# Thames Valley Guns

# Mossberg MVP LC

**Introduction**

New guns rarely interest me but if you are a reader of my reports you may recall I was particularly interested in historical Mossberg rifles up until the company moved away from rifles and focused on shotguns back in the 1970's. This was because Mossberg rifles from that period were very innovative, whilst maintaining a price range that most people could meet. Several years ago the company refocused on rifle production but I felt their range of twenty two's in particular were fairly tacky and

therefore showed no further interest. However a couple years back Mossberg introduced their MVP range which appeared to provide a resurgence of that innovative flair that I had been so impressed me with their early rifles. I was looking for a AR15 alternative when Mossberg started advertising the MVP but as with all things in the UK shooting market it wasn't until 2015 before the MVP became available.

**Specification**

I was specifically searching for a scoped practical rifle aimed specifically at a 200yrd competition held twice a year at Bisley, UK. 223 was my calibre of choice with a detachable magazine that had capacity of no less than 10 rounds and a bipod.

**Research**

Before deciding on the MVP, my research up until that point had been focusing on the Howa .223 with a magazine kit. Howa's are good value for money and in my opinion are one of the best "off the shelve" rifles far exceeding the Remington 700. However the appearance of the MVP provided an alternative. Researching the Internet provided loads of information and the MVP in its various guises appeared generally well received. However two observations that appeared to standout from my research, which was loose or floppy .223 magazines in the more basic models and accuracy groupings appear to vary from roughly 1"- 2" or worse depending on the ammunition type being deployed.

**General**

I decided to purchase the .223 MVP-LC or light chassis, which in the UK is "top of the range" but more importantly I liked the overall format. The 5.56mm barrel is 16.5", fluted and fitted with a muzzle break. The action is fitted with MDT LSS chassis, Magpul AR15 pistol grip, telescopic butt, 10rd P Mag, Stoney point bipod and the LSS chassis prevents the loose magazine problem found in the more budget versions. Not bad, one might say.

**Receiver**

The receiver is manufactured from steel bar stock, turned to 30.5mm in diameter and is 120mm in length and is traditional in all respects. It is fitted with a picatinney rail which runs the full length of the receiver and will accommodate all picatinney and weaver style rings. On the left is the standard gas vent, should they be a case failure or breech explosion.

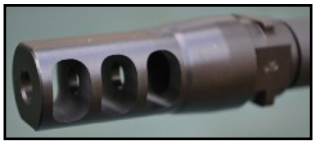
# Thames Valley Guns

# Mossberg MVP LC


The trigger is Mossberg's LBA (lightning bolt action) system, which is adjustable for 2-7lbs and is factory set at 2lbs. The trigger is typical of the current crop of American safety triggers which have a safety bar, which has to be depressed before the trigger can be rotated and the sear released. The trigger is fitted with a practical safety catch that when applied will lock the trigger/sear but still allow the bolt to be cycled to clear the chamber.

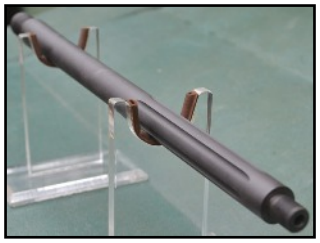
For a factory trigger, it is satisfactory, it has some minor creep but when set at 2lbs it is suitable for this type of rifle and does not impact on accuracy and the creep may dissipate as the trigger wears in. My last point is trivial and it is in regards to the "lightning strike" on the safety bar, one word, tacky.

**Barrel**



The medium to heavy tapered and fluted barrel is only 430mm long. The twist rate is 1 in 7 which is suitable for 69gr bullets and upwards, however as one of the primary features of this rifle is the use of M16 magazines this limits the bullet weight to 77 grains. The barrel is 25.5mm at the chamber and tapers to 19.10mm at the muzzle, where it is fitted with an effective muzzle break which adds a further three inches to the barrels overall length.

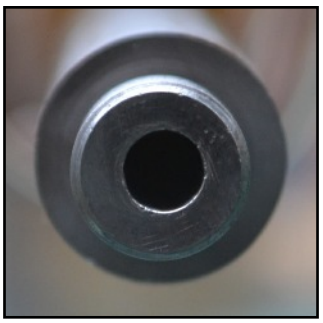
The barrel is traditionally marked, with UK proof marks, Mossbergs icon, address, model, calibre and twist rate. Stamping the barrel 5.56mm NATO might prove shortsighted by Mossberg as this is a military designation and therefore comes under the latest UN arms embargo and causes extra export problems.



Protective finish is non reflective or tactical grey and overall the manufacturing quality appears good, with sharp rifling, good quality finish and a good profile that is neither to heavy nor too light therefore contributing to a well balanced rifle. The barrel is fully floating and there is no provision for iron sights.

The barrel is secured to the receiver using what I call the "Savage" method. The barrel is threaded, has no shoulder but has a locking nut. As the barrel is threaded onto the receiver, it is head spaced onto the bolt face and the locking nut with an overly generous helping of thread lock adhesive, secures the barrel.

From an outward appearance the barrel provides all those extra features one finds on a more expensive rifle, however this is where I start to have a few serious issues with the rifle. The barrel is to short and in my opinion will restrict engagements to 400 yrds even though the 77grn bullet is good for 600 yrds. This is due to the short barrel generating excessive amounts of muzzle blast as unburnt powder is ejected and burnt outside the barrel and therefore limiting performance. I am sure the huge muzzle flash is disturbing to other shooters and whilst I have not had any angry comments to date I am sure they will not be long in coming. The barrel has four, four inch longitudinal flutes just behind the muzzle break and frankly they are insufficient to be any good at heat dispersion and in my opinion are purely cosmetic and add unnecessary cost.



Whilst I will discuss this in more detail later in these notes, my first trips to the range resulted in extremely disappointing accuracy with 2-3" groups or worse at 100yrds being the norm. Early investigation identified a major problem with the lead or commencement of rifle (C of R). Maximum cartridge overall length due to the magazine must be 2.26", yet after measuring the lead, the bullet theoretically had to sit at 2.41" which meant the bullet has to jump 0.15" (3.82mm) into the lands which didn't aid accuracy.

Further more after stripping of the muzzle break, (secured with gallons of adhesive) it was found the thread and the muzzle break were misaligned with the bore.

**Bolt**

Like the barrel, the bolt has a number of interesting and innovative features which one finds on more expensive rifles. It has an tactical bolt handle, fluted body and on the underneath of the bolt head, there is a spring loaded feed claw which the bolt utilizes

# Mossberg MVP LC

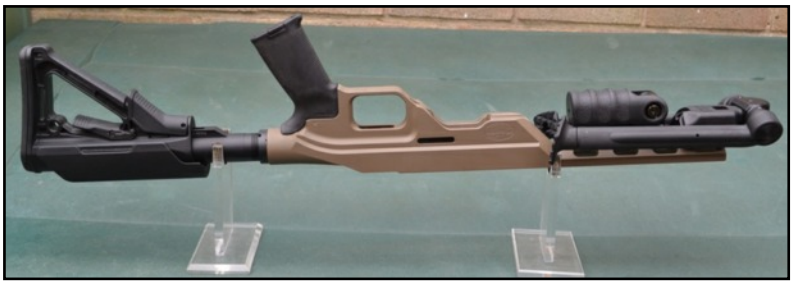
to feed effectively and reliably for the AR15/M16 Magazines. To date the claw has worked very well and has fed rounds out of the magazine without fault. However it appears flimsy and therefore I am unsure as to it longevity. I would question the effectiveness of the bolt fluting. Normally on a military style rifle it is to disperse debris, however the area of the bolt that is fluted is of a reduced diameter and therefore the bolt flops around during cycling, giving a impression of cheapness and therefore my feeling it is the fluting is more for cosmetic purposes than for the dispersion of foreign matter.

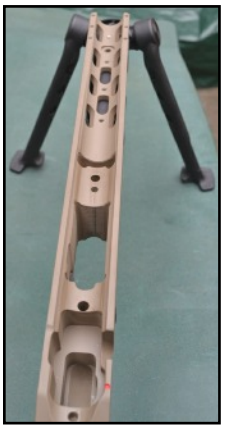
The bolt head is similar in some respect to the savage bolt head. The two lug bolt head has the extractor and ejector built into the bolt face and in turn the head is pinned to the bolt body. This method of securing the bolt head allows some movement between the bolt body and the bolt head which in my opinion allows the bolt head to align slightly with case adding a degree of improved accuracy.

The bolt handle, bolt body and cocking piece shroud have a slightly course appearance which gives me the impression they were manufactured as castings. Some people might turn their noses up at this but one most remember this is a budget rifle and although not cosmetically pleasing it does assist in keeping the price of rifle in a more modest bracket.

**Magazine**

The magazine is a standard Magpul 5.56mm PMAG 10 and I consider them to be good rugged and reliable magazines, far superior to their metal equivalents and it was a deciding factor in my decision to purchase this model. Unlike other MVP rifles such as the varmint that come with a metal magazine and are reputed to flop around, this magazine coupled with the MDT LSS chassis fits snugly, inserts and ejects smoothly. Whilst I have only shot some 200rds to date I have not had a single mis-feed using this system.





**Stock**

Whilst the stock is engraved with Mossbergs crest, logo and words "MVP LC" this is a MDT LSS or light sniper system chassis, which was another deciding factor in the rifles purchase. The LSS utilises Magpul AR15 components such as the pistol grip and telescopic butt and therefore I can upgrade at a later date should I wish. The stock also came with a Stoneypoint bipod which is similar to the Harris and secured to the stock using a standard QD stud.

The LSS stock is in my opinion a good design which complements the MVP well and should have improved the rifles overall performance. The stock permits a floating barrel and the receiver sits in a V block, secured by a front and rear screw. However like the barrel, assembly seems to be rushed and low quality and this was emphasised with the rear screw found loose upon receipt. Tightening the screw further, simply jammed the bolt and therefore the screw had to be removed and its overall length reduced. Not something you should need to do on a brand new gun.

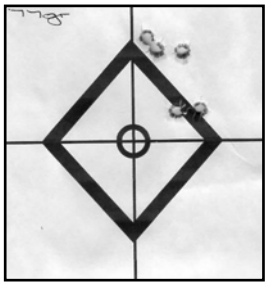
The Stoneypoint bipod is okay but at the end of the day, it is a low cost copy of the Harris and therefore I removed it, fitted a MDT picatinney rail and a tangodown bipod. I have never used these bipod design before, so it was a good opportunity to evaluate the design. My principle choice for the design was it method of security, if I have one criticism of the LSS stock it is that the forend is too small, there is little room for accessories and it is easy to burn you fingers on a hot barrel. Fitting the tangodown bipod actually moved the legs forwards of the forend thus providing more room and a more stable platform. Whilst there are some key metal components in the bipod's construction the vast majority of its build is impact resistant plastic. As of these notes I have not had a chance to test the bipod to any great degree but one issue that has become apparent is the need to use two hands to operate it. The legs unlock by depressing a plunger on the axis shaft, the plunger is stiff and often requires a second hand to assist with the operation. Extending the legs also requires two hands.

# Mossberg MVP LC

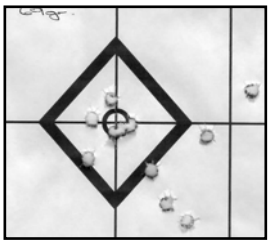
There are three height positions, depressing the plunger means you tend to jump from minimum to maximum and getting to the middle height is somewhat tricky. The adjustable butt unit is a magpul CTR model and like many magpul products it is a well thought out and designed product. Lastly I added a folding front pistol grip, this was not because I had any great urge to used such a product but because when folded it gave me an excellent front rest and kept my fingers well clear of a hot barrel. The pistol grip should I need it was simply an added bonus.

**First Range Test**

I was very excited by this rifle and its impending range test and at this point I had no idea of the quality problems I was about to experience with the barrel and so went ahead with the test.

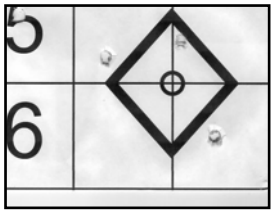


Bearing in mind the barrels 1 in 7 twist and therefore the need for heavier bullets I went to the range armed with 62gr NATO spec, 69 and 77gr ammo. The 77gr bullet were the heaviest I could use and still utilise the magazine but for interest I also took along a boxful of the old US spec 55gr rounds just to see how they perform.

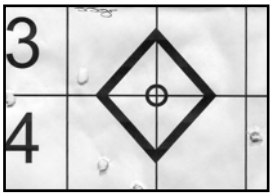


Shooting from the bench, fully supported, my first accuracy test involved 50rds of Sierra 77gr at 100yrds. Weather was good and had minimal impact on the test. The top image represents my best group at 30mm. On average groups were 60mm or more and there was no consistency with rounds generally going all over the place.

My next attempt was using sierra 69gr bullets, I know these bullets can obtain excellent accuracy with three leaf clovers not being uncommon but on this morning I was unable to better this 70mm group.

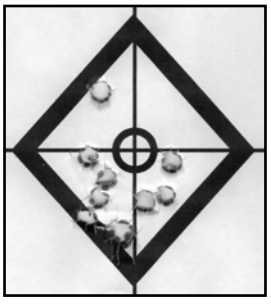


My next group was using NATO spec 62gr Radway Green and the group opened up to 102mm and by this stage I was nearly in tears, so to cheer myself up I thought I'd try the last ammunition group which was Israeli 55gr Mil spec ammo. If I thought it couldn't get any worse, I was sadly wrong. Best group with these rounds turned out to be 125mm.



Whilst I do not consider myself an excellent shot, I do consider myself reasonable and that is backed up by doing well in a number of competitions over the years. However this was not a shooting ability problem but a technical problem that I intended to get to the bottom of.

You might at this stage say "well enough is enough" and return the rifle under warranty and to be fair to the suppliers, York Guns Ltd did offer to take the rifle back. However in my stubborn opinion, returning the rifle would not solve the problem and might even finish up being some other poor persons problem. No, personally I felt this was a real quality problem that I had to get to the bottom off. There was also a little part of me that said I could make this a better rifle.



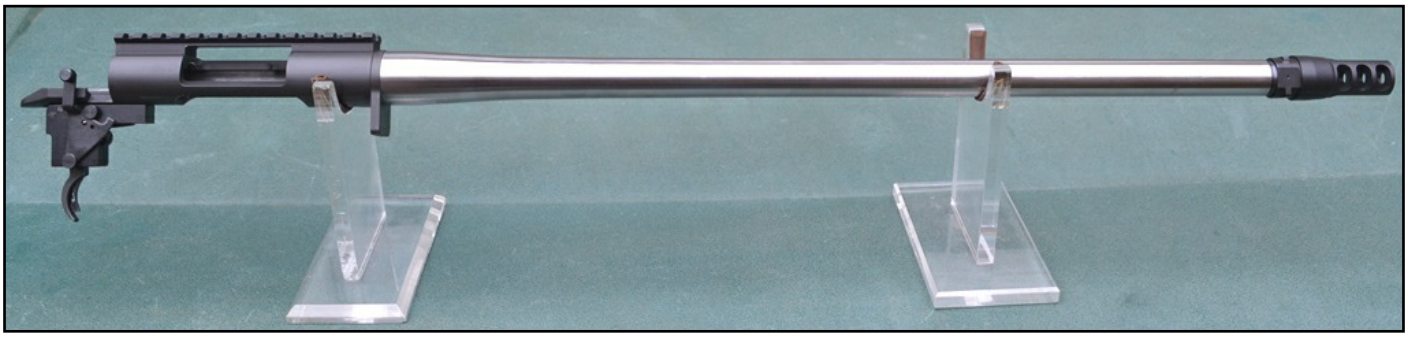
The first issue was to measure the lead and as described in the barrel section, the bullet had to jump nearly 4mm into the rifling. To confirm this problem I loaded up 20rds of Sierra 77gr bullets and sat the bullets 0.025" of the lands. Another trip back to the range and loading each round singularly showed a vast improvement with this group at 25mm as shown in the bottom image. Whilst I may have found a major contributing factor to the rifles poor accuracy, group consistency was still erratic, so I felt there was another issue somewhere else that required identifying.

Repairing this problem highlighted two options, refit and rechamber the Mossberg barrel or fit another barrel. The cheapest option was to refit the Mossberg barrel but I felt there were still problems there waiting to be found and therefore I decided to go for a replacement barrel. Also refitting the mossberg barrel would require shortening it even further and therefore increase the muzzle blast. I approached Neil at Mckillop Rifles who does excellent barrel work and fortunately he came up with a perfect solution in the form of new but surplus barrel that had come off another job, which helped kept the price down considerably.

# Mossberg MVP LC

**New Barrel**

The first problem was getting the old barrel off as there was so much adhesive. It had leaked out of the receiver and through the front mounting screw and in the end Neil decided to machine the barrel locking nut off altogether so we could remove the barrel. The next task was to remove the muzzle break as we needed it for the replacement barrel. However this had also been immersed adhesive but after applying enough heat we managed to remove it. Having accessed the muzzle break threads it became apparent that the threads were not square to the bore and this probably explained why I was getting erratic groups as the bullet was passing through the break, off-centre or worse skimming the muzzle break.

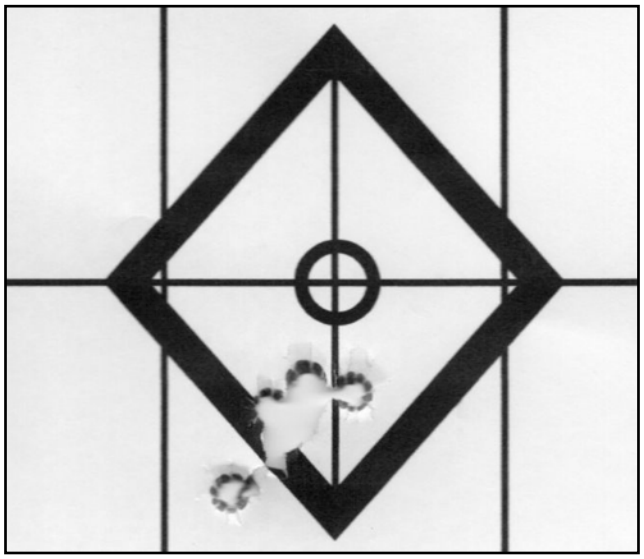


The new barrel was stainless steel, slightly larger in external dimensions, was four inches longer and had a 1 in 9 twist. This was good news as it would reduce the excess muzzle flash and velocity would benefit from the extra powder burn. As the old barrel locking nut had been destroyed, Neil planned to fit the new barrel using traditional tried and tested methods and utilise a dedicated locking shoulder which appealed to me no end as I prefer traditional, high quality engineering. To minimise cost still further, the barrel would not be fluted as I felt there would be little to be gained by the extra cost.

**Rebuilt Rifle & 2nd Range Test**

Once rebuilt, the rifle had to go for re-proof but upon return the rifle had a definite air of quality that it lacked previously. Although Neil had offered a Duracoat finish, I declined as I thought the stainless would tone down the military look a little bit and complement the stocks dark earth and the black of the Magpul components. With the new 20" barrel the rifle balance had been altered but until I fitted a scope and loaded up the magazine I didn't know if it was going to be a problem. For the initial range test I temporary fitted an 16x42 Nikko Stirling scope but ultimately I was going to fit a new Lucid 4x16x44 scope which had yet to arrive and which I was keen to test, however the Stirling would be fine for the initial 100yrd range test and the follow up load development.

My initial accuracy test was to zero the rifle and identify if the rifles grouping capacity was reasonable, like all factory rifles they must achieve a reasonable standard of accuracy with most types of factory ammunition. For this purpose I use some a standard mid range reload that consisted of basic brass cases, such as R.P loaded with 69gr Sierra HPBT bullets and 23.5gr of Viht N140. Shooting from a rest, I zeroed the rifle and attempted my best group using the R.P brass and managed various 25 - 30mm groups which was outstanding compared with the original Mossberg barrel.



My next task was to reduce the group even further by using Lapua brass, the 69gr sierra bullets and carrying out some load development. Load development consisted of 22-25grns of N140 with the above mentioned brass and bullets. Best group was 20mm with 22 grns of N140 as shown in the right hand image.

# Thames Valley Guns

# Mossberg MVP LC

**Summary**
In the final configuration the rifle was fitted with a new lucid 4-16x44 30mm scope, weaver tactical rings and a magpul butt extension for the CTR stock.

The MVP's greatest competitor in the UK is the AR15 straight pulls. Purchasing this rifle "off the shelve" and assuming the rifle did not have all the qualities problems I have experienced, the MVP LP probably can compete in the accuracy stakes against a un-customised AR, however against a customised AR - no chance.

Not long after completing the 2nd range test the Lucid scope arrived. First impressions of the Lucid scope appeared good, although at this point I hadn't had much opportunity to put it through its paces. Operation of its windage and elevation drums were smooth with positive detent. The little rubber inserts on the drums, focus ring and magnification ring definitely give added grip and are a nice touch but I would have reservations about wear & tear over a number of years. Lens quality appear good with no obvious distortion towards the edges at all magnifications and the etched reticule is practical and sufficiently fine not to shroud the target. My only minor criticism of the scope at this point, is that there is no range indications on the focus drum, which leaves it a bit "hit & miss" However first impressions, this is a good scope and very good value for money.

As to my rifle, I have searched the Internet and no body seems to have experienced my problems, although I find this hard to believe. In the UK we simply cannot send a defective rifle back to the manufacturers due to all the shipping restrictions, so the importer would have probably been lumbered with the rifle had I forced the warranty exchange.

I have heard rumours that Mossberg cant get the MVP rifles out the door quick enough, good for them, however my rifle is indication that they are putting their profits before quality as this rifles build quality was disgusting and I'm very disappointed with Mossberg and will never purchase one of their rifles again. Retail prices in the UK for this model are £1150.00, add time and effort identifying the specific causes of this rifles poor accuracy runs into hundreds, add the re-barrelling work and I would get little change out of £2000.00.

Putting my anger towards Mossberg's very poor quality control to one side, the customised Mossberg with the new new barrel is proving a capable rifle, very suitable for the UK shooting environment where semi automatics are banned and capable of matching the customised AR platforms and therefore I do plan to enter the rifle into future competitions. To date, the rifle it is proving to be very reliable with no mis-feeds, handling is good and the forend mounted picatinney rail is essential to avoid burnt pinkies and adds to the rifles handling. However balancing wise the rifle is now muzzle heavy which is of course my fault, but this could be

off-set with a replacement heavy butt configuration.

Ultimately I am please with the final result and now have a somewhat unique rifle, albeit an expensive and somewhat convoluted approach in getting there.

If I was to build another rifle to this configuration, would I purchase another Mossberg? with hindsight a definite NO. Now I have learnt my lesson if I was to build another file I would have purchased the MDT chassis separately and install a Tikka action and barrel.

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