

Mauser Ms 420 .22LR Rifle

Introduction

In April 2013 I was very fortunate to find two of these fine rifles available for sale, a rare opportunity. However the condition of the first rifle was suspect as the barrel was heavily leaded and as a result I declined the purchase. A few days later I was able to view the second Ms420, which was in an altogether better condition, the bore was good with no rust and the rifling was sharp, there was a small fracture in the wood, the foresight protector was missing and the rifle required a major service but otherwise this was a great little rifle, ideal for restoration.



Having purchased the rifle, I had the opportunity to run a few rounds through it at 100yds before starting the restoration process. It was not an ideal accuracy testing environment and I had to utilise the ironsight's only, but I was able to reliably hit the bull and the rifle consistently feed, extracted and ejected without fail.

Dismantling this rifle, highlights it as an altogether different beast to the Mm410B. It is built to same exception quality but it is massively over engineered for a rimfire rifle and highly sophisticated by today's standards. I have used the word sophisticated as I don't want the reader to misunderstand my comments, this is a beautifully machined and manufactured rifle, built in a time, when objects were built to last, when capability, reliability,

performance and accuracy mattered as much as sales.

Whilst the rifle is extremely well made the woodwork is very plain and lacks any checkering, the stocks seating for the action is chiseled out by hand which points towards the rifles age and the fact woodworking machines still had a long way to go in terms of development and capability in comparison with the factory stocks we see today. The absence of checkering is an indicator that this was a basic model, aimed at the lower end of the market, as checkering was done by hand and would have added considerably to the cost.

Literature

There is plenty of information out there on this rifle. Various forums discuss the rifle in detail, together with a large number of images available on the Internet although the reader should be cautious with the degree of accuracy of these forums. Accurate reference is provided in Jon Speed's Mauser Smallbores sporting, Target and training rifles by collector grade publications, which is dedicated to these fine rifles.

General

The initial model of these rifles were introduced in 1924 and it is reasonable to state that this rifle is in a class of its own with an altogether unique design, that was in my opinion ahead of its time . The rifle is a magazine feed, bolt action .22RF target rifle with a heavy tapered barrel 25 ¼ " in length. The most obvious feature is the very compact receiver which is only 4.6" long. The rifles overall length is 43" and has a considerable weight of 8.3lbs, including a small scope.

Operating the rifle the user will notice two distinct features, the bolt lift is 25°, the bolt cycle is a very short 1.43" which is only a slightly longer than the magazine platform and the bolt cocks on closing.

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Receiver

The receiver is extremely well made, with a high standard of machining, finish and at 4.6" In length, very compact. It is machined from a solid block and as the pictures highlight, its build is very substantial. This substantial construction has a number of advantages from a restoration point of view. It wont wear out, difficult to damage and therefore offers great longevity. As the saying goes "it was built to last"



To manufacture this receiver would have taken a considerable number of machining operations, which by today standard would have made it very expensive, which is why the Mm410B which replaced it was a more simplistic design from a manufacturing standpoint.

On the left and front side of the receiver there is a gas escape port and below this is a spring loaded ejector. To the rear of the receiver is the safety catch which is a rather complicated cam mechanism. With the bolt forward, either in the fired or cocked position, application of the safety will lock the trigger and the bolt in the closed position. The safety can be applied with the bolt to the rear, the trigger will lock and the bolt can move, however the bolt cannot be closed and a cartridge cannot be feed into the chamber. On the left side of the receiver is the rifles serial number, Mauser title and various proof marks.

On the top of the receiver is a standard rimfire dovetail scope rail and the early Mauser crest. To the right is the ejection port and the guide way for the bolt. When observing the ejection port the reader cannot help but note the the thickness of the receiver walls at this point which at 0.372" and should be considered considerable. The guide way provides the correct positioning of the bolt when the operator inserts it into the receiver and prevents the rear of the bolt rotating when the bolt locks. Locking of the bolt is achieved with the bolt handle rotating downward at the foremost point and engaging in the locking lug. The underneath of the receiver reveals the most elaborate machine work I have seen, especially on a rimfire and provides the magazine well, access to the ejector mechanism and houses the trigger assembly.

In summary, this receiver and its components are ninety years old, although this is a sophisticated design, of substantial construction, it works well, it is reliable and fed and extracts without fault and still has all it original parts - quite an accolade.



Bolt Assembly

This is an excellent bolt, very well designed but unusual and very compact. It is just over 4" long, is 0.6" in diameter (not including the guide) at its widest and narrows to 0.389 at the bolt face. The bolt cycles smoothly, feeds and extracts with little effort but cocks on closing, which takes a little getting use too. The bolt face is recessed for the .22 rimmed cartridge and is fitted with the spring loaded claw type extractor which is located at 12 o'clock on the bolt face. On the left side of the bolt face is the recess which allows the passage of the ejector. Positioned at 6 o'clock on the bolt face is the recess for the

firing pin and below this is the feed horn which feeds the round out of the magazine and into the chamber.

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The long slender section is the bolt head and is integral with the bolt handle and contains the extractor claw and its spring. The rear section of the bolt assembly contains the cocking piece, firing pin, firing pin spring and is retained in the guide way by the rib directly behind the bolt handle.

Removing the bolt is a simple case of pulling the bolt to the rear and at the same time, depressing the trigger. If the operator wants to strip the bolt, remove it from the receiver and unscrew the two sections. The firing pin can be removed but I would advise that this is the limit of stripping for normal users. The reader should remember this is ninety year old rifle and spare parts are not available and therefore stripping should be kept to a minimum. Refitting is the reverse procedure.

locking lug on the receiver and can be seen on the previous page. Movement is approximately 1mm but is sufficient to break obturation. Both parts of the bolt are numbered, the bolt head is numbered underneath the handle and the rear section is numbered on the web so the user can identify the correct bolt without removing it from the rifle.

Primary extraction is achieved by a tiny cam located above the

As the reader may notice from the pictures, the bolts method of operation is traditional, however its profile is unique and like the rifles receiver the number of machining operations required to manufacture this bolt is considerable, thereby increasing complexity, time of manufacture and cost.

Magazine housing

Whilst I cannot confirm, I would assume the magazine housing is machined from a steel casting, therefore permitting the trigger guard's profile. The housing is numbered to the rifle, which is usually a good indication that the final fitting is by hand. Both front and rear screws locate directly into the receiver therefore precisely locating and securing the stock. The housing contains the magazine retaining catch, its spring and its primary purpose is to protect the trigger and to correct presentation angle for the magazine. The catch not only provides the release for the magazine but also acts as the stop, therefore providing the correct magazine height.



Magazine

These are good reliable magazines. Manufactured from press steel plate the magazine consists of the magazine body, base plate, magazine spring and platform. The magazine "lips" are crucial in this design as they provide the correct presentation angle for the cartridge. The base plate is locked in place by a small spur of the magazine spring and is stamped with the Mauser logo. However due to the age of these magazines this spur is often misaligned and therefore the base plate can be dislodged and lost.

As .22 rimfire ammunition is what I would call "dirty" these magazines soak up all the wax and debris like a proverbial sponge and therefore the user should aim to give these magazines a good clean on an annual basis. Failure to do so will cause the platform to stick. At the rear of the magazine there is a single extrusion, whose purpose is to act as the magazine stop, to engage in the catch and lock the magazine in place.



In summary these are good magazines, however they are very rare. I have never seen a spare magazine for this model, therefore I would strongly suggest you treat it with great care.

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Trigger Mechanism

Whilst the trigger mechanism operates utilising the same principle as the standard K98, the trigger assembly is in keeping with the rest of the rifle and is a complicated design. It consists of an upper and lower assembly, which both lever together to provide the first/second pull and the release of the sear. When the safety catch is applied, the upper assembly is locked down by the rotational movement of the safety catch cam.



Trigger pressure is adjustable utilising a small screw at the rear of the trigger and on this particular rifle has a trigger pressure is 2.2lbs I have not attempted to adjust the trigger as access to the screws locking nut is difficult as it is shrouded by the lower assembly and may require a special tool. Whilst the trigger pressure is reasonable, the sear release is somewhat of a drag before the cocking piece is released.

I must say the trigger assembly appears overly complicated but it is in keeping with the design. Having said that, it is positively simple compared with the modern sealed trigger units that you see on today's target rifles, so I shouldn't be too critical.

Barrel

The barrel is 25.5" Long, six grooves and a 1 in 16 twist rate. It is a heavy target .22LR barrel which is .97" at the chamber and tapers to the muzzle at 0.595". Rifling in this particular rifle is very good, still within its first quarter of life, therefore if looked after well it should give a long and accurate service.



The barrel is engraved with the cartridge description, "Patrone 22 Long Rifle", serial number, various proof marks, patent marks "D.R.P.D.R.G.M" and the steel code Ch.28. Externally the barrels condition is good, bluing was reasonable for the rifles age but was showing minor signs of wear around the muzzle.

The barrel does not float, it sits fully in the stock and the muzzle has a round crown. Because of the very compact receiver and heavy barrel, the two screws securing the receiver would be insufficient to support the barrel and therefore a third screw or more precisely the front sling swivel is used to secure the stock/barrel.

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Iron sights

Both front and rear sights were intact when I took receipt of the rifle, although the foresight protector was missing. Both sights were serviceable but required a good service as there were full of debris and solidified oil. However a complete strip, degrease and polish restored both sight assemblies to their original serviceable condition.



The rearsight is a ramp, with an unusual graduation - 30, 50, 80, 100, 125, 150, 180, 200 meters and utilises a slider for elevation adjustment.

The rearsight plate can be rotated, providing the shooter with a "U" or "V" sight picture. The ramp is silver soldered onto the barrel and windage can be obtained by adjusting the screw in the rearsight assembly.

The foresight is a long blade and secures in a dovetail and is locked in place by a spring loaded stud. It has no adjustment, other than by changing blade sizes. The ramp is silver soldered in place, the front face of the ramp is serrated to minimise reflection and the ramp is fitted with a fore sight protector.

Stock

Although the stock had some bruising and a small fracture it was in surprisingly good condition and was not difficult to restore to its original condition.



The stock is made from walnut and lacks any checkering, it is fitted with standard sling swivels, a plastic butt plate which is checkered and has the Mauser logo. Specific areas such as the barrel trough and magazine housing are machined but the receiver and relief for the trigger have been chiseled out by hand.

This is a basic stock which is clearly aimed at shooters purchasing at the entry level market and whilst I have restored the stock, I have deliberately not altered or upgraded it in any way. Using the stock it is the correct size for both a typical sized adult and the rifle, it handles and supports the rifle well.

Scope and Rings

To keep the character of the rifle I fitted a B Nickel Supramar 2½ x 52 Scope, however this fine little scope presents two issues which reflect its heritage. It has a 22mm tube and no windage adjustment, therefore an solution, albeit an expensive one is available through the German scope ring manufacturer, EAW GmbH. They produce a very good quality set of steel 22mm rings with windage adjustable bases which meets my specifications nicely.



Setting up the scope is a little more difficult than your typical modern scope, as windage adjustment is on the rings and is somewhat course, however with a little patience, good accuracy can be achieved.

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Range Test

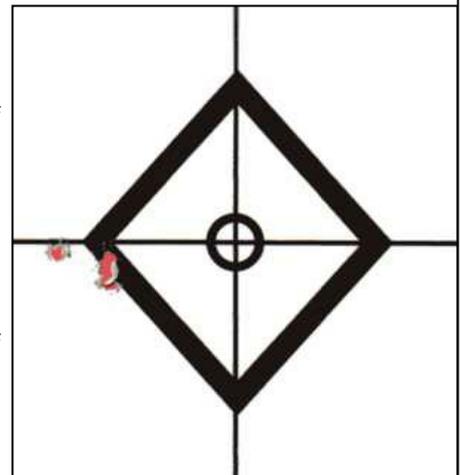
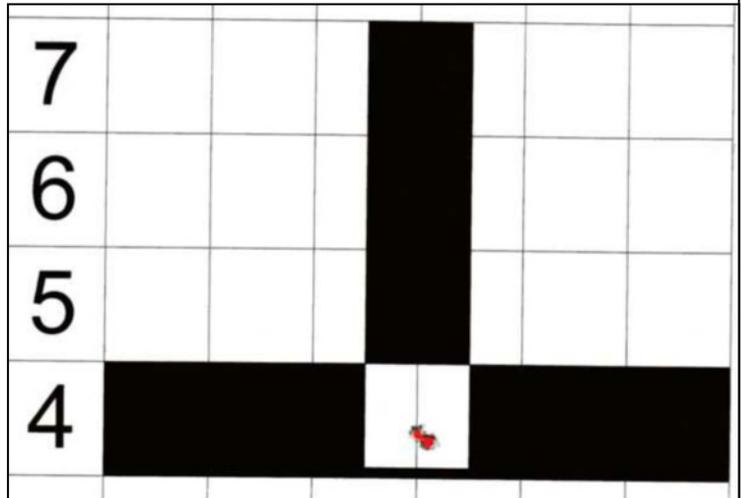
Bearing in mind that this is a 1920's design, and a fairly heavy rifle, I would specify this rifle as a target rifle, however from a modern perspective it would very easily fall into a heavy varmint classification. From my personal point of view, it is part of my collection and therefore it is to be preserved and only shot for pleasure. Although the primary reason for fitting a scope was for my deteriorating eyesight, the scope has the added benefit of maximising the potential accuracy of the rifle.

My first accuracy test was done at 25yds at an indoor range. Using RWS match ammunition and shooting sitting supported. I shot approximately some 30rds in all, getting use to the rifle and its trigger, however the the best group I achieved on this day was this three round group at 4.10mm, was I felt was remarkable.

Three rounds touching, is in my opinion an accurate rifle, it will be interesting to see what can be achieved at longer ranges. A couple of days later I managed to get to the open range and put the rifle through its paces at 100yds. It was a lovely day and with no wind to speak off. I used the same ammunition and shot from the bench. I produced five 3rds groups with the largest being 23mm and the best at 12mm (as shown) with an average group size of 17.6mm (0.69").

I'm not a .22 target shooter but I was curious to see how this 1920 rifle stacked up against a modern high performance target rifle. Looking on the Internet at the "accurate shooter.com" website they did some tests at 100yds using different ammo and a high performance Swiss rifle called the Bleiker, which was equipped with a powerful Leupold scope, all singing and dancing stock and a barrel tuner. Out of the fifty five brands of ammo they tested the Mauser came in at No11 at 100yds.

Whilst I appreciate this is not the best comparison, it does highlight that the Mauser is a very capable, accurate rifle and that after nearly 90 years and all our advances in technology we still cant produce rifles with any more accuracy.



Thames Valley Guns

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Summary

This is a very interesting rifle from a design point of view. In comparison with today's rifles it is massively over engineered and complicated but in the 1920's firearms designers were working to a different concept. Rifles today have reached there design



zenith but in the 1920's design engineers were still pushing the technological boundaries and therefore it is wrong to state that this rifle it is over engineered and complicated; it is sophisticated and to coin a British phrase it is a "Rolls Royce" and therefore superbly manufactured, reliable and extremely accurate.

You will not find a rifle with such a unique bolt and compact receiver and I think it is fair to say that this was leading edge technology for its time, however

within 10 years and by the mid 1930's, Mauser and firearms design had moved on. Produced in the 1930's, the Mm410 has the same build quality, same capabilities but with a far more practical and dare I say it; cost effective design.

This is a lovely rifle, however these rifles are increasingly rare and as a result prices are rising, you can expect to pay £600 - £700 or more depending on the rifles condition. They are good rifles and from an era when rifles were manufactured to high levels of quality and by individuals who took a real pride in there workmanship.

When using this rifle it feels solid and very well made. The short bolt stroke, small bolt lift and convenient magazine release catch, makes the rifle pleasant to operate. However cocking the action upon closing is a little unusual for a .22 rimfire and as a result more effort is required to close the bolt, which upsets your point of aim somewhat.

However that is the only minor fault I can ascertain, which make this an altogether remarkable rifle.

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