

Introduction

Never one to pass up investigating an interesting rifle, I purchased a Musgrave .22 rifle, but researching the Internet and my library identified very little, in fact with the exception of the below paragraph which is about the company that manufactured the rifle I couldn't find anything else. However that all change in Sept 2011 when a Ex-Gunsmith from Musgrave contacted me and filled in a lot of gaps

These next few lines were taken from a Facebook site and I am assuming there is some degree of accuracy - *The Musgrave facility was located in Bloemfontein, while the actions were manufactured at Lyttelton Engineering Works near Pretoria. Musgrave's product range later diversified to include pump action shotguns, .22 rifles and other sporting equipment. The Musgrave rifle name were finally dissipated into Denel Armscor (an Armscor division,) where Lyttelton Engineering Works continued to build hunting rifles under the "Vektor" (Vector) name for a while alongside the R4 assault rifle, Z88 pistol and other armaments.*

The rifle I had purchased was called the Ambidex, Musgrave only made one .22LR and as such did not allocate a model number. Musgrave made most of there own actions after 1980 and prior to this they were made by the Lyttelton Engineering Works as stated above. The Ambidex was manufactured from 1988 in Musgraves facility in Bloemfontein.

The rifle weighs 6.0lbs, has an overall length of 41.5" and the barrel is 23" long. I would describe the rifle as a Sporter with a medium sporting barrel and a high capacity magazine which can hold 15rds. The action is a straight pull cross bolt locking system that can be found on the Browning T Bolt design, however unlike the T-Bolt the Musgrave is ambidextrous and can accommodate both left and right hand shooters. The cross bolt action is both very strong and very fast to cycle, coupled with the high capacity 15rd magazine makes this a capable rifle.

Overall finish for the woodwork, metalwork and the bluing is of good quality but I will discuss that further in the following paragraphs. The picture shown below was of the rifle when it was first purchased and with no refurbishment work.



Barrel

The barrel is 23 inches long and is fairly substantial, however it is not a heavy target barrel. The best way I would describe this barrel is that its profile is more akin to a lightweight .223 centre fire barrel. The barrel is fitted with front and rear Ironsights, foresight protector, the barrel is crowned and is threaded for a moderator. The moderator thread and crowning has been professionally done, however it is aftermarket work as Musgrave never threaded there barrels.

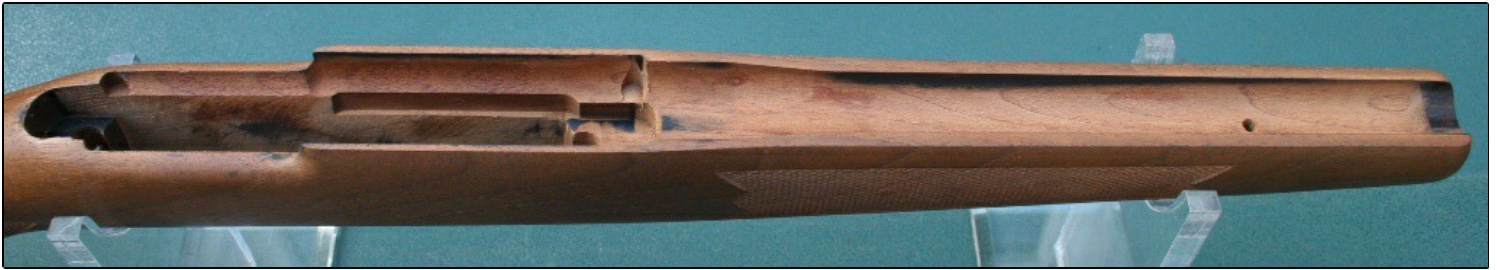
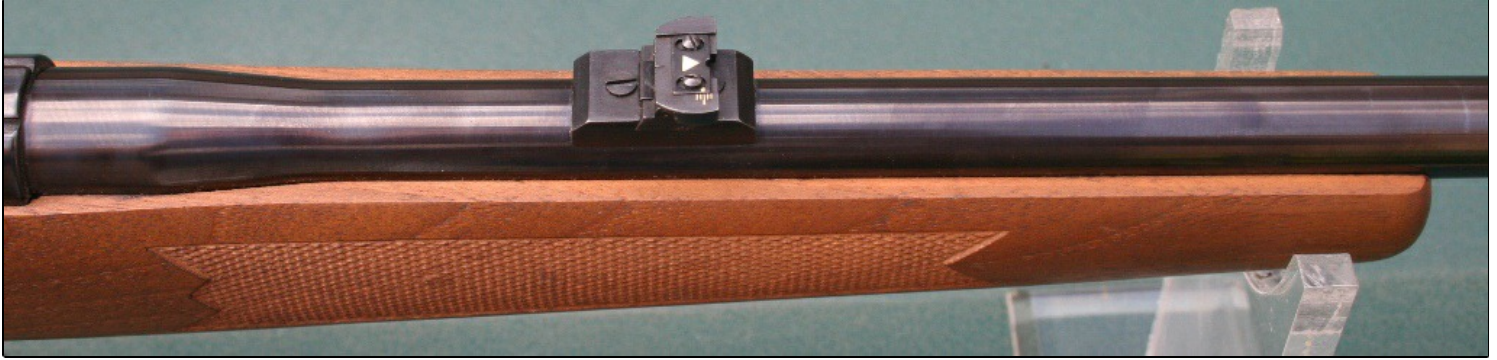
I have since found out that the ironights fitted to this rifle are not original, the original sights were described as stampings and were similar to those found on early SAKO's. I must say I prefer these sights as they appear to be of better quality and may have been fitted by the Gunsmith who threaded the muzzle.

The barrel seats tightly in the stock and has various bearing points as shown in the picture on the following page. It could be bedded but I am unsure if there is much mileage in terms of accuracy that can be achieved by this process.

The crown and the moderator thread ($\frac{1}{2}$ x 20 UNF) have been nicely cut and if the owner wishes the front a rearsight's can be both be removed with a view to fitting a scope. In my case I have decided to let the sights remain in situ for two reasons. To maintain the original profile of the rifle and to avoid loosing them.

To protect the muzzle thread I have fitted a thread protector.





The only thing that was missing was a tread protector which I can add at a later stage. I have no intention at the time of writing, to fitting a moderator as I plan to use this rifle for light gallery work only. I simply do not want to take it out into the field and damage it as these rifles are as rare as hens teeth in the UK especially one of this quality.

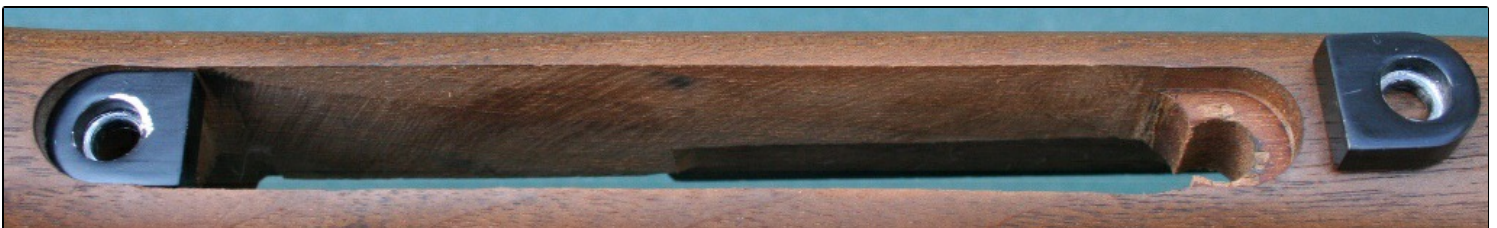
Woodwork

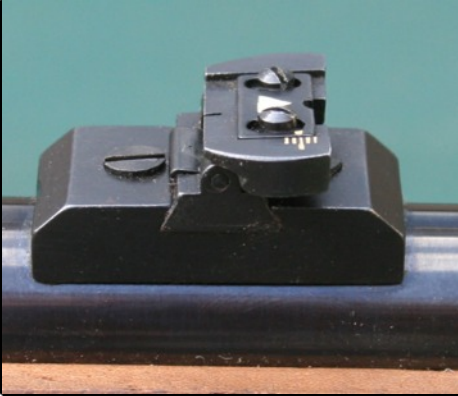
Woodwork was well fitted, had machine cut factory checkering and was from imported Turkish walnut . It was fitted with a plain plastic



butt plate with Musgraves logo on it. There was some minor transit marks but no major damage and no signs of weakness to the design. The stock was fitted with the old style sling swivels and I will as part of the restoration process replace this with Uncle Mikes QD swivels. Restoration of the stock was simplicity itself and consisted of removing the old finish, removing the transit marks, creating a suitable final surface and applying a matt oil.

As you can see from the picture above, the stock came up really well with the minimum of work, the factory checkering was done with some style and flair unlike some more expensive rifle designs I have seen. The stock is secured to the action by two screws and plates as shown below and is a simple yet very effective method, ideal for a rimfire rifle.





Front and Rear Sight

As I mentioned earlier the front and rearsight are not original. The rearsight is a flip up/down design similar to the Ruger 10/22 but is more substantive as depicted in the right hand picture. Elevation/depression is by loosening the screws and moving the plate up or down. Windage is by tapping the dovetail block left or right as required.

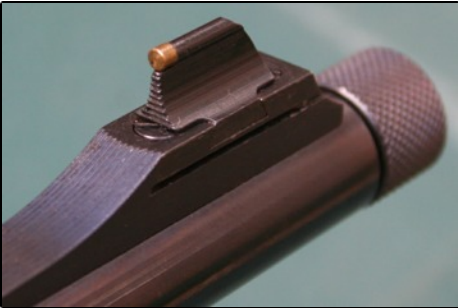
The foresight is a blade with a brass insert as shown, windage is again by tapping the dovetail left or right. Both sight bases can be removed if the sight obstructs any scope that may be fitted. Whilst the construction of these sights is good, in practice the use of these sights is extremely limited. Good for shooting a coke can at 25yds but not much else I'm afraid.

Markings

The rifles markings are minimal, which normally I would consider to be a good thing. Markings are located in four places, the Musgrave logo on the barrel, calibre and serial number on the right hand side of the chamber together with various proof marks located in the same area, etched numbers on the trigger mechanism, plus some stamping on the magazine.

The proof marks are a combination of original South African and British after the rifle was imported into the UK. The etched serial numbers on the underneath of the receiver are for manufacturing purposes only and are for matching the barrel, receiver and trigger mechanism during assembly.

A picture of the magazine stampings can be found in the magazine section.



Receiver

The barrel is pinned onto the receiver rather than screwed. The receiver has been machined for the cross bolt mechanism, sear, magazine and ejection port as can be seen in the picture below and appears substantive, well made with a good quality of workmanship. The machining work is well done with no burrs or machining marks. The receiver was made from steel bar stock and would have been cheap and easy to manufacture as the cross bolt mechanism does not require any locking cams as found on many bolt action rimfire rifles.

The holes you can see in the receiver are for retaining the trigger mechanism and the bolt. Out of sight in this picture the receiver has a standard 10mm or 3/8 rimfire dovetail for fitting of a scope.



Cross Bolt

I mentioned earlier the cross bolt mechanism is very similar to the Browning T-Bolt which first originated in 1964. I have heard comments the Browning took the design from Musgrave. This is inaccurate as you might guess from the manufacturing dates, but also as Johan Joubert, a gifted Musgrave gunsmith made a "copy" of one as a personal project in the mid 1970's.



Cross Bolt

The cross bolt mechanism is both fast and strong. It is basically a lever mechanism that when pushed forward, meets a stop, in this case the barrel face, the lever mechanism then pushes an integral locking cam through the receiver wall, the bolt, which locks the bolt solidly in place. Unless the bolt is fully locked the firing pin cannot be released, thereby achieving mechanical safety at the time of firing.

The pictures of the right show the bolt assembled in the rifle and the bolt disassembled. In the lower picture you can clearly see the cross bolt, the "U shaped" bolt lever mechanism, its axis pin, the firing pin and its spring.

Unique to this rifle is the ambidextrous feature by removing the bolt, removing the axis pin and reversing the cross bolt and bolt lever mechanism, re-insert the axis pin and the rifle is now suitable for a left handed shooter.

By pulling the bolt to the rear the lever mechanism moves slightly about its axis and disengages the firing pin but the bolt remains locked. Continue to pull and the cross bolt will unlock after it has moved 5mm, the bolt is then free to continue to the rear. When the bolt comes to a stop against the sear the bolt has travel led sufficiently to clear the magazine and allow a new round to be presented, ready for feeding into the chamber. The bolt is pushed forward, the firing pin is cocked against the sear and just prior to the bolt meeting the barrel face the cross bolt is allowed to move across and lock the bolt.

The bottom picture shows the bolt locked with the firing pin being held on the sear. You may notice a red rectangle in the picture, this is a visual indicator the rifle is cocked and loaded, at night running your finger across this spot will also clearly indicate a cocked rifle.

In my opinion a superb and clever design.

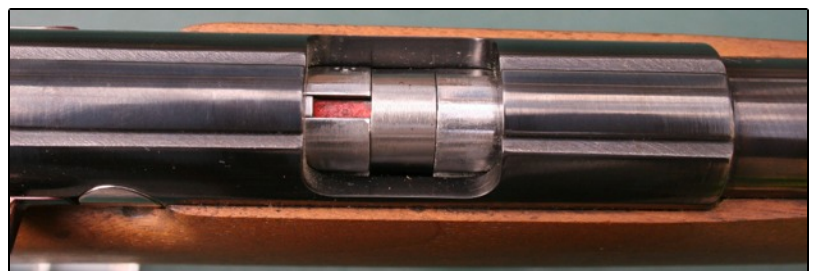
The bolt has two ejectors which makes for a more efficient design and as you can see from the pictures above that the bolt lever has been plated with a reddish brown or maroon finish. Cosmetically it looks good. Bolt removal is by depressing the trigger and pulling the bolt to the rear.

However I have one minor criticism, in comparison with my 1969 T-Bolt the bolt mechanism feels more sloppy. This is not because the rifle is more worn but ambidextrous design allows for more movement and if the rifle had excessive use I am guessing that axis pin would need replacing at some point. However from a sales point of view an ambidextrous rifle must have had its advantages.

Magazine

The magazine is of a standard design and accepts fifteen rounds - a very good capacity, however in practice loading fifteen rounds into the magazine makes it difficult to extract the first and second round from the feed lips and feed it into the chamber. So unfortunately twelve rounds is more practical and places less stress on the magazine and its spring.

The magazine as depicted on the left has two markings, an "M" which I assume is for Musgrave and a "K" which is for K-Mag, a South African company based in Newcastle. For anybody looking for spare magazines, it's a model Mauser .22 lr Mm410B/Ms420B, price 72 Euro and they are still available at this link: k-mag@newcastle-sa.com





Trigger Mechanism

The trigger mechanism is a one piece unit and again is a well designed and practical to use as you see from the pictures on the left.

The trigger, sear, magazine release, magazine housing, safety catch, ejector, feed ramp and various springs are all contained in one aluminium unit and can be accessed by removing a side plate. The whole unit is secured directly to the receiver by two screws which is a neat and tidy design.

The safety catch is housed in the trigger guard and can be applied or released by a simple push/pull action. The magazine release catch is shrouded but easily accessed in a recess directly behind the magazine and its housing. This location is ideal for the operator but very difficult for anything to accidentally release the magazine.



Incorporated in the housing is the ejector which is a rather reassuringly solid affair together with the feed ramp unlike some rimfire designs.



However there were two issues. The trigger is non-adjustable and at some point it had been polished and painted. The original unit was anodised. As you can see from the pictures the paint was easily scratched and simply wiped off if certain oils were applied.

I re-sprayed the housing with a more superior paint finish but if I had the time and expense it would be a good idea to get the aluminium anodised as this would provide a far more resilient and protective finish.

Scope & Rings

As these rifles were manufactured from 1988 onwards, I thought it would be nice to put a period scope on it and as a result purchased all steel Weaver K3 which was produced between 1958 and 1984. Whilst I cant pinpoint the actual year I do think that its a late 70's ,early 80's scope due to its condition and as a result the scope is probably a little older than the rifle.

The scope has a 1" steel tube, x3 magnification, fine wire cross hair reticle, good glass and is in excellent condition. When shooting 25 - 50yds the x3 is just fine.

Rings are 1" medium height steel Weaver's with a 3/8 base suitable for rimfire rifles. There's nothing really interesting to write about them other than to say they are of reasonable quality and are the only new item on the rifle.



Range Test

Accuracy at 25yds was nail tacking, even with the non adjustable trigger. That ragged hole as depicted below has three rounds through it. Ammunition was Eley Target which fed and extracted without fault. I shot from a bench and achieved a 7mm group centre to centre which for a sporting rifle was excellent.

When I get the opportunity I will range test at 65yds, unlike many rimfire's I have written on this rifle has not had it barrel shortened so it should be interesting to gauge its performance.

Summary

In September 2011 I was very fortunate to received an email from a reader in South Africa, he very kindly put me in contact with Craig Klintworth of Mkonto Manufacturing cc, South Africa who as a Ex Musgrave Gunsmith kindly provided a lot of technical information found in these pages.



I paid £400.00 for this rifle, second hand in the UK which in my opinion is a bit steep. Having said that these rifles are rare in the UK, in fact I've seen one before or since, so I guess the Dealer got the benefit of the rarity value. When new I reckoned this rifle was around the £350.00 mark, if I am in the right ball park this is a damn good rifle for that value. It is well made with no plastic in sight, the stock is well made and although in a plain walnut, has decent factory checking. The ambidextrous cross bolt is fast, strong, reliable and together with a high capacity magazine out performs most bolt action rifles in the same price bracket that I am aware off.

The maroon bolt handle is a nice touch and I was fortunate with this particular rifle to have a touch of nice grain in the butt. Functioning of the bolt was good but not quite a good as the Browning T-Bolt. Because of the bolt design I did decide to use a modern mil-spec grease on the mechanism rather than oil and I do feel that this added to the rifles performance and overall feel. My only minor criticism is the lack of any trigger adjustment but I am sure that could be off-set by tuning the sear and trigger. This is an excellent and unique .22 Rimfire rifle that I was very fortunate to obtain and it is a pleasure to shoot. This will be one rifle that will be in my collection for a long, long time.

Details of Craig Klintworth and his business is as below:

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If anybody reads this article and can shed more light on this rifle or can send any pictures of there own rifle it would be great to hear from you.

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