

Introduction

Having previously built a 1903A4 the logical progression was a 1903A1. As with most Sniper rifles finding an original is nigh on impossible and not really practical if you want a good shooting rifle. After all you don't want to wear out an expensive investment. This rifle/scope combination in the UK is an expensive investment, replica or otherwise, so don't expect to get much change out of £4000.00.

This rifle was assembled from a good quality Springfield 1903 and an original US Marine Corp x8 Unertl telescope using modern replica blocks and fore end. Using as many publications as I could find, together with information supplied by the customer, the rifle was rebuilt using all the original specifications where possible.

Rifle

Sourcing a good Springfield 1903 Rifle in the UK is fairly difficult as there is a very limited number of suppliers. Adding to the complication, you also need a supplier that is willing to allow you to accuracy test the rifle. This is essential as it would be pointless exercise building a Sniper rifle that was unable to achieve a reasonable group.

Kirk Emmerich, owner of "By sword & Musket" came to the rescue and supplied a nice Springfield Armoury Model 1903 ser No 1518860 which we were able to test. The range test consisted of a 100yrd target, shooting from a rest with Iron sights and IMI factory ammunition. Unfortunately I didn't keep the test target but needless to say the rifle grouped very well and if I remember correctly it was less than 2" which taking into account my shooting skills, the use of Iron sights which were worn and factory ammunition, I considered to be very good and a good basis to start the build.

There are many publications on the 1903, so I have no intention of repeating any of that work, however for the purpose of these notes I have extracted the following to show some of the specifications I worked too. *Initial rifles were selected from National Match rifles, these had star gauged barrels and were range tested to determine their accuracy, however I believe standard barrels were also utilised if they met the accuracy criteria. Accuracy requirements for the star gauged/national match barrels was 4" laterally and 8" vertically, however with good ammunition, groups averaged just over 2" and rarely exceeded 3.5".* Other changes to the 1903 were relatively simple; the handguard was machined to accept the front scope block, the rear block was fitted to the receiver, trigger pull was adjusted, bolt was polished, re-blued and engraved with the rifles serial number, bolt guide, magazine follower was also polished and the butt was fitted with a deeply checkered national match butt plate.

Building a Model 1903A1

Having obtained the standard infantry rifle the task in hand was to bring this rifle up national match standard and I will describe the process as I built the rifle. Whilst this wasn't a long term project it also wasn't an "overnight job", so therefore this was a planned programme with other work going on where there was to be known delays.

Telescope base blocks & handguard

I will describe these two together as as mechanically they are both linked. Both of these items are new replica items which are well made and to the the original spec. The blocks are precise replicas of the originals and come complete with the correct screws and are relatively simple to fit by engineering standards. Having said that the rear base should be marked "O" and the front base "E" and both these blocks were not.

The rifle was stripped down, mounted on a machine bed and the bases clocked to ensure they are parallel with the bore.

You may notice from the right hand picture that the rear base is butted up against the rearsight. If you study the various publications there appears to be no consistency, with some blocks touching and some with a 2mm gap. For the point of consistency I have mounted the rear block against the rearsight. The circular bevelled mill cut must be facing the right and the two blocks must be exactly 7.2" apart centre to centre. The point at which the blocks are mounted is polished/ground to ensure a true mating surface as can be seen above on the rear block. Extreme care must be taken to ensure the holes are drilled and tapped only fractionally longer than the screws. Drill to deep and you will weaken the barrel walls with dramatic and very costly results.



Building a Springfield/Unertl Sniper Rifle



Two other things that you may wish to consider when fitting the blocks; underneath the blocks is now bare metal, to protect that surface from rust I added a very thin film of protective wax. As this rifle has considerable recoil you can reasonably assume that the blocks will come loose at some stage, therefore to avoid damage to both the threads and the scope, the screws are secured with Loctite 222. This may not be classed as authentic but I consider it as protecting your investment. The above picture shows the scope being temporarily fitted prior to double checking scope/bore alignment with a laser.

Having successfully fitted and secured the blocks the next task was fitting the handguard. The new handguard, not surprisingly didn't fit as shown in the various pictures below and consequently the handguard and stock required some fitting.



You may also notice the difference in colour between the handguard and the stock which means all the woodwork will have to be refinished and stained to match before applying a final finish. The above picture also depicts another very important issue, the edges of the handguard must not touch the front block, failure to have a clearance will result in the wood splitting.

As I was stripping the stock of its finish and correctly fitting the various components I also ensured the stock fitted to national match standards. National match standard requires the underneath of the chamber to fit snugly in the stock and then no further contact with the wood until a 6 o'clock contact at the fore end which is the same standard as the K98 Sniper. Any wood contact between these two points will effect accuracy.

Building a Springfield/Unertl Sniper Rifle



The above picture shows the stock having been stained and waiting for its final finish.

Polishing and numbering

To improve functioning the national match rifles had the bolt, bolt guide and magazine platform polished, whilst this is fine for a target rifle its not tactical for a military rifle and deadly for the Sniper, so therefore the bolts were polished and re-blued, the bolt guide and the magazine platform remained polished as they were hidden from view by the bolt.

Bolts were numbered to match the bolt to the rifle. The number was etched into a position so when the bolt was closed the number could be clearly seen at twelve o'clock position on the bolt. The numbers were etched with an electric pencil, which in the UK is a fairly rare device nowadays. They are available but very expensive which seem to be overkill for a serial number. However by pure chance I found on Ebay an original electric pencil in nearly new condition and the same model as issued to the British Army when I was a serving Armourer - superb.



I intend to etch the bolt before it is blued, that way I don't get a burnt effect on the bolts surface and also all you can see is the serial number.

Etching is not as easy as it seems as the electrode has to be "written" slowly which requires a steady hand. As you can see from the picture on the right I used electrical tape to get a straight line and out of sight was a rest to steady my hand.



With hindsight and remembering there is no specification for the engraving it may have been prudent to engrave the number in the same plane as the number as shown below.

Having made a reasonable attempt at the engraving I checked to see if the bolt handle or the woodwork had to be relieved. When I rebuilt a 1903A4 I found that I had to do both as the bolt hit both the scope and the woodwork, but in this case there was sufficient clearance and therefore I re-blued the bolt as no further work was required.



Building a Springfield/Unertl Sniper Rifle

Cartouche

As this was originally a 1903 with a C Stock, the customer wanted to apply the appropriate cartouche's which meant a break in the work while the stock was sent to the USA to have the correct stamps applied.

The pictures to the right show what they looked like on the finished stock. Having got the stock back from the US, I was now in a position to start the process to re-assembling the rifle.



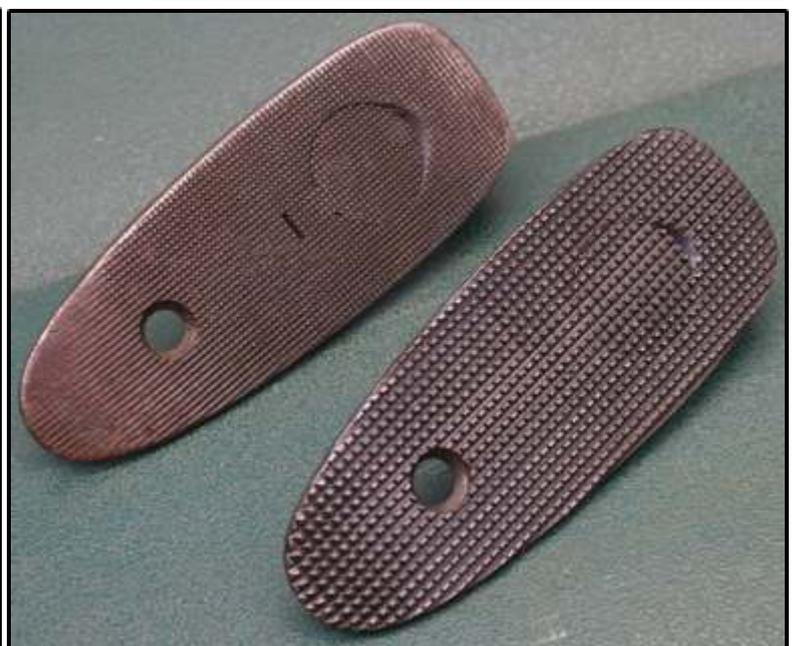
Assembly

First task was to polish the magazine platform. Polishing the platform was a rather simple affair and there is no need to expand on the subject. Second task was to fit the correct butt plate. As you can see from the picture below the Sniper version has a more course checker pattern but after completing the stock I was a little worried that the plate may be of a different size. To my utter relief the plate fitted without any need for alteration but they don't always match so it is wise to check first.

The next task was to tune the trigger, to do this strip the trigger, polish the respective sear and bent face. Follow up by stoning the trigger until the correct 1st and 2nd pull is achieved of 3½lbs and then polish the trigger to get a nice smooth release. Re-assemble, lubricate and check mechanical safety to ensure the sear does not accidentally release.

Whilst re-assembling the rifle is a rather straight forwards affair, you should check the rifle seats correctly in the woodwork and the barrel does not touch the wood except at the receiver, chamber and front barrel band. After re-assembly, cycle the bolt mechanism, check safety and ensure the rifle functions correctly and always function test the rifle with dummy rounds to ensure the rifle feeds, extracts and ejects without fault.

Whilst I checked firing pin protrusion I did not check headspace, this was for two very good reasons, I did not have any 30.06 gauges to hand and the rifle had just been through the UK proofing system which includes checking proof.



Fitting the scope

The customer had supplied an original Marine Corp contract Unertl x8 scope. There is something attractive about these particular scopes that make them stand out from other scopes off the period, technically and from a combat point of view they might not be as good as the the German or British scopes but there is a certain unique appeal that make them stand out and they were very effective.

Prior to fitting the scope, I inspected it, checked its function and carried out a minor service. There is an old saying, "if it works leave it alone" and there is nothing more true than with these old scopes. I checked and cleaned the lens, cleaned and lubricated all the threads but I did not strip anything unnecessarily. These scopes are old and fairly rare, finding spare parts is a real problem. Stripping something for the sake of stripping is very likely to lead you into deep water - be warned.

I fitted the scope and secured it to the blocks and in turn checked the reticule for vertical alignment. The reticule was clearly misaligned by 4° and it raised concern that the blocks were mis-aligned with the bore. However having re-checked for a third time, this was not the case. Because of the scopes recoiling design you cannot rotate the scope as you would a modern scope, so therefore Unertl included in the scope mechanics a feature for rotating the reticule so that it can be correctly aligned when the scope is mounted.

Summary

If you appreciate classic rifles, there history and there quality of build, how can you not like this rifle, for me it has the WOW factor that is definitely missing from today's modern guns. This rifle is not cheap and for the equivalent value you could buy a very expensive setup, but



it wouldn't have the same appeal, it would be sterile and for me boring. This rifle has feel, history and you need real shooting skills to make it perform. I'm off on one so I better stop there but needless to say this is a lovely rifle that I enjoyed building immensely and my only disappointment was that I didn't get to test fire it.

Maybe if I talk to the customer nicely!!!!!!



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