made for the new Stevens Favorite Rifle. Both mounting screws are below the sight mast and may fit quite well, but I can't seem to get any dimensions for the mounting base.

Since the tang safety on this rifle is really a redundant "manual" safety, there is not really any opposition to blocking the action of the safety switch. But I would rather not if I don't have to. I might be able to shim the sight and just modify the safety lever by adding a flat extension out from under the base of the tang sight to operate the safety switch.

Do you know of any source of drawings that I can use to pick a model of the Marble's sight, maybe not one designed for the Winchester but one that I could adapt or make work? Thanks for any guidance. Vernon Krippner We don't have any Marble's sights on hand to evaluate, or anew Model 94, for that matter. We're sure, however, that the manufacturer, Marble's

Outdoors (www.marblesoutdoors.com; can provide all the information and measurements you require.

And by the way, we recommend that you leave the tang safety on the rifle unaltered. Savage Light Hits I have a Savage (Westernfield) Model SB100-B single-shot 16-gauge shotgun in for repair. It will occasionally not fire alive round when chambered. The primer dents seem to be light. I have removed the trigger group and firing pin, which look to be in good shape—crisp edges, nothing deformed—but I don't have any disassembly info for reference, only a schematic. Do you have any assembly/disassembly info?

Also, could this be as simple as a weak spring? Any info would be helpful. R. Coles It could well be a spring or springs. There are four action-related springs shown on the schematic in Jack First's Catalog, Vol. II. We don't know the original length of the firing pin, which can get shortened through long use and cause light hits. You might be facing a headspace problem, though. Is there any noticeable looseness between the barrel and receiver after lock-up?

This is one of those old Savage shotguns and the best person we know regarding them is Steve Simon. He runs The Small Arms Shop in Inverness, Florida. He's always been a help to us and would probably be able to help you. Steve also stocks old Savage parts.

SEARCHABLE ISSUE RECORD

Archive index

Senate Passes Reform to Stop 'Junk' Lawsuits
American Gunsmith Editors

2

Meet the Ruger Mark III: A Guide to Disassembly and
Reassembly
Chick Blood

3-7

A Scope-Mounting System for .22 Rimfire Semi-Auto
Handguns
Norman E. Johnson

8-10

In-Shop Barrel Porting And Lapping—In One Process
Tom Goodison

11-15

'Slicking Up' the Kel-Tec Semi-Automatic Pistol
Robert K. Campbell

16-18

Reworking the Beretta U22 Neos Trigger
David Grizzle

19-21

Reader Forum
American Gunsmith Editors

22-24

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