

Introduction

The Nagant was another major design of classic rifle that I wished to convert into a sniper rifle and intended to take advantage of the current plentiful supply and modest cost.

I have had quite a few Nagant rifles, carbines and sniper rifles pass through my workshop over the years. There are functional rifles with with no major short comings. However if I have one minor comment it has to be that I have been unable to achieve a level of accuracy which I am accustomed too with western rifles from the same era and that presents me with a challenge. Ten years ago Nagant's coming out of the old Warsaw Pact countries were in reasonable condition and were derived from war stock but in recent years evidence shows that rifles are increasingly "made up", which may indicate that the war stock supply has dried up and rifles are now being made up from spares.

This evidence was particularly noticeable on the various PT and PU sniper rifles that came onto the market recently in the UK. These were infantry rifles cobbled together with spare scopes. Mounts were misaligned with the bore, bolt handles were hastily and poorly welded together, serial numbers were added to meet western market demands and many cases the wrong foresights were fitted.



Donor Rifle

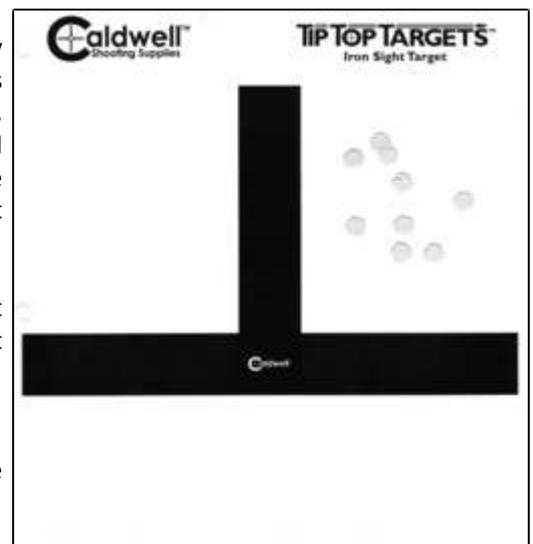
My overwhelming factor in choosing a suitable donor rifle is the condition of the bore. Due to various levels of build quality bore sizes can vary but should be .310/.311. Barrel condition also varies greatly so my criteria must be sharp rifling throughout the bore but especially at the lead, muzzle and no pitting or discolouration.

My donor rifle for this exercise was WWII rifle dated 1943 and I purchased it specifically for its bore quality. It has the type 3 receiver which has all manufacturing shortcuts dictated by war time requirements and as a result it was cosmetically not my first choice, however as can be seen below it could shoot reasonably well. This group was archived using 185gr FNM bullets and 48.5gr of Viht N150 which was a general load and not one which I had perfected for this rifle. The bolt had been replaced at some point and whilst it had passed proof, it cycled roughly.

The rifle as you can see from the pictures above is very typical of Nagant's on the market today. Blueing is generally OK, woodwork was acceptable with no fractures but has that terrible finish applied. All in all the rifle functioned as the agricultural machine it was.

Literature

I think its fair to say that due to Russia's history from the turn of the century until the collapse of the Warsaw Pact the publication of technical literature for Small Arms that



was accessible to the general public was not high on the States list of important things to do, therefore books on the Mosin Nagant rifle and especially the Sniper versions are rather thin on the ground.

The Mosin-Nagant rifle by Terence Lapin is probably the best reference work that I am aware of but the chapter on Sniper rifles only consists of seven pages so therefore is quite limited. As a result of this lack of this technical literature it is my intention to apply my experiences and knowledge of other Sniper rifles from the same period into converting this rifle.

In the 5th edition of Lapins book it gives dimensions for the Sniper rifles bolt handle which is different from the standard model. I may have read the dimensions wrong but in my opinion there is a mis-print or they are wrong as the handle is too long. I will explain further in the bolt handle section.

PEM Side mount

Accu-mounts in the US produce good reproduction mounts and scopes for a range of classic rifles. For the Nagant there are a number of options but I am only interested in those suitable for the PE scope. That narrows your choice to the PE central scope mount which mounts over the receiver or the PEM side mount. I'm a bit of a fan of side mounts, so there was going to be no competition really.

The PEM side mount is a well made affair that consists of two major components, the base and the bracket/rings. When ordering the side mount, together with a replica PE scope, the first thing you will note is there is no fitting or operating instructions. Operating instructions for the scope is probably no great loss as the scope is a fairly simple affair, however fitting instructions for the base are a necessity.

As with any Sniper rifle, fitting the base or rings is not a job for the amateur, they must be precision aligned with the bore. This can only be done properly by setting the barrel/receiver up on the bed and clocking all the components so they are true and aligned with the bore. Rifles currently coming out of the old Warsaw pact countries are made up from spares and have been "slapped" together, buyer beware.

Accu-mount supply the screws and pins for fitting the base, however the pins are too large for the holes and therefore the holes require reaming out. Do not try to force the pins or you will damage the base and or receiver.

As there are no instructions I was reliant on pictures from the Internet to help identifying the correct location of the base. Basically as shown in the picture above, the front of the base aligns where the barrel screws into the receiver and it horizontal position is roughly in line with the receivers scallop. However I say roughly as this depends on the alignment with the bore, which is critical.

Having fitted the base correctly you must remove wood from the stock to allow the receiver and the new base to fit. Allow 0.5 - 1mm clearance between the wood and the base. The base must not touch the stock, failure to allow for this will result in a cracked or fractured stock. Also check after firing the first shot as Nagant stocks are poorly fitted and the action can move.

The picture above right shows the fitted base only, with the bracket fitted more wood has to be removed. Please also bear in mind with the PEM mount that unless you relieve the wood, once the bracket is fitted and the action secured to the stock, you cannot remove the bracket.



PE Scope

When picking up the PE replica scope for the first time it looks and feels a good solid affair. The tube is manufactured from steel and is well finished, with a good standard of blueing. Overall finish of the scope is good with good clear text on the drums and the focus ring. Whilst the tube is steel, the focus ring, ocular bell housing and the knurled ring on the object lens appears to be aluminium

The scope weighs in at 1lb 5oz plus the PEM mount which weighs a further 15oz, a total of just under 2.5lb. This adds a substantial amount of weight to a relatively light rifle which will add stability and in turn an element of increased accuracy.

Unlike the British No32 and the Russian PU scope altering the drums does not directly alter the reticule, which surprised me somewhat as I expected a replica scope of this era to do so. The reticule is fixed, which brings me to a minor observation, when looking at the reticule the vertical post appears slightly off centre. I don't foresee this as a problem, just annoying. The reticule itself is clear and is a German No1

The drums detent precisely with a positive click and can be set to zero when the rifle has been zeroed. The focus ring adjusts smoothly but with a suitable amount of resistance to avoid accidental movement. There is no markings on this scope, which is good as there can be no way unscrupulous dealers can pass it off as genuine.



Trigger

The trigger on the original Nagant is basic and agricultural to say the least and is really not suitable for a Sniper rifle, having said that the Nagant Sniper has been used effectively in many wars and against technically advanced Armies and still proved itself to be reasonably accurate. As I wanted to make this rifle more accurate than the original, I opted for an aftermarket Timney trigger model. The trigger unit fits very easily using the original pin and screw and a nice touch is the ability for the unit to lock the axis pin in place, however the one thing I did not like is the amount of wood you have to remove to allow the trigger unit to fit. This concerns me greatly as Nagant stocks are not machined to tight tolerances and therefore there is plenty of room for the action to move in the stock and fracture any weakened area. A potential solution to this is to bed the stock where there is the opportunity for movement but I will explain further on this topic in the stock section.

Timney have also added a safety catch to their trigger, which means removing more wood but in this safety conscious world this may not be a bad thing. Whilst I have my concerns about the woodwork this does not distract from the fact, this is a good unit and well worth considering.



Bolt

Like most Nagant bolts they are fairly rough affairs and the bolt on this rifle was no exception, whilst it functioned, fed, extracted and ejected well enough it felt like it was full of sand. The solution to this problems was to remove the tooling marks and polish. The other major issue is the bolt handle as the standard infantry rifle has a straight bolt.

If you access the Internet you will find there are plenty of people in the US modifying Nagant bolt handles into the Sniper version. However in the UK this is irrelevant as you cant ship a secure item without vast amounts of paperwork and of course this is not viable.



From a technical standpoint I was concerned that replacing the bolt with another modified version would effect headspace and as I did not have any headspace gauges for the 7.62x54R to check, to avoid any complications I opted to modify my own bolt.

If you read T.W.Lapin's The Mosin-Nagant Rifle, 5th edition book he specify's the dimensions for the Nagant sniper bolt handle, however whether I misunderstood it, I am not sure but his dimension of 3.875" from the root to the tip of the ball seems excessively long. You will also be aware that the Russians with the original bolt handle and the Americans with there modern modified version all weld. In the UK this meant pre-preparing all the components, travelling to a suitable welder and then wait while he welds the handle, shaft and ball as this is a secure part. To avoid all this extra effort I machined off the ball, machined off the shaft, drilled and tapped the bolt and ball and then manufactured a new shaft from silver steel, with the finished bolt as shown above. My personal opinion was that it was very good but then I am probably biased.

Stock

Probably the most effective way to improve the accuracy of the Nagant is to sort out the stock. In a previous paragraph we showed how you have to relieve the wood to fit the PEM base and mount. In this paragraph I will discuss work required for the trigger and to improve accuracy.

Utilising the Timney trigger requires removing a considerable amount of wood for it to fit. As you can see from the right hand picture, very little wood is left between the magazine and the trigger well, also the rear of the Timney trigger breaks into the hole for there rear main screw. This gives me cause for concern that I may have weakened the stock, which in turn will cause it to fracture catastrophically, ultimately only shooting the rifle will tell but there is one saving grace that I hope will avoid this dilemma. The magazine housing and the trigger guard is one complete and solid unit and this adds considerable strength to the stock.

Nagant stocks are notoriously poorly fitted as can be seen on the right, therefore I intend to bed the action to minimise any movement and therefore add strength to the stock. You may also note from the right hand picture the tooling marks and the poor surface finish that is typically of WWII rifles.

Bedding the action will resist movement and will therefore also improve accuracy but to improve matters further I will also bed the chamber area of the barrel and remove any wood that might be touching the barrel between the bedded chamber area and the fore end of the stock.



Bolt Assembly

Cycling the bolt assembly on the Nagant is a rather rough affair and if you look closely at the bolt and where its cycles in the receiver there is usually a considerable number of tooling marks and with my 1943 Nagant is no exception. At the time of manufacture I think the workers favourite tool must have been an angle grinder when it came to finishing off my rifle.

To improve matters somewhat I stripped the bolt and polished all the components where there was a metal to metal contact and the end result can be seen in the picture on the right.



Field Trials

The first field trials took place on the 7th April 2012. The purpose of the trial was to ensure the rifled functioned 100% but to also specifically tests the following:

1. Stability of the replica scope
2. Scope rings and base
3. Bolt handle
4. Bedding
5. Aftermarket trigger
6. Overall handling and functionality

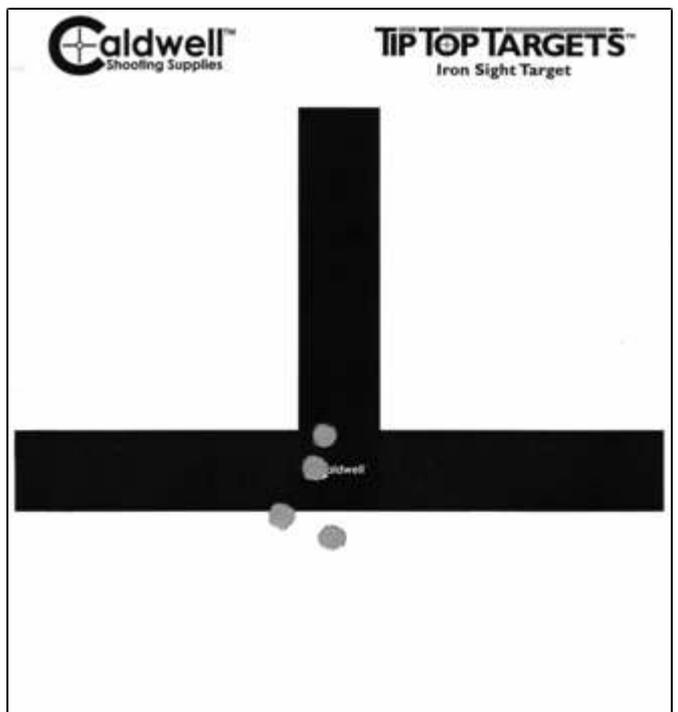
The scope, rings and based functioned well with no obvious faults. I fired 50 rounds and nothing shook itself loose and there was no movement between the stock and the action. Therefore there was no metal to wood contact and the risk of any fractured wood was minimal. I also checked the bedding, because depending on the wood types and especially with laminates if the action if not correctly relieved it can fracture the stock. However the course oily grain of the Nagant wood appears to be very robust and not prone to fracturing.



This leads me nicely onto the trigger. The trigger itself is good, of a quality one would expect from Timney, however you have to remove a substantial amount wood to allow the Timney trigger to fit and this caused my concern in that, it may weaken the stock. However to date my concerns to not seem to be bearing fruit - thankfully. The bolt handle required loctiting but otherwise it functioned flawlessly all through the trial.

One problem that I identified was light strikes, initially I put this down to the poor quality of the PPU brass as the primer pockets are too deep and when seating primers it is easy to over seat them. On my second field trial this problem with the primers was eliminated but the light strike problem persisted. I increase the firing pin protrusion but still the problem remained. I have ordered a replacement Wolff main spring which is the next obvious solution.

With the exception of the light strikes the second field trial was successful and therefore the only remaining test was to ascertain the rifles accuracy.



The accuracy test was an exact repeat of the first test with the same ammunition and using the same procedure. The group as can be seen on the right had been reduced to 2" from the initial 5" group at 100yds. Whilst this may seem a vast improvement it must be tempered somewhat by the fact we are now shooting with a scope and a precision trigger.

Summary

Below is the finished rifle. There is a tendency to reject these rifles as agricultural dinosaurs and I must admit I am guilty of that fact, especially with the iron sighted Nagant's. However, correctly scoped, bedded and with a reasonable trigger an acceptable standard of accuracy can be coaxed out of these rifles. I will be frank, this rifle cannot outshoot its western counterparts but it is totally reliable, robust and can withstand the rigours of combat. I have never had to replace a broken part, worn yes, but never broken, which is something I cannot say about western rifles.

The PEM mount and PE scope combination is a little different and as a result suits my taste for unique rifles but also in my opinion improves the performance of the rifle over its PU counterpart, as it adds some weight which in turn adds some stability to a light rifle with a powerful cartridge.

Another benefit was the cost, donor rifles are inexpensive and even with the scope, mount and machine work it was not a hugely expensive project unlike my Springfield, therefore putting a reasonable Sniper rifle into the hands of those on a limited budget.



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