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INSIDE THE ARCHIVE

RUGER SINGLE- TEN SINGLE- ACTION

GALLUP FINDS MOST AMERICANS PRO GUN • YET ANOTHER LARGE MARTINI • SCOPE MOUNTING THE US MODEL OF 19...

ORIGINAL METHODS. MODERN ACCESS.

ARCHIVE EDITION 096

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MEASUREMENT & INSPECTION

Gallup Finds Most Americans Pro Gun

BY AMERICAN GUNSMITH EDITORS DECEMBER 2011

ORIGINAL PP. 2

The Gallup Organization (gallup.com) is a performance management company and their Gallup Poll division regularly conducts public opinion polls that are frequently referenced as reliable and objective measurements of public opinion. Gallup Polls have measured the public's opinions concerning a diverse range of political, social, and economic issues widely regarded for their accuracy.

For the last decade Gallup has been showing more Americans approving of gun ownership, indicating support for gun control is dwindling.

In 2009 Gallup reported there was record-low support for stricter gun laws in the US. "Compared with views in 2000, each major demographic or attitudinal subgroup has shown a shift toward a more pro-gun stance on the question about whether gun laws should be more strict or less strict." The poll also showed new lows in the percentage of Americans favoring a ban on handgun possession except by the police, a question that dates back to 1959.

Their bottom line assessment remarked, "Americans continue to trend toward holding attitudes that are more in favor of gun rights, and Gallup today finds new low points in favor of gun control on two separate measures dating back at least two decades. While solidly against a ban on handgun possession, Americans are nonetheless about equally likely to say they favor stricter laws on firearm sales as to say these laws should not change.

Still, the current poll marks the first time Gallup has not found a significantly higher proportion of Americans preferring tighter gun-sale regulations."

When the Supreme Court officially ruled that a District of Columbia ban on handgun ownership was unconstitutional Gallup found the ruling to be solidly in step with public opinion. A clear majority of the U. S. public (73%) believes the Second Amendment to the Constitution guarantees the rights of Americans to own guns.

And almost 7 out of 10 Americans are opposed to a law that would make the possession of a handgun illegal, except by the police. When retested one year later the results remained the same. In fact, even in light of tragic, criminal events perpetrated by the insane, Americans polled by Gallup stand their reasoned, logical ground and do not blame inanimate objects.

Even following highly publicized shootings in Tucson and Virginia Tech the issue of gun control was found to not be highly salient in the minds of Americans as few mention gun control as an important problem or top priority for the government to deal with. Gallup trends on gun control demonstrate that Americans have grown less supportive of strengthening gun laws in the United States over the last two decades, notwithstanding highly publicized gun attacks.

The downward trend in support for stricter gun control stalled briefly in 1999 after the Columbine High School massacre; however, the slight increase in support for stricter gun laws seen then proved temporary. The general downward trend in support for stricter gun laws has continued even though several high-profile civilian gun crimes.

PEOPLE & COMPANIES

Ruger Single-Ten Single-Action

The genesis of the Single-Six and how it has grown. Here's your guide to working this popular revolver's newest offspring: The Single-Ten.

BY CHICK BLOOD DECEMBER 2011

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Many years before he became a legend in firearm design and manufacture William B. Ruger held a deep, lasting admiration for and desire to equal Samuel Colts' Single Action Army. When Colt Manufacturing decided to remove their immortal revolver from further production after World War II, Mr. Ruger saw and seized the opportunity to design and develop a rimfire copy of General George S. Patton's favorite hip decorations that included notable internal improvements.

Sans the feisty General's pearl handle grip panels, which almost instantly became an aftermarket add-on after its 1953 introduction, this revolver generated such welcome sales volume for Sturm, Ruger it became the design platform for the Blackhawk and Super Blackhawk, both centerfire financial bonanzas for the company.

In 1973, the Single-Six, in turn, borrowed from its descendants during a major redesigning with the addition of a transfer bar preventing any cartridge primer contact unless the trigger is fully to the rear. In addition, the hammer's loading notch was eliminated. Thereafter, the cylinder could be rotated and charged when the loading gate was opened. Twenty years earlier, as a result of an incidental announcement in *Argosy* magazine that Sturm-Ruger, William B.

Ruger to be precise, was busy developing his rimfire clone of the Single Action Army, the company received a call for help from the Southport, CT post office. There was found, literally, bushel baskets full of inquiries asking for more information. Much the same had happened in the late 1940s after a similar announcement was made in the pub- Currently, no plans are in the works to offer an extra .22 Magnum cylinder for it as was done with its immediate parent.

The "dingus" is shown out of the revolver after the cylinder has been removed. Ica- tion regarding the Ruger Mark I did the response equal the Single- Six volume to come, it affirmed the confidence of the shooting public in the young company. In retrospect, you may wonder how it was possible to even consider an externally exact clone of the Colt without a lawsuit being instantly filed by the creator of the Single Action Army. Why there was none was due to the internal differences designed in by Ruger himself.

Among the most significant of these were a music wire coiled hammer spring to replace the original flat leaf type. It was not the only flat spring to be replaced with the music wire coiled variety. They all were. In addition, and despite the new revolver being a rimfire, everything was to be made

more substantial. The sear would be wider and thicker with more ruggedly contoured notches. The Single Action Army cylinder bolt was prone to breakage even after fitting by an expert.

In the Single-Six the same component, called a cylinder latch, was solid instead of slotted. This was made possible due to what can be considered the most significant design difference yet mentioned: A patented system of actuating the latch via a spring plunger mounted in the hammer. All of which brings me to the latest grandchild, or great grandchild, of the Single-Six, the freshly introduced Single-Ten. If the first one you see is N. I.

B. and untouched by its owner (a highly unlikely possibility) you can't miss the yellow, hard plastic dingus sticking out from the gun between its cylinder and barrel breech. The dingus has two studs that occupy alike number of chambers. Before you can begin field stripping a Single-Ten handed over to you for service with the dingus still installed, the dingus has to go. When it resists all efforts at fingers-only removal do not be tempted to lock on with vise grips and apply your best impacted wisdom tooth

RUGER SINGLE-TEN SINGLE-ACTION CONTINUED

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extraction techniques. The wreckage one could cause is so terrible it will remain unmentioned. I, your long time and ever humble technical editor, will choose not to cause dreadful nightmares for the readership. Getting rid of the dingus is actually easy, simple and harmless. The cylinder must come out first. That, therefore, is where I'll begin talk of disassembly after mentioning the fact that I have avoided using letter prefixes to the part numbers in this particular article and accompanying schematic.

While they have multiple meanings to a manufacturer, letter prefixes usually specify a gun's finish or stock style and, in cases other than the Single-Six and Single-Ten, its caliber. To be safe and avoid any possible reordering on your part I've limited all parts identifi-

cation included here-in to the part number, sans letter prefix, on the schematic. This requires only one request I must make of you if and when you are ordering Single-Ten components.

Use the part number by all means, but always specify the revolver is a Single-Ten and identify its finish. No one wants blued screws showing up in a stainless steel frame—unless, of course, their goal is that extra chi-chi polka dot look. Carrying specifications this far might seem too much to The text carries you far beyond this, moving well into the new revolver and providing several tips for proper reassembly. ask. It really isn't.

Case in point: The pawl in a Single-Six (#00702)—it's called a hand by some other revolver manufacturers—may have the same

number as the pawl in a Single-Ten. But the pawl of the Ten is dimensionally different than the pawl in the Six. This drawing from the owner's manual illustrates how to depress the loading gate detent spring, the proper positioning of the longest frame screw to assure it secures the hammer pivot and re-installation of the trigger pivot.

The correct trigger/trigger bar pre-assembly orientation prior to its insertion into the cylinder frame slot. The same is true with components of far lesser importance such as grip panels (#01000). Whenever you order parts from anyone, name the specific model and its finish. It is a good habit to acquire. Throwing in the caliber can't hurt, either.

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Disassembly First, remove the dingus. Open the loading gate (02400) to lower the cylinder latch (04500) below its frame window. Press inward on the base pin nut (2800) located ahead of the cylinder on the left side of the frame. Withdraw the base pin (12200) and remove the cylinder to the loading gate side of the frame. The dingus will probably drop out. You might as well hang on to it.

If the revolver must be returned to the factory the double prong yellow plug can provide extra protection in case the gun takes a hard whuppin' during the shipping process. Its presence in the cylinder also eases any worries on the part of Factory Service people showing that they haven't been handed a loaded revolver. Of course, dingus or no, every prudent firearm user will always confirm clear and empty. Action open, cylinder chambers check out empty, barrel pointed away from you, eye protection on.

If they aren't already out from the dingus extraction, remove the base pin and cylinder. This is as far as you actually need to go when the objective is a routine clean-up. But by now, you know me—I don't stop at the routine level. Sturm, Ruger owner's

manuals, at least the handgun versions I've read, go far deeper and beyond those published by most other manufacturers.

If I gure the company advertising slogan, "Arms Makers For Responsible Citizens", isn't shoveling smoke and evidently the company genuinely believes those are the kind of people who can be trusted. Partial proof of this successful builder/buyer relationship is included here in the form of secondary "how to" drawings reproduced from the Single-Ten manual. Anyway, here we go. Remove the grip panel screw (01300) and don't lose the grip panel ferrule (01200) in the process. Straighten out about an inch of a paper clip.

Fully cock the hammer. Insert the straight end of the clip through the hole near the bottom of the hammer strut (0400) to capture the mainspring in a compressed condition. Exert some thumb pressure on the hammer (04000), squeeze the trigger (03901) and ease the hammer forward to its fi red position. Study this drawing to ensure proper reassembly of the loading gate spring and how it rides on the gate pivot.

The main schematic, inset 7C in this drawing and the related text will help with reinstallation of the trigger spring, mainspring strut, cylinder latch plunger and pawl spring. There are five screws (four of them like #01800) fastening the grip frame to the cylinder frame. The fifth screw is the longest (01901). It serves to do its share of the fastening and performs an additional function I'll mention later.

Two of these holding screws are located in the rear of the grip frame, on each side of the hammer slot in the cylinder frame. The other three are located one forward and two aft of the trigger guard in the grip frame. They all have to come out. Keep these screws together in a small pile including the longest among them. To separate the frames, pull the grip frame to the rear and downward. If the parting doesn't happen readily, move the hammer slightly to the rear and pull again.

You can lift the mainspring assembly from the grip frame now but, for heaven's sake and your own, do not touch the restraining paper clip. It's to stay as is because the mainspring assembly will be reassembled to the grip frame as a unit.

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Ruger Single-Ten Single-Action (Specifications subject to change without notice) 1 Base Pin - 12200 2 Base Pin Nut - 02800 3 Base Pin Latch - 02700 4 Base Pin Spring - 04700 5 Ejector Housing Screw - 03300 6 Ejector Housing - 12200 Caution: As you go about frame separation do not lose the pawl spring and plunger or the cylinder latch spring and plunger. The pawl components (5000 & 5100) locate in a hole in the left rear of the cylinder frame just above the grip frame screw hole.

The latch spring and plunger (04600 & 07700) locate in the hole for the foremost, and loneliest, screw in the grip frame. Before you remove the trigger pivot (03400), study owner's manual Drawing 4.

The screwdriver is used to depress the gate detent spring (07300) so the end that has been resting in one 7 Ejector Housing Spring - 04400 8 Ejector Housing Rod - XR-55 9 Frame Screws - 01800 10 Frame Screw - 01901 11 Grip Panel Ferrule - 01200 12 Grip Panel Screw - 01300 13 Grip Panels - 01000 14 Hammer Strut - 0400 15 Hammer - 04000 16 Hammer Pivot - 1601S 17 Pawl - 00702 18 Pawl Spring - 5000 groove of the pivot isn't goofing off there any more.

Afterwards, use a drift and light hammer to tap the pivot out of the frame. In the following order, remove the cylinder latch (04500), loading gate detent spring

(07300) and loading gate (02400). The hammer pivot (1601S) must be drifted out prior to the removal of the hammer/pawl and trigger/transfer bar assemblies. Please attend to these steps accordingly.

In this state of disassembly a Single-Ten would be ready for a major clean-up and maintenance/repair/
Schematic Note To avoid a great deal of confusion for the reader only parts named in the text of this article are included. 19 Pawl Plunger - 5100 20 Rear Sight Pivot - 05600 21 Rear Sight Springs - 05906 22 Trigger - 03901 23 Trigger Spring - 03700 24 Trigger Spring Retaining Pin - 06300 part replacement.

If it becomes apparent that going further has become absolutely necessary a couple of suggestions and a caution should prove worthy of keeping in mind. The ejector and ejector housing: Firmly wrap a hand around the barrel and housing when backing out the screw (03300). After screw removal, carefully lift the housing (12200) from the barrel while remembering it contains the ejector spring (04400) and ejector rod (XR-55).

Base pin latch/nut and spring: Hold the nut (02800) firmly between padded plier jaws while the latch is

RUGER SINGLE-TEN SINGLE-ACTION CONTINUED

ORIGINAL PAGE 7

being unscrewed from it. Take care not to lose the spring (04700). In final reassembly, assure the nut and spring locate in the left side of the cylinder frame. Rear Sight: The good news is it can be removed from the cylinder frame by drifting out its pivot pin (05600). The rest of the news revolves around the sight elevation springs (05906). Small isn't the right word for these two rascals. Tiny is better. So is teeny.

I prefer the longer definition: Two nasty, infinitesimal pests eagerly awaiting their opportunity to provide you with a double migraine by disappearing into the unknown the instant their sight base no longer restrains them. Act accordingly then take control of these wee, possessed ones on reassembly. This apparently noxious task is rather pleasantly accomplished with a dab of grease placed in their respective base recesses. Two painless victories result.

The twin demons will behave, remaining upright when the sight is positioned on the cylinder frame and its pivot installed. Reassembly Tips Preassemble the pawl to the hammer and the trigger to the transfer bar as shown in owner's manual Drawing 5. Start the trigger/transfer bar assembly into its cylinder frame slot, bring on the hammer/pawl combo and simultaneously complete the insertion of both. Go back to Drawing 4. Align the hammer with its pivot hole.

Insert the pin with its grooved end finishing up on the loading gate side. Dip into the pile of frame screws. Find the longest one (01901). When that screw is turned into its hole located in the right rear of the grip frame it will meet up it will meet up with the groove in the hammer pivot to secure it in place. Move on to Drawing 6. Note how the lug on the cylinder latch sits between the arms of the loading gate detent spring (07300) and that one end of the spring has a 90 degree angle.

The projection thus formed fits through the square hole in the bottom of the cylinder frame and rides on the cam surface of the gate pivot. The projection also holds the gate back and in place. Once again, Drawing 4. To reinstall the trigger pivot, depress the upper arm of the gate detent spring. Insert the non-grooved end of the pivot into the right hand side of the cylinder frame. You may have to manipulate the trigger, gate detent spring and cylinder latch to align all their pivot holes.

A slave pin would make the manipulation either much easier or no trouble at all. The Base Pin has a "dished out" section on its collar. When reinstalling the pin, be certain this section is adjacent to the bottom contour of the barrel. The pin itself must be fully inserted and locked in that position by the base pin latch. If not, the transfer bar could catch under the firing pin when the hammer is being cocked. From this point on, most tips provided involve Drawing 7 and the main schematic.

Unhook both ends of the trigger spring (03700) from the grooved retaining pin. When inserting the cylinder latch plunger and spring in their grip frame hole the spring goes in first. Conversely, the home hole for the pawl spring and plunger locates in the left side of the cylinder frame just above the rear grip frame screw. Here, the plunger goes in first. Double check the schematic before reinstalling the main-spring assembly.

What you're aiming to do is determine the correct position for the mainspring strut in the grip frame. To be more precise, the strut should be well settled on its frame step. Only after can you cock the hammer fully and withdraw the faithful paper clip. Perform a quick function check. When you pull the trigger the hammer should fall normally and the strut remain well seated. That being accomplished draw the hammer slightly to the rear and loosely place the grip frame on the cylinder frame.

Before making this particular engagement a marriage by pushing the grip frame forward you must be certain of the following. First, the cylinder latch plunger (07700) will contact the bottom of the latch, not either of its sides. Second, the pawl spring is aligned to contact the left "ear" of the grip frame but not in danger of bending or being bent as a result of that contact. In Drawing 7 note the end of the trigger spring (arrow A).

It must be depressed enough to slide under the rear portion of the trigger when the frames are finally wed. Before that occurs you must first double check all the spring and plunger installations mentioned in the preceding paragraph. By the way, remember the ends of the trigger spring you unhooked? They both assume their final position in the revolver by resting on the trigger spring retaining pin (06300). See sub drawing 7C in Drawing 7. Single-Ten function tests must be made.

Here's the sequence to be performed after reassembly and before the revolver is charged with living ammunition. Cycle the gun several times. The cylinder should rotate freely and be engaged with the latch before each pull of the trigger. The trigger returns positively when released. The loading gate opens and closes normally. About the gate on a never-fired Single-Ten, a potential owner with a less than sturdy thumb may feel operating the gate an overly tough proposition. Feel free to assuage such concerns.

The gate will smooth out considerably after a couple of hundred rounds have traveled out the muzzle. This capability to improve with use may not be true of all revolvers. I'll draw an analogy that applies to the Single-Ten. Remember what the TV announcer said as the camera closely followed the treacherously long, uphill left, then right over a hump, then downhill and further right putt Tiger sank for a birdie on that awesome 17th hole Island Green? "Better than most." AG

FROM THE ARCHIVE

Yet Another Large Martini

A rare, German-made Martini variant creates an interesting challenge and fabulous end result.

BY DOMINIC PISANO DECEMBER 2011

ORIGINAL PP. 8-10

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The voice at the other end said, “I saw a photo of one of your Martinis on the web. Would you be interested in building a stock for mine?” I responded that, yes, I would but first a few questions. The first thing I wanted to know was which Martini my new customer had and what was the nature of the work in question. He replied it as a large Martini and I immediately thought it was one of those tens of thousands made for the British army during the halcyon days of the British Empire.

He said yes, sort of, but it has a funny looking curved trigger guard, double set triggers and was fully engraved. My interest perked up a notch because I knew he was describing one of the Martinis made in Germany or Austria by a myriad of craftsmen, from the Cadet to the large military Martinis, and everything in between. I had never had an opportunity to work on one of these Martinis. In fact, I had only actually seen and held one but once in my career and that was along time ago. And it was not for sale.

This represented anew a challenge. I proceeded to ask questions and learned that the customer had purchased the action

many years prior and only recently had a 32-inch part octagon Badger barrel fitted to it. It was chambered for the Winchester .40-65 cartridge. That should have rung a bell in my mind but it didn’t until later in the project. The barreled action arrived a few days later and I began my research to learn as much as I could about this particular specimen.

I reviewed Single Shot Rifles by Frank De Haas as well as John Grant’s book with the same title and concluded after reading everything else I could find on the subject that my customer handed me a System Stahl action. Since we see so few of these I concluded it was prudent to note what Grant had to say: “The single shot (Martini type action) was an American invention, rather it was the result of several different patents which were first made in the United States.

It is slightly ironical, however, that this type of action reached its greatest development in Europe. There were so many conversions and perversions on the Peabody-Martini action made in Germany, Austria,

and Switzerland that it is impossible to show them all. The Stahl Martini is perhaps the best known of these various systems.

It featured a demountable lower tang and quickly removable breechblock...” “The set triggers as used on the Martini actions of German and Swiss make are the nicest set triggers I have ever used. They show thought and workmanship of a high order.

These like so many of the actions and barrels, were largely hand made, and so, are beautifully finished on all parts, and show a great variety of systems used.” A sketch made up from photos in the John Grant books was sent to the customer along with photos of stock blanks I had on hand. The photos and sketch were returned a few days later. The customer said the stock sketch I had prepared had too much drop and wanted to know if I could accommodate a higher nose to heel stock line.

Upon receiving these instructions to decrease the drop the thought occurred to me that the customer might be a Silhouette shooter. The choice of the Winchester .40-65 cartridge reinforced that perception.

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With that, I recalled previously reading that the big Stahl Martini was not designed for heavy recoiling rifles as the full thrust of the recoil would be borne by the breech block "lever" pin. I immediately placed a call to the customer and reported this information to him. He said he appreciated the call but was not a Silhouette shooter and that any shooting he was planning would be done with light loads. The rifle's primary purpose was to handsomely adorn the wall of his den.

I instructed him in no uncertain terms that should the rifle should ever change hands he was obligated to tell the new owner that the action should be limited to light loads, with strong emphasis on the word light! I sent him a letter to this effect to cover my you know what. Once we were agreed on the ac-

tions limitations I set about to design a stock that met with the customers request while retaining the desired Germanic look.

I prepared a few stock sketches and when I had one that seemed to fit the bill I sent it to the customer for his review and approval. He said it was exactly what he had in mind. I then transferred the sketch to two pieces of 3/4-inch Poplar glued together giving me a thickness of 1-1/2 inches. A third piece of Poplar, roughly shaped like the cheek piece, was also glued in place. The stock was then cut out using a band saw and the serious shaping and fitting work was begun.

Once I had the rough pattern fitted to the frame using Brownells Acraglas Gel to get the exact fit, I added the steel butt plate to give me the outline for shaping the heel and toe line. I used the attachment at the wrist and

the steel butt plate as guides to enable me to begin the shaping of the stock, stepping back from time-to-time to assure that things were going right. I used Bondo and epoxy gel to get this just right.

I try to make my patterns as exact as I can because I have learned through experience the more exact the pattern is the easier the machined stock is to fit, which saves valuable time. Remember, Walnut is a very hard and dense wood and is time consuming to work with if a lot of shaping is necessary. Typically I make the forend from scratch but in this case I made a pattern as well because the face of the frame where the forend butts up against it is a series of compound curves that would be difficult to fit.

EVEN THOUGH I USED EPOXY TO GET AN

YET ANOTHER LARGE MARTINI CONTINUED

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exacting fit on the pattern it still took me better than two hours to perfectly inlet the machined forend. The customer made English walnut the wood of choice for this project, which was very pleasing, albeit unusual. When the machined stock was returned from the stock turner I knew the customer had made an excellent choice. This stock was going to be an eye opener. One of the things I noticed when I began inletting the butt stock was the peculiar method of attaching it to the action.

Two screws were inserted through the top tang. Nothing unusual there, but instead of finding a similar attachment on the bottom tang (trigger plate) there was an unusual

locking arrangement with a base plate installed into the bottom of the trigger plate inletting, to which an engagement spur was attached by rotating a lever located on the lower tang 180 degrees! I thought to myself, how did they come up with this cockamamie arrangement???

The base plate was missing and had to be made, and then perfectly fitted so that the contraption would work. I have seen evidence of over engineering by German gun-makers before, especially with shotguns and shotgun/rifle combinations, and this was another example of such. I completed the shaping using the usual array of rasps and files

and then sanded the wood until everything was silky smooth, finishing with 320 grit abrasive paper as the last step.

Following that I finished the stock using a 50-50 mixture of True Oil and mineral spirits. I don't know how many coats of wet sanding I used because the thought of that on a per cost basis would depress me. The stock was then checkered and waxed several times using Johnson Paste Wax, giving the finish a wonderful sheen. It was a thing of beauty. The completed rifle was returned to the customer who reported he was pleased with the outcome. What more can one ask? AG

MAINTENANCE & REPAIR

Scope Mounting The US Model of 1917 Eddystone/Enfield Rifle

All manner of requests for scope mounting will come into the gunshop. Many of these requests are routine while others are more interesting and can sometimes be quite complicated. Old military rifles are among them.

BY NORMAN E. JOHNSON DECEMBER 2011

ORIGINAL PP. 11-13

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US A model of 1917 Eddystone rifle was turned over to me for inspection and cleaning, scope remounting and general appraisal for insurance purposes. The outward appearance of the rifle was excellent. It had a Fajen style, high-grade walnut stock with rolled cheek piece and flared rosewood pistol grip cap and rosewood forend tip. The stock bore no dings or scratches and had an excellent finish. There was a 26-inch, heavy sporter barrel installed and chambered for 6mm Remington.

Overall appraisal of the rifle ranked very good. However, on inspection the scope-mounting job would require further work with likely remounting of the bases. Before we begin with scope mounting, some historical and technical notes on the US Model of 1917 Enfield/Eddystone rifle are in order that may be interesting and helpful to the owner. As the United States got into the first World War in 1917 there was an immediate need for more rifles.

As England became involved in the war contracts were given to the United States to produce Enfield rifles. These contracts were awarded to Remington, Winchester and the Eddystone Arsenal at Eddystone, Pennsylvania. Nearly as many rifles were made at

Eddystone as the other two firms combined. The Ed-On right, the starboard side is shown with a double-bend bolt handle and factory trigger. Note the dog-ear-like wing guards at the rear of the receiver which protects the rear sight.

Center, this side of the receiver shows the port side with bolt stop/release and the wing guards used to protect the rear sight. This shows a very strong action. On left, atop view of the action with rear sight removed, exposing the oblong, milled groove that requires filling-in before a scope base could be installed. Overall we see a very strong bolt action receiver, well adapted to conversion to a wide variety of cartridges.

At this stage the receiver is drilled and tapped for scope bases in preparation for scope mounting. Eddystone/Enfield bolt action rifle was a five-shot, clip-fed, top-feed design with a 26-inch five groove barrel. The American versions were chambered for the US caliber .30 rifle cartridge, Model 1906. They used the same clip and cartridge as used in the US Rifle, caliber 30, Model 1903. The front sight, mounted near the end of the barrel, was protected by two sight guards.

THE REAR SIGHT WAS ALSO WELL PROTECTED BY LATERAL WING

SCOPE MOUNTING THE US MODEL OF 1917 EDDYSTONE/EN ELD RIFLE CONTINUED

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Great care must be used to assure proper thread spacing and alignment when mounting a scope. The battle sight is a sliding ramp peep sight with no windage adjustment. A thumb-operated safety was positioned on the upper rear of the receiver. A unique feature of these rifles enabled the firing pin and sleeve to be removed from the bolt without the use of tools. As issued this rifle weighed just under 10 pounds and was quite accurate and dependable.

They were produced at a cost of \$25 each—less than the price of a box of factory .30-06 ammo today. Following the end of World War

I these Model into the hands of sportsmen and riflemen who recognized the inherent quality in this rifle. This included a high number of the Eddystones. Some of these rifles were used in hunting and general target shooting just as received with the standard, military issue open sights. Those purchasing these rifles could readily see the adaptable conversion possibilities.

New stocks were installed as were new barrels in a wide range of cartridges. Still others saw the possibility of installing atop mounted scope. Early on there weren't many scopes and mounts to choose from but as these be-

came available the surplus mili- Here you would not know that the dog-ear-like protective sight wings were ground off and the receiver bridge radius was formed. tary rifles were there in abundance, awaiting a good gunsmith.

Scoping The Eddystone The bolt and receiver of the 1917 Eddystone were made from nickelsteel forgings. This steel can readily be drilled and tapped with quality tools. While some scoped the rifle with the existing, double-bend-back bolt configuration, others chose to

SCOPE MOUNTING THE US MODEL OF 1917 EDDYSTONE/EN FLD RIFLE CONTINUED

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This shows a very strong, well-made action conversion from a fine old military rifle. We also see a pretty rare piece of stock wood here complementing the old rifle, reshape or even replace the existing bolt handle. The crux of this scope mounting job involved reworking the rear receiver-bridge. As issued, these rifles had a pair of integral, laterally opposing wing guards protruding upward to protect the rear open sights.

All this had to be dealt with in order to make the rear receiver-bridge symmetrical to the front. These ear-like wing guards could be ground off and finished, sometimes with a tool post grinder, to a perfect radius conforming to the front receiver ring. However, following this procedure there still remained a rather deep, oblong groove milled along the top of the bridge where the rear sight was. This didn't do much for the rifle's aesthetic appearance, nor did it make scope mounting any easier.

This rounded linear groove was usually filled in with some material adaptable to scope mounting and shaped to the exact contour of the bridge radius. In this way both the front and rear scope bases could be of the same height parallel to the bore. A common method of filling this groove is to fit a piece of metal the size of the groove,

silver-solder or weld it in position, and then shape the surface to the exact radius of the receiver and scope base.

Drilling and tapping holes in the Eddystone receiver isn't difficult. I would recommend doing this in a mill vise moving the carriage for perfect alignment of the holes. These nickel-steel receivers don't appear to be case hardened and a quality 6-48 bottoming tap will do a good threading job. A Weaver K6 scope was mounted using Weaver Top-Mount Scope Bases (#11) both fore and aft along with Weaver Quick Detachable rings.

Medium height scope rings allow the objective lens housing to just clear the barrel immediately ahead of its taper. The existing scope bases did require lapping and final fitting for proper alignment with the bore. This was necessary to help bring the windage and elevation within the scope erector lens adjustment center. Prior to 1960, not all scope reticles were centered within the viewing field. The reticle on some scopes would often appear well off center of the ocular exit field, which was less than desirable.

Attempts to make correction for this involved shimming beneath the scope base or scope tube within the rings—never a pretty

sight, or a proper cure. The earlier scope reference tables provided by Weaver listed a number of bases for the Enfield receiver depending on how the receiver was cut down.

These ranged from bases designed for the Remington 721 (base #36 and #35), Winchester Model 70 (base #47 and #46), or Remington Model 30 (base #11 both rear and front.) The Eddystone rifle discussed herein, with minor lapping, worked well with the Weaver #11 base rear and front. The receiver-ring and bridge were quite symmetrical, making this possible. If a scope with a larger objective lens than the Weaver K6 was later mounted, a higher set of rings would be needed.

The scope base threads required attention with careful, thread-tap clean up and an application of a thread locking material on the screws. All-in-all the old rifle wore its scope well. Conclusions Some of the older military rifles were quite adaptable to sporter rifle alteration, including scope mounting and the US Model of 1917 Eddystone/Enfield was one of them. When one considers the service these great rifles performed in the heat of battle it should make new owners should be proud to have one. AG

RIFLES

Marlin 60 Trigger Job Made Easy

This trigger job can be done with minimal invasion into the action.

BY SERGEY LYALKO DECEMBER 2011

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There is something special about the Marlin 60. In 2010, Marlin Firearms proudly celebrates 50 years of non-stop success with this 22 autoloader. Is it still going to be successful when it hits 100 years old like the 1911? What is in the essence of its huge popularity? When I think of the reasons why I like this rifle, the three major features that come to mind are convenience, accuracy and price.

It is convenient because it has a capacity of 14 rounds in the tubular magazine (older models held up to 18 rounds) and the loading is easy. Further, it does not require separate detachable magazine which may be lost or damaged. Finally, it has a bolt hold open function when the last round is fired, making the now-empty rifle easier to inspect in the chamber. Marlin 60s tend to be accurate right from the shelf because of the micro-groove rifling.

This rifling has multiple but shallow grooves which do not damage the bullet as much as the other types of deeper rifling. Not least important is the price. The Marlin 60 is among the most affordable .22 rifles around. Marlin 60 History The Marlin Model 99 was developed in 1959 by Ewald Nichol. Internally, it was essentially what would become the Model 60 in 1960, however, major differences are visible from the exterior.

The Model 99 featured a walnut stock and the receiver, instead of being grooved for tip-off scope mounts like the Model 60 would be, was factory-tapped to accept screw-on scope mounts. The Model 99 did not have a bolt hold-open device. The Model 99 was offered from 1959 through 1961. This is a stainless model with the scope installed. A lower priced version, the Model 99G, was offered under Marlin's Glenfield line. The Marlin Model 60 was developed in 1960 from the Model 99 design.

The primary difference was that the stock was of birch instead of walnut to reduce production costs. Its tube magazine was a significant innovation at the time for a semi-automatic .22 rifle as it featured a brass inner magazine tube. This, instead of the steel tubes often seen on earlier .22 rifles, completely eliminated the rust problems that all-steel magazines had experienced. The Model 60 additionally featured a 16-groove rifled barrel in Marlin's Micro-Groove rifling.

This rifling, along with the precision-crowned muzzle, gave the Model 60 an enhanced accuracy over competing rifles using traditional deep grooved rifling as the bullet was not as severely deformed while traveling down the barrel. The Model 60 has a manual bolt hold-open, activated by pushing the charging handle inward towards the gun when it is in the fully-retracted, open breech position.

To close the bolt with the manual bolt hold-open engaged, the charging handle must be pulled out, away from the gun, before the bolt will go forward. Since 1985, the Model 60 has also included a patented automatic last-shot bolt holdopen. This latter feature is a safety feature that locks the bolt half-way open after the last cartridge is fired, thereby allowing the safe inspection of the now-open action. This also notifies the user when the gun is empty.

Older Marlin Model 60s were 18 round models and with newer models being 15 rounders. The older Marlins did not have the bolt hold open feature. The 15 round model has a third screw slightly behind the trigger guard to reinforce the stock, which the old model lacks. There are a few 1985 models that were a mixture of both, 22-inch barrel, 18-round capacity, last round bolt hold open feature and the third reinforcing screw. Different wood is used for the stock itself.

The action design is a self-loading, straight blowback operation with right-side ejection. The receiver top has a serrated, non-glare finish. The receiver is held in the stock by front and rear machine screws through the forearm and the trigger guard respectively. Later models add a wood screw behind the trigger guard to reinforce the wrist of the stock. The receiver is grooved for a scope mount. For use

MARLIN 60 TRIGGER JOB MADE EASY CONTINUED

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The sear nose, which engages the hammer notch when cocked, is inside the action and we can not see it here. without a scope, the barrel features an adjustable open rear sight and a ramp front sight. The charging handle is used to load the first round from the magazine and can be retracted and pushed in as a manual bolt hold-open feature. Current models have an automatic "last-shot" bolt hold-open device with an external lever in the front of the trigger guard to release the bolt.

All versions have an easily accessible cross-bolt safety located above the trigger. When disassembled, the trigger guard with trigger and safety remains in the stock. Marlin uses their proprietary Micro-Groove rifling in the Model 60. The twist rate is 1:16 inches, righthand. Micro-Groove rifling uses 16 small lands and grooves rather than 4, 6 or 8 deeper grooves used in most rifles. This in-

creases the accuracy of the rifle by lessening deformation of fired bullets traveling down the barrel.

Although the Model 60 is one of the least expensive .22 semi-automatic rifles sold, it has the reputation of being one of the most accurate. Unlike some competing .22 semiautomatic rifles, such as the Ruger 10/22, there are relatively few aftermarket accessories sold for the utilitarian Model 60. Despite this, it has been sold in over thirty-five variants, and is one of the fastest-selling rifles ever.

While earlier .22 semiautomatic rifles were often designed to function with .22 Short, .22 Long and .22 Long Rifle interchangeably, the Model 60 is optimized for the .22 Long Rifle cartridge only. Marlin reports that more than 11 million of these rifles have been manufactured in the past 50 years with 35 The gun is

placed into the vise of the milling machine with the action completely assembled and attached to a receiver. Only the stock and scope need to be taken off.

This is a precision operation, which should remove as less material as possible. variants available. I am not going to continue the list of Marlin 60's advantages as there are other publications dedicated to that. Instead, I am going to concentrate on certain disadvantages and gunsmithing, particularly on the trigger job. As it happens with any popular firearm, owners bring them to a gunsmith with custom requirements.

Customization is not a repair of a malfunction but providing a gun with some features increasing convenience and comfort of its usage by a particular customer beyond the base model. Some of these customizations, such

MARLIN 60 TRIGGER JOB MADE EASY CONTINUED

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This screw is 6x48 and headless. The tail of the screw should not extend beyond the trigger guard. as shortening the stock, re-finishing or installing a scope are straightforward and easy to provide. With Marlin 60 the single most typically requested customization is a trigger job. That isn't surprising as stock Marlin 60s often have hard, creepy trigger pulls with a significant overtravel.

Well, that is why any trigger job would be requested, but the problem here is that the design of this gun makes the trigger job awkward and time consuming. A qualified gunsmith doing this job in traditional manner would likely put up a bill for this exceeding the cost of the rifle itself. This is why some gunsmiths would not take this job as few customers would justify the expense. Trigger Job To better understand the described contradiction let's first recall what a traditional trigger job is.

In a case when the trigger mechanism is not adjustable, that is, not factory-equipped with adjustments for trigger pull tension, length of travel and over-travel, the trigger job consists of two steps. The first step is honing the sear nose and hammer-notch angles in order to achieve a smooth pull with desired tension. In practice, often only one of these parts is honed. Second, removing over-travel by placing a stopscrew restricting the trigger motion.

The over-travel is the motion of the trigger and trigger finger after the hammer or striker has been released from the sear.

This parasite motion is happening when the bullet is still in the barrel and often is unnoticed since it coincides with the recoil. Despite its hidden nature over-travel can effect the point of impact by moving the gun itself. The general idea of a trigger job is clear but the practical implementation of this procedure depends on the design and complexity of the trigger mechanism.

The honing of the sear and/or hammer requires removal of these parts from the action. Some actions are quite friendly in this respect. For example, the hammer of 1911 type pistol can be removed by driving out two pins; some other guns have dropdown trigger mechanisms which also simplifies access to the hammer and sear. Unfortunately, this is not the case with Marlin 60.

All moving parts of this rifle are assembled between two parallel plates and for taking out the hammer or sear we need to disassemble the whole action. A one time disassembly of a notso-friendly mechanism isn't too difficult but a trigger job is a trial and error process. After initial honing of the hammer notch and sear the action has to be assembled and the trigger pull tested for smoothness and pulltension.

Consider that with the Marlin design a partial assembly would not work since several springs are affecting the trigger pull and have to be in place for the test. Besides, this test should be done with the trigger and on this rifle the trigger is apart of the stock, thus completely separated from the

action when stock is taken off. The typical trigger job normally requires several iterations and this unfriendly will be disassembled and assembled multiple times.

This is when you start wondering where exactly the joy of gunsmithing is. Catheterization, Not Surgery Using medical terms in the sub head like this may seem over the top but this sums up my suggestions for performing a Marlin 60 trigger job. The advantage of this approach is that there is no need for disassembling the action at all, making the intermediate trials of the trigger pull quite easy. Note the location of the sear and hammer in the accompanying photos.

The sear nose, which engages the hammer notch when cocked, is inside the action and we do not see it. Much more easily accessible is the hammer notch. Despite its close location we cannot do fine honing and polishing of this notch through the vertical approach to it. The reason is that the hammer notch has to be honed along the edges rather than across.

However, if we had access to these parts from the side allowing us to use a proper file or stone we would be able to do this job without disassembling the action and removing the hammer. This required access is easily provided by milling a small hole in the side plate of the ac-

MARLIN 60 TRIGGER JOB MADE EASY CONTINUED

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tion. The location of this hole should be carefully selected to provide a sufficient space for moving the file along the hammer notch. The action can be secured in the milling machine between wooden blocks without need to remove the mechanism from the receiver. Only the scope and the stock are removed. For this project I have decided to do the trigger job by honing only the hammer notch while leaving the sear as is.

In case the sear also required some honing, I would mill another hole where the sear nose is located. I need to stress that milling of the access hole requires attention. The cutter should stop right after penetrating the side plate, otherwise, it would damage internal parts. Once access to the notch is made the honing is just a usual trigger job process. I think the best tool for this job is a fine diamond needle file since the hammer is hardened and access is limited for a proper stone.

Some caution needs to be exercised. Removing too much metal from the notch or providing wrong angle would end up with the hammer releasing from the sear after cocking. The trigger pull also should not be dangerously light. The best pull weight is probably between 3 and 3.5 pounds. Notice that this approach to a trigger job allows for frequent trials of the trigger pull since no disassembly has been done.

Trigger Overtravel Screw After achieving a smooth and nice trigger pull we have to take care of the trigger overtravel. Our intention should be to stop trigger travel as soon as the hammer slips from the sear. That would impede motion of the trigger, finger and the gun itself while the bullet is still in the barrel. In general it is normally done by placing the stop screw somewhere in the trigger group, in the trigger itself or the trigger guard. Different guns may require different approaches.

In the case of Marlin 60 the best place for this screw I can find is on the trigger guard. I used a headless 6x48 screw installed in the trigger guard and prepared for the adjustment. Before the adjustment you will need to install the stock with the trigger. The adjustment of the stop-screw is done in the following steps: 1. Drill the trigger guard and thread it for the selected screw. 2. Put the stock on. 3. Cock the hammer by pulling the bolt back and releasing. 4.

Turn the stop-screw far enough to block the release of the hammer. In other words, screw should stop the trigger before it releases the hammer from the sear. 5. While keeping the trigger pulled and seated tight on the stop-screw, slowly undo the stop-screw until the hammer drops from the sear. Stop rotating the screw. 6. Measure the part of the screw extending beyond the trigger guard. Unscrew stop-screw from the trigger guard and cut the front of it by the length extending beyond the trigger guard.

Chamfer the cut. 7. Put the stop-screw back into the trigger guard using thread-locker and repeat the steps 1-3. 8. Undo the stop screw 1/4 of a turn more after the hammer drops to enable proper trigger function conditions of changing temperature and mechanical fluctuations. 9. Make sure that the screw does not extend beyond the trigger guard after the final adjustment. **Conclusions** A trigger job on Marlin 60 is considered difficult because the action is a pain to work with.

In this article I've described an alternative approach to accomplishing this which avoids disassembly completely by making access to the hammer notch through the action side-plate by milling a slot and by adding a trigger overtravel screw to the trigger guard. A good trigger job on any rifle is an important practical matter since it allows for full utilization of the potential accuracy.

RIFLES

Precision Garands: The National Match M1

service rifle, the M1 is still a viable Across-The-Course contender.

BY DEAN MEIER DECEMBER 2011

ORIGINAL PP. 18-21

The explosion of mass produced, yet accurate, rifles in the 1880's made individual marksmanship training worthwhile. Despite this, such training was slow to take as no prescribed system or standard existed and was left to the whim of the unit commander. Influenced by civilian competition shooters, forward-thinking high echelon leaders such as General Philip Sheridan, then Army Chief of Staff, began encouraging competitive shooting programs to find the best talent among the ranks.

What would eventually evolve into the rifle National Match Course was first created for the M1873 Trapdoor Springfield, the issue rifle of the day. The course of fire comprised three seven round slow fire strings shot at 200 yards Standing, 300 yards Kneeling, and 600 yards Prone. By 1892 the US had adopted its first repeater, the Krag-Jørgensen rifle, and first smokeless cartridge, the .30 Army (.30-40 Krag.) This made rapid fire practical and a change to the course of fire was made.

The slow fire portion was mostly the same with two stages of rapid fire added, each fire as two five round strings. At 200, from Standing, the time limit was 20 seconds per string and at 300, from Sit or Kneel, the time limit was 30. Rapid fire would evolve again when the Springfield 1903 came into service. The magazine was readily filled with chargers and speed loading became possible.

Rapid fire times were increased to 70 seconds, but participants now had to adopt the prescribed shooting position and re-

load after shooting five rounds with another five rounds via stripper clips. While this would remain the standard for bolt actions, it would take a semiautomatic to change the National Match format. U. S. Rifle, Caliber .30, M1 was the first practical self loading rifle to be standard issue by a major military power.

A product of Springfield Armory's consulting engineer John Cantius Garand's genius, the rifle was never officially titled "M1 Garand" but that is the name by which it is so widely known. Even the Civilian Marksmanship Program, the most recognizable supplier of these rifles, refers to them as such. The M1 was adopted in 1936 as the 1903 Springfield bolt action rifle's replacement and served in the US until supplanted in 1957 by the M14.

M1s would continue to soldier on in numbers throughout the 1960's and later by other nations friendly to the United States. The five-reload-five cycle wasn't convenient with the eight round en bloc clips of the Garand. Service rifle rapid strings were again modified to shoot two rounds first, then reload with eight. This change has remained in National Match rifle shooting ever since. The M1 did more than usher changes in the course of fire. It was—and is!—a solid contender in its own right.

Some argue that the M1 was the last Service Rifle used in National Match shooting that remained true to the martial intentions of the course. When Springfield Armory was directed to provide M1s for National Match use through the 1950's, only minor gunsmithing was need-

ed. Production standards for Garand's design had been high enough that only slight modifications were necessary. Before discussing the National Match version of the M1 and modifications, we should look at the reasons why match shooting is useful.

Too many shooters, military and civilian, don't realize that formal competition has been the primary driving force behind nearly every shooting skill in existence. Almost every skill and training program concerning good shooting and gun handling can ultimately trace its origin back to some guy trying to earn points and win a contest. National Match shooting comprises range exercises originally developed to train skills with military issue rifles and pistols.

As shooters improved, match grade versions were developed. This provides a number of benefits. New ideas and improvements for the current issue service weapon can be tested. As event participants improve skills, accurized versions encourage further practice and development. While most shooters will never outshoot rack grade equipment, skilled competition marksmen can. Furthermore, top shooters trained on accurate versions of issue service firearms typically make the best instructors.

A recent example of this occurred during the mass mobilizations in 2004. There was a heightened demand for Designated Marksmen, however, personnel in charge of training soon realized that they lacked the skill and

PRECISION GARANDS: THE NATIONAL MATCH M1 CONTINUED

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On top is a .308 National Match M1 and below it is a standard Garand in .30-06. The rear sights of this NMC M1 and CMP-legal AR-15 are lined up to show the difference. know-how to provide it. High level civilian Service Rifle competitors were recruited at a number of mobilization platforms to augment military instructors to handle the load. While organized shooting events are clearly superior for developing higher level marksmen, there are a few black marks against it.

One of the more common complaints is the use of overly specialized competition-only firearms and accessories. The skills learned there are useful in any form of rifle shooting, including combat. What's more, some of the modifications that let the M16 win in competition have trickled down into combat gear,

notably the A2 rear sight, free float hand guards/ rails, and magazine length 77 grain projectiles (Mk 262).

However, few individuals competing in service rifle matches today would choose to carry their competition service rifle to battle. Heavy barreled and stocked rifles using optical aids in the rear sight (CMP legal M16s are sometimes weighted to double the poundage of rack M1s) and hard back shooting coats are not practical in the field. This was not the case in the early days of Service Rifle shooting and remained true with the M1 until the M14 supplanted it.

National Match M1s used through the early 1970s were service guns worked over a bit. Springfield Armory produced M1s until 1963 and they were fully combat ready service rifles, albeit more mechanically precise. Personnel conditioning military match M1s

improved refitting and parts selection processes. The first bedding jobs began by wedging match book covers between the trigger group flats. This helps keep the shooter's cheek welded where it belongs! and stock, holding the barrel group tighter.

Later, techniques like epoxy bedding and gluing the hand guards to higher-quality barrels were used. The best match conditioned M1s could shoot close to one minute of angle groups at 600 yards routinely.

At 1000 yards, these same rifles could still hold two minutes, well inside the thirty-six inch five ring of the old 'C' target before it was superseded by the current LR target. .30-06 Springfield was the only cartridge allowed in standard NRA match rifle competition at the time and bolt action rifles chambered for it weren't much more precise. The best

PRECISION GARANDS: THE NATIONAL MATCH M1 CONTINUED

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Each click is a full minute of angle and the aperture is fairly ample. Each click of windage (knob on the right side) is a half minute. Marks on the sight indicate mechanical zero and allow the shooter to always return to an exact known point. Windage settings are based off this initial setting. The notch on the hood indicate the rear peep is up. Rotating 180 degrees will put the sight a half minute down. of the day struggled to stay inside six inches at 600 yards and fifteen inches at 1000.

In 1963 7.62mm NATO was allowed for competition at the National Matches and further accuracy improvements began. Shooting from machine rest, military team-converted M1s could shoot match grade ammo inside four inches at 600 yards and twelve inches at

1000. The best bolt actions cut this to under three at 600 and eight at 1000. The accuracy improvement enjoyed by .308 rifles was due to better ammunition consistency and military produced .30-06 had much greater velocity deviation.

Rifle builders and shooters of the day found that a ten foot per second deviation would yield a half minute vertical impact change. This isn't to say the .30-06 is inherently imprecise. Remember, .308 was introduced about five decades later and a number improvements in ammunition manufacturing had occurred. Service Rifle competition was shot with issue ammunition.

Prior to 1963 participants were still using ammunition manufactured from an age when metallic cartridges and smokeless power

were a relatively new thing. Improvements in rifle and ammunition precision forced scoring rings on High Power targets to be reduced. Shooters were routinely 30-06, this National Match M1 fires 7.62x51mm or .308 Winchester ammunition through a medium-heavy Barret barrel.

Service Rifle triggers need not weigh more than 4.5 pounds and a good gunsmith can make that feel much lighter. shooting clean Vcounts on the A, Band C targets used since the turn of the century so tie breaking was common and painful. By 1966 the 200, 300 and 600 yard targets were changed to the current decimal targets used today. 200 and 300 yard targets went from a twelve-inch five ring down to a seven-inch ten ring, and the twenty-inch center on the

PRECISION GARANDS: THE NATIONAL MATCH M1 CONTINUED

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This M1 was built by Don Mc Coy, known for his great workmanship on these rifles. On match conditioned M1s the front handguards are fitted and then glued into place. 600 yard 'B' reduced to twelve inches. Five years later the 1000 yard 'C' target morphed down from thirty-six inches to a twenty-inch ten ring. Tweaking The Garand Some argue the M1 was the last "true" Service Rifle, in that the NMC version is a slightly improved issue piece.

My National Match Garand was built by legendary Navy Armorer Don "Mac" Mc Coy, an M1 specialist. Upon retiring from the Navy, he moved to San Diego and become renowned among the southern California High Power community for exceptional workmanship, his trademark being a very shiny finish on his stocks. Besides the stock's sheen, the most obvious change is rebarreling with a medium-heavy Barnet barrel (Douglas blank) chambered to 7.62x51mm with a 1-10 twist.

This is perfect for 168 grain bullets, such as those loaded in the superb Lake City match ammunition. Internally, the action is set tightly with a mirror fit to the stock via bedding compound. The barrel floats without touching the stock. A common problem among Garands is the tendency for point of

impact shifts as the rifle heats. There are a couple things a gunsmith must check. The op rod can't touch the stock anywhere.

The rear handguard should also float with only the retaining clip touching the barrel and a slight gap between the receiver, otherwise the amount of pressure on the receiver will change with temperature shifts. Another point of concern is the forward handguard. Some shooters claim that if the gas cylinder is too tight here point of impact can vary six to eight minutes as the barrel heats up. To avoid this, the front handguard and stock must be aligned with no barrel contact forward of the lower band.

Gunsmiths fix this by gluing it into place and ensuring sufficient clearance. These fixes raise the accuracy potential greatly. To use that potential, we need to improve the fire control systems, namely the trigger and sights. Garand iron sights are among the best ever on a military rifle. As issued, each click of elevation or windage moves the strike one minute of angle. This is plenty of precision for field shooting, but an Across-The-Course shooter will need more.

The windage knob on NMC Garands give half minute clicks, however, elevation remains a full minute. To yield a half minute

adjustment, the hooded rear aperture is off-set and can rotate 180 degrees. A notch indicates if the peep is up or down. Furthermore, the front sight is shaved down. Typically, issue M1s (and M14/M1As) will have a 200 yard zero eight to twelve minutes up from bottomed out.

A 600 yard setting would be around 28 clicks up from bottom, forcing the shooter to bring his face up slightly to get an eye behind the sight. By shaving the front sight down the rear sight stays lower for the same elevation zero. Another reason the M1 is so beloved is because it has one of the best trigger actions on an issue semi-auto. However, improvements can be had. A National Match rifle must have a trigger capable of lifting at least 4.5 pounds.

A good gunsmith will polish and set the parts so most of that weight is taken up in the first stage, leaving a consistent, crisp second stage. As the first practical issue self loading military rifle, the M1 left its mark on the battlefield and training ranges. Its influence is still felt on High Power ranges and, as a testament to its design, can still be competitive there. For those who don't want the expense of full match conditioning, new life has been breathed into the old warhorse via the CMP Games.

HOWEVER YOU SHOOT IT, THE GARAND IS A TRUE RIFLEMAN'S RIFLE. AG

METALWORKING

Reader Forum

BY AMERICAN GUNSMITH EDITORS DECEMBER 2011

ORIGINAL PP. 23-24

Glen eld Marlin Model 60 I am working on an older Glenfi eld Marlin Model 60. It has the new cartridge feed parts put into it as the owner has put thousands of rounds through the firearm. The recoil spring and guide are original parts and straight. The rifle has given good service until recently. Now the gun jams every shot with each new cartridge stove piping in the receiver, bullet towards the breech, and the cartridge rear raised rim to far wall. The rifle cycles fine when worked manually.

Does the cartridge feed spring lay on the bottom of the cartridge lifter or in a notch on top of the lifter? Outside of the replacement cartridge feed parts the rest of the rifle is original. The Alaska Commercial Company Store here in Dillingham, AK sells many new tube-fed Marlin Model 60's.

I keep telling the store manager to buy the clip fed model as the outer tubes bulge at the seam when people attempt to load too many cartridges, causing the inner tube assembly to go flying off, sometimes into lakes, rivers or salt water or mud, sand, gravel. People blow into the outer tube in the winter months in their attempts to make tube go in or out.

As afix, I polish the hammer/bolt contact area and the hole where the recoil recoil spring and guide lives and sometimes apply bedding compound to one or both takedown screw areas to make guns work in the cold. In the April 2005 issue the article "Avoiding Mistakes with the Marlin Model 60" appeared. There may be reprints available from the publishers office. If not, we're including your email address so an AGA member with a copy of that issue can arrange to photo copy the article and snailmail it to you.

There are certain areas in the article and in Marlin Firearms: A History of the Guns and the Company That Made Them by Lt.

Col. William S. Brophy USAR—which is considered by many to be the Bible on all things Marlin—worth mention now. Among the items we discovered in preparing the article and related to your query were: First, the entire action of the Model 60 and its clones is contained between two plates retained by E-clips.

The factory employs a proprietary jig for assembly, take down and replacement of components to prevent about half the action springs to fly away. A substitute for the jig was used and is pictured in the article. Secondly, Marlin 60 and Glenfield 60 parts are not "drop-in" interchangeable due to the wider receiver of the Glenfi eld. An example is the feed throat. Thirdly, the Marlin 60 was not produced with a clip feed. These models were the Marlin Model 70, Glenfi eld Model 70 or one amongst the Marlin 995 series.

As we recall, the lifter spring expands after compression. As such, it will not function properly when merely placed upon the bottom of the lifter. Ergo, it rides in the notch to apply upward pressure. You may want to double check this placement out with Marlin but an answer would probably only apply to currently produced Model 60s. We don't believe, however, that an engineering change has not been made for many years.

The bulging seam problem is definitely owner created and such owner has to pay for anew tube assembly while not ever forgetting to lock the inner tube within it via the long-practiced, highly complex and physically demanding twist of the locking cap between thumb and forefinger. Said owner might be further advised to avoid blowing a frosty breath into the mag tube. The tendency can transform the frosty breath into an icy sludge, making removal that much more difficult.

Closer attention to lubricants, meaning avoiding those that stiffen up in very cold conditions, are to be reviewed. We suggest

a silicone spray but not too heavily applied. Robert Top Break S&W 4th Model I have atop break S&W 4th model serial number 415XXX. I am replacing the barrel and would like to know how to remove the base pin from the old barrel and install it into the new one? I have read the articles about the top breaks in the past issues of American Gunsmith and am seeking further advise. Steven M.

Outside of a few old timers and even fewer specialists in restoration and repair, nobody has been doing much work on these ancient S&W revolvers. What you are getting into is no simple task. A mandrel must be made and inserted within the base pin to prevent crushing. The open frame with the grips removed should be drowned for a few days in penetrating oil to loosen the crud of years that has likely accumulated on the base pin threads. The pin is screwed in extremely tight.

It has a milled slot on its top that is put there to align with another slot in the bottom of the barrel when either pin or barrel is replaced. Overdoing any removal of material from either component to make this alignment happen will result in problems affecting timing and/or extraction. If you feel you need further inputs or have additional questions, contact our top gun on archaic revolvers, David R.

Chicoine (oldwestgunsmith. com, Uberty M1885 I recent re-reviewed the American Gunsmith September 2010 article on the Uberty M1885 and it tripped an alarm in my mind about the recommended solvent cleaning procedure. Not long ago I had to touch up a bare spot on a customer's Italian made reproduction Winchester 92 rifle. Preparatory to touching up the bare spot, I cleaned the bright area with a cotton swab with lacquer thinner and was appalled that the beautiful "case colors" dissolved and came

READER FORUM CONTINUED

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off. Fortunately, I detected it before removing any more and doing much more damage than slightly enlarging the bare spot. The case colors were magnificent and gave no clue that they were painted on. I don't know if Uberti has stooped to painting on their case colors but at least one Italian maker does and most any decent solvent (lacquer thinner, MEK, Trichlor, etc.) will instantly remove it down to white metal.

I suggest someone contemplating a solvent clean test the effects first on an inconspicuous location before proceeding. It occurs to me that a bit of caution also applies to original case colors. The colors on the high quality old-timers were frequently protected with a coating referred to as "lock varnish" to reduce fading of the colors with time. Enough exposure to strong organic solvents might dissolve this lock varnish coating and hasten color fading.

Bruce Dow Dow Arms Room Uberti doesn't make a reproduction Model 92 so another Italian manufacturer shipped over your rifle. That takes care of that suspicion. Now, due to the expense of bone charcoal color case hardening, many Italian reproduction gun makers employ the cyanide process. (Watch out for the fumes, Guido!) You will have to determine through the importer the process employed on your Model 92.

If it turns out the hardening process has been replaced by case coloring, the solvents you mention could remove it. On the other hand, no mere solvent other than concentrated acid can remove true color case hardening. Bone charcoal depth, for instance, ranges between 10 and 20 thousandths deep. Acid is not used in its removal. At the depth mentioned, the color has to be polished off down to substrate metal. Mineral Spirits, the solvent suggested in the article, causes it no harm.

Remington Model 11 I am working on a Remington Model 11 with a 30-inch rib barrel and Poly-Choke chamber in 12 gauge. When cleaning it I noticed a small bulge on the left side of barrel about 4-1/2 inches

past the chamber where the rim of the shotshell sets. This bulge is hardly noticeable visually but it can be felt when rubbing a finger Dade City, up and down the barrel. Any ideal what may have caused this? Will this bulge affect the gun's shootability? Should it try to be fixed?

About a year ago I had another shotgun come in with a slightly bulged barrel in the area around the band that slides on the magazine tube. The band had been brazed back on prior I thought this bulge was from the heat of the brazing job. Is this common among Model 11s? Barrels with bulges are not habitual with any well-constructed shotgun. They are usually caused by blockages but can be created by firing oversized or overloaded rounds. Bulged barrels can be very dangerous to the shooter and any nearby persons.

A replacement barrel is the safest course to take in preventing this. You can find them in the aftermarket for the Model 11. AMT Pistol I had an AMT Backup .380/9MM Kurz pistol (Serial number # A53XXX) brought into my shop recently. The customer bought anew magazine for it after losing the the original and claims that it has since begun having stoppages on a regular basis. In testing his pistol I have found the stoppages cease when I push the magazine in tight. This magazine will seat in additional 1/8 inch.

How do I fix this problem? Or this a faulty magazine? Paul The magazine might be faulty, but possibly not. Polish up all external sides of the magazine housing, examine the internal grip frame for burrs, dents or oddly raised areas, check out the mag catch assembly and be prepared to conduct an aftermarket search in case the assembly indicates need of replacement.

As a post script, it's a good idea, though somewhat inconvenient, for an out-of-production pistol to accompany the request for a magazine when the latter has been lost. AG

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