Thames Valley Guns
Armourers Report
Ruger No. 1 - Part 4

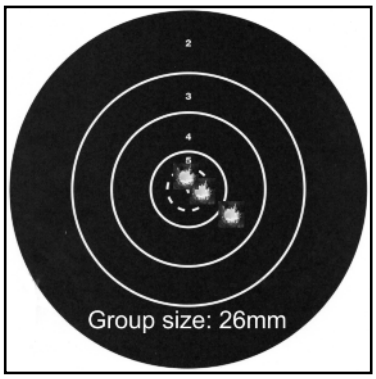
Introduction

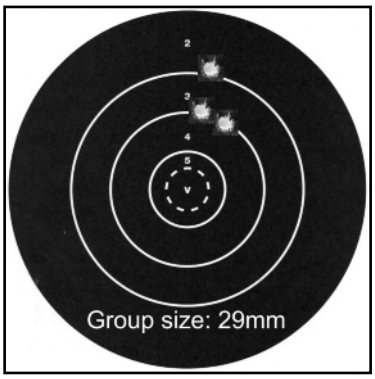
I planned as part of my collection to introduce a Ruger No. 1 in .308 Winchester. I saw one in the early research days and even arranged to purchase the said rifle. However the day before purchase, the seller bailed out with some lame

excuse which left me feeling somewhat cheated. Since then I have continued my search with not a single rifle coming onto the market in eighteen months and therefore I purchased another Ruger No. 1B in .22-250 with a view to rebarreling. The timescale from purchase to rebarreling was a couple of weeks which by UK standards was amazing. I acquired the rifle on a Friday, gave it to the barrelsmith the next day and therefore I did not have time to take any

photographs, hence the reason for the stock photo shown above. Within two weeks the 26" Bartlein replacement barrel and mounts where ready and the semi-finished rifle can be seen above. Whilst the rifle was in reasonable condition at the time of purchase, the butt had been reduced in length and therefore I planned to fit a large adjustable butt plate, which meant restoring the woodwork, plus the beavertail forend had to modified slightly to permit the new barrel to fit.

Prior to the restoration process, I had the opportunity to place a few rounds down range. The barrel required "running in" the scope required zeroing and the forend was a little on the tight side. Loads were 44.5gr of VV N140, Lapua brass and Sierra 155gr HPBT, generating 2785fps. Groups, in my opinion where on the large side, with 26mm and 29mm respectively and felt recoil was on the little challenging side, with a rifle of this size. However in fairness I had not prepared either the rifle or ammunition and therefore I shouldn't expect too much at such an early stage.





With the initial experiences under my belt, I planned to restore the woodwork, fit a longer recoil pad, seat the barrel correctly, discuss the scope blocks and research the use of lighter Sierra 125gr bullets.

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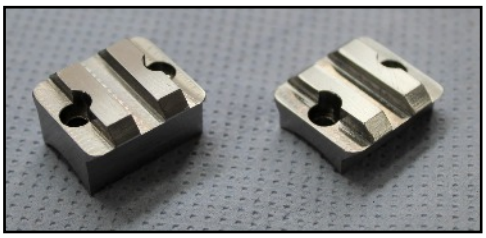
Scope, rings & bases

Replacing the barrel on a Ruger, usually means loosing the quarter rib and replacing it with an aftermarket alternative.



The replacement barrel has a different profile and therefore the quarter rib cannot be swapped onto the replacement barrel. On previous No. 1's I had used Leupold STD rings, however these where out of stock and therefore I decided to fall back on my tried and tested Rechnagel rings, which required the manufacture of a suitable set of bases.

As with all my other Ruger's, I tend to fit classic target scopes as I am shooting these rifles for accuracy only and in my opinion big 30mm scopes look out of place on the relatively small framed Ruger No. 1.

Restoration

As part of my collection I had purchased two rifles from the same seller, this rifle as a .22-250 and a 25.06 as discussed in my Armourers report Ruger No. 1 Part 3. As the rifles where from the same source the external and internal condition of this rifle was good. The rifle required a deep clean and a major service, but in the same way as the 25.06, the butt had been cut short. The fact that the butt was short by 2.0" meant that I had to install a larger recoil pad to

recover that lost two inches. As can be seen in the images, I fitted an adjustable recoil pad, polished the metal components and refinished the butt giving it a more glossy finish. The end result was quiet pleasing, as can be seen above.

Second range test

As I have discussed the No 1's mechanism in reasonable length in other reports, it would be rather repetitive to go into the same subject again and therefore I planned to discuss the various range tests in more detail. I mentioned earlier in the report that shooting ammunition designed for heavier target rifles, obviously generated more felt recoil in a lighter hunting rifle and therefore I planned to experiment with lighter Sierra 125gr Matchkings.

With the .308 cartridge I have always tended to shooting bullet weights between 150 and 168 grains. I have used 125 grain bullets in the 7.62x39 cartridge in a converted Australian M10A1 carbine but I have never attempted to use these bullets in the .308 cartridge.

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The image shows a typical Sierra 155gr bullet on the left and on the right a 125gr. Despite the different weight, bullet length is the same and therefore the same bullet seating can be maintained which is critical for ensuring the bullet enters the bore and is aligned with the rifling.

Therefore this was my first outing and my research data was generated from the various reloading manuals and in particular the Hornady and Vihtavuori books. My first choice was VV N133 with six strings of five rounds with powder weights between 40.5 and 43 grains. Velocities ranges from 2876 to 3078 fps respectively and here was my first learning curve.

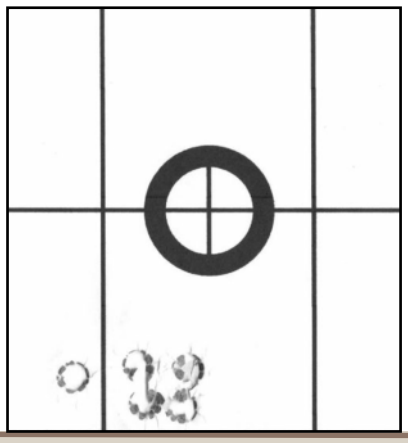
I may have a lighter 125 grain bullet but I was pushing it at much faster velocities, in this case just over 3000 fps and therefore cancelling out any benefit gained by the lighter bullet. In fact recoil felt even more aggressive than the heavier 155gr bullet travelling at a milder 2750 fps.

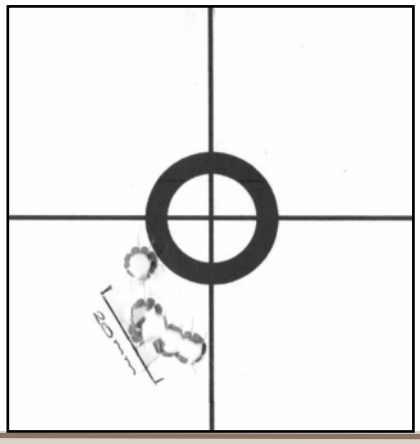
There is a way to measure felt recoil and I am sure mathematicians can work all this out, but I'm no mathematician and therefore I was taught how to measure recoil in a more primitive manner. Using a wooden frame, support the rifle (L1A1) in such a way that it acts as a pendulum, attach a marker pen and arrange a marker board to sit parallel to the rifle and marker pen. When the rifle is discharged, a trace is shown on the marker board, in other words a primitive form of ballistic pendulum. Repeat the process with different loads, it may not be scientific but it does indicate felt recoil.

Therefore it was back to the drawing board and rather than stabbing in the dark using the manuals I decided to fall back on previous experience. Although I use a range of Vihtavuori or Reload Swiss powders, my most prolific powder for the .308 cartridge is VV N140. To obtain the lowest felt recoil I had to balance three factors, lowest velocity, accuracy and obturation. Obturation is a topic in its own right and I do not want to delve to deeply in this report, however using a 155gr bullet and N140, obturation is usually achieved between 43.5 and 45 grains depending on the firearm, its condition, ambient temperature and the quality of your brass and bullet. Therefore my next loading exercise consisted of VV N140 using six strings of five with powder weights between 43.5 and 46 grains and using the Sierra 125gr bullet.

Third Range test

The third range test was to confirm the feasibility of the lighter Sierra 125 grain bullets, matched with a slower N140 powder to reduce felt recoil. Whilst I commenced with 43.5 grains, cases where slightly sooty and therefore obturation was not archived until 44 grains. Chronographing showed 43.5 grains, to be maintaining a velocity of 2378 fps with 46 grains peaking at 2937 fps. Felt recoil between 43.5 and 45 grains appeared noticeably lighter, however as velocities reached closer to 3000fps I could not notice the difference as was the case with the faster N133 powder used earlier.





At 44.5 grains I achieved a 25mm group and 45.5 grains I achieved the smaller 20mm, however if you removed the "flyer" both groups measured 12mm, which was impressive.

Whilst groupings where better, this range test

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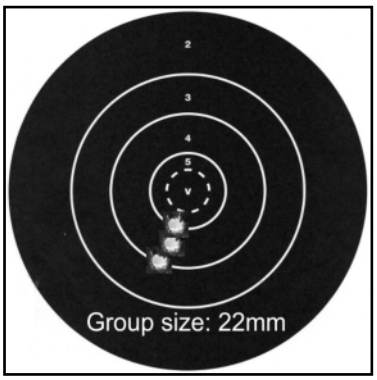
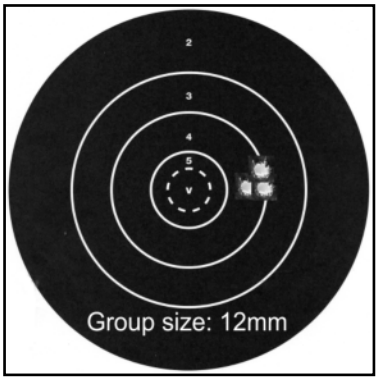
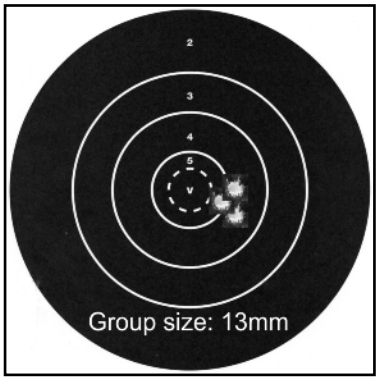
had proven that a combination of a slower powder and lighter bullet could effectively reduce felt recoil whilst maintaining good accuracy. As I had achieved my aims, the last an final range test was to zero the rifle and record the final grouping, which can be seen in the image.







Reloading with 44.5 grains of N140, I zeroed the rifle and achieved an average group size of 22 13 and 12mm, which gave an average grouping of 15 mm. Excellent result and perfectly satisfactory for a rifle of this type.

Summary

Finding a Ruger No. 1 .308 in the UK market had proved elusive and in the end I had converted a .22-250 into a .308. This was an expensive path, when you consider the price of the .22-250, plus a £1000 for a Bartlein 3b profile barrel, mounts, labour time restoring the butt and woodwork, I will never recover my costs, however I now had a superb, accurate and unique No. 1 .308 rifle to add to the collection.

This rifle was the largest calibre in my No. 1 collection to date and the lighter overall weight of the Ruger had added to the felt recoil, which in my opinion had to be reduced. Use of the lighter 125 grain MatchKing's had generated good accurate results which made firing the Ruger more pleasant. Whilst I quiet enjoy some hefty recoil from time to time (good fun), I had built this rifle with target shooting in mind and strong recoil can be counter productive, therefore the lighter recoil, assisted in the improved accuracy of the rifle.

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First published: 14th October 2020
Second update:
Third update: