Thames Valley Guns

Fusil MAS Mle. 1936/51 Rifle

Introduction

In late 2013 I purchased a MAS 36 and carried out a moderate level of research on the rifle. I produced a set of Armourers notes which are available on my Thames Valley Guns website. My interest in the MAS 36 was because of its uniqueness amongst military bolt action rifles of the 1930's. It has some interesting and novel features whose designs in my opinion were advanced for their time and the bolt mechanism, receiver and rearsight are in particular worthy of note. However the odd bolt handle, bayonet, piling

hook, lack of any foresight adjustment, odd cosmetics, poor political support and plain bad timing consigned this rifle to be viewed as an oddity amongst classic military rifles. I went on to fit a scope base and early style scope to test the rifles accuracy and whilst the rifle shoot reasonably well I had problems with my reloads obturating and keeping the rifle just for fun didn't really work for me, which meant that I ultimately sold it on.

In 2016 I came across a MAS36/51 which is quite a rare beast in the UK. I had only ever seen one before and that was at some distance and not up close, therefore this made the rifle somewhat more than idol curiosity and consequently I decided go ahead and make the purchase.

From technical standpoint, this rifle is a MAS 36 and therefore for technical information please refer to my MAS 36 notes for more information on this rifle. These notes will only reference the grenade launcher and my fitting of a military scope.

History

I have never seen a MAS fitted with a government or military approved scope, not even an image, therefore I will attempt to address the grenade launcher in the first instance. Although the rifle grenade had been around since world war one, the second world war saw the introduction of the successful spigot grenade and its ability to provide the infantry soldier with both an anti-tank and anti-infantry capability in the form of HEAT and fragmentation warheads. With the reforming of the French Military after the second world war, fitting its MAS 36 and the new semi automatic MAS 49/56 rifle with a anti-armour capability was a logical and cheap solution.

Whilst popular at the time, muzzle launched rifles grenades have fallen out of favour in current times with the underslung grenade launcher being far more accurate and effective. The reason for the muzzle launched grenades demise was due to the fact they were uncomfortable to fire, less accurate, plus in the case of the MAS36/51 they required a special blank cartridge, meaning that the operator could not engage enemy infantry whilst the grenade was fitted.

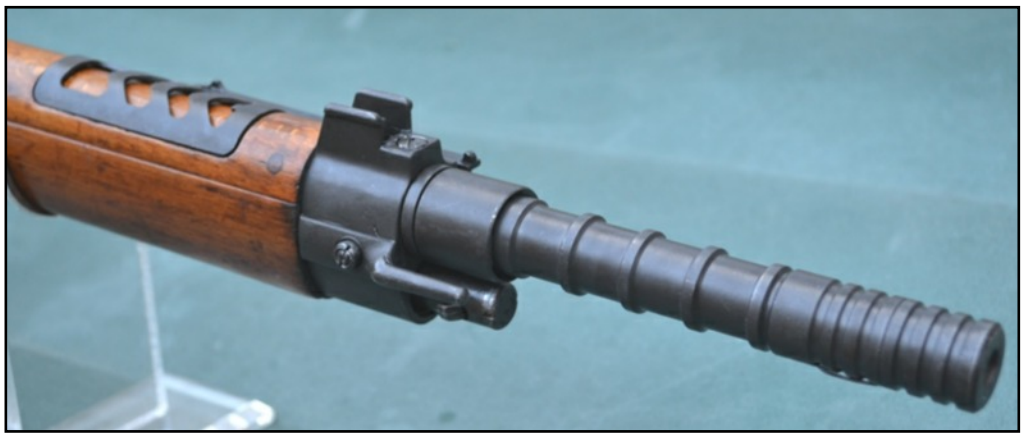
MAS 36/51

The only mechanical difference to the MAS 36/51 in comparison to the MAS 36 is a completely new front foresight block assembly with a built-in grenade launcher and the addition of a removable recoil pad to the butt.

The black recoil pad is a rubber slip over design which adds a good 1.5" to the length of the butt.

Fusil MAS Mle. 1936/51 Rifle

The inside of the pad is a series of honey comb style air pockets and does a good job of absorbing normal rifle recoil, however I cannot comment on the felt recoil when launching a grenade, as I have no plans to source a inert grenade or source some 7.5mm blanks. The addition of the rubber recoil pad does not effect eye relief with iron sights however I did find that the pad drags on clothing terribly.



Before I discuss the launcher we should mention that the design has retained the piling hook and the bayonet. The retention of the bayonet is fully understandable but why retain a piling hook in 1951 is beyond my comprehension. What it does do, is highlight French military thinking of the time and that it is still using concepts that were relevant in world war one.

In my opinion, the grenade launcher is a clever design, its neat, compact, doesn't offset the rifles performance and its completely integrated within the rifles mechanism. The launcher consists of a new foresight block, launcher sleeve, grenade stop, sighting system, new fore and upper forend. Depressing the catch on the left side allows the operator to raise the sight arm which can be locked into two positions, 90° as shown in the right hand image or 45°. On the left side of the sight arm is a simple sight shown in

the left image which may be for direct fire, but I would have thought the sight line would have been shrouded by the grenade. Extending over the muzzle/barrel is the launcher sleeve, grenade stop and a scale, which can be seen in the image above. On the left is a worm gear and by rotating the gear with you thumb, the stop can be extended. This stop controls the amount of gas reaching the grenade but I am unsure what the stop scale represents. However I am sure that by combining the stop scale and the range indication on the sight gives the correct ballistic trajectory. This may explain why the 120m range scale is below the 50m on the sight. By depressing the plunger the worm gear can be disengaged for course extension of the grenade stop, therefore speeding up the process.

I will be honest and say I am unsure as to the aiming process of this launcher. Having set the grenade stop to the the set distance and elevated the sight, the grenade is placed onto the launcher and then a blank or ballastite cartridge placed in the chamber, my guess is to place the rifle into the shoulder, hip or floor depending on application, place the tip of the grenade into the aperture of the required range graduation on the sight, obtain a steadfast stance and launch the grenade. To add further confusion I do not know why the sight arm can be set at 45° or 90°. This may be for firing from the shoulder or the hip and the use of different grenade types, however I may be wrong.

Two other points that might be of interest. I have found the added weight and substantial construction of the launcher assists in stabilising the barrels harmonics and therefore improves accuracy slightly. Lastly the MAS 36 has the reputation for being a ugly duckling so to speak, and in my opinion the fitting of the grenade launcher provides a more business like appearance.

Lastly as the launcher is a integral element of the rifle, it cannot be removed by the user and requires an Armourer with specialised tools to dismantle because like the MAS 36 the rifle is fitted with anti-tamper screws.

Fusil MAS Mle. 1936/51 Rifle

Optical sight

When I reviewed the MAS 36, I took the opportunity to fit a commercial mount, rings and period civilian scope as shown in the image below and met with some success. However the mount was offset and furthermore I felt a civilian scope setup didn't appear

quite right on a military rifle, therefore when I purchased the MAS 36/51 I thought it was a golden opportunity to fit a military scope and mount.

Despite all my publications, including a french publication specifically on the MAS 36 and the Internet, I could not find any information or pictures on official military adaptations of fitting scope to the MAS. However I know the rifle was modified locally by unit Armourers, in the book, St. Michael and the Dragon: Memoirs of a Paratrooper by Houghton Mifflin (1964) the author discusses using MAS 36's fitted with scopes to dispatch enemy snipers. Whilst I could not find any images, I did however find information and pictures on the MAS 49/56, which was the MAS 36's semi automatic replacement. As can be seen in the image to the right the scope and bracket combination offered some possibilities. These first generation combat scopes were a result of a NATO specification for troops to improve their first round hit probability; the British used Trilux, the Germans Hensoldt and the French the APX.

The scope seen on the left, fitted to the MAS 49/56 is a APX L806 scope with a second generation bracket and to obtain one appeared to be a non starter in the UK. They are available, but most appear to be in the US and getting optics out of the US is increasingly difficult. The image shown on the left is a later model bracket which wasn't ideal as it positions the scope forward and therefore wasn't suitable for the MAS 36 as it increases eye relief. However the earlier model or first generation bracket located the scope directly above the mount as seen in the lower images and therefore was eminently more suitable. Equally these first generation brackets were available on French Ebay - "exceptionnel"

When the bracket arrived, it had seen better days, it had some surface rust, was dirty but otherwise it was in good condition. Stripping the mount down, I removed all the rust, gave it a good clean and re-assembled which presented a good condition mount.

The reader may note that the method of mounting the scope to the bracket is somewhat unusual by modern standards. The bracket has a round base and the scope is secured using clips or bands. This design was similar to the Germans and their ZF4 scope in WWII. Personally I think its cheap, would prove difficult to set up and less than "squaddie proof" in the field.

So I had a bracket !!! but I still had to acquired a suitable scope, a means to mount the scope to the bracket and the whole package to the MAS 36. The answer for the scope came in the Hensoldt Fero Z24 scope used on the H&K G3 rifle. Although only a x4 magnification, the Hensoldt Z24 is an excellent military combat scope and would compliment the MAS and its mount very well, plus they are easy to obtain. It best to obtain an early model without the reticule illumination as this adds a "box" to the exterior of the scope, making harder to mount, plus they are cheaper and less likely to go wrong. As of 2016, prices varied between £400 -£750 for a decent scope, which makes them more expensive than the MAS rifle.

Fusil MAS Mle. 1936/51 Rifle

The Z24 fits to its H&K G3 mount using screws therefore to fit the Z24 to the french bracket I had to design a suitable adaptor. As the bracket was not designed for the MAS 36 and equally the MAS 36 was never designed to be fitted with a scope, I had to identify and design solution for mounting the bracket to the rifle.

As mentioned previously, the French bracket has a round base, therefore the adaptor is machined from a solid round aluminium bar of the same diameter. The scope is mounted and secured using the same fittings and screws as used on the H&K mount. The only adaptation required to the bracket is the addition of two screws to mount the adaptor.

The last and final step is the method of attaching the scope bracket to the rifle. The MAS 36 receiver is a solid, clean design and therefore it is fairly easy to manufacture a suitable dove tail plate and secure it to the receiver. My MAS has its main serial number running vertically down the side of the magagine web so to avoid blanking this off, the dove tail plate was fitted from the front of the magazine to the edge of the web. A recoil stop was added, as experience has taught me that this type of scope bracket will creep if relaying solely on the clamping mechanism. Manufactured from steel the plate was blued, secured using three screws and as can be seen from the image on the right, blended well with the MAS's receiver.

Having fitted the scope and its bracket, I needed some range time to test and evaluate the design. Some testing can be done in the workshop, such as eye relief, cheek weld and bolt clearance. Eye relief was good in all shooting positions and the scope cleared the bolt handle by 1cm which was sufficient but not perfect. The downside of the bolt clearance was that the scope sits fairly high and therefore the cheek weld is more akin to chin weld. This can be resolved by fitting a cheek pad of some description but I am unsure at this stage as to the best way forward as cheek pads can negatively alter the rifles cosmetics and look out of place.

Initial range testing was very successful, the scope bracket and dovetail plate remained secured during a fifty round endurance trial as did the adaptor and the scope. The grouping capability wasn't tested at this point as the scope required some course adjustment due to the range detents and stops built into the drums. The elevation and windage drums have quiet stiff detent springs and this caused me a problem with the windage drum as I struggled to apply sufficient leverage to adjust it. The solution was to use a coin.

Accuracy Test

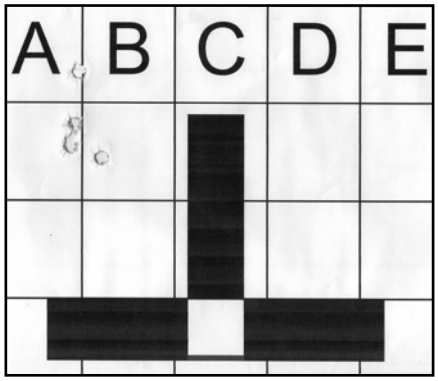
My first range test was to confirm that the rifle/scope combination actually worked in the field, ensuring recoil didn't shake the mount or scope loose. To do so would require a degree of endurance and therefore I planned to "kill two birds with one stone" and also carry out some chronographing using 50rds As with the earlier MAS 36 I had owned, I had been having problems with the obturation, N140 and N160 both failed to obturate successfully even at maximum values specified in the reloading manuals with velocities appearing low at around 2400fps. I am coming across this situation more and more, with rifles of less common calibres such as 6.5 Carcano, 7.5 Swiss, 7.5 French and more recently 7.62x54R not obturating.

If you reference respected publications such as Janes Infantry weapons or Ezell's Small Arms of the World, velocities for the MAS should be around 2600-2700fps with a 139gr bullet and this data would have been supplied by the ammunition manufacturer. Cartridges of the World by Frank Barnes states velocities of 2700 to 2800 fps with 150gr bullets therefore indicating that the reloading manual figures are noticeably on the low side.

Fusil MAS Mle. 1936/51 Rifle

Another reliable source to confirm this data is the ammunition manufacturers websites. I visited Privi Partizans site and using a 139gr bullet, Privi quoted their factory ammunition as producing 2723fps. No wonder I am unable to obturate, as a result I reloaded with 39.5grs of N130 which generating a shade over 2600fps and obturation was much better but not perfect, plus everything remained secure.

The next visit to the range was to zero the scope and accuracy test the rifle. It took a while to organise as the UK was going through a wet spell and getting a dry day was proving difficult. It wasn't until November that I got a dry but cold day. Shooting from a bench I zeroed the scope with relative ease, which was a surprise as the drum detents are calibrated for 7.62 NATO. Once zeroed I attempted various groups, my first groups were approximately 2-3" which wasn't exactly outstanding but my next visit to the range a few weeks later was more successful which produced a number of 45mm groups as shown. I believe this improvement was not so much down to the rifle but to my handling and experience. I was pulling the rifle tighter into the shoulder and holding the forend rather than resting on my palm.



I must admit I far more enjoy shooting the MAS36/51 that I did the MAS 36. One reason is the MAS36/51 is less common and therefore more unique in the UK and adding the scope makes the rifle far more accurate and capable for a person of my age, rather than the standard combat sights. In practice the scope sits a little to high to get a decent cheek

weld and I am still unsure as to a solution as I am not keen on these corset type leather cheek pads. Having said that the added weight of the grenade launcher, mount and scope adds to the balance of the rifle and as a result the rifle handles well and comes into the shoulder well with slightly less recoil.

If I have one criticism and its with the MAS design, the whole handguard assembly is slightly loose and there is no obvious means to tighten it. In my opinion the French mount and the military scope compliments the MAS well and is in keeping with the military configuration, where my previous attempt with an commercial scope and mount looked rather odd.

All in all I am very pleased with the rifle and plan to enjoy shooting the rifle where ever possible. If anybody has any further information on the use of the grenade launcher and it aiming mechanism, I would be keen to hear from them.

First published: 11 December 2016
Updated:
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