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INSIDE THE ARCHIVE

WORKING WITH TALON AIR RIFLES

THE EPA RELENTS, SHOWS SOME SENSE · INLETTING THE FLOBERT RIFLE · BARREL REIT FOR THE REMINGTON MODEL 5…

DIGITAL ARCHIVE EDITION

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A complete guide to the searchable editorial work preserved from November 2010.

FROM THE ARCHIVE

The EPA Relents, Shows Some Sense

BY AMERICAN GUNSMITH EDITORS NOVEMBER 2010 ORIGINAL PP. 2

Never underestimate the power a simple letter or email can wield. It has been said that a single letter from a constituent represents the voice of a thousand people because the other 999 folks just didn't bother to voice their position. A good example of this is the recent victory by the National Shooting Sports Foundation (NSSF) concerning a petition to the Environmental Protection Agency (EPA) proposing aban on traditional ammunition.

Started by The Center for Biological Diversity (CBD), this established anti-hunting group called for a total ban on the production and distribution of traditional ammunition. Shortly after the NSSF made a call to action on its website, hundreds of blogs and websites linked to it. More than 5,000 people shared it with friends on Facebook, messaged it on Twitter and posted across a host of public online forums.

The EPA and elected representatives were quickly deluged by thousands of hunters and shooters across the country making their voices heard. Steve Owens, EPA assistant administrator for the Office of Chemical Safety and Pollution Prevention, responded to this, maintaining that the EPA does not have the legal authority to regulate this type of ammunition under the Toxic Substances Control Act (TSCA) and that it will not seek such authority. NSSF President Stephen L. Sanetti acknowledged the effect that tens of thousands of people responding to this petition had on this decision. One letter, email, phone call, or vote may not mean much by itself but the accumulated effect can be huge. Complain to your friend on the neighboring bar stool all you like, but your words have no effect until you bother to make them heard by the right people in the proper forum. When accumulated, just one letter really does make a difference!

Gunsmithing Guns of the Old West Regular American Gunsmith contributor David Chicoine reports that he has a limited number of copies of the previously out-of-print Gunsmithing Guns of the Old West-2nd Edition available. This classic work had been selling for $95 and up from used book dealers. The 448 page soft cover tome features over 400 photos and expands on the first edition with five new handguns, four new long guns along with updated gunsmithing tips and advice.

All featured guns contain step-bystep illustrations demonstrating repair and upgrade work of old-west firearms. With Cowboy Action Shooting more popular than ever this could prove a handy reference for your clientele. New copies can be had for $49.95 plus $6.00 shipping direct from the author. Contact him at or

RIFLES

Working With Talon Air Rifles

These Air Force airguns are available in three calibers, barrel lengths and models that are triplets with velocities up to 1450 feet per second.

BY CHICK BLOOD NOVEMBER 2010 ORIGINAL PP. 3-8

No one really knows when it first happened, or where or why, but one day someone took a deep breath, huffed a bead, bean or pebble out through a hollow reed and came up with the concept of an air gun. Several centuries, or eons, later the great, great, great ancestor of anything remotely resembling what we call an air gun these days appeared in Germany circa the same century air guns with flasks of compressed air attached propelled a dart or small projectile far beyond the limited range of human lung power.

The Austrian military made use of rifles with compressed air stored in detachable butt stocks, several of which hung from each infantryman's belt. During the Napoleonic Wars the French proclaimed the use of these "quiet" guns that issued no tell-tale smoke to be highly uncivilized. Evidently, the air guns were quite effective in demoralizing Napoleon's troops since they could neither see nor hear the source of the projectiles raining down upon them.

Two gentlemen are credited with innovations that transformed air rifles into what they have become. Henry Quackenbush combined cocking with spring compression and Mon sieur Giffaud patented a valve making it possible to use CO2 cartridges as a propellant source. In the United States Crosman grew the capacity of little "fizz water" cartridges to 700 shots by 1940.

Caliber .177 ball BBs had been the favored ammunition in lever action, spring/piston designs until rifled barrels and pin-point accurate .177, .20 and .22 caliber pellets appeared. The BB didn't totally disappear, however. During World War II, the Army Air Force employed fully automatic BB guns working off large compressed air tanks to teach aerial gunnery.

There is no comparison of the ballistics gap between a .50 BMG round exiting a Ma Deuce and a BB of course, but lessons in leading a Nazi 109 or Jap Zero were soon learned. The full-auto BB guns used looked like small scale copies of John Browning's .30 caliber machine gun, water jacket included. After the war, these found into shooting galleries that had all but disappeared between 1940 and 1946. I can remember manning one of the "BB MGs" in a gallery at 52nd Street and Broadway in New York City.

Boys and Girls, you should have been there to see those clay pipes shatter, traveling duck silhouettes tumble into the water by the dozen and hear the bullseye gongs clang. What a hoot! Another likely contributing factor in keeping the venerable BB alive was Daisy's "Spittin' Image" series. Remember the Winchester 1894 look-alike called The Red Rider? It's still in production. How about the BB-spouting Daisy copies of the slide action, .22 caliber Remington Model 52 rifle and the Winchester Model 21 Shotgun?

Sadly, my own Red Rider rode into the sunset forever over 50 years ago but I still have my first BB gun, a muzzle loading, spring and piston single shot smooth bore. It remains a hard hitter due to the tender care given it but it sorely lacks in accuracy when compared to the fine, rifled barrels and advanced pelletry of modern air guns. Among the most modern of these air rifle is the Talon. It is manufactured by Air Force in The Republic of Texas, still counted among these United States for the present.

In this report, you'll find few if any mention of the accessories available for and easily fitted to it. There are simply too many to cover in detail. Suffice it to say they range from bipods to iron and optical sight systems and a multiple choice assortment of rings and mounts. Talon air rifles are also available in several configurations. Since they are all mechanically identical, I've chosen the simplest of them and will refer to it solely as Talon.

If you wish to eyeball other models offered, go to airforceairguns.com. Field Stripping You'll note there are several schematics instead of the usual one appearing in this article. Each includes its own parts list. Please refer to the schematic concerning the section of the Talon being addressed as I take you through servicing and maintenance and keep copies of all schematics in your permanent files as you won't likely find them appearing elsewhere but these pages.

In more than one instance during this dis course you'll be dealing with more than one drawing. I suggest you get familiar with each before reading on for I'm obliged to move between and combine some of them in spelling out certain steps.

The white object above it is a ¾-inch ID, rigid walled PVC pipe twice as long as your longest finger to be used as a tool in changing/installing barrels. It is also very handy when aligning bushing and frame screw holes. 177, .20 or .22 calibers for the Talon series. In the act of field stripping a Talon, refer to the schematics identified as "Cover Sheet", "Upper Internal Frame Assembly", "Lower Frame Assembly" and "Trigger Detail". Try and remember which Talon subassembly each covers.

When you are getting ready to work on this rifle always remove the valve and tank by pushing the bolt forward and unscrewing the tank from the lower frame assembly. This renders the Talon totally harmless. It cannot discharge a pellet once separated from its air source. As important, remove the cup set screw (#222 on the Lower Frame Assembly drawing). Invert the lower assembly. Back out the flat head screw (203 on the same drawing), grasp the forearm (108) and pull it off the assembly.

The cup set screw is important because, though only nylon, it helps keep the power scale assembly aligned in frame assembly ("A" on the Cover Sheet drawing) within the lower frame and doubles as the indicator for the power scale. When field stripping, it should be the first part taken from the lower assembly. Not doing so could strip its 40 TPI threads. In reassembly or barrel changing, it is the last part to be reinstalled in the gun. Another screw retains the end piece (073) to the upper internal assembly.

When it and the frame screws (222 and 221) have been removed the upper assembly can pulled from the lower, except for the bolt. The cocking knob cover group (104, 105, 107) is separated from the bolt body (009) after undoing the flat head screw (107). I cannot guarantee the presence of part 107 as Air Force doesn't clear its engineering changes with me. You may be faced with a cylinder having two notches at its open, upper end.

A quarter fits those notches and is the tool to use for detaching the knob assembly from and reattaching it to the bolt. When the knob is reinstalled don't over-tighten it as this will im mobilize the knob cover and washer. The bolt remains in the frame for now. In a couple of minutes I'll give you the OK to remove it.

Once the barrel is out of the way the bolt can be pushed out the front end of the frame after you flip the safety off and pull the trigger to clear the striker release (014 on the Trigger Detail schematic). You now have all the access required for basic cleaning and lubrication. NOTE: The barrel should always be cleaned from breech to muzzle and petroleumbased lubricants avoided. The latter can attack or weaken air rifle seals.

Changing Barrels When removing the screws from the lower assembly I recommend you leave the rearmost screw (#222) until last. When it has been withdrawn the barrel assembly (300 on the Upper Internal Frame Assembly schematic) will be released. The event will be startling but cause no damage other than to your nerves. Grasp the muzzle and tug out the barrel. Now the bolt can be removed. The complete barrel assembly, bolt and bolt knob are now outside the lower frame and sitting on your bench.

If you're changing barrels, you have to take off everything attached to the old one and install it on the new. With a Talon, this process begins by backing out set screws but while you're at it, notice there are three screw holes in each bushing. The outer ones connect the barrel assembly with the frame. The middle one houses a smaller set screw that seats in a shallow dimple on the barrel. This screw has to be backed out of the dimple in order to get the bushing off the barrel.

The outer screws come in contact with the barrel and leave a small mark to identify a spot that will be visible when the bushings are slid off. It might make things easier for you later if you marked those contact areas with ared or yellow wax pencil as soon as you see them. Now put the new barrel assembly together and install it in the lower frame. It has been said of certain gun parts, last out, first in. So it is with the bolt, cocking knob hole leading the way.

The striker (078) follows the bolt with its front and rear bushings (165) attached. The spring is next and promptly joined by the preassembled male and female power adjusters (79 & 80). You don't need the 4 x 40 nylon screw yet, but keep it handy and make absolutely certain you do not omit rings or seals of any kind in your reconstruction. The bushing farthest from the muzzle is slid in to the general area of its hole in the left side of the lower frame. Do not introduce its frame screw yet.

Remember the center set screw in the bushing and the barrel dimple beneath it? Either the bush

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Original caption: Top: The amount of air being released from the Talon reservoir can be adjusted. ing or the barrel can be rotated and moved laterally back and forth to center the middle hole over the dimple before starting in the dimple screw and using an Allen wrench to snug it down. This will not prevent future rotation or lateral movement within the lower frame but will secure the barrel to the bushing. Repeat this operation with the front bushing.

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Do not over tighten what I called the "dimple screws." Trying to see how strong you are might narrow the bore. It would be an expensive error and you'll have to buy anew barrel. Insert your longest finger into the frame to contact the front bushing and press inward to compress the spring. I'll assume you won't be able to push it hard enough to bring the frame screw holes in either bushing into line with their frame holes so you'll need a tool to help.

Get a ¾-inch inside diameter, rigid-walled PVC pipe twice as long as your finger and insert it into the frame instead. Place the butt of the frame on a padded bench surface, press down and adjust the position of the barrel until bushing and frame holes align. You can temporarily start Air power must be adjusted after a barrel length, caliber or pellet change to re-establish velocity and zero of the rifle. in one left frame/bushing screw but don't tighten it into contact with the barrel.

There's enough meat to the frame to retain the screw and still allow barrel movement. You can assure you haven't gone too deep as to create an obstacle by inserting a finger in the power setting window and checking the inner surface of the frame. You may need the PVC tool again to move the barrel back until you hear it click into a final seating. Your choice now is to either back out the

Talon Air Rifle Upper Internal Frame (Speci ications subject to change without notice) 079 POWER ADJUSTER FEMALE 080 POWER ADJUSTER MALE 104 COCKING KNOB COVER 105 COCKING KNOB 107 COCKING KNOB WASHER 126 O-RING, 7/16 X 1/16 141 020 TEFLON O-RING 142 NEOPRENE RING FOR POWER ADJ 149 POWER ADJUSTER LABEL 150 #4-40Xl/8" SOCKET HEAD-NYLON 165 STRIKER BUSHING 207 #1O-32X7/8" FLAT HEAD 223 #1O-32X3/16" CUP SET SCREW 300 STRIKER SPRING BRL BARREL (520, .20; 521, .22; 522, .177) 009 BOLT 064 16MM BARRELL BUSHING 073 FORWARD END CAP 078 STRIKER Talon Air Rifle Cover Sheet (Speci ications subject to change without notice) A UPPER INTERNAL FRAME ASSEMBLY B LOWER FRAME ASSEMBLY C TRIGGER DETAIL D VALVE AND TANK ASSEMBLY

ORIGINAL SOURCE PAGE

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004 THREADED SLEEVE AFT 088 FRAME 108 FOREARM 110 PISTOL GRIP 134 WASHER, LOCK 135 WASHER, FLAT 203 #10-32X7/8" FLAT HEAD 204 #10-24XI-1/4" SOCKET HEAD 208 #10-32X1I4" CUP SET SCREW 212 PISTOL GRIP SIDE PLATE SCREW 4X3/4 PHP SMS SS 221 #10-32X3/8" CUP SET SCREW 222 #10-32X5/16" CUP SET SCREW Talon Air Rifle Lower Frame Assembly (Speci ications subject to change without notice) Talon Air Rifle Trigger Detail (Speci ications subject to change without notice) 005 CROSS NUT 014 STRIKER RLEASE 015 SEAR 016 TRIGGER 017 TRIGGER SHOE 025 SAFETY SLIDE 026 TRIGGER GUARD 027 FLOOR PLATE 031 SAFETY BAR 088 FRAME 112 NUT, 4-40, SP 118 SAFETY BAR CAP 130 SPLl NED PIN 202 #10-32X3/16" DOG POINT SET SCREW 210 #10-32X7/8" BUTTONHEAD SCREW 213 WASHER 302 SAFETY BAR SPRING 303 SPRING

ORIGINAL SOURCE PAGE

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bushing screw or leave it partially installed. The latter will probably require a considerable amount jock eying of the barrel a wee bit this way or that way without being able to see what's going on. This may sound like one of Letterman's stupid dog tricks but if you only turn the screw in to barely make contact with the bushing you can feel it when the screw finds the bushing hole. Your option to that is removing the screw.

Either way, make any minor rotational or lateral adjustments required for alignment and turn in the bushing screw to bottom out on the barrel. Once a single bushing screw has been installed all other frame/bushing holes will be aligned and their screws can be snugged in without further fuss…or doggie treats. Reinstalling the end cap winds up the barrel switch except for sighting in.

Filling The Air Tank The Talon air reservoir is rated to withstand 3000 psi and has a builtin safety that literally ruptures to relieve pressure above that limit. There are two ways to fill the tank. The quickest is to hook the reservoir up to a scuba tank with a K-valve. The Air Force square refill clamp makes this simple by attaching to the K-valve and mating with the Oring in the scuba tank valve.

Install the Talon air reservoir seal in the provided refill adapter, connect the reservoir to the Talon tank, then screw the combined unit into the clamp's pressure gauge/bleed screw housing. Close the bleed screw. Hand tight is plenty tight enough. Slowly open the scuba tank main air valve and keep an eye on the pressure gauge. Do not exceed 3000 psi. When the Talon reservoir is full, close the scuba main valve and open the clamp housing bleed screw. This will exhaust any air trapped inside the housing.

Then, and only then, unscrew the Talon tank. When the scuba tank is used up any dive shop can recharge it. Nothing other than compressed air should ever be used as a power source for a Talon. Not oxygen, not CO2, just air. What if there's no dive shop anywhere near your operation? Use the other way to refill a Talon.

It's an Air Force hand pump that injects air on the upstroke and downstroke, has its own pressure gauge, bleed valve and attaches to the Talon refill adapter/ tank combination just like the refill clamp housing. It will take about 15 ups and down strokes, with a slight pause at the top, to pressurize a Talon air reservoir reading zero on the pump gauge. A dozen to fourteen ups, paus es and downs later will result in 100 psi. The pump pressure gauge needle will start to jump at this point.

Keep pumping as before but, again, do not exceed 3000 psi and open the pump bleed valve before unscrewing the Talon tank. By the way, this tank is the largest of its kind on the market. Trigger Mechanism As the schematics indicate, it is several levels below the complexity of the "Sealed and Don't Touch" systems being hung on most smokeless powder rifles these days. The trigger on the Talon I receiver released a charge of air from the reservoir at two pounds of pull.

Since the trigger on a Talon activates the safety, I chose to leave what I considered better-than-good-enough alone. For those otherwise inclined and capable of getting an accurate read off the Trigger Detail schematic, the primary contact points between the striker release, sear and trigger ought to be obvious. These might be touched up lightly with a fine Cratex polishing wheel turned at moderate speed to smooth up any existing roughness.

When done properly this polishing doesn't actually lighten weight of pull in most cases. It just makes the pull feel lighter to a shooter's trigger finger. To get at the parts mentioned five pins (130) must be removed. All the pins wear serrations at one end. Examine each end of them very closely. They must be driven out toward the serrated end and started back in via the opposite end.

Air Power Adjustments Power, the amount of air being released from the Talon reservoir, can be adjusted with the wheel located on the left side of the lower frame assembly. Air volume doesn't increase or decrease precisely according to the numbers on the scale. It settles into a range after one shot has been taken at a selected setting. Subsequently, the Talon normally delivers consistent velocity shot after shot. To establish precise velocity of selected pellets at a selected setting a chronograph should be used.

Lacking one, the following settings are acceptable guides: Numbers 3 and 4 on the power scale are considered good for target shooting, number 6 is great for plinking, number 9 or 10 are about as high as a Model SS Talon will go and above 10 wastes air. With either the Talon or SS Talon, when fitted with the optional 24-inch barrel, it is OK to adjust power as far up as the scale can go. At this setting, about 35 shots per air tank full can be expected.

On a medium setting, 65 to 75 shots are possible and on the lowest setting over 200 shots. Power is one component of accuracy and can vary among pellet brands in .177, .20, or 22 calibers. For example, a Talon with a 24-inch barrel operating at 10 on the scale might be punching the ten ring out of a target with brand A .22 caliber pellets and missing the black completely with brand B. There are many factors to be determined concerning the best combination of power and pellet when it comes to air rifle accuracy.

Due to its well thought out design and the execution of it, a Talon eliminates much of the drudgery associated with reaching these decisions and replaces it with a unique form of scientific fun. A DVD by Air Force is available and recommended and can be requested directly at airforceairguns.com or Any cost involved would be tax deductible for a gunsmith. As long as you have their attention you might as well ask for a catalog and owner's manual, too. AG

MACHINING

Inletting The Flobert Rifle

Inletting The Flobert Ri le The Flobert design is not like any conventional action. Inletting it proved to be a interesting challenge.

BY DOMINIC PISANO NOVEMBER 2010 ORIGINAL PP. 9-11

When a customer called asking if I had ever heard of the Flobert action I said yes, but wasn't familiar with it. He said to expect something unusual. When the barreled action and machined stock arrived several days later I understood what he meant by "unusual." I had indeed never seen anything like it. I first referenced Single Shot Rifles and Actions by the late Frank De Haas and looked it up.

De Haas said of the Flobert, "For the many years that I have been living in the world of guns I have seldom if ever heard anything complementary said about a Flobert rifle or pistol and I imagine this has been more or less true since the first Flobert gun was made." Strong words and I do not disagree with them. The most striking thing about the action is that there isn't any receiver! The chamber is made in the breech end of the barrel — and that's it.

The second thing one notices is the peculiar mechanism used for opening the breech block for loading and unloading cartridges. The breech block is part of a lever system which is attached to the barrel by a breech block hinge screw. The action is opened by first cocking the hammer, locking everything in place and lifting a small knob pivoting the breech block upward about 120 degrees actuating the extractor. This moves rearward extracting the cartridge and exposing the chamber.

While the function is difficult to explain, the photos should illustrate how the Flobert system works. Built into the upper tang is a fairly stout slotted metal abutment to which the hammer is fitted. This serves as a safety mechanism of sorts just as the bolt handle on Mauser rifles does. To make this action yet more interesting is the separate trigger plate to which the trigger assembly is attached. There isn't any indication as to how the trigger plate is aligned with the action.

I set it in place by aligning the trigger in the opening and hoping things would work out.. Fortunately for me I was apparently right on as the trigger, though rather crude, functioned perfectly. Thus we begin. I chose to inlet the trigger plate first because that's how I usually begin. I noted a couple of things to pay attention to. The crude machine inletting did not completely allow for the shape of the forward portion of the trigger plate.

I carefully placed the trigger plate in-place and then noted that the forward screw hole was not centered, nor did I have any screws. I found a small screw that would serve to allow me to complete the inletting and traced the out line of the forward portion of the trigger plate on to the wood using a sharp scribe. By working inside the scribed line I was fairly certain that I could fit the forward tang into the stock. Then I turned my attention to the rear tang of the trigger

plate. Again I did not have the pre requisite screws, so I used two small wood screws to allow me to inlet the rear tang into the wood. Working slowly and carefully, I removed wood where the inletting marking agent indicated the need and soon had the trigger plate fully inletted into the stock. Next was the top metal. This was done using the time honored spotting-in technique. There was the problem of the missing rear tang screw, so once again I used a handy wood screw to hold the top tang in place.

When the top metal was about three-quarters inletted I decided it was time to fit the forend screw to help me draw down the barrel to the correct depth. This is always a tricky proposition but I figured out away to do it by fitting a screw into the drilled and tapped hole in the bottom of the barrel. This was the incorrect screw but it would fit loosely into the screw hole.

I then cut the screw off so that just the head was protruding from the bottom of the barrel and placed a bit of marking agent on the screw head and carefully lowered the top metal into position into the sock. When I removed the top metal — glory, glory! — the screw left a black mark in the barrel channel which then was used as a guide to drill a hole in the stock.. I used a forend screw that I had on hand, which was a bit larger than the original screw, as a guide.

I took this screw to my gunsmith with instructions to drill out the original hole and tap it for the new screw. When I collected the gun several days later the forend screw fit perfectly into the barrel channel. Now I could complete the inletting and draw the top metal tightly into the stock.

After completing the inletting I used a small amount of Acraglas gel to maintain the fit in perfect alignment, I called the customer and told him the Flobert was ready to be returned with the advice that the screws I used would have to be replaced with ones more suitable. The customer, being an excellent machinist, said he was familiar with the problem and would take care of it upon receipt of the rifle. He said he didn't know want to

All that remains is to sand the wood flush with the top of the escutcheon, for a neat and very professional job. do about the off center forward trigger tang screw but would mull it over after seeing the rifle. have ever seen turned out to be a first class challenge which, according to my Doc, is just the ticket to keep me alive and well for along time to come. AG What started out to be the most cockamamie barreled action I had The extractor and hammer are in the cocked position.

PEOPLE & COMPANIES

Barrel Reit For The Remington Model 504 .22 Rimfire Rifle

fitting or replacing a barrel on the Model 504 Remington 22 Target rifle. This rifle is capable of extreme accuracy with a few improvements, most notably installing of custom barrel with a more precise fit at the barrel to receiver junction.

BY NORMAN E. JOHNSON NOVEMBER 2010 ORIGINAL PP. 12-13

The barrel on the Model 504 Remington is attached to the receiver via a joint that clamps a very thick split receiver ring around the barrel. This joint is tightened by a single size 10-32 socket head screw resulting in extreme thread stress if the barrel/receiver joint requires much take up. An apparent problem stems from the barrel shank being too small for the receiver hole.

The bore on the unclamped open receiver is 0.6750inch and the factory barrel shank diameter is 0.6690-inch on several of the rifles I have worked with. A practical solution to this problem when replacing or reworking a barrel is to increase barrel shank diameter nearer to receiver bore size and replacing the short 10-32 screw with a longer, hardened screw to utilize all of the existing threads in the receiver.

The work begins by making a section of test shaft to the precise diameter of the replacement barrel shank to fit the receiver. This will precisely indicate the required increase in barrel shank diameter for a proper fit while eliminating the need for excessive draw down of the clamping screw. The receiver hole diameter of the Model 504 Remington receiver of those rifles I examined is 0.6750-inch.

The un clamped receiver bore diameter is round with all parts of the inner surface or circumference equidistant from center. Attempting to tighten a 0.675-inch diameter receiver to a 0.6690-inch barrel shank will result in an elliptically shaped hole failing to coaxial align the barrel with the receiver, leaving a gap between surfaces. Further, the degree of torque required on a relatively small 10-32 22 LR rifles.

The factory issue barrel measures 0.6690" while the altered or replaced custom barrel shank is turned to 0.6740". 6745-inch as a pilot shaft to test for receiver/barrel fit. screw thread sets up an inordinate amount of stress on this screw. I turned apiece of brass stock as a pilot shaft to fit the open receiver bore as closely as possible. I made sure this test shaft fit the receiver bore of the two Model 504 Remington rifles I had available. Both bores were the same.

The diameter of the turned shaft was 0.6745-inch. It was necessary to cut a slot in the test shaft to fit the barrel locating stud inside the receiver. A trial fit then verified the exact size of the new barrel shank. At this stage of the barrel work I decided to re-terminate an existing Green Mountain premium barrel I had earlier fitted to the Model 504 Remington rifle receiver. This barrel had been turned to the factory specifications of 0.005-

inch under-size. With the barrel in the lathe, centered with live-center in the tail stock and steady rest set up, I turned the barrel shank to exactly 0.6745-inch and to correct length of 0.930-inch extending from the barrel shoulder. Then, before removing the barrel from the lathe, I cut the race in the shank allowing the end of the barrel to protrude through the inner stop ring within the bore where cartridge headspace is later established.

The chamber was then reamed using a Manson JGS Style Removable Pilot Match reamer. A Match reamer allows the bullet ogive to engage the lands on chambering as opposed to a F22 Bentz style reamer. The Manson reamer cuts a very precision chamber. The chamber is cut flush with the barrel breech plane allowing for the recessed case head, which is about 0.040-inch. The barrel was removed from the lathe, ready to cut the underside locating slot and the two extractor slots. I used a rotary key cutter to make the slots.

The laterally opposing extractor slots are cut and installed a few degrees counter clockwise from square, facilitating an angled case kick out as the case rim contacts the ejector on bolt withdrawal. One disadvantage of a Match style reamer is the difficulty to extract a fully chambered live cartridge. At least this was my experience with the three Match chambers used on the Remington 504s I worked with.

The hardened replacement screw with some lubricant does a perfect job of clamping the receiver ring to the barrel. As a later proof test I shot a group, removed and replaced the barrel and shot a second This work is performed in a milling machine. Though tapped at an angle, the longer screw has far more thread purchase than a shorter screw. group. It was a welcome sight to see that point of impact remained perfectly zeroed. There was a noticeable improvement as well in overall accuracy.

Groups that were in the 1/2-inch range at 50 yards were now at 3/10 and 1/4-inch. Analysis often reveals the source of problems in a firearm. When you know you have a well bedded rifle with a premium barrel and accuracy doesn't meet standards it is time to examine closer. You just may find something, as was the case with these Model 504 Remington 22 rimfires. AG

METALWORKING

Working the M1A1 Springfield Rifle

With a service and competition reputation that proceeds it, this civilian make of the M14 is a good working rifle at a fair price.

BY ROBERT K. CAMPBELL NOVEMBER 2010 ORIGINAL PP. 14-18

When it comes to the great service rifles, the M1 Garand, the M1 Carbine and the M14 rifle, there is little I can say to add or detract from their reputation. I have used these rifles extensively and enjoy working with each every much. For what it is worth I am of the opinion that the Garand is the most reliable of the three. Both the Carbine and the M14 series are very reliable when well maintained but personal experience and research gives the Garand the nod for best durability.

In practical terms few of us are going to be slugging through the trenches and snow and the average shooter will be able to enjoy thousands of rounds of ammunition between tune-ups, but even the angels must grease their chariot wheels. The civilian version of the M14 rifle is a very well turned-out piece from Springfield Armory.

The M1A1 rifle is all there is for most of us wanting America's last steel and wood rifle and gives shooters a good working rifle at a fair price, however, you will see many It has been well maintained. The operating principles are sound. of these rifles come into the shop simply because the owner did not know what he was getting into. With the introduction of the M1 Carbine and its easy maintenance design along with non-corrosive ammunition we had the first low maintenance issue weapon.

The M14/M1A1 is not a low maintenance rifle and is more akin to the Garand than the Carbine in this re

This is ideal. While rugged, they are easily ruined by ten thumbed operations. gard. The M14 has been criticized for changes in the gas system but it is basically a modified M1 Garand designed to use a twenty round box magazine chambered for .308 Winchester rather than the eight round en block magazine used in the .30-06 Springfield-chambered Garand. Keep that in mind. The basic design of the M1A1 goes back to 1936.

Springfield's rifle is tighter than most military rifles but, just the same, the rifle shows up in the shop with accuracy complaints. Despite the awesome reputation of the White Feather sniper rifle variants, the standard M1A1 is not a particularly accurate rifle by sporting standards. Unless you order a MATCH rifle, the M1A1 is not designed to deliver match grade accuracy.

A two-inch, three round 100 yard group is normal with good ammunition, however, with increasing ammo prices many people shoot a lot of poor ammunition these days. Some rifles are considerably more The stock to action fit is important in this design. accurate, but a factory M1A1 that does less than two inches with good quality Winchester 147 grain ball ammunition is to be appreciated.

I have never seen an M1A1 that cannot be tightened up to an extent and National Match-tuned M1A1s can shoot honest one MOA groups at 600 yards. Lets look over the M1A1.

The gas tube unscrews from the muzzle end. Disassembly Remove the magazine and triple check the chamber! Be certain the rifle is unloaded. With the rifle inverted, press upwards on the rear of the trigger guard. The trigger guard will unlatch. The trigger assembly then pulls out of the stock. The assembly does not require much effort to pull free. Next, right the rifle and with the barrel tilted left, rock the receiver of out of the stock. The barreled action is then free of the stock.

Further disassembly may be needed. Press the operating rod spring forward toward the muzzle to disengage from the connecting block. Next pull the operating rod to the rear until it is lined up with the disassembly notch in the right side of the receiver. Rotate up and outward to remove the operating handle. The bolt is removed by pushing it forward and upward. A tip: When the rifle is in storage, leave the trigger guard unlocked as this locking system sometimes compresses the wood.

And do not disassemble a factory match rifle. Common Problems The most common problem is a dirty or corroded rifle. Much of this problem stems from the use of poor ammunition. Some foreign surplus is corrosive. Other lots are not loaded to the high standard of US military or commercial rounds. Steel cases are hard on extractors. Accuracy problems are often related to the use of ammunition that will not prove accurate in any rifle.

Some nations do not have the powder technology we do and their powders are dirty and less efficient. A related problem is a dirty barrel. Folks who buy cheap ammunition tend to shoot lots of it and sometimes they do not clean the bore afterwards. Getting into true mechanical and fit problems, the most common problem that affects accuracy is a poorly fitting stock. Check stock fit, the mortises for the action and the handguard and even the butt plate. Check for wood shavings around the action and the magazine well.

A loose gas block will impede proper function. Handguard and Stock Checks I like to check the handguard first. This furniture will warp from moisture and I have seen M1A1 rifles fired until the handguard was smoking. The stock should not be in contact with the handguard with 1/8-inch of spacing between them. The stock and handguard must not connect at the rear edge of the handguard. For a neat and even look, nail apiece of sand paper to a flat surface and sand the handguard evenly as required.

This is a neat and simple trick that will work well in evening out the handguard. The front barrel band is a cause of trouble a well. Fit to the stock is critical for accuracy as the design dampens vibration and makes for repeatability. Turn the rifle upside down and press the stock toward the barrel. The stock connects with a hook near the front of the barrel. When you press the stock toward the barrel the stock should spring back into place, thus allowing for barrel vibration dampening.

Interestingly enough, I discovered that my personal M1A1 doesn't have much spring but it is accurate enough so only a bit of spring may be needed here. There are two answers to loose or poor fit and both may be undertaken in the same rifle. Bedding is one answer. Bedding the rifle is a straightforward operation that pays off in good accuracy. As with the M1 Carbine the fit of the receiver to the stock may not be ideal. There should be contact between the receiver and the stock and the stock must fit properly.

Occasionally a receiver will set too high and inletting the stock to drop the receiver slightly is indicated. Slow and careful is the watchword. The other problem may be that the fore end is in contact with the gas block. The fore end needs clearance from the gas block. Use your Dremel tool to remove enough material to eliminate bind. Incidentally, this same operation often yields good results with the Ruger Mini 14 rifle as well.

Those spoiled by the AR15 will find the M1A1 more demanding of maintenance. A simple clean and lube will cure many problems. The M1A1 is locked solidly in the stock by the trigger guard lockup and this lockup may be a pain. The lock maintains pressure between the receiver and the stock. The height of the stock from the housing to bottom of the mating surface may not allow a good snug fit. Again, bedding will help with this problem. The stock may be worn to the point that the trigger housing is loose.

Many rifles will show some compression of the wood over time but careful bedding and fitting will restore the original tightness. For this reason I store my rifles unlocked as it is not unusual to find wood particles in the trigger group after years of use from continual compression.. This can be polished and lightly varnished if need be. Gas Cylinder The gas cylinder must be cleaned occasionally. Be certain the cylinder is tight to the barrel and check alignment by shining a light through the cylinder.

The gas cylinder should never be removed for routine cleaning, only for detailed maintenance. I unscrew the gas cylinder with the Springfield tool and then clean the cylinder inside with a #15 Aircraft length drill bit and Pmarked drill bit as specified by Springfield. Polishing the outside is accomplished with a 3M Scotch pad also as specified by Springfield. You will have to perform this procedure less if you use quality ammunition but high round count rifles will need this done every 500-1,000 rounds.

Action Work The operating rod of the M1A1 is a hold over from the M1 Garand fitted with a press fit. Too heavy loads may bend the rod although this is Other makes are problematical. It may not be the most accurate nor the least expensive but results are very consistent. not common. Most often the rod and bolt are filthy when they come into the shop and must be thoroughly scrubbed clean. Another common problem is lubrication.

The most common cause of short cycle malfunctions is a failure to clean and properly lubricate the rifle. The rail for the operating rod, the inside rails, the bolt and the locking lug guides must be lubricated. The trigger action must be thoroughly understood. The military two stage trigger is produced with two distinct stages, one for safety and one for firing. As delivered the typical M1A1 may exhibit a 6.5 to 7.5 pound trigger compression.

If you proceed to hone the action — and I would do so only for an accomplished competition shooter — the rule is a very few strokes equals much loss in pull weight. Too light triggers are illegal for competition so less is more in this case. Carefully polishing the hammer hooks is the only way to accomplish a lighter trigger. A few polishes on the hook may lower the pull to five pounds, which translates roughly to two pounds in the initial take up and three pounds in the final press.

Sometimes the top of the trigger binds on the stock so be certain that this is not a limiting factor. The hammer spring should not be touched. The factory hammer spring is about 2 13/16-inches long but a shorter 2 1/8-inch works as well. The stronger spring definitely increases lock time and quick lock time is as great an aid to accuracy as a good trigger. If you or your customer desires a shorter spring, purchase an appropriate spring rather than clipping the hammer spring.

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PEOPLE & COMPANIES

Troubleshooting The Colt Defender

Learning nuances of specific handgun types will help you diagnose problems. Colt's Defender is a showcase for learning the 1911.

BY ROBERT K. CAMPBELL NOVEMBER 2010 ORIGINAL PP. 19-22

When addressing common issues with any handgun there are numerous trade secrets known to experienced gunsmiths. Often there are spots common to each handgun type and this is the rationale behind certain packages and upgrades offered as a matter of course at custom shops. The combination of upgrades often results in an improvement beyond the sum of the work. The work results in smoother operation. We often examine a particular handgun for common defects and shortcomings.

While this is OK as far as it goes, we should never stop when we find the first problem nor be blind to a problem not common to the breed. If the pistols exhibits more than one of the common problems then the owner may well be advised to simply purchase another handgun before proceeding with custom work as it may be less expensive than the proposed repairs. However, sometimes the owner decides to go the distance for reasons of his own.

Recently I encountered a Colt Defender with more than one problem area common to 1911 handguns. Evaluation and Glitches The owner had fired the Colt Defender .45 approximately two hundred rounds. He was aware the pistol had shortcomings and elected to repair the pistol rather than invoke the warranty or pursue another handgun for several reasons. He was a loyal Colt man and there was every chance the next pistol would also have problems.

The owner liked the size and fit of his handgun and he had already purchased quality leather for it, so I was given carte blanche to put the pistol in operating order. With a list of complaints I examined and test fired the handgun for myself. There is always a possibility the owner had limp wristed the handgun or used poor ammunition. My initial inspection confirmed Colt is using seven round magazines rather than the previous six round Officer's Model magazine.

It is asking much of a magazine to feed from full spring compression when it is holding one more round than originally designed while remaining reliable when feeding the last round from almost no compression. I mentally checked off the magazines as a possible reason for the short cycles I experienced with Winchester USA ball ammunition as, occasionally, the last round from the magazine failed to feed.

I substituted Metalform magazines with the red follower, a modern magazine with premium springs especially designed to feed well in the Officer's Model format. I loaded only three rounds in the pair of magazines at first and experienced no failures with the last round after firing some 42 rounds of Winchester 230 grain hardball. This was as simple fix. Another fix would have been to substitute W. C. Wolff premium magazine springs for the originals from Colt.

Feed Reliability The pistol should have been reliable with every bullet shape but it was not, according to the owner. Rather than run up another ammunition bill I elected to look at and improve the ramp first and then do a feed test. When checking the feed ramp it is important that there be a 1/32-inch gap between the barrel portion and frame portion of the feed ramp. If not, the piece will not feed correctly.

There seemed to be a good fit and finish with the Colt feed ramp but the barrel set practically on top of the

C. Wolff unit. Function improved with the addition of this recoil spring. feed ramp. I am loath to polish an aluminum frame for several reasons and was moved to recommend the owner simply feed the pistol nothing but 230 grain roundnose bullets, but he would not hear of it. I am sorry if I seem timid concerning aluminum frame pistols but they are simply not as robust as steel. I undertook the job with small files and began with 400 grit sandpaper, proceeding to 600 grit and avoiding working the ramp on the frame.

I attacked the real problem, the barrel throat. The throat is now more shallow and the contours more even than before. The transition area or ledge on the feed ramp is now quite smooth. Remember, over aggressive polishing will extend the feed ramp into the chamber, which must be avoided. Fortunately the frame portion of the ramp was relatively smooth.

Had it been rough I might have repeated my own warnings and advised the owner to feed his Defender 230 grain hardball or the round nose Cor-Bon Pow'RBall, an exceptional loading well suited to handguns that do not feed hollow point bullets. In the end, the handgun was tested with fourteen rounds each of Winchester 185 grain Silvertip, Winchester 230 grain SXT, Hornady 185 grain XTP, and my personal handloads using the Nosler 185 grain JHP. All went flawlessly. The pistol is now feed reliable.

Extractor Tuning I was beginning to believe that perhaps this pistol was one of those turned out late on Friday when everyone was hurrying to head home, rather than the legendary top grade gun made on Wednesday. The extractor needed a proper fit and tune. When inspecting an extractor the extractor groove must also be examined closely. The extractor groove must present a bevel to guide the cartridge case into the extractor. This groove captures the cartridge case rim as the case travels from the magazine.

There should be no loose motion in the extractor groove and the case head must fit snugly. Over time a gradual round ing of the extractor groove may occur but very often the extractor groove is not delivered as sharp as we would like. The extractor groove must be beveled at the bottom in order to cam the cartridge case rim into it, resulting in a gradual tension on the extractor. Sometimes we have to put the bevel on the extractor if it does not exist from the factory.

In order to proceed, use a file and begin the bevel at the bottom of the edge approximately mid point into the extractor groove. The inside edge toward the muzzle should form a straight point into the extractor groove. The very lower edge of the claw itself simply needs to be sharp. There is some misunderstanding of extractor tension, as several handguns will show different tensions — or no tension — if measured by various tools. Checking extractor tension is simple enough.

I check tension by stripping the slide from the frame and the barrel from the slide. Next, I slip a cartridge case into the extractor from beneath the slide. If the slide is wriggled and the case does

Be certain to order the correct part! not fall out, extractor tension is good. Jack Weigand's Extractor Tensioning Tool remains the premier product for setting extractor tension. While tension varies, and some extractors with little measurable tension work just fine, checking the extractor tension in the previous manner is one way to go. I removed the Colt extractor and carefully recut the bevel and sharpened a dull extractor hook as per my previous notes.

This extractor was not worn, it was delivered from the factory in this condition. Colt remains a high quality product, but occasionally the hand fitting required to produce a good quality 1911 handgun results in this type of pistol slipping by. Recoil Spring and Slide Stop The original recoil spring and guide seemed to function but the spring simply did not look or feel right. I have no easy means of checking spring loading but I know what a proper spring should feel like. I ordered a W. C. Wolff 24 pound spring.

The slide was slightly more difficult to rack after adding the new W. C. Wolff recoil spring and function was good. There were no short cycles of any type during the firing test. More so than with the Commander or Government Model, the Officer's Model and Defender type 1911 handguns are subject to the slide stop locking the slide open before the pistol is empty. A common cause is the shooter allowing the weak hand thumb to contact the slide stop.

This is particularly true when using +P loads that demonstrate greater recoil. There are also mechanical causes. I have experienced similar problems when firing .41 Action Express ammunition in converted Browning High Power pistols. Sometimes an uncommon job such as the .41 AE conversion gives insight into the more common work. There are several steps in addressing the premature slide stop lock. The tab on the slide stop that contacts the magazine follower is sometimes contacted by the nose of the bullet.

Standard overall cartridge length for the .45 ACP is 1.250 inches but handloads and even some factory loads with a fatter, longer or heavier You may cut your own or order a Wilson Combat slide stop with the a ready made custom bevel. This pistol also had a few problems, but one problem was solved by the factory. This pistol features a ramped barrel. than standard bullet will contact the top of the slide stop. Very carefully bobbing the slide stop at this point of contact will cure this problem.

True to form the Colt occasionally locked open during a firing string according to the owner. I personally tested the piece for slide stop lock and found that the slide stop did lock in the middle or a magazine of +P loads at least twice in twenty one rounds of the Hornady 230 gr. +P. I bobbed the slide stop slightly, retried, and this problem was cured. This is cut and dry work, carefully addressing the point that meets the magazine follower. Polish this point shortening it but slightly.

Work a little, check, and you will get it right. I also performed a recommended procedure by creating a dimple on the slide stop exactly where the plunger tube contacts the slide stop. With the slide stop properly modified you have

Colt has done better with Government Model pistols on average. But not too much polish as we do not wish to interfere with Colt's controlled feed design. solved a common and nagging problem with the small frame 1911 handgun. The plunger tube will retain the slide lock under normal conditions. Slide Work This Defender had more tool marks on the slide and breech face than I like but not out of the norm for production pistols circa 2008 or so.

The tool marks were not so deep they might cause excessive headspace if completely polished out, but there was potential for snagging a cartridge case rim during feeding if the tool marks were not polished out properly. After all, the pistol cycles in the blink of an eye and any snag has the possibility of causing a stoppage. These marks required only a few strokes with a flat file and finish with 400 grit sandpaper. While performing this task I made certain the firing pin hole was free of burrs.

The firing pin channel was well done with a slight bevel from the factory. Remember, you do not wish to remove enough metal from the breech face to affect headspace, but with few exceptions, 1911 breech faces may be smoothed for better function. Conclusions After working with a number of Colt Defender pistols, I find the type to be a well made and reliable handgun. Like all 1911 pistols from every We fixed this in short order with a proper bevel.

The wide mouth hollowpoints popular today slide over this ramp easily. reputable make there are occasional shortcomings. Most of these shortcomings do not result in malfunctions but do result in handling and shooting that is not as smooth as it could be. This Defender combined several common faults. After a few hours of work and extensive double checking as required of a personal defense pistol, my customer's Colt Defender is reliable enough to be on the front line. AG

MAINTENANCE & REPAIR

Reader Forum

BY AMERICAN GUNSMITH EDITORS NOVEMBER 2010 ORIGINAL PP. 23-24

Land and Groove Diameters I have a Winchester Model 43 rifle chambered in .22 Hornet and need to replace the barrel. What differences, if any, are there between the bore, land and groove diameters for the .22 rimfire compared to .22 Hornet? I cannot find a factory replacement barrel and the original barrel is badly corroded inside through its entire length, giving poor accuracy poor and stuck fired cases. I'm looking to replace the barrel with one from Brownells.

Should I go with a barrel having a .223 or .224 inch bore diameter? If a suitable replacement can not be had, is a .22 long rifle caliber barrel liner suitable? Provided there is enough rifling remaining, run a soft lead slug through it and measure the diameters. If there isn't enough rifling, run the slug through a,22LR barrel. The measurements will likely be the same for a .224 diameter Hornet bullet and a,22LR. A possible exception to this can arise if the .22LR barrel is attached to a Marlin.

This company uses Microgroove rifling for enhanced accuracy. Now for the glitch. There's far more .22LR ammunition made than any other caliber. Millions and millions of rounds per week. Due to this volume case rim thickness and bullet diameters do vary from manufacturer to manufacturer. For example, some bullets mike out at .223 while others mike .224. So if you're reviving the old Hornet with a,224 liner make certain the bullet of any ammunition selected for discharge through it matches the liner diameter.

Testing of several brands is both permissible and recommended. The .22LR being what it is, the rifle will soon let you know which one results in superior performance compared to other brands. Once you're given the word, stick with the ammo the rifle tells you it likes best. Shotgun Barrel Rifling I am curious as to whether on not rifling can be put into an existing smoothbore shotgun barrel with positive results when using sabot slug ammunition?

It depends on the existing wall thickness of the barrel and whether rifling it might cause a dangerous weakness. If so, the result would be disastrous. Brownells offers free copies of a parts source list for out-of-production firearms. As we recall, that list includes specialized gunsmithing services such as relining and barrel manufacture/alterations for both handguns and shoulder arms.

Call the guys at Montezuma, IA, get your copy of the list and be prepared to ship your shotgun barrel to one or more of the services you'll find there. There is little doubt in our collective minds that rifling improves the accuracy of saboted shotgun slugs. In some cases, the improvement nears amazing.

Robert Browning BPR .22 Magnum A fellow shooter asked me if the pins holding the innards of a Browning pump rifle in .22 magnum caliber can be drifted out of the receiver left to right or right to left without damage to the receiver or pins. Researching through my book collection did not yield the answer. I then measured the hole diameters on both sides of the receiver and they appear to be the same size. My guess would be pins go out either way and cannot drop out as they are held in by the receiver cover.

Also, are takedown/assembly instructions and a good schematic available for this firearm? We have never written up the BPR .22. The most plausible reason is this firearm went out of production ten years prior to our first issue! A search of our files and the Internet turned up almost nothing on your rifle. Even the Browning web site doesn't list an owner's manual for it. We do this rifle was a cousin of Browning's BPS shot gun. The latter had parallel sided and equal length pins that could be drifted in either direction to ready the trigger mechanism for removal. Most present day pump action and semi-auto shotguns employ the same set-up. See Mossberg, Remington and Winchester for proof. We wouldn't completely abandon the cause despite our coming up zero. Call Browning (Now Browning-Winchester) at and ask for customer service. If it's a good day they may agree to photo copy a BPR 22 Owner's Manual and send it to you.

At least that would contain a good schematic and field stripping instructions. Falcon Revolver I have a revolver on the bench, made and proofed in Germany in 1969 that needs a cylinder. All the chambers are swollen out to .243, and even standard .22 ammo sticks. The problem is I can't find the company listed anywhere. The importer is Spesco Corp., Atlanta GA, and I can't find them either. Where can I get parts?

Mike The only listing the Standard Catalog of Firearms shows for Falcon is a M1911 clone made or imported by Norrhridge Arms, CA, a company now out of business. The revolver you took in appears nowhere in our files but if the cylinder is as misshapen as you indicate we suspect very inferior materials and/or excessive abuse by a previous owner. Send a photo of the gun to the NRA Museum, Waples Mill Road, Fairfax, VA 22030 and include a self-addressed return envelope.

Don't be surprised if their response includes Spesco, like Northridge, no longer exists. That pretty much restricts your search for parts to the aftermarket, a search that may be a tiring one if the gun is as old as you believe. Name S&W Model 1000 I have an early 80's S&W Model 1000 shotgun chambered in 20 gauge that had a broken firing pin. I replaced the

firing pin and all went as planned until the time to test fire. The shell carrier will not move unless you push the breech bolt release. Is this correct or did I make a mistake in the reassembly department? I've also noticed the piston shock absorber has deteriorated and is no more. The last time this gun was used was an Argentine dove hunt and I figured that crud was fouling like all the other crud. Can I replace the factory part with an Oring? If so, what dimensions? We wouldn't advise an O-Ring.

It's not made of stern enough stuff. Though S&W has discontinued the M1000, they may still have parts or could direct you to another source. Usually, when a major manufacturer decides to end production on this or that model, some enterprising person offers to buy up spare parts for it fully realizing an out-of-production gun is a gun that's going to be needing parts, and probably sooner than later. High Standard Victor I have a .22 caliber High Standard Victor.

When shooting the gun chambers the live round but stove pipes the spent case after the fourth or fifth round. I inspected the ejector and it appears to be in good shape with no sign of wear. I took it to a local gunsmith but he couldn't find any visible problem. Robert R. You didn't mention the age of the pistol but if it is quite old the problem may be a weak driving spring. There is also the possibility of a fouled chamber slowing down the bolt, Check it out.

What we really think the problem is most likely to be is an overly loose extractor that is letting go of the spent round too soon for the ejector to kick out. Loose extractors can be replaced. They can also be tightened by heating up the claw end to cherry red and squeezing it a bit to narrow the gap. Bart Refinishing Gun Metal I enjoyed the article "Refinishing Gun Metal" by Brian E.

Capps in the April 2010 issue, and have been using his methods, however, I have a questions that has plagued me when I reblue a rifle barrel. Mr. Capps didn't mention how he keeps from bluing the rifle bore. When I plug the bore ends of a .22 LR barrel with rubber plugs I still have to touch up the lips that don't get blued under the plugs. If I don't use the rubber plugs I end up with a blued bore and a lot of work getting it clean and shiny.

I even have problems with the ends when I run a patch of bluing remover through the bore. What's the trick to keeping the bore shinny? Carl We sent this question directly to author Brian Capps. Here is his response. The problem you mention is one of the reasons, aside from cost, that I like to use the Belgian bluing process. As the barrel is heated only by the boiling water, and not a bluing solution, I've found very little problem with the bluing getting into the bore itself.

After the barrel gets nice and hot, I remove it and allow a few seconds for the water to evaporate, then apply the bluing material to the outer portion of the barrel with a swab. On the outer barrel itself, I can be a bit sloppy with the swab, but take a few extra seconds to be more careful around the muzzle and breech. I've never used plugs for this type of bluing and have gotten very little, if any, bluing compound on the inside of the barrel.

S&W 52 Is the S&W M52 modified from a Illinois Highway Patrol 9mm handgun with the barrels left at .355 bore size but rechambered for the .38 Special? J. A. Regretfully departed among target shooters, Smith and Wesson's Model 52 came out of an Army Marksmanship training project taken on by S&W. The pistol's platform was based on the Model 39 but required re-engineering due to the desire/demand for the gun to fire .38 wadcutter ammunition for Conventional, National Match-type competition shooting.

A Model 39 barrel could not be substituted without going back to the drawing board. Among other factors to be considered, the 9mm is a high pressure round where the .38 wadcutter is not. AG

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