

MRCA New Shooters' Handbook

1. Introduction.

Welcome

Welcome to Service Rifle Shooting, certainly one of the most exciting of the shooting disciplines available to Australian shooters today. When you join the Military Rifle Clubs Association (MRCA), you shoot with a collection of people from all backgrounds who share the love of a great sport, one that we all wish to see flourish and expand. So, if you know responsible people who want to try shooting as an organised and safe sport, get them involved and ensure the future of this fun pastime for our children and their children.

Organisational Structure

The MRCA is the peak body of three separate Service rifle clubs:

1. Aircraft Industries Rifle Club (formerly QANTAS R.C.)
2. Royal Australian Engineers (CMF) Rifle Club (or RAE),and
3. United Services Institute Rifle Club (USI).

Each club has its own committee and constitution and is represented on the MRCA Council which supports the clubs by organising the calendar of events, running accounts for the purpose of maintenance and target provision, and providing representation on the peak body for shooting sports in NSW, the NSW Rifle Association.

Types Of Shooting Conducted and Grading

The types of shoot conducted by the MRCA fall into the following categories. Most days competitions will be made up of combinations of these types of shoots:

- Application – slow fire shoot, generally on a four foot square target scored with concentric rings of values V, 5, 4, 3, 2 and miss. Most shoots consist of two sighting shots which may or may not be kept to count to the final score and eight or ten counting shots, each of which are marked separately. During this type of shoot you may not adjust for windage but you may for elevation. There is a limit of 45 seconds allowed for each shot.
- Service Shooting (or snap, rapid and deliberate fire) – rapid shooting can occur on a four foot target or other smaller targets as a particular competition rule dictates; a rapid fire match occurs when the target is continually exposed for a period of typically 40 to 60 seconds, within which time the shooter must attempt to fire a maximum of 8 or ten rounds at the target. Scoring generally is the same as for application if on the four foot target and, on other smaller targets, a hit may simply register a designated point value eg 5 points.
Snap shooting occurs when a smaller target is held up on edge and exposed typically for periods of three to eight seconds depending on

whether one or two shots are to be fired for up to ten individual exposures. Hits generally register a designated point value.

Deliberate shoots are, in effect, a slowed down form of rapid fire shoot where you may be given, say two minutes to fire ten shots at a target generally used in application shoots.

- Walkdowns – these consist of a combination of different target types being exposed for different periods with shooters advancing down the range from, say, 300 metres to, say, 50 metres and shooting various numbers of rounds per exposure.
- Other shoots - consist of specialty one offs like rim-fire shoots, scope matches and sniper teams.
- Grading is based on scores achieved on designated grading matches which consist of mostly service and application type shoots. The grades within the MRCA are, in ascending order:
 - D Grade <60
 - C Grade 60 +
 - B Grade 70 +
 - A Grade 80 +
 - Master Grade 90 +

Official gradings are assigned when shooters average their three best scores from grade matches on each range over a twelve-month period and achieve the above averages.

2. Safety

Safety is of paramount concern to every person who handles a firearm and is taken very seriously in the MRCA. We are using high powered military calibres; consequently, breaches of safety have potentially fatal consequences and are very serious matters. Offenders, depending on the severity of the breach, will suffer disciplinary consequences ranging from warnings through reprimands and suspension up to expulsion. Read these rules and become familiar with them. If you do not understand any of them, ask a senior shooter in your club or the range officer.

- Carriage of Firearms – all firearms carried at any shoot conducted by the MRCA must, unless otherwise directed by the range officer (eg during the course of a walk-down shoot) be carried unloaded with the bolt removed or, in the case of eg lever action rim-fires, with the action open and a plug or cable through the action opening to clearly indicate its inability to be fired. Rifles may only have bolts inserted when the range is open and the shooter is on the firing point. At all times, when the shooter is on the firing point (or mound) with the bolt inserted, the rifle must be pointed downrange.
- Orders on the firing point – The following orders occur in this sequence during service rifle matches and their meanings appear alongside:
 - “Shooters on the mound, this is a round (rapid/single tap/double tap snap) practice. **Load ... rounds.**” Those shooters with a pre loaded detachable magazine may insert the magazine into the rifle or those with inbuilt magazines may load the required number or maximum it

will hold if that is less than the practice requires. The bolt remains up and to the rear with rounds un-chambered. During this period there may be a trial exposure of the target in which time you may take aim but not close the bolt.

- **“Action”** – the bolt is closed and safety applied.
- **“Instant”** – the safety is released. In practice, these two commands are generally combined as the one command.
- **“Watch and shoot!”** followed by a second command of **“Watch and shoot.”** The first command alerts shooters to watch for the appearance of targets and the second is transmitted to the butts by radio to alert the butts party to be ready to expose the targets. On appearance of the targets, shooters on the mound may commence firing until the targets disappear or they are ordered to **“cease firing”** by the range officer. The order to cease firing would only generally be given in the event of a safety breach either on the mound or if unauthorised people stray into the target area during a shoot.

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- Clearance of firearms – on completion of a stage of service shooting, the range officer will instruct the two safety officers to clear all shooters’ rifles. At this time, shooters remove bolts and any remaining ammunition from the magazine and present the rifle, pointed downrange, so that the safety officers can see there is no ammunition or other obstructions in the breach or barrel of the rifle. When all rifles have been cleared twice, the range officer will instruct shooters to leave the firing point and shooters will secure their firearms. At the completion of an application stage, however, the check scorer clears the individual shooter’s rifle for whom he or she is scoring and the shooter can then retire from the firing point.

- Misfires or hangfires – it is possible at any stage to experience a misfire or hangfire, especially when shooting old military rifles with old military ammunition. A misfire occurs when the primer, on the base of the case, is struck too lightly by the striker to cause ignition or when the primer or propellant is faulty due to poor manufacture or storage. You just hear a click. A hangfire occurs when there is a discernible time gap between fall of striker and ignition. This often happens with old .303 ammunition of Pakistani or Indian manufacture but can happen any time.

When you experience a misfire you must not open the bolt for at least 30 seconds. You may, if your rifle has an external cocking piece, re-cock the rifle and try again, at which time the round may or may not fire. If the round has not fired, wait for the mandatory 30 seconds, then carefully remove the offending cartridge and ask the range officer for advice as to disposal.

- Headspace – Headspace is the amount of space that exists around different parts of a chambered round in a rifle (depending on the type of cartridge) and it is critical to the safe and accurate use of any firearm. In the case of when you purchase any rifle but most particularly old

military rifles, it is wise to get its headspacing checked by a competent gunsmith before you fire it. It is sometimes a fairly cheap and simple problem to fix, depending on the rifle.

3. Types of Firearms Permitted for Use

Basically any smokeless calibre rifle of 8 mm or less (that conforms to current laws) can be used at Malabar in MRCA shoots but, in order to be graded according to the rules and have a relatively level playing field, rifles fall into the following competition categories:

- Service Rifle – any iron sighted rifle on a military receiver/bolt action in most military calibres under 8 mm. Typically these include:
 - .303 british
 - 30.06 Springfield
 - 7.62 NATO
 - 5.56 x 45 NATO
 - 7.62 x 39mm Russian
 - 7.62 x 54 mm Russian
 - 6.5 x 55 mm Swedish
 - 7.92 mm Mauser (Commonly known as 8 mm Mauser) etcThese rifles can include conversions from original military calibres to other military calibres eg .303 to 7.62 x 39 mm.

- Non-Service Rifle – any commercially available bolt action rifle that conforms to Standard Shooting Rules

4. Ranges and Positions

The following shooting positions are to be adopted at the firing point at these corresponding ranges unless the type of shoot or the range officer directs otherwise. People of extreme age or disability can be accommodated with relaxation of these rules when the range officer is consulted.

- 50 and 100 metres standing
- 200 metres sitting or kneeling
- 300 and 400 metres prone unsupported or supported depending on shoot

5. Ammunition

Shooters generally supply their own ammunition but some clubs may sell cheap ammunition to their own members. If you are shooting a caliber where factory ammunition is expensive eg 6.5 mm Swedish, you may wish to reload.

If you wish to start reloading, do not immediately take the advice of hot shots who advise shooting maximum or above loads published in handbooks. Take some time and work up loads from 10% to 15% below maximum, particularly if you are shooting old military rifles. Use the slowest rated propellant that gives the optimum velocity recommended for your caliber/projectile choice. You will find a suitable, milder load that gives you better barrel life, less recoil

and better scores. Taipan projectiles are inexpensive, accurate and Australian made as are ADI powders. You can also buy excellent, inexpensive, reloadable match ammo in .223 and .308 from the NSWRA Shop.

If you choose to shoot Sellier and Bellot .303 factory ammo and then reload, be advised that it has quite brittle brass and three reloads are all you can reasonably expect before the likelihood of case head separations ie where the brass case splits in two; a potentially dangerous situation.

6. Butts Duty

In order to keep costs down, we take turns to mark our own targets at our shoots. This is not an onerous task and provides the opportunity to get to know members from other clubs and exchange banter, jokes, lies etc.

Exemptions from butts duty are granted to those shooters who:

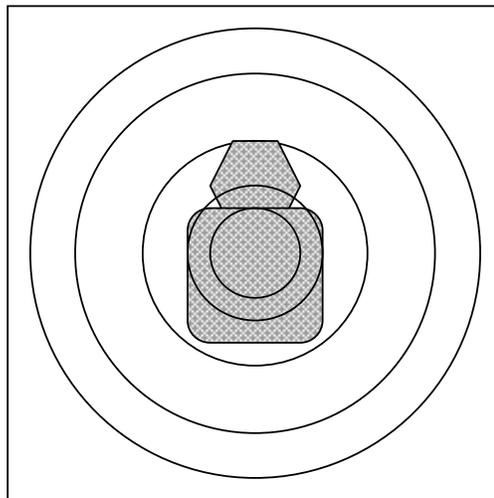
- have a disability which does not allow them to mark or
- are of such advanced age that mobility is a problem.

We would ask that you concentrate on your duty to mark as quickly and effectively as you would like to have it done for you. Then shoots will run more smoothly and efficiently. Time adds up.

When the Range Officer calls for volunteers for butts duty, please willingly answer the call.

7. Marking Application Targets

The four foot square target has concentric scoring rings with a crouching figure superimposed on its surface.



When a shot goes through your target, pull it down and place a spotting disc through the hole. If the shot was a V or 5 place it white side up. For all other values place it red side up.

Then put your target up and place the value indicator (ten inch metal disc on a pole) over the spotting disc for a few seconds, then indicate the value of the shot by holding the disc over the area of the target that indicates the value of the shot eg 5 is indicated by holding the disc on the bottom right corner of the target. If a shot cuts the dividing line between two values, you award the higher value.

Your fellow markers in the butts will observe and assist you in marking effectively.

8. Shooting Techniques

The Natural Point of Aim (NPA) – this is the place the shooter will direct his shots if he or she relaxes in their chosen position. You will get better scores if your NPA(or relaxed body position) and the line drawn between the rifle and target coincide. If your NPA is aligned to the left of the target, and you happen to pull shots, guess where they will end up – to the left of the target.

The way to check if your NPA is aligned with the target; line up as if you were going to fire a shot, then close your eyes and relax for 5 seconds. Open your eyes and you will see where you naturally point. Adjust your body position accordingly and retry until you think you could hit the target with your eyes shut.

Positions

There are 5 positions which are used in MRCA competition. They are, in ascending order of steadiness (see diagrams):

- Standing,
- Kneeling,
- Sitting,
- Prone unsupported and
- Prone supported.

Without going into a complex explanation of how to achieve the positions in the diagrams, it is sufficient to say you need to get a coach to instruct you to get into them and then to find the position in which you can just hang relaxed and comfortable without having to hold the forearm of the rifle up. As much as possible, the combination of the sling and supporting arm should make a rest for the rifle and it should not be gripped nor should you exert any conscious upward muscular effort on the rifle to align with the target.

The trigger hand should rest naturally around the small of the butt (pistol grip) and the thumb can rest alongside or curl over. There should be a slight pressure from the trigger hand to make the butt rest lightly but firmly on the cheek. This helps to stabilize and balance the whole position.

The Sling

To shoot effectively from all but the prone supported position it is best to be able to make use of the sling. Slings can be of three types:

- Two point or traditional sling which is useful for carrying the rifle slung over the shoulder and of some use, with practice, to steady the rifle. For SMLE specialty shoots, this is generally the only sling allowed.
- Two point target rig which has a swivel just forward of the magazine and one at the forward barrel band.- useful for prone shooting but fairly complex to use seated and standing – not used much in service shooting
- The single point sling – is just a loop coming off the forward barrel band swivel. This is the easiest to use in all positions due to it not coming across the upper body to the armpit and constricting mobility.

9. The Sight Picture

The two main types of sight in use in Service Shooting are the aperture and leaf sights. In some SMLE matches, the original leaf sights are mandatory because, to shoot with an aperture sight gives an unfair advantage. The reasons are that the aperture is easier to use, particularly if you have less than perfect eyesight and the distance between front and rear sight (the sighting radius) is greater, thereby allowing more precise aiming. Although this makes little difference at short ranges, when you move back to 300 metres the difference can win a match.

The idea of military shooting is to be able to hit a man sized target anywhere up to 300 metres when aiming at the chest. At 100 to 200 metres you go close to where you aimed and at 300 metres shots fall but still hit in the body area. The Baltic school of thought was that a 300 metre zero would allow you to aim at the belt buckle at any range up to 300 metres and get a body hit. Who can see a belt buckle at over 100 metres???

If you zero your rifle at 200 metres, then your bullet should drop anywhere between 8 and 15 inches at 300 metres. In this case you could hold over at 300 metres. You could also zero at 300 metres and hold under at the other ranges but this is imprecise. It is best if you practise shoot at the three ranges so you can alter your sights by a pre known amount at each range. In effect you can hold point of aim at 100 and 200 metres but it is practical to use a 6 o'clock hold at 300 metres because you just obscure too much target with the foresight blade when using point of aim.

So, how does point of aim and 6 o'clock hold look? See the diagrams.

10. Trigger Release

All military rifles are equipped with a two stage trigger ie a trigger with a light and long travel of first pressure followed by a heavier second pressure with no discernible movement (if you're lucky).

While breathing and acquiring the target you should take up the first pressure and when steady on the target, you should suspend breathing for a second or two and firmly squeeze the second pressure to fire the rifle. The trigger should not be jerked even when involved in rapid fire shooting as this will result in misses.

If you think you are the only shooter with terrible wobbles then think again. I know one master grader who wobbles horribly – he just knows when to let go. Use down time to take up the first stage and when you pass/wobble or get blown by the target, squeeze off your shot. Your trigger control will improve only with practice.

11. Target Acquisition

Assuming your natural point of aim now coincides with your designated target, how do we make sure that we stay on our target. Continual reference to the numbers above the targets is the only way you will not shoot on someone else's target and even the best master graders sometimes let one go to their neighbour's target.

It is enough to say here that you need to have a sight picture that includes the numbers above your target, particularly in service shoots. If you have that much space around your target you may think that this gives room for inaccuracy. That is not the case because the eye naturally finds the center of the rear aperture anyway and any errors are minimal.

So select a large aperture instead of choosing to get your eye really close to it because you need to see what's going on around you during service type shoots. You may also choose to keep your non aiming eye open between shots to maintain that awareness needed.

12. Gear Needed

In order to be self contained in rifle shooting with the MRCA , you will need to invest in the following as a minimum:

- One serviceable, accurate bolt action military rifle. A good standard is a No 4 action in .303, 7.62 NATO, .223 or 7.62 x 39mm. People are selling them for reasonable prices all the time in the MRCA
- A small pair of cheap, compact low power binoculars so you can see the spotters at 300 metres
- A pair of ear muffs, shooting glasses, hat and sunscreen.
- A jacket to provide some padding and friction while shooting. Many use variations on the Australian Army "Coat Mans Field Olive Green" and others have purpose made jackets. Whatever

you choose, padding must not exceed 10 mm compressed at any point.

- A screwdriver that fits your rear sight attachments and bedding screws – they work loose.
- A lockable box for storage of your ammo and bolt at the range
- Cleaning gear: a cleaning rod with brass jag, flannelette, Sweets solvent, Sweets oil and a box to put your bits in.
- A car to put it in.

Apart from the car, you should be able to get away with well under a grand to start.

13. Little Tricks that Help

Bitter experience teaches us all lessons that we wish we could have known beforehand, so that we could improve without pain. Well we are giving you a few little tips that will help you get better, quicker.

- Roughen your buttplate by glueing on a piece of emery paper This will prevent washouts due to slippage.
- There are a few walkdown shoots throughout the year where you can adopt any position to fire on the appearance of the target – do not go prone because you do not have the time. Kneeling works really well.
- Rest your eyes between shots to avoid fatigue. Look at grass in the middle distance. Green refreshes the eyes.
- Do not peer through binoculars waiting for marked targets to come up. When you see them come up with the naked eye, look through the binos with your non aiming eye to see your spotters.
- You can often see the posts holding up side on snap targets between shots. Line up on these with your first pressure already taken up and when it appears, whammo! You then have all the time in the world to reload, rest and set up for the next exposure.
- Do not detach your magazine on the mound before a service shoot. If you drop it in sand, you might as well just walk away because you won't be able to feed rounds and, if you could, would you really want to do that to your rifle?
- Dry practice at home with a drill round or previously fired case so you can develop the secret of service shooting, "smooth repeatability". Ensure that you point the rifle in a safe direction at all times and ensure that it is unloaded before practice.
- Come to the range early some Saturdays and do a morning practice with other shooters; you will know your rifle is zeroed for the afternoon shoot and relax away from competition. This is when you get to know your rifle.
- In scoped matches, do not alter your sight settings – aim off. Many scope sights adjustments are notoriously inconsistent but once zeroed they will hold it.
- Listen to others' advice but look at how they shoot. Sometimes they may be throwing you off the trail because you may seem like a threat or else they just may not have a clue. Be sure to observe the good shots and read widely about marksmanship and technique so you have a firm theoretical base to advance your shooting. Remember

though, once you have gained that information, share it with the new shooters who come after you. You're there to help others, make friends and socialise as well as win medals and your attitudes will be passed on by them. Generosity of spirit in sport is more important than all the possibles you could achieve through mean spiritedness.

- Don't forget to have fun.

NOTES