Thames Valley Guns
Armourers Report
Ruger No. 1B .303 - Part 7

Introduction

The plan to build a .303 Ruger No. 1 to my collection started over a year ago. For many years I have been shooting .303's but always with military Enfield or Mauser style actions, neither of which lend themselves to precision accuracy. I have always wanted to know what level of accuracy the .303 cartridge was capable off but never had the platform to find out, until a gunsmith mentioned that he could fit a 26" .303 Bartlein 3b profile barrel to a Ruger No. 1. As I had a small collection of No. 1's this was the perfect solution.

This is the UK and Bartlein .303 barrels do not grow on trees, therefore I had to be patient while a barrel was placed on order from the US. If you read the media, you cant help notice that the No. 1 does not always get good press when it comes to accuracy and this comes down to two basic areas of concern, early Ruger barrels had accuracy concerns and secondly how the forend is fitted. I have five Ruger No. 1's in 6BR, 25.06, 6.5x47, .308 and .223. The .223 and the 25.06 have original barrels, whilst the others have aftermarket barrels, however all these rifles will happily shoot 1.0 to 0.5 moa at 100 yards all day long.

My donor rifle for this project is a good conditioned .243 Ruger No. 1B, which are fairly plentiful in the UK and therefore

can be obtained at a reasonable price. This is essential as you are adding another £1000+ for the barrel, fitting, proof and a set of bespoke bases. You may ask why a new set of bases when the rifle is already fitted with a half rib. The half rib is manufactured specifically for the Ruger barrel and will not fit a 3b profile barrel, plus the bespoke bases give me the flexibility of a wide range of weaver style rings.

General

As this rifle will be fitted with an aftermarket barrel, the forend has to be altered slightly around the exterior of the chamber area to accommodate the different barrel profile, plus the original forend had been butchered to make original .243 barrel free float. This free floating myth on Ruger No. 1's does not work and therefore I had to be repair the damaged area to maximise the rifles performance.

With the new 1 in 10 twist, 26" barrel, the rifle weighs in at 10.09lb with the scope, rings and bases. The muzzle has a 11° inverted crown and is 1.15" at the chamber, narrowing to 0.70" at the muzzle. With the barrel having a 1 in 10 twist, bullet size in the UK is available up to to 190 grain although my bullet of choice for this rifle will be Sierra 174gr HPBT MatchKing. Trigger release on this rifle was 2.14lbs which was a touch on the lighter side for most Ruger No. 1's.

The project plan for this rifle, is to fit a .303 barrel, alter the extractor, restore the woodwork, fit an adjustable recoil pad and bed the forend correctly. As this is a 1995 rifle, the plan is to fit a classic scope with a 1" tube, so as to maintain the rifles proportions.

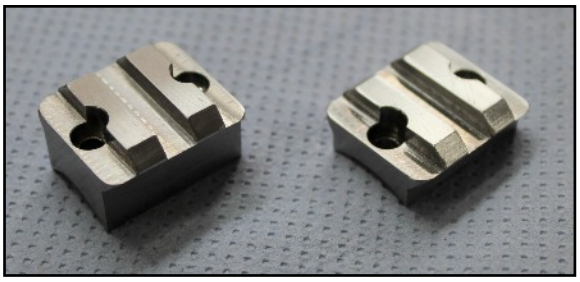
Thames Valley Guns
Armourers Report
Ruger No. 1B .303 - Part 7

Woodwork

To be honest, I felt the original walnut woodwork was a bit plain and therefore the cosmetics could be improved somewhat if I restored the butt and the forend to bring out the woods natural beauty. Handling performance could be improved with an adjustable recoil pad. The original beavertail forend had been butchered in an attempt to float the barrel, plus the old Ruger barrel and the new aftermarket barrel had different profiles. As a result the forend required altering slightly to accommodate the new chamber dimensions and the tip of the forend required bedding, so the barrel sits correctly and the barrels harmonics are consistent from shot to shot, therefore achieving optimum performance.

Scope, Bases & Rings

As this was a new barrel, its profile was somewhat different compared with the original Ruger barrel, therefore the original half rib had to be removed and I had a set of bespoke bases manufactured that would accept a set of weaver style rings, that would give me more mounting options than the old Ruger models. My preferred choice for good quality rings is Rechnagel. A touch on the expensive side, but completely problem free when it comes to fitting, installing the scope and during operational use



As my No. 1's are only for gallery range work, I tend to fit older target scopes with 1" tubes such as the Redfield's, M8 Leupold and the steel tube Weaver T16. This rifle was to be no different and therefore when a good condition Redfield 6400 became available, my choice was obvious. I already had a Redfield 3200 on my No. 1 6BR, therefore this scope would not only compliment my rifle, but also my scope collection. The Redfield RM 6400 is a x24 magnification scope, with a 1" tube and 44mm object lens and was manufactured between 1974 and 1984. Although a slightly earlier design by eleven years, it compliments the Ruger well.

Reloading

As the conversion of this rifle to .303 was all about ascertaining the .303's accuracy, I purchased the best brass and bullets that where available in the UK. This consisted of Hornady brass and Sierra .303 174gr HPBT Matchkings. The first cartridge I ever reloaded was the .303 British and throughout my reloading career I have only used Vihtavuori N140 for this cartridge. I have shot a vast number of rifles over the years and of all types. Factory ammunition that I have tended to use has been Czech Sellier & Bellot, Serbian PPU, Creek HXP and British ex-military, all of which produce velocities just under 2500 fps. My reloads have always settled at slightly lower velocities of around 2200-2300 fps. Whilst these velocities are accurate, it is also about placing these classic rifles under less wear & tear.

Thames Valley Guns
Armourers Report
Ruger No. 1B .303 - Part 7

As Ruger No. 1's have a reputation for a near indestructible action, I plan to develop my reloads up to the reloading manual limits and make a break with tradition and use Reload Swiss as my powder of choice. My first powder will be RS50 as other shooters have spoken well of this powder with .303. Using Quickload program I will load nine strings of five, ranging from 40.5 to 44.5 grains. This is slightly higher than the RS reloading manual recommended maximum limit of 43.5 grains.

Range test

Although I had been reloading .303 for years, I had not researched any particular load in detail. For the military rifles I loaded with N140, identified a suitable low energy load that obturated, was accurate and stuck with it over the years. This meant a velocities of approximately 2200 fps.

Loading for accuracy in a rifle with a super strong action, opened up the options somewhat and therefore I planned three range tests.

The first range test was about the rifle and therefore I used the same low energy loads that I had been using on the military rifles. The purpose of this exercise was to test the action, run the barrel in and zero the scope. I shot fifteen rounds, cleaning the barrel after every five. I cycled the action and the rifle functioned perfectly without fault and I roughly zeroed the scope. There was no need to be exact with the zeroing as the next range test was to chronograph the cartridges I had loaded with RS50 and that would alter the point of aim. However, on this occasion I shot the last three rounds and generated this 42mm group so I had a base line to work with.

The next range test was to chronograph and identify a suitable load. I set up the the magneto speed chronograph and set up the bench so the rifle was fully support at 100 yards. As discussed above, I started with 40.5 grains which generated an average velocity of 2139 fps. Continuing, I went on to chronographed up to 43.5 grains which generated 2361 fps which was reaching the similar velocities as commercial factory ammunition and the felt recoil was becoming slightly uncomfortable, therefore I decided to stop and not use the two remaining strings which would have taken me up to 44.5 grains. Whilst the Ruger's action could easily handle the extra grain, I didn't feel there was anything to be gained on the accuracy front and therefore I stripped the cartridges and reloaded them.

As I build my Ruger's with accuracy in mind, I avoid heavier bullets to balance accuracy and recoil. Most of my No. 1's are .223 to 6.5mm in calibre but whilst I have a .308, I use 125 grain bullets to reduce the recoil in what is a relatively light rifle. The .303 is an exception to that rule, the lightest bullet in the UK is a soft point 150 grain and the only match grade bullet is Sierra's 174 grain MatchKing, therefore my options were some what restricted.

Average velocity for the seven strings was 60.43 fps which wasn't outstanding by any means and the RS reloading manual does list RS52 and RS60 as possible alternatives should I be able to find the time to go down that path. However 42.0 and 42.5 grains produce an average velocity of 50 fps so my final choice using RS50 was 42.5 grains, which generated a velocity of 2308 fps.

My last range test was to zero and obtain my best groups. Setup was as before, shooting from the bench, off a rest and using a rear grip. The weather was lousy, with constant heavy rain, but having zeroed I set about producing my best group. I was concerned about the heavy rain as it will effect accuracy but one of the advantages of a heavy .303 bullet is its ability to "beat" its way to the target and be less effected by the wind, rain or obstacles such as twigs, grass etc that might get in the way. I had been shooting .223 a few minutes earlier and the groups had opened up considerably

Thames Valley Guns
Armourers Report
Ruger No. 1B .303 - Part 7

in the bad weather conditions. Whilst the .303 174 sierra MatchKing bullet may beat the weather, my targets did not faired as well as can be seen by the rather bedraggled target to the left. Having said all that, my Ruger was producing average groups of 15mm which was the best I'd ever achieved with this calibre.

Summary

Unlike other Ruger No. 1 projects this exercise was to specifically build a rifle to test the accuracy of the .303 cartridge. The project had taken some time to bring to fruition, I purchased the donor rifle eight months earlier and ordered the barrel even earlier, however add the long delivery lead time from ordering the Bartlein barrel from the US, production time, customs, proof and load development and this was the longest of my Ruger No. 1 projects at well over a year. Having said that, it is without doubt one to wait for.

Prior to my Ruger No. 1, my most accurate .303 was the above No4T Canadian replica which was capable of 1.25 at best and 1.75"groups on average. For the No. 1 to produce 15mm groups was a superb result and proves with the right rifle, the .303 is an accurate round despite being over a hundred years old. I acknowledge that the two rifles are in different leagues, however I do not know of any other platform besides the P14 and the venerable Lee Enfield that I can use as a test bed in the UK.

Being the largest calibre and heaviest bullet weight that I shoot with the No. 1, recoil is the most prolific of the Ruger No. 1's that I possess, however the fitting of a softer aftermarket adjustable pad offsets that and as a result shooting the .303 No. 1 is comfortable. Many years ago, Ruger did manufacture a .303 No. 1 and I assumed they sold well in countries that regularly used the .303 cartridge. However, Ruger have not manufactured a .303 for years and I have never seen one in the UK, let alone a rifle come up for sale, so I see this rifle as somewhat unique.

Whilst the rifle has functioned flawlessly to date, the early function trials did highlight a problem with the scope, in that it was difficult to zero the drums. Speaking to the seller, the scope had never been mounted on a rifle and had been purchased as a spotting scope for use on a boat, maybe for bird spotting, who knows, as I didn't enquire any further.

To adjust the drums on the Redfield, the main drum screw is loosened and this permits the drum to freely rotate, however the drums had seized and continued to rotate the main shaft. This was probably due to time and congealed oil. After applying some penetrating oil, the issue was remedied and consequently the scope is now fully serviceable.

Thames Valley Guns
Armourers Report
Ruger No. 1B .303 - Part 7

As this will be my last report, I must be honest and say its difficult to end this report with some new and interesting information relevant to the No. 1, as I hopefully have covered most technical aspects of the rifle. My experience over the last two years and collecting these rifles has been unlike any other collection I have embarked on. Of the seven No. 1's and the single No. 3 that I have obtained, I have tried to add an element of variety in the form of refurbishment, replacement barrels to experience calibres not normally associated with the Ruger No. 1, with the sole aim of improving accuracy.

Not one of these rifles have failed me and the .303 No. 1 despite the slightly increased recoil, has like all the others, been an absolute pleasure. Unlike calibres such a 6BR and the 6.5x47mm, the .303 is not renowned as one of the tack driving calibres that everybody raves about, however whilst the limited shooting I have done to date does not constitute an accuracy trial, early results of just over ½ inch is commendable at a 100 yards and easily competes with other rifles in my collection that cost considerably more.

My next shoot is at 300 yards and it will be interesting to see how this rifle/cartridge configuration performs.

Paul Green
Thames Valley Guns
www.thamesvalleyguns.co.uk
Email: paul.tvg@ntlworld.com

First published: 04th July 2020
Second update: