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INSIDE THE ARCHIVE

WORKING THE WINCHESTER MODEL 50 AND 59 SHOTGUNS

ANTI-GUN AMENDMENTS DERAIL CRUCIAL BILL • DISASSEMBLY/REASSEMBLY OF THE BROWNING MODEL 1885 HIGH W...

ORIGINAL METHODS. MODERN ACCESS.

ARCHIVE EDITION 007

DIGITAL ARCHIVE EDITION

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SAFETY & COMPLIANCE

Anti-Gun Amendments Derail Crucial Bill

BY AMERICAN GUNSMITH EDITORS JUNE 2004

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Shortly before this issue went to press, anti-gun Senators succeeded in temporarily derailing a legal reform bill (S.1805) that would have stopped “junk” lawsuits against gun makers by tacking on gun-control amendments, despite a plea from President Bush that the Senate pass a “clean” bill. President Bush strongly supports the legislation because it protects American jobs.

The bill, sponsored by a majority of the Senate, would throw out junk lawsuits filed as part of a coordinated strategy to financially ruin the firearms industry. However, the bill was rejected by the Senate 90-8 after amendments were added to extend a federal law banning cosmetic features on certain semi-automatic firearms and requiring background checks at gun shows when private individuals sell guns.

In April of 2003, the House of Representatives passed a “clean” version of the bill by an overwhelming bipartisan vote of 285-140. The National Shooting Sports

Foundation (NSSF), the firearms industry’s trade association, strongly advocated this common-sense legislation.

The NSSF estimates that its members have spent approximately \$150 million defending lawsuits it describes as frivolous because they seek to blame federally licensed firearm manufacturers for the actions of criminals who misuse lawfully sold, non-defective firearms to commit crimes. “While we are disappointed by the recent developments, we remain confident there is sufficient bipartisan support in the Congress to pass common-sense legal reform that will put a stop to predatory lawsuits that threaten to destroy our industry and put tens of thousands of Americans out of work,” said Lawrence G.

Keane, NSSF vice president and general counsel. Keane noted that even President Bush, who supports an extension of the ban on certain semiautomatic firearms despite the fact it has not reduced crime as promised by the Clinton administration,

wanted the Senate to pass the bill without any contentious amendments. The Fraternal Order of Police, which supports an extension of the so-called “assault weapon ban” wrote the Senate urging that the issue not be taken up as part of the pending legislation.

Keane called upon the leadership of both parties in the Senate and the White House to “find away to protect a law-abiding and responsible industry and the jobs of tens of thousands of honest, hardworking Americans from frivolous lawsuits. “Congress needs to follow the lead of over 30 states that have already enacted similar legal reforms to stop lawsuit abuse and restore integrity to the nation’s judicial system,” said Keane.

To learn more about NSSF’s safety programs and the promotion of the sensible use of its members’ products, visit its website at Editor Keith Lawrence Technical

PEOPLE & COMPANIES

Disassembly/Reassembly of the Browning Model 1885 High Wall

The mechanical differences between the original Browning design and the early Winchesters were insignificant. But things have changed considerably.

BY CHICK BLOOD JUNE 2004

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Johnathon Browning (born 1805) ran an ad about his gunshop service on Mosquito Creek near Kanessville, Iowa. It went something like this: “I am prepared to manufacture to order improved revolving rifles, pistols, and slide guns unequaled this far East. You are invited to call and experience Browning improved firearms before buying elsewhere. Johnathon was the father of John Moses Browning (born 1855) who hunted with guns of his own design and manufacture during his teenage years.

For example, on May 12, 1879, he filed for a patent on a single-shot rifle which was granted on October 7 of the same year (US #220271). The first Winchesters resulting from the sale of the patent were designated the Model 1885 and often referred to simply as “The Single Shot.” The mechanical differences between the early Browning-made single-shots and those produced by Oliver Winchester’s factory were almost insignificant. Such is not the case with the current Browning Model 1885.

A study of the schematics for the “new” 1885 and that of a Winchester will reveal many changes. However, the instructions for taking down a Browning of today can be generally applied to one of its ancestors. There will be fewer components to deal with in an original, making the task of reassembly proportionally easier.

In following up this commentary on the 1885 High Wall, I’d be remiss in not mentioning that the instructions are equally appropriate for the Low Wall model, the blackpowder Browning BPCR Creedmore, and the B78 (which is, after all, a High Wall knock-off). Most notable among the differences that do exist is the fact that the High Wall has an ejector; the Low Wall doesn’t, but both have an extractor.

I’d also be remiss if I didn’t explain the numbering system, or simplification thereof, that you’ll see in the Browning 1885 High Wall schematic. Closer examination will reveal the last three digits actually identify the part, so the last three digits are all I’ve used in the accompanying parts list. This is a different approach than I’ve used in the past, true, but I think it will make finding the part concerned in the disassembly/reassembly directions somewhat easier.

Field Stripping The 1885 High Wall worked with here is a traditional model, meaning the receiver wears a tang, and the tang wears a tang sight. Remove the tangsight screws (#698) and the sight. Under the sight base is a stock screw. Remove it, the butt-plate screws, and the butt plate. You’ve just run into your first challenge in taking down this rifle. The stock is curved to extremes at the

DISASSEMBLY/REASSEMBLY OF THE BROWNING MODEL 1885 HIGH WALL CONTINUED

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butt's o much so that the handle of a 7-inch-shank screwdriver keeps bumping into it, preventing the blade from contacting the stock bolt (#895). I found a solution in the form of an often-employed stock-removal tool for Remington shotguns sold by Brownells. It has an 11-inch shaft, a Thandle, comes with several bits that snap onto the 3/16-inch shaft, and will accept any 3/16-inch socket. Among the supplied bits is a blade that happens to fit the slot of the Browning stock screw perfectly.

Once that screw is out, the stock can be pulled to the rear and separated from the receiver. The forend is taken off by backing out the two screws (#816). From this point on, further disassembly takes place with the lever open (#834) and the rifle upside down. Detailed Disassembly In the upside-down position, all pins are drifted right to left as you look down on the gun. Before continuing, however, make a little tool you'll be using right away and down the pike.

The basis of the tool is a small, inexpensive screwdriver. Grind or file a notch in the blade just wide enough to fit over the small end of the ejectorhammer plunger (#767), then harden the blade with Kase Nit (from Brownells). Using the tool, compress the plunger toward the receiver. Insert a small punch into the hole in the ejector hammer (#753) to hold the ejectorhammer sear (#761) in the downward position. Drift out the ejector-hammer sear pin (#763) and separate the sear from the ejector assembly.

Make sure the ejector-hammer extension (#756) is clear of the bolt by pulling the extension toward the muzzle. You may have to wiggle the lever some to clear the extension, but the lever remains open for the next steps. The lower pin on the lever is the hammer pin (#826). Drift it out to detach the hammer (#825). Working the lever slightly, pull out the mainspring guides (#855) and their springs (#852), and drift out the guide pin (#857). Note the two holes in the pin where the guides seat.

A With few exceptions, upside down is how the rifle is taken down and reassembled. The Browning's trigger-housing pin (#938) is knurled at one end. Be sure to drift it out right to left before removing the trigger housing (#933). The lever pin (#836) is next to come out. Prior to its removal, note how the extractor spring (#774) and extractorspring plunger (#776) index on the groove in the pin. With the pin out, the lever (#834) and breech block (#730) will be released.

Remove the forearm hanger bolt (#812) and hanger (#810). But more disassembly remains. At the upper rear of the receiver is an item called a shell deflector (#742). It's a pretty neat idea. It can be adjusted to cast the spent case out to the right, to the left, or stop it cold and let it rest atop the receiver. The deflector can be tapped out with a punch inserted where the trigger housing used to live.

Along with it will come the The homemade "U-bit" screwdriver described in the text is intended to fit over the hammer's tip and aid in compressing the spring.



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893 Stock Bolt 816 Forearm Screws 810 Forearm Hanger 812 Forearm Hanger Bolt 825 Upper Hammer Pin 826 Lower Hammer Pin 855 Mainspring Guide 852 Mainspring 857 Mainspring Pin 938 Trigger Housing Pin 933 Trigger Housing 907 Upper Sear/Trigger Pin 907 Lower Sear/Trigger Pin 871 Sear 875 Sear Spring 861 Rear Mainspring Pin 912 Trigger Spring deflector ball (#744) and deflectorball spring (#746). In the Low Wall model, the firing pin and spring are retained by a single screw. Not so with the High Wall.

Unfortunately, I might add. Here, the firing pin bushing (#783) has three Browning Model 1885 High Wall Single-Shot Rifle (Specifications subject to change without notice) 923 Trigger Pull Adjusting Screw 908 Trigger Sear 909 Trigger Sear Pin 836 Lever Pin 774 Extractor Spring 776 Extractor Spring Plunger 756 Ejector Hammer Extension 765 Ejector Hammer Spring

small holes. You're probably familiar with a golf shoe spike wrench. Something like it will be required to unscrew the bushing and you'll have to make it.

Ideally, it would be a length of round stock with three blind holes drilled in one end into which short 761 Ejector Hammer Sear 750 Ejector Connecting Pin 730 Breech Block 768 Extractor 834 Lever 846 Link Breech Block Pin 844 Link 838 Lever Latch Ball 840 Lever Latch Ball Spring 742 Shell Deflector 744 Shell Deflector Ball 746 Shell Deflector Ball Spring 783 Firing Pin Bushing 780 Firing Pin 789 Firing Pin Spring lengths of drill rod were soldered or epoxied.

The drill rod would match the diameter of the holes in the firingpin bushing. We believe a less than ideal two-hole rig would work just as well and leave the final choice up to you. Yes, the factory has a tool they use to perform this little task. No, it's not for sale. The good news is the firing pin is very unlikely to break and you can depress from the rear of the

DISASSEMBLY/REASSEMBLY OF THE BROWNING MODEL 1885 HIGH WALL CONTINUED

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breech block to flush out any accumulated fouling that might interfere with free movement. While you ponder exactly how you're going to make a handy-dandy Browning-High Wall firing-pin-bushing-disassembly tool, we'll move onto the trigger group. The trigger in this rifle is adjustable. The screw for adjusting it is located immediately aft of the trigger. Clockwise rotation reduces pull to a 3-1/2-pound minimum. Counterclockwise rotation increases pull to a maximum of about 5 pounds.

If the pull is made too heavy, the trigger won't work at all. To remove the sear (#871), drift out the upper trigger/sear pin (#907). The sear spring (#875) will be released with it, as will the rear mainspring pin (#861). The spring's long end indexes on the sear, with the short end on the mainspring pin. The spring itself is quick to take a set and weaken. During reinstallation, be aware of this characteristic and don't bear down on the sear/main-spring connection for any length of time.

Best way to avoid the problem? Don't bear down at all. Removal of the lower pin (#907) frees the trigger itself. After that, the trigger-pull adjusting screw (#923) and

trigger spring (#912) can be removed from the housing. The trigger sear (#908) is separated from the trigger by drifting out the trigger-sear pin (#909). The lever and breech bolt are taken apart by drifting out the breech-block pin (#846) to free the lever, link (#844), and lever-latch ball (#838).

Reassembly Tips The ejector system is reassembled from the front of the forearm hanger to the rear. The lever/breech-block assembly must be entirely preassembled before going back into the receiver. During the reinstallation, the ejector connecting pin (#750) indexes in the groove in the ejector-hammer extension to keep everything tied together. In order to reinstall the lever pin, you have to compress the extractor spring and plunger by way of the bottom of the extractor. Otherwise, the pin will not pass through.

As it is with the lever/breech-block assembly, so it is with the hammer/ trigger assembly. It has to go into the receiver as a unit. And that's the meanest part of getting the M1885 back together. The rifle is upside down, the trigger housing/trigger are together and standing by. Slide the main-

spring pin through the hammer so there's a hole on each side. Install the mainspring guides on both sides of the hammer and slip on their springs. The springs have to index on the tabs of the rear mainspring pin (#861).

Start in the combined hammer/ trigger assembly. The rifle is still upside down. The trigger housing will slide into its grooves in the receiver, but about halfway in, the hammer will catch on the sear. Pull the trigger. Lower the lever and it will push the assembly into the receiver. Now raise the lever as you hold onto the top of the hammer while aligning breechblock and hammer holes for the lower hammer pin. Insert a punch to keep the holes aligned and push out the punch with the pin.

Function test the gun using dummy rounds. There should be no problems, but there's no guarantee made or implied here there won't be. Experience has shown on many occasions that anyone can make a mistake putting a gun back together, and I made my share with this one the first time around. Embarrassing, but true. I

SHOTGUNS

Making a Smoke-Free Muzzleloader Ignition Module

Some muzzleloaders tend to smoke up the action quite badly. Fortunately, there is a simple and practical measure that can be taken to correct this that can be applied to many guns.

BY NORMAN E. JOHNSON JUNE 2004

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Original caption: Right top: This .45-caliber breakopen muzzleloader was used in the breech-plug conversion.

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Original caption: Right bottom: From the left are two unfired No. 209 shotgun primers with four fired primers. Note that the fired primers vary from totally shattered to excessively flattened. unaltered breech plug should my plan of correction not work to my expectations.

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Working with anew breakopen-type .45-caliber muzzleloader made by Millennium Designed Muzzleloaders, Ltd. (MDM), I noticed the action getting increasingly more smoked up with each shot. The number 209 shotgun primers would virtually disintegrate, allowing the smoke and primer mixture to blow against the breechface, along the firing pin, and into and around the action. Cleaning the gun under such conditions was most difficult. Making some sort of correction seemed absolutely necessary.

I noticed the 209 shotgun primer was not being held firmly against the breechface, which accounted for part of the problem; however, I

abandoned this particular type of ignition as away of correcting the problem. Here's what I did: Making Things Right As a means of making a perfect gas seal, I modified anew breech plug. In this way, I could save the original

The conversion enabled the use of a special ignition module to replace the 209 shotgun primer.

The common thread size used on this type of breech plug is 5/8-18, so I had no problem finding a replacement to work with that fit the threaded hole and formed a gas seal at the inner shoulder. As a suitable substitute, however, I needed a different type of breech

plug with a larger diameter at the rear end. From there, I bored out the rear of the larger-diameter breech plug to create an entirely different type of ignition system.

I'll call this new means of ignition the "ignition module." The principle here involves the use of a shortened section of a small center-fire cartridge case complete with small-rifle primer. Here, I chose to use a 0.770-inch length of a .22 Hornet case head for the ignition module. This is a rimmed case, which provided easy extraction. It's small in diameter with optimal taper, and provides plenty of primer flash to ignite both

MAKING A SMOKE-FREE MUZZLELOADER IGNITION MODULE CONTINUED

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At the left is the original breech plug used in the .45 caliber MDM break-open action for use with 209 shotgun primers. In the center is the type of breech plug used in ignition on the Knight model TK2000 or USAK, and is threaded for a percussion-cap nipple. This type of breech plug is not used in a conversion as it has no coned flash hole. On the right, the breech plug used in the ignition conversion has a mini-chamber cut for an altered .22-Hornet ignition module.

This finished conversion has a coned flash hole for small-rifle primer ignition, and works perfectly for ignition of all types of black powder or substitute preformed pellets, black or Pyrodex-type powders including the newer preformed pellets even under sub-zero temperature conditions. Making the New Breech Plug And Fitting the Ignition Module With the threaded breech plug centered in the lathe, I drilled a 15/64 inch starter hole into the breech plug to a depth of 0.560 inch.

This starter hole is approximately 0.060 deeper than the depth of the shortened case, allowing for case-mouth contact against the newly formed shoulder and still enough case rim protruding for easy extraction. Essentially what we are doing is cutting a short cham- The primer is in place ready to be fired here. The primer is blown with burned powder soot forced into the action. ber into the breech plug, and headspacing from the case mouth to the breechface of the gun.

After drilling the starter hole in the breech plug, I used a special carbide tipped boring bar to cut the miniature chamber. The boring bar was set into the lathe's compound rest at a 1.5 degree angle. Then, by advancing the cutting tool with the compound rest preset to exact cutting depth, the existing small-coned flash hole remains in the modified breech-plug body at full depth. The strength of the breech plug is not compromised in any way.

As the newly formed chamber nears completion, the ignition module is checked for fit. As the case approaches proper depth, the case mouth will finally touch the inner chamber shoulder. By applying a small amount of additional taper to the chamber, the case mouth forms a perfect gas seal and is easily removed with the fingers after firing. A few thousandths of clearance taper near the base of the ignition module is helpful here.

At this point it is best to try a few cases for headspace with the breech plug screwed fully into the barrel. Trying a few cases for a slight bump fit works well, as the case mouth is felt against the inner shoulder with the action closed. Actually, it's best to fit a control case to the chamber and later cut the remaining cases (ignition modules) under carefully controlled conditions to the same length. You may decide to make a dozen or more.

I simply used a cutoff tool to cut 15 cases a few thousandths long and trimmed them to a uniform length

MAKING A SMOKE-FREE MUZZLELOADER IGNITION MODULE CONTINUED

ORIGINAL PAGE 9

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22-Hornet cases to exact length for the chamber bored into the breech-block conversion. 5-degree angle in a compound rest is used to precisely form the ignition module chamber in the substitute screw-in breech block. using an RCBS "Trim-Pro" powered case trimmer. This was a good time to check the ignition modules in the gun for precise headspace before trimming all of them. On firing with normal powder charges, cases are fire-formed to some degree, forming a perfect smoke-free seal in the new chamber.

Case extraction is easy, either using the forked 22- Hornet case being inserted into the chamber bored into the screw-in breech

plug. Cases are conveniently inserted and extracted with the fingers, leaving the action totally free of smoke and residue from burned powder. tool that came with the gun or bare fingers to remove shotgun primers. I later discovered a small-rifle magnum primer gave me even better ignition.

Positive powder ignition at minus-10 degrees Fahrenheit showed no ignition lag while using all types of available powder, including Pyrodex preformed pellets. Neither velocity nor bullet impact changes were noticed when firing the gun under such varying conditions, and no smoke leakage was present around the action or alongside the new ignition mod-

ule. Conclusions The foregoing method of muzzleloader-ignition enhancement accomplishes several positive things.

It alleviates the troublesome smoke leakage after each shot, leaving the action perfectly clean. It is also much easier to install and remove the new ignition module than to work with primers requiring a special tool. And the breech-plug flash hole remains open after succeeding shots, with no debris clogging the flash hole, resulting in more reliable ignition.

If a change in the ignition system on a muzzleloader can accomplish all this, I wouldn't hesitate to recommend it for any gun on which this modification could be made. I

PISTOLS

Adding a Manual Safety To the Glock Pistol

A simple kit and a simple set of fixtures make the installation a snap, and won't void the pistol's warranty.

BY CHICK BLOOD JUNE 2004

ORIGINAL PP. 10-12

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The Glock pistol has been a source of controversy since December 1985 when the availability of its commercial version, the Model 17, was announced on this side of the pond.

The first shot was lobbed by The Washington Post, known to all for its great expertise in firearms, with a column headlined: "Quadaffi Buying Austrian Plastic Pistol." UPI liked the claim so much it put the column on its wire service and newspapers all over the country picked up the blooper, claiming the Glock to be "a hijacker's special," a "terrorist's delight" and "the gun that can pass undetected through airport X-ray machines." Did it matter that The Post writer had been told officially by a Glock spokesperson that the company had never sold anything to Libya?

That no Glock personnel had gone to Libya? And that the Austrian Minister of the Interior confirmed that neither Glock nor anyone representing the company had ever applied for an export license to Libya? Has any "Aunty Gunner" or antigun publi-

cation ever bothered to report the facts? You know the answer to that one. As usual, the media inflamed antigun mentalities in Washington, and Congress responded, as usual, by proposing inane bills like HR 4223, which would ban the sale of the Glock 17.

The Police Commissioner of New York City stumped for a Big Apple ban on Glock pistols while neglecting to mention he carried one for personal protection when jogging in Central Park. The Post kept stirring the pot, now focusing on the "undetected by Xray" angle in subsequent articles. The Washington Times, Fortune and New York Times piled on the bandwagon.

The broadsides continued nationwide until after both the Director of Civil Aviation Safety for the FAA and the BATF poured cold water on the media powder charges with official comments denying the Glock's "invisibility." So much for Libya, assorted terrorist organizations, and defeating X-ray machines. For a brief moment in time, Glock's ill-informed, fact-blind critics were

quieted. Law-enforcement agencies at all levels began adopting the maligned pistols as their standard sidearm.

First, the Model 17, then the Model 19 until more Glocks were on duty with police, federal marshals, and government agents than any other semi-auto. The second shot was over "accidental" discharges. The most publicized was probably a Utah incident where a four-year-old picked up a loaded pistol after taking it from a locked safe and discharged the gun at close range, killing his three-year-old brother. A Glock must have its trigger fully depressed to be fired.

It also includes a firing-pin safety to prevent the pin moving forward, eliminating the possibility of igniting a chambered cartridge unless and until the trigger is pulled fully to the rear. The drop safety is present for the obvious rea- 45 ACP Glock Model 21 is shown here with the MSK installed. As you can see, the lever is located about where the thumb safety is found on an M1911.

ADDING A MANUAL SAFETY TO THE GLOCK PISTOL CONTINUED

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Above left and When the lever is depressed (right), the pistol is ready to fire. son, and is not affected by the trigger. In every instance of accidental discharge I've uncovered, the Glock involved had its trigger pulled. In one case, even the pull was accidental. The investigating officer had a finger on the trigger and was standing outside a door to a suspect's home. The suspect pushed the door open violently.

The door hit the pistol and the gun went off, seriously wounding the suspect who subsequently won a tidy cash award. No surprise there, either. The Glock trigger pull is about 5 pounds as it comes from the factory. After fears arose in some quarters that this was "too light" and therefore the reason for the accidental discharges, Glock provided what has become known as "the New York trigger" as an option. When installed, it increases pull to as much as 11 pounds.

Suffice it to say that may be high enough to provide Manhattan crooks with an extra sense of security, but the heavy trigger isn't much in demand outside of the Big Apple. The Third Shot' And Where You Come In With X-ray and trigger-pull problems resolved, the controversy goes on. And perhaps it will for some time to come. On one side are those who believe there's nothing wrong with the Glock

ADDING A MANUAL SAFETY TO THE GLOCK PISTOL CONTINUED

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that ordinary safe-handling practices and effective training can't solve. On the other side is an equally large group who say they'll never totally trust the Glock because it has no manual safety. Well, folks, neither does the revolver't hat obedient servant of law enforcement since the days of the wild, wild, west. And I might point out that the revolver was replaced only when it was belatedly realized that the law-breakers were outgunning the law-enforcers.

It is to this second group's o desirous of a manual safety't hat the MSK for Glock pistols will appeal. Contact surfaces of all MSK parts touching one another should be lightly greased. Figure 1. The initials stand for Manual Safety Kit, which sells for about \$85. When added to a Glock of any caliber, its safety lever is located approximately where the thumb safety lives on an M1911. When engaged, all three Glock passive safety features are locked in place.

The MSK itself only contains five parts: (1) a mounting block that serves as anew housing for the trigger mechanism; (2) a trigger-bar guide; (3) around tension spring; (4) a pressure plate; and (5) a safety lever with two integral detents that engage the holes in the pressure plate. The MSK is the brainchild of Joe Cominolli, 25-year veteran of a metropolitan police department with heavy experience in firearms training and longtime member of the American Pistolsmiths Guild.

He received a patent titled "Manual Safety for Linear Striker-Fired Semi-Automatic or Automatic Pistols" after amassing a thick file on Glock unintentional discharges and resolving to put an end to the controversy. The Comi Cominolli Custom isn't difficult to install be familiar with Glock disassembly/reassembly. Those instructions appear in Gun Digest's book dedicated to automatic pistols

and in a hard cover book called Glock: The New Wave in Combat Handguns by Peter A. Kesler.

The d by Palladin Press and delves deeply into e pistol including the various assaults made upon its presence. MSK Installation Installation begins by field stripping the pistol, after removing the magazine and checking for an empty chamber. The slide assembly is set aside as you remove the trigger-housing block and trigger group from the frame. Two frame diagrams are provided with the kit. One is for the .45 ACP and 10mm Glocks. The remaining one applies to all other Glock calibers.

Though marking and subsequently modifying the frame can be accomplished with the diagrams alone, I recommended that you invest modestly in a set of Cominolli's fixtures (continued on page 22) Figure 2.

ADDING A MANUAL SAFETY TO THE GLOCK PISTOL CONTINUED

ORIGINAL PAGE 22

that run about \$75. Using them should reduce retrofit time to mere minutes. They include a frame-slotting fixture plate, two locating pins, and a Delrin cutter guide. The fixture plate eliminates the need for the diagrams. It is clearly marked on the back showing which end is to be used for the smaller calibers and which end is to be used for large-caliber pistols. A cutting-guide groove is machined in each end, and holes for the locating pins are drilled through the plate body.

The larger-diameter pin inserts through the frame's trigger-pin opening, while the smaller-diameter one goes through the trigger-housing pin opening. With the pins in place, the frame is mounted to the fixture plate and secured with a small clamp.

A 3/32-inch-diameter end-mill cutter with a 1/8-inch shank is chucked into a Dremel tool; the Delrin guide is slipped over the cutter; and the cutter depth is adjusted to just reach through the left side of the frame when the guide is inserted in its plate groove. Yes, friends, I said Dremel tool. This is one time I favor the use of the little rotary tool as long as you can control its rpm to about 9,000. Of course, a Foredom tool can accomplish the same task, but I'm not certain the Delrin guide fits a Foredom.

Secure the plate/frame assembly between padded vise jaws. Crank up the Dremel, set the Delrin guide in its fixture plate slot, and carefully move the cutter downward until the guide bottoms out in the plate. The slot cut in the frame should be absolutely free of plastic par-

ticles. Any debris the cutter leaves behind can be cleaned up with extra-fine emery cloth wrapped around a small rattai I file.

Now remove the trigger-bar assembly, trigger spring, ejector, and connector from the original trigger-bar housing block. Install the ejector and connector to the MSK housing block. Lightly lubricate all contact surfaces between component parts of the MSK, assemble them as shown in Figure 1, and install the trigger bar and trigger spring in the MSK housing. The pressure spring should be fit in place with its high areas at 12 and 6 o'clock facing outward, in order to properly contact the pressure plate.

The trigger-bar guide should be forward and the safety lever in the up position as shown in Figure 2. The drop-safe end of the trigger bar's cruciform must be fit through the triggerbar guide. Install the complete assembly in the frame and insert all the frame pins. Reassemble the slide assembly to the frame, and bench check function. When the lever is up on "safe" the slide functions normally, allowing loading and unloading with the trigger bar locked in place.

When the lever is down'safety off'the pistol is ready to fire. Does the MSK really work? It does according to several police agencies who have had it installed, and to the officers I spoke with. They've reported that the number of Glock mishaps have fallen significantly. How significantly? To zero. I

FINISHING

Testing the Kart EZ-Fit Barrel

The EZ-Fit barrel produces a remarkable improvement in accuracy with considerably less effort than fitting a standard match-grade barrel.

BY ROBERT K. CAMPBELL JUNE 2004

ORIGINAL PP. 13-15

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The gunsmith examines a pistol in a different manner than does the average shooter. The shooter will go to the range and fire the gun, looking for accuracy and reliability. The gunsmith, on the other hand, looks for fit and finish of parts and he may shake the gun, especially if it's a 1911, to listen for rattles. A gun that rattles is acceptable for general issue; such guns have certainly saved a lot of lives and will continue to do so.

As long as the locking lugs and barrel bushing are pretty good, the gun will probably be accurate enough for self-defense. But we want a little more than "accurate enough," don't we? What makes for accuracy is repeatability, with the gun returning to battery and locking up the same after each shot. I also believe that well-fitted guns are less prone to wear, as there is less slop in the action to produce eccentric wear. When we talk about fit and tightness, the slide group is where we begin.

We can fit the slide to the frame, but the barrel, locking lugs, and barrel bushing get the majority of our attention. The barrel should lockup well on the upper lugs, at

the end of the barrel hood and at the bushing. There are excellent drop-in barrels that are fine replacements for original equipment, but for the best service, we need to go with a fitted barrel. I recently felt compelled to replace a handgun barrel for several reasons. The barrel was not particularly worn, but it was inaccurate.

As previously covered in these pages, early model Colt .38 Super barrels headspace on the case rim rather than the case mouth. This is a system that dates to the 1890s when John Moses Browning first began designing self-loading pistols and ammunition. He felt that a semi-rim was needed to allow repeatable headspacing. Considering the ammunition available at the time, and the mysteries of the then-new smokeless powder, he was charting new territory.

A full revolver-type rim was not acceptable, because it would butt against other rims in the magazine and present problems in barrel-to-slide fit. So, a small semi-rim was designed into many of the early Automatic Colt Pistol (ACP) cartridges. When it came time to design the .45 ACP cartridge, the

semi-rim was dropped. But the semi-rim of the .38 ACP could not be changed and still work in original .38 ACP pistols.

Both the .38 ACP and the .45 ACP have .900-inch long cartridge cases, which makes them easily adapted to similar 38 Super is not the most handsome of pistols, but it is a fine shooter after adding the Kart EZ-Fit barrel. pistols. When Colt introduced the .38 ACP Super in the late 1920s, this sharply invigorated .38 ACP cartridge retained the earlier semi-rim of the .38 ACP. This led to problems inaccuracy in .38 ACP pistols.

Some .38 Supers are accurate enough for self-defense as issued, but others are remarkably inaccurate. I have heard claims from reliable sources of 6- to 8-inch groups at 25 yards from commercial pistols. This gives the term "accurate enough for self-defense" abroad meaning! Tightening the slide or frame doesn't work well when the problem lies in the basic design. Browning's main hurdle, designing a semi-auto that worked reliably, was accomplished with the

TESTING THE KART EZ-FIT BARREL CONTINUED

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Original caption: Left top and bottom: The uprisings, pressure points, or "humps" on the Kart EZ-Fit barrel allow much easier fitting compared to some matchgrade barrels. The Kart barrel has been awarded a patent and is becoming quite popular. sources, but the fact that Wayne Novak's website mentioned the Kart barrel was good enough for me.

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.38 ACP, but the semi-rim was a primitive development that dogged the .38 ACP for years. Recently, when I acquired an oldmodel .38 Super, I ran into accuracy problems that seemed similar to the problems that were once much more common with the .38 ACP. A generation ago, Colt production went to barrels that headspace on the case mouth, with much better accuracy. My new gun proved reliable with every type of .38 Super I had on hand, and pleasing to fire.

I fired a number of magazines of cast bullet loads at moderate range and put the gun away for another day, satisfied it functioned correctly. When I had a chance to properly benchrest the gun at 25 yards, I found that the pistol would group five rounds of Fiocchi 129-grain ball into groups averaging 5.6 inches. That was not very good, and my highly developed handloads did little better.

Speaking of ammunition, I keep Fiocchi-brand 9mm, .38 Super, and .45 ACP ball on hand to test guns, because it's affordable and, while it may not be matchgrade accurate in every gun, it gives excellent results and is always a good test of a handgun. I have test fired another original Colt that broke about

3.6 inches with the same load and, of course, my Kimber Target Model does much better. I had a number of loads on hand from a hand-loading program to test in the pistol. None showed near their proven potential.

Moreover, factory loads from Zero, Winchester, and Remington didn't do well either. The verdict? This was one of those original barrels that gave poor results. The rest of the gun was fine, and I was pleased that the pistol exhibited a clean 4pound trigger compression.

This was too good a gun to let it remain "handicapped." After some thought, I decided to try a Kart barrel ion Barrels, Inc. hal-lotte, I have heard good t the Kart from many

Kart is a well-respected name in the custom-pistol field, and they have done their best to make barrel installation as easy as possible. As you undoubtedly know, the most common method of barrel fitting is "cut and try," carefully filing to an exact fit. And there's nothing wrong with that. When fitting a barrel, I look for what is often called a "triangle fit," with the barrel hood, bushing, and link or slide-stop pin properly fitted.

I take care to be certain the barrel allows the gun to move out of battery and cycles freely. The EZ-Fit barrel produces a good fit with minimal effort compared to fitting a standard match-grade barrel. The Kart barrel locks up by two protrusions on the locking lug, often termed "humps." Fitting is not a job for the ham-handed or a person with no patience, but a good fit can be accomplished much more quickly with the EZ-Fit than other matchgrade barrels that are oversize in all dimensions and require more fitting.

To begin, you simply place the barrel in the slide and begin to gauge how much work needs to be done. (I didn't use the supplied bushing at Figure 1.

Accuracy Results w/ Colt Pistol (five-shot groups at 25 yards) Original Barrel Magnus 122-grain Bullet/Unique 6.0 inches Fiocchi 129-grain FMJ 5.6 inches Kart EZ-Fit Barrel Magnus 122-grain Bullet/Unique 2.5 inches Fiocchi 129-grain FMJ 2.8 inches Winchester 125-grain Silvertip 3.5 inches XTP 90-grain/HP 38 3.0 inches XTP 115-grain/Tite-group 1.9 inches XTP 115-grain/HS 6 3.0 inches

TESTING THE KART EZ-FIT BARREL CONTINUED

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Original caption: Below top: The Kart barrel was fitted to an old and worn .38 Super with excellent results. Note the filed and polished surfaces where the "humps" once were. Below bottom: The Kart snugged up the Colt slide very well.

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this time; usually the barrel bushing that is fitted with the original barrel is loose enough to accept the new barrel and fit in the slide.) You have to have a good idea of where the humps are supposed to fit and how much must be taken off.

Using lamp soot or a marker on the humps is a great help in showing where the barrel is meeting the slide. Then, you begin to carefully stroke with the file. Don't get impatient and simply wipe the humps away or you will have a well-made barrel but not a precisely fitted one. The initial fitting can begin with three or four strokes, then carefully follow with single strokes until the barrel is properly fitted.

I achieved the fit in a couple of sessions, as I like to take a break in a job requiring intense concentration. The next day I refreshed my memory,

After over 1,000 rounds, this pistol has proven to be accurate and reliable. reblacked the slide and barrel, and considered the situation again before beginning anew. Soon, I had a good snug lockup and perfect cycling. The barrel bushing supplied with the Kart barrel was tight, and required some fitting and polishing to fit snugly in the slide. This is not an "EZ-fit" chore, but went as smoothly as this goes with any other 1911.

I like to have a good tight fit in service guns, but not necessarily one that requires a barrel bushing bench. I finished this one with a fit that does not require a barrel bushing. I could have "gone for the gold," but this is a service gun that I carry for personal defense and shootin IDPA. It is also plenty accurate enough for small game. (Regular readers may have picked up on the fact that I really like the .38 Super.

It's a fine cartridge, available in the best handguns, and offers real comfort in shooting with a degree of power not available in the 9mm Luger.) Conclusions My best advice on fitting the Kart barrel is to go slow and develop a feel for the job. The time spent will be rewarding, and you may well decide to include the Kart barrel in all such custom jobs. Remember, however, that once the humps are removed, you cannot add to them!

As for my results, frankly, I think I could have gone a little tighter and enjoyed perfect function and better accuracy, but not many old .38 Supers are nearly as accurate as this one (see Figure 1). I've enjoyed many sessions firing lead-bullet handloads (unlike some of the modern combat Tupperware, this gun is lead-bullet friendly) and enjoyed carrying the handgun in complete confidence. And that's something to write home about!

I

MAINTENANCE & REPAIR

Working the Winchester Model 50 and 59 Shotguns

The Winchester Model 50 was a departure from earlier efforts at creating a working longrecoil action, and instead used a new shortrecoil system with a floating chamber.

BY RUSSELL CORBITT JUNE 2004

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The Winchester Model 50 (1954- 1961) and its successor, the Model 59 (1960-1965) replaced the older Winchester Model 40 (1940- 1941) in an attempt to gain a share in the ever-increasing semi-auto shotgun market. Moderately successful, it reached production figures of almost 200,000 guns by the time of its demise, and the Model 59 added another 82,000 units to the total for this design. The introduction of the gasoperated Model 1400 in 1964 marked the end of Winchester's recoil-operated designs.

The Model 40 was a longrecoil-operated action, like all the competition's shotguns at the time of its design, but had a more modernlooking rounded receiver rather than the bulged-back ungainly look of the Winchester Model 11 (1911-1915) or the "humpback" of the Browning A- 5/Remington Model 11/Savage- Stevens 720/745/750 Series.

However, the Model 40 suffered from serious design problems similar to ones which had plagued the Model and by 1954, Winchester was almost desperate to market a successful self-loader to compete with the Browning A- 5, the Savage-Stevens versions of the A-5, Remington's Model 11 (1907-1948) and the new Remington 11-48, a sleeklooking modern design that set anew standard for semi-autos. Unlike the Browning long-recoil design and its derivatives that dominated the market, the M50's barrel does not move.

Instead, it employs a floating chamber, similar to the Colt "Ace" .22 pistol. Expensive to manufacture, it was doomed by the introduction of the gas-operated Remington 11-58 in 1956 and the swift evolution of Remington gas operated self- As you can see, it doesn't take a crowbar; too much push is worse than none. loading shotguns that were cheaper to manufacture, extremely reliable with a wider range of shells, and much less punishing to shoot.

The Model 50 and the Model 59 share all parts except the barrel, forearm, trigger guard, carrier lock, takedown screw, and magazine plug. The Model 59 is noted as one of the lightest self-loading shotguns of its day (around 6-1/2 pounds), as it had not only an alloy receiver but the barrel was a thin steel tube wound with layers of fiberglass and epoxy resin. The Model 59 was also the first shotgun offered with screw-in changeable choke tubes in 1961.

The Winchester "change-up" in 1964 saw the introduction of the Model 1400, a rotating-bolt gas-operated shotgun. Basic Disassembly Ensure the shotgun is unloaded by using the handle on the right slide (#50) to open the bolt until it locks and examining the chamber and magazine. After you are certain that it is not loaded, depress the carrier-lock button (#9) under the ejection port to

WORKING THE WINCHESTER MODEL 50 AND 59 SHOTGUNS CONTINUED

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When reassembling, insert the carrier first, then the spring. Put the spring's hook in the small hole in the pawl, and push the pawl into position to insert the pawl pin. Also be advised that the trigger pin comes out this side. It should push out easily. Close the bolt. Engage the safety (#47). The safety is engaged when the safety button is projecting an equal amount from both sides of the guard. If there's no red paint left in the safety's groove, make a note to repaint it after cleaning.

Oil-based model paints work well. Unscrew the take-down screw (#55) and slide the forearm (#16) forward off the magazine tube (#42). Rotate the barrel (#1) one-quarter turn in either direction.

It may help to place the buttstock (#7) on the floor or bench and lightly press the barrel toward the receiver (#45) while turning. (It might appear that the barrel has interrupted threads, but the ridges and grooves have no pitch; they are a series of locking rings or very fine locking lugs.) Withdraw the barrel away from the receiver, and note the odd-looking item sticking out of the receiver. This is the chamber (#13).

Holding the chamber in one hand, open the bolt with the right slide handle until the handle is about even with the back of the ejection port. This unlocks the bolt from the chamber and the chamber is pulled from the receiver, taking care not to lose the chamber plunger (#14) and chamber-plunger spring (#15). These two small

parts are usually not loose enough to fall out unless the spring is broken, so pull them out for cleaning. Close the bolt in a controlled manner'd on't just let it slam home.

Using a suitable drift punch, push the guard pin (#29) out in either direction. Hold the carrier-lock button depressed and lift the guard (#28) out by moving it to the rear and simultaneously pulling it away from the receiver. Hold the carrier lock (#9) in place inside the receiver and remove the carrier lock screw (#10). The carrier lock and carrier-lock spring (#11) can now be separated from the receiver. The carrier-lock spring is taperwound with the large end wedged inside its pocket in the carrier lock.

Open the bolt again, using the right slide handle, until the slide pin (#52) is aligned with the semicircular notch in the handle's raceway. It may be necessary to rattle the receiver around a bit to get the bolt's locking lug past the chamber-stop shoulder in the receiver. With a small punch through the hole in the left side of the receiver, push the slide pin out through the notch until it protrudes about 1/2 inch.

Using a screwdriver or similar object, apply moderate force to the link (#36) toward the buttstock to neutralize any strain on the slide pin. Pull the slide pin out, maintaining control over the link. When the slide pin is clear, grasp the link and carefully release the spring tension while lifting the

free end of the link out of the receiver. Slide the bolt assembly to the rear of the receiver and remove the right slide through the ejection port.

The bolt assembly and left slide (#51) can now be withdrawn from the receiver. This constitutes basic field stripping and should be all the disassembly required for normal cleaning. Detail Disassembly Remove the magazine-plug pin (#40) with a suitable punch. Retain control over the magazine plug (#39) when you remove the punch, although the plug will usually be stuck on a burr or rust inside the magazine tube (#42) and must be pushed out from the receiver end with a 5/16-inch dowel or by using three dummy shells.

The magazine spring (#41) and magazine follower (#38) are now free. Clamp the buttstock in a well-padded vise and remove the buttplate (#5) or recoil pad. You're now looking at the buffer plug (#3) and buffer lock (#4). Using a screwdriver or long-nose pliers, slide the buffer lock to one side until the opposite leg clears the hole in the closing-spring tube (#16). Remove the buffer lock and unscrew the buffer plug. Caution: The buffer plug is under considerable spring tension.

Take care to control it or risk losing the plug in the deep dark corners or even possibly losing an eye. (Always wear eye protection when working

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Figure 1. Trigger/Hammer/Hammer Catch Modifications with springs.) Remove the closing spring (#17). Using the link, push the inertia rod (#35) out of the tube. If necessary, the link pin (#37) can be driven out, separating the inertia rod from the link. This pin is staked, so be sure to restake it after replacement. It's now time to make or buy a simple tool to remove the closing-spring tube. If you have a Menck Mark 3 Shotgun forearm T. W.

Menck, Ralston, NB 68 wnels as part #590-016-008), you'll find that one of the wrench sections fits the end of the closingspring tube well enough to allow removal and replacement. Otherwise, you'll need a 1/2-inch pipe nipple or rigid conduit nipple, 6 inches long; a 3/16-inch roll or solid pin (or 3/16- to 1/4-inch square key stock) about 1-1/8 inches long; and a drill to match the pin. Drill squarely through the nipple about 2 inches from one end and insert the pin through the hole.

It doesn't have to be a press-fit operation; the hole needs to be just large enough to allow the cross-pin to pass. Slide the long part of the nipple into the closing-spring tube as a pilot, and engage the notches in the end of the Trigger is released. With hammer held such that points "D" and "E" are at closest proximity, the gap MUST be between 0.003 inch to actual contact between the points. If the points touch, the hammer catch MUST release the hammer when pressure on the hammer is removed.

Gap adjustment is made at point "F" on the hammer catch. Remove spur "A" as shown, taking care to leave material at point "B." This material is necessary to prevent safety engagement if the hammer is down in the fired position. Remove the last bit of the

spur carefully and test-fit often. The job is finished when the spur is gone to the point that it no longer catches the trigger, but the safety cannot be applied unless the hammer is cocked. closing spring tube with the pin.

You can turn the nipple with Vise Grips or with a handle welded to the end, or you can drill another hole through and use a piece of drill rod or a screwdriver as a handle. Once the closing-spring tube is off, the buttstock (#7) is removed from the receiver extension tube (#46). Watch for the spacer washers (#16a and 16b) between the closing-spring tube and the buttstock. The shotgun may or may not have spacers. For all practical purposes, the extension tube and magazine tube are not removable.

They are staked or pressed and brazed into the receiver. This completes major disassembly. Trigger Group Begin by ensuring that the hammer (#30) is still cocked and the safety is on. Move the carrier (#8) up until the arch clears the guard, and pull the carrier out directly toward you. Remove the carrier spring and use the long straight leg to push the pawl pin (#44) out, separating the pawl (#43) from the carrier. Keep the carrier spring handy.

Now disengage the safety and, while maintaining control over the hammer, pull the trigger (#57) to allow the hammer to swing as far forward as it will go. In this gun, the hammer spring (#34) also acts as a trigger-return spring, trigger-pin retainer, and guard-pin retainer. Note how it is wedged in a slot at the rear of the guard, maintaining tension against a groove on the trigger pin (#58).

Use the long leg of the carrier spring to pry the hammer-spring leg out of the groove, and allow the leg to clear the trigger pin.

Pull the end out from the guard and swing the spring leg clockwise until the spring and hammer are in the position depicted in the photo on page 17. At this point, the hammer spring is pulled straight out toward you. It may be necessary to wiggle the spring and/or hammer to allow removal.

The hammer spring's short leg comes out of its slot in the hammer and through the slot in the guard. The hammer pin (#33) may require the use of long-nosed pliers to remove, depending on the level of crud and wear. The carrier spring is again employed to push the trigger pin out. This pin comes out the side where the hammer spring catches the pin's groove. The trigger, hammer catch (#31), and hammer-catch spring (#32) are now free.

The hammer-catch spring has a wide coil on one end to wedge it into its pocket in the trigger, and should be twisted clockwise during removal and installation. Reengage the safety and use the long leg of the carrier spring yet again to poke through the hole in the safety button and depress the safety plunger (#48). Pull the safety button toward the guard with the carrier spring and the safety button will clear the plunger, allowing the carrier spring to snap over against the guard.

Remove the carrier spring and push the safety button out, taking care to cover the plunger with your thumb to prevent its escape. The safety plunger and safety-plunger spring (#49) can now be removed. Should they be stuck, the carrier spring can be used to poke the pin and spring out, using the hole in the end of the plunger/spring pocket. If the shotgun is having problems

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with weak or no primer indent when the user tries to fire it, see Figure 1 on trigger/hammer/ hammer catch modifications before reassembling the trigger group. Bolt and Component Parts Begin the bolt-group disassembly by working with the ejector (#18) until it comes out along with the ejector spring (#19). This can require patience (and the use of some old Navy language) to get the silly thing in position to be removed.

Basically, the ejector tail is pulled out a bit and up a bit until the lug on its bottom is clear of the bolt, and then pull it straight back. The firing-pin stop pin (#24) is poked out using “yes, you guessed it” the carrier spring, pushing the end of the stop pin just visible under the bolt’s locking lug while maintaining control of the firing pin. Remove the firing pin (#23) and firing-pin spring (#25).

Using the all-purpose carrier spring, push the extractor pin (#21) out from bottom to top and pull the extractor (#20) out. Contain the extractor spring (#22) or it

may launch itself into the nether regions of your work area, never to be seen again. Note: The firing-pin spring and ejector spring should be tested for kinking or collapse by rolling each across a flat surface.

If either is kinked or warped, Winchester Model 50 and 59 Semi-Auto Shotgun 1 Barrel 2 Bolt 3 Buffer Plug 4 Buffer Lock 5 Butt Plate 6 Butt Plate Screw (2) 7 Buttstock 8 Carrier 9 Carrier Lock 10 Carrier Lock Screw 11 Carrier Lock Spring 12 Carrier Spring 13 Chamber 14 Chamber Plunger 15 Chamber Plunger Spring 16 Closing Spring Tube 16a Wave Washer Spacer* 16b Flat Washer Spacer* 17 Closing Spring it will be very obvious and the spring should be replaced. The proper length of both springs is about 2-1/8 inches.

Reassembly Generally, the shotgun goes back together very much the reverse of its disassembly.

However, when you are 18 Ejector 19 Ejector Spring 20 Extractor 21 Extractor Pin 22 Extractor Spring 23 Firing Pin 24

Firing Pin Stop Pin 25 Firing Pin Spring 26 Forearm 27 Front Sight 28 Guard 29 Guard Pin 30 Hammer 31 Hammer Catch 32 Hammer Catch Spring 33 Hammer Pin 34 Hammer Spring 35 Inertia Rod 36 Link 37 Link Pin 38 Magazine Follower 39 Magazine Plug 40 Magazine Plug Pin 41 Magazine Spring 42 Magazine Tube** 43 Pawl 44 Pawl Pin 45 Receiver w/Magazine Tube & Extension Tube 46 Extension Tube** 47 Safety 48 Safety Plunger 49 Safety Plunger Spring 50 Slide, Right 51 Slide, Left 52 Slide Pin 53 Take-Down Screw Bushing 54 Take-Down Retaining Ring 55 Take-Down Screw 56 Take-Down Screw Lock Washer 57 Trigger 58 Trigger Pin *May or may not be present. ** Factory installation only; not available separately. putting all the pieces back, there are a few items that require adjustment, attention, or care.

When reassembling the receiver, slide the buttstock on and install the closing-spring tube (and washers, if present). Tighten the closing spring tube (just short of splitting the stock).

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Now the assembled bolt, right and left slides, and inertia rod/link can be dropped in, aligned carefully, and the slide pin installed. Also replace the carrier-lock assembly at this time. Install the closing-spring buffer plug and the buffer-plug lock last. The receiver's guts go in a lot easier if you aren't fighting the spring. It's also necessary to adjust the buffer plug properly before installing the lock. The factory adjustment procedure is: 1.

With the bolt closed, install the closing spring and screw the buffer plug in several turns. Take care to control the spring. 2. Open the bolt until it locks. 3. Screw the plug in until it is against the inertia rod (right slide handle has no free play). 4. Back the plug out 2-1/2 turns. Continue until the slot aligns with the first pair of holes in the spring tube to allow installation of the lock. 5. Check that the bolt handle now has 3/32 to 1/8 inch of rearward movement from the locked-open position. 6.

Install the lock, using a small screwdriver or long-nosed pliers. 7. Install the buttplate or recoil pad. It won't go out the other way. Note that the pin is pointed on one end to facilitate reinsertion. When reinstalling the magazine plug, the blind hole in the flat side must point forward and must be toward the barrel. When replacing the magazineplug pin,

ensure that the clearance notch is facing the hole in the magazine plug. If either of these is installed wrong, you won't be able to attach the forearm.

The Operating Cycle The Winchester Model 50/59 operating cycle is considerably different from conventional long-recoil designs. As stated before, the barrel is stationary; recoil forces the floating chamber and bolt assembly (which are locked together) to move approximately 1/8 inch rearward. The chamber's motion is arrested by a shoulder in the receiver. Attached to the bolt (via the link) is the inertia rod, which is simply a mass large enough that its momentum continues to pull the bolt back.

As the bolt/link/inertia-rod assembly continues its travel, the right and left slides are stopped at the end of their tracks in the receiver, causing the slide pin to cam the bolt out of lockup with the chamber. The chamber springs forward to its resting position in the barrel as soon as the bolt unlocks, propelled by the chamber plunger and spring. The bolt/link/inertia rod's rearward motion also cocks the hammer and compresses the closing spring.

As the bolt/link/inertia-rod assembly reaches the end of its travel, the ejector strikes the rear of the receiver, ejecting the spent shell. If

another shell is present in the magazine, it has followed the bolt as it opened and its rim now has the carrier lock depressed, trapping the next shell in the magazine. The bolt/link/inertia-rod assembly is now run forward by the closing spring.

The pawl, which has been tipped back by the bolt, now catches on the bolt and tips the carrier up, presenting the next shell to be fed into the chamber. As the bolt nears its closed position, it clears the pawl and the carrier snaps back down, releasing the carrier lock, which liberates the next shell in the magazine. This shell is caught between the carrier and the protruding lug on the bottom of the bolt. As the bolt cams up into battery, the shotgun is ready to fire again (after releasing the trigger).

This cycle won't happen in slow motion, as the shell coming out of the magazine needs some velocity to wedge the carrier lock aside. This power comes from the momentum the shell acquires following the bolt opening, pushed by the magazine spring. Troubleshooting Loose buttstocks can be caused by a loose closing-spring tube or by wear and tear on the stock. If you can't tighten the closing-spring tube enough to tighten the stock, you'll need to

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shim the area between the small end of the closing-spring tube and the corresponding shoulder in the stock. Winchester supplied shim washers to aid in correcting this, but they are scarce and difficult to find nowadays. You can make your own spacer from a washer.

The approximate finished dimensions are 3/4 inch ID by 1-1/16 inches OD. (Try a 3/4-inch machined washer, not a hardware-store cut flat washer.) The thickness is adjusted to enable the closing-spring tube to be tight and yet be able to properly install and adjust the buffer plug and lock. It may be easier facing off the small end of the closing-spring tube than trying to thin a washer to adjust overall length and allow proper buffer plug/lock adjustment and installation.

The vast majority of function problems encountered can be solved with a thorough cleaning (just like almost every other gun made). Disassemble the shotgun to the "basic field-strip" level, disassemble the bolt, and clean everything thoroughly. Clean the trigger group and inside the receiver with mineral spirits or other mild solvent and the dry it thoroughly. Good gun oil is all that is necessary on reassembly/no grease!

Winchester's technical circulars of the time specifically note that over-lubrication of this action design can cause sluggish operation and undesirable trapping of debris that can lead to malfunctions. Other function problems including erratic firing due to a weak or inconsistent firing-pin strike can

be Figure 2. Carrier Revision caused by several different and otherwise unrelated problems.

Early production M50 shotguns were equipped with a secondary notch on the hammer to prevent doubling, and this notch can cause hammer-fall interruption. Winchester's factory solution was to modify the hammer, hammer catch, and trigger to improve hammer-catch performance and eliminate the second notch. See Figure 2 for the procedure.

It's also possible that the hammer is striking an improperly made or repaired link. (The hammer travels through the link, and it is the link that actually cocks the hammer and keeps the hammer depressed until the bolt is back in battery.) Check to see that the link pin and both slides are returning to the complete forward position after firing. If the link/pin/slide assembly does not return completely forward, the hammer will strike the link, reducing or eliminating the transfer of energy to the firing pin.

In this case, clean the receiver, bolt, and link assemblies thoroughly. Break the sharp edges and corners of both slides with a fine stone. Disassemble the The extension on the take-down screw goes into this pocket, and if the plug or pin is out of position you can't tighten the forearm. File approximately 1/4 inch wide and approximately 1/32 inch deep below carrier-locking surface, breaking corner of the shell-stopping shoulder at approximately 45 degrees.

Note: File as illustrated above to prevent shell from locking under the face of the bolt, to keep shell from cocking at top or

side, and to prevent shell from failing to trip carrier lock by overriding same. magazine and examine the tube and follower for rust. Since the bolt's run into battery is somewhat cushioned by pushing any rounds in the magazine forward (trapped between the bottom lug on the bolt and the carrier), anything that interferes with magazine-follower movement can also prevent full bolt closure.

Of course, the firing pin could also be broken, bent, or binding. Live shells being ejected or dropped through the bottom of the action when the shotgun is fired is caused by a worn or malformed carrier lock. Replacement of the lock is recommended, but if the lock is not too worn or broken, it's possible to clamp the flat end of the carrier lock in a vise and carefully tap the button end with a hammer, adding some curvature to the lock.

This is best done in small increments, testing the shotgun after each adjustment. If no replacement carrier lock is available, you can also silver-solder a shim to the small tail of the carrier lock on the side opposite the button (the worn part where the shell rim engages the lock). A bolt that fails to lock open on the last shot can be traced to lack of cleaning or other maintenance, faulty ammunition, or a maladjusted buffer plug. Clean the receiver's components and adjust the plug properly when replacing.

Early production M50s also had trouble with shells jamming in the carrier area due to improper carri-

er and/or carrier-lock handling of the shell. To correct this, a small cutout was machined in the carrier and one edge of the cut beveled. Figure 2 details the proper dimensions for the cut. Final Notes and Observations The Model 50/59 shotguns are generally smooth-operating repeaters and don't have the "bang-chunk-clunk" feeling of long-recoil designs. The particular Model 50 that was in my shop was brought in to have a dented barrel fixed.

After repair, it was reassembled without cleaning and testfired with more than 200 assorted shotshells of questionable quality. (We were cutting down scrub cedar with the shells'quite a noble endeavor.) It had two failures to eject and two shortcycles where the bolt didn't make it open far enough to begin ejection. I can't rule out ammo in any of the malfunctions. As far as handling goes, it was well-balanced and not nearly as rough on the shoulder as my old Remington M11 or my 11-48.

All of these designs represent the passing of an era in gunmaking; the old tried-and-true but expensive method of forging, machining, and handfitting steel giving way to high-strength aluminum alloys and increased use of castings, stampings, extrusions, and numerical-controlled machinery making parts that require no fitting.

Paradoxically, it is the evolution of these very CNC machines that now makes it practical to manufacture things even better and cheaper than "the Good Old Days""witness the rebirth of the Pre-64 Model 70, among others. I

MEASUREMENT & INSPECTION

Reader Forum

BY AMERICAN GUNSMITH EDITORS JUNE 2004

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Old Ithaca Parts I'm looking for an extractor for an Ithaca Double Flues model, made about 1910, serial # 202144. Any information you could provide would be appreciated. Old Ithaca parts are available from Sharps Guns, Ltd., Dunville, Ontario, Canada Auto Eject Or No? I have a Savage 311 Series H 12-gauge in great condition not neglected in any way. The problem is the customer insists that the gun is supposed to eject the empty hulls when opening the action.

My question is: Should the hulls be lifted from the chamber and removed manually or should they be ejected completely by the ejector? Hope you can help. We contacted Savage to see if the model you speak of has automatic ejectors. They were unable to tell us yea or nay, since the gun was made before the present management took over. That leaves the Savage Historian, John Callahan, whom you can reach by mail at Westfield, MA 01085. Number 4 or Number 4? I need a combination spring for a Remington No. 4.

Do you know a source or can you point me to a drawing? We assume you mean the #4 Rolling Block rifle, not the #4 Spur-Trigger revolver. We can provide drawings for the rifle, but have nothing on the revolver. If the latter is the gun in question, write to the NRA Museum (Waples Mill Rd., Fairfax, VA 22030) to see if they have a drawing. If you are speaking of the rifle, we'll mail you the info. And, by the way,

the Remington Custom Shop is now building the #1 Rolling Block, and might be able to provide a #4 spring.

HSC Extraction Have you done a write-up on the Mauser HSC? If so where can I find it? I have an ejection problem that I am having a difficult time with. I put in a new extractor; it worked for a few rounds and then started jamming. It appears that the case wants to go to the left instead of out the port. A new mag was installed without solving the problem. It also appears that the case is dragging on the round in the magazine.

I also noticed that there is no ejector listed in the Gun Parts catalog schematic, so how does the HSC eject the case? Any help you can give me? We have not done an article on the Mauser HSC, but detailed take-down information can be found in the NRA Guide for Firearms Assembly, Combined Long-Gun/Hand-Gun Edition. The ejector is part of the frame pinned in to cam up when the slide travels to the rear. The gun was designed for ball ammo only, and no high-power loads should be used in it.

The technicians we spoke to at the former importer told us that "the HSC was a good pistol...when it worked." Troubles were almost always traced to the magazine, and we think the replacement magazine may be at the root of your problems. Chamber Depth I am in the process of restoring a 1911 Charles Daly Drilling. This rifle was manufactured by J. P.

Sauer (Krupp steel, non-Damascus) and is a combination of 20-gauge upper barrels with a .30-30 WCF lower barrel. I believe that these older, European-manufactured shotguns are somewhat short chambered for today's modern cartridges.

I have measured the depth of the current shotshell chambers and compared them to the length of a standard shotshell cartridge. As it currently stands, the chambers are approximately 1/8 of an inch longer than the shells. I don't believe that this depth is sufficient to allow for the expansion of the newer plastic shells when fired. How can I accurately determine the correct shotshell chamber depth for this (or any) shotgun?

You can make a chamber cast with Brownells Cerro Safe, and shotgun, rifle, and handgun chamber specifications are available from SAAMI Newtown, CT 06470). Should alterations be needed, reamers are sold by Brownells and Clymer Manufacturing Part Sources I need to find a source for parts for two weapons. The first is an AMT Backup DOA, .45 ACP.

I've already sent a letter to Galena Industries and the letter was returned unopened. (The address for Galena was in the instruction manual.) The second gun is a Fabrica De Armas F&L revolver, imported by Armsport, Inc., in Miami, Florida. Neither Galena nor Armsport remain in business. For AMT parts, try Survival Enterprises For the Armsport parts, you might check with Bob's Gun Shop

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(continued from previous page) They've been known for some time as a good source for obsolete foreign gunparts. Replacing Bead Sight I have a Remington Model 11 with the front sight bead broken off. It's threaded, and someone has tried to drill it out. I'd appreciate your suggestions on how to repair it. Select anew sight with a base larger in diameter than the one in the gun. Drill out the old base, tap the hole to match the threads on the new base, and install it with blue Locktite.

Use a half-round smooth Swiss file and around Arkansas stone to smooth out any intrusion the new sight base makes into the bore. We recommend against using red Locktite. If the new bead ever breaks off, it will take 450 degrees of heat to defeat it. Savage Scope Mount? I bought a Savage 340B in .222. It's drilled and tapped for a scope mount. What type of mounting was used on this type of rifle? Are they easily obtained? I would appreciate any help you can offer. Mounts varied, but it was probably a Weaver style.

If there are only two holes in the receiver, it was a singlepiece base. If there are more, it was a two-piece base. You can purchase Weaver-style bases from Brownells, drill

them to match the holes in the receiver, then install the rings and the scope of your choice. Ruger Ejection Problem I have a Ruger 10/22 in my shop. The problem is ejecting the unfired shell if it's not emptied while shooting. The only brand of shells I'm having the problem with are CCI 22 LR.

Approximately three years ago, the customer replaced the barrel with an aftermarket barrel from Butler Creek, but didn't notice any problems until recently. I have tried the barrel on another 10/22 receiver, and have the same problem. Any thoughts on this problem would be appreciated. Thank you. From your description, we're not sure exactly what the problem is. Since it only occurs with CCI ammo, we suggest your customer avoids the use of CCI in the future.

Twenty-two-caliber firearms can be extremely particular when it comes to ammunition. Stoeger Parts I have a problem I'm hoping you can assist me with. I purchased a Stoeger .22-caliber Luger, and the grips are missing and the safety is missing some parts. I was wondering if you could send me disassembly and assembly instructions along with a parts list. When I purchased

it, it was all in pieces in a box. I would greatly appreciate any help you could give me.

Stoeger is now a subsidiary of Beretta, USA. Though neither entity will service a firearm made prior to the acquisition, Beretta, USA will be able to put you in contact with Stoeger. At one time, that company published a service manual for the pistol and they might be able to send you a copy. Meanwhile, send us your regular mail address, and we'll send you a schematic taken from Jack First's catalog. In fact, Jack First may just have the parts you need.

Loose Crackshot I just purchased a Stevens Crackshot 26 and have two questions. First, the lever hangs loose, which I understand is common. Can something be done about it? And second, the extractor slides loose in its track. Is there supposed to be a spring? The rifle was last made in 1939. The loose lever is most likely a wear problem. If you're fortunate, it might only be the lever pin, the lever-pin hole in the finger lever, or the lever roll rather than the receiver.

The loose extractor should be held in by a small pin. It has no spring, but there is a coil spring under the extractor plunger.

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