Training for High Muzzle Energy (HME) zeroing on MOD Ranges

All civilian shooters using High Muzzle Energy firearms or ammunition (HME) on any MOD Gallery ranges or field firing ranges with a safety back stop will have to be trained in the new zeroing procedure before being allowed to shoot.

Following an incident at Altcar ranges, the MOD safety committee were alerted to the fact that if a round struck the range floor in front of the mantlet there was a potential risk that the resulting ricochet would miss the back stop and leave the range danger area.

Therefore the military have imposed a muzzle energy limit of 4500 joules on MOD ranges for civilians, unless a safe training system is introduced and a new zeroing procedure implemented.

The new requirements will affect shooters of Match rifles; F class rifles i.e. 300 win mag and 308 with heavy bullets, and some sporting rifles

Implementation of the zeroing procedure will allow a return to the previous 7000 joules for military ranges. (Subject to individual range rules)

All persons shooting HME must be authorized in writing to fire the specific type of firearm by the chairman of the club. The chairman will only authorise people who have been trained by the club and can prove they are safe and competent in the zeroing procedure.

A special zeroing target must be used so that the firer can demonstrate quickly and easily that his sights are zeroed, the zeroing must take place on each day that shooting takes place unless shooting on two consecutive days, and the shooter is confident that the sights have not been altered or knocked between shoots.

The RCO must be specially trained to carry out the zeroing practice.

Zeroing is to be conducted on the NRA/MOD approved target only.

Zeroing will be at 200 Yards only (excluding Bisley who have a special 1/8 target for use on the No Danger Area (NDA) Zeroing Range

The firer must zero with sights set at 600 yards, even though he is shooting at 200 yards. This will ensure that that all shots will strike near the centre of the target and be contained by the back stop.

The reason for zeroing at 200yards and not 100yards is that the angle of fire at 100yards is very steep from the shooter to the target. When the bullet passes through the centre of the target it strikes the back stop near the top of the sand bank. If a high energy round was fired high it might clear the back stop and leave the range danger area

The reason for zeroing with sight set at 600yards is that most high power rifles telescopic sights will not wind down far enough at 200yards

A spotter who may be the butt marker must observe the fall of shot until the initial strike on the target screen is identified.

If a strike off the target screen has been clearly identified the firer must adjust and re-fire

If no strike is identified the firer must cease fire and may not continue until the rifle has been re collimated or bore sighted to the RCO's satisfaction.

All sighting shots should be shown with the normal spotting disk and previous shots patched out in the normal way. The firer may adjust his sights to bring his shots into the centre of the grouping rectangle.

When a firer is satisfied with his sighting shots he must instruct the marker that he intends to complete his group. His final sighting shot may be his first grouping shot. The marker must not indicate the remaining shots.

All 5 rounds must be within the rectangle before the firer may move to a further distance.

The firer must zero with every batch of ammunition he intends to use.

If two people share a rifle both shooters must zero.

Zeroing targets must be signed by RCO HME. The club must retain targets for one year. The fire must enter the make and type of ammunition used, home loaders must enter the bullet weight, powder type and powder weight, the serial number of the firearm must also be entered on the target.

The shooter must have access to a collimator and chronograph.

It is assumed that the shooter is using telescopic sights and that he knows how to set them and can use a collimator and chronograph.

What you the shooter will need to know.

Shooters of HME rifles will need to show to the club that they know how to set their sights use a collimator and chronograph. You will need to know how many clicks per

minute of angle your scope uses. European telescopic sights use different measurements to British or American scopes.

You must be able to place 5 rounds into the zeroing rectangle at 200 yards.

You will need to enter the firearm serial number and the ammunition you are using onto the zeroing target.

You will need to know the Muzzle Velocity MV of all the ammunition you use plus the powder and bullet weight in home loaded ammunition.

All shooters will need to prove if challenged, the MV of commercial ammunition, Home loaders must be able to supply MV, bullet weight, powder type and powder weight of ammunition you are using, if you cannot you will have to zero before you can shoot.

The MOD or Range Warden can demand to inspect your ammunition and also require you to fire 3 rounds over a chronograph to check it is within the range limit.

Home loaders should have the potential MV of loads supplied in the loading manual, commercial ammunition manufacturers normally have it on the box or on their website.

Ballistics programs are readily available free of charge on the web. The club has one on the web site.

You must have access to a collimator and chronograph. The club will have one however it is the shooters responsibility not the clubs or the RCO's to supply

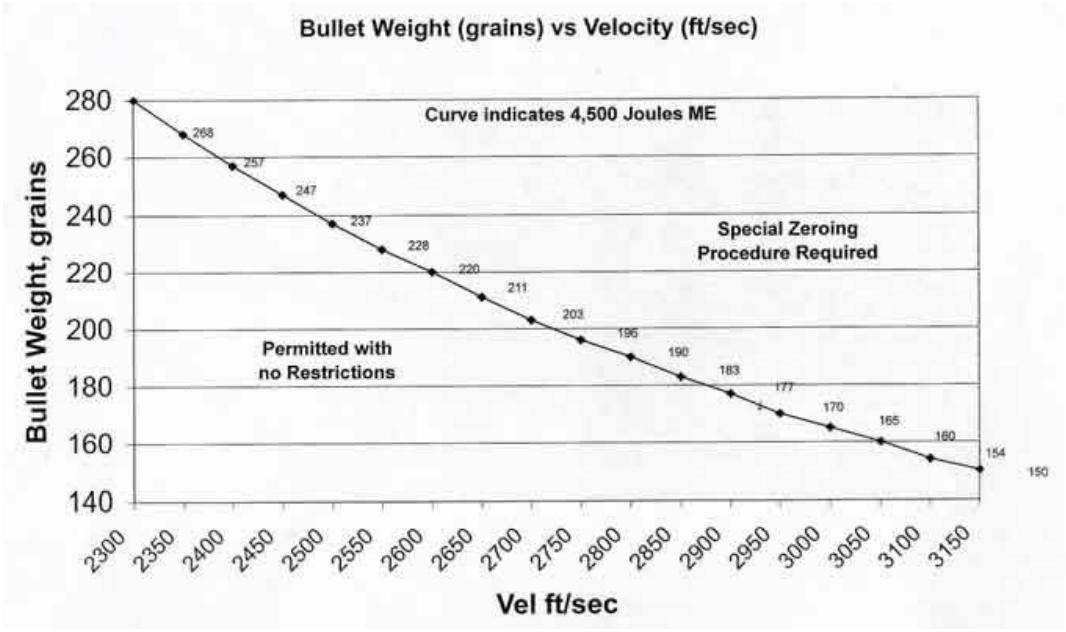
Any person using the clubs collimator or chronograph will be liable for any damage remember that with sights set at 600Yards it easy to shoot a chronograph

Late arrivals on the range will be unable to zero and therefore unable to shoot.

You will have to inform the club that you wish to shoot HME so targets can be arraigned and the range warden informed. Details have yet to be worked out however it is envisaged that the club will hold HME days at 600 yards and that it will not be possible to shoot outside those dates.

In the unlikely event of an incident the firer must agree to cooperate fully with the Club the MOD and the NRA into any enquiry or investigation that they may wish to carry out.

Remember it is not the calibre of the firearm but the Muzzle energy of the ammunition a graph is available to show you if the bullet and MV combination is likely to push you near or over the 4500J limit.



How to Boresight Your Rifle

Bore-sighting is easy to do and can make sight-in quicker while using less ammunition.

To properly bore-sight a rifle, it must be possible to look down the barrel from the breech end with the bolt removed. The rifle must be firmly supported on a steady rest such as a benchrest or sandbags. A rear bag is also required to ensure the rifle cannot move.

Line up the rifle on the rest so that the target can be viewed through the bore. This method works best if the target is set up approximately 100 yards away. Make sure to look directly through the centre of the bore to ensure perfect alignment.

To make bore-sighting more accurate use a target with sharply contrasting colours and at least one large corner or angle. A large black square works best because the corner of the square can be easily centred in the bore and it is easy to see.

Once the rifle has been aligned with the target, carefully adjust the scope making sure not to move the rifle. The scope should be adjusted so that the cross hairs are at the same place on the target as the bore. You have now bore-sighted your rifle.

Replace the bolt and fire one round at the target. Realign the cross hairs with the aiming point. Then, taking care not to disturb the rifle, adjust the scope so that the cross hairs are directly over top of the bullet hole. You have just sighted in your rifle with one round.

Fire a group to confirm the zero and make any minor adjustments to the point of impact. With a solid rifle rest the entire sight in operation can be completed with less than a half dozen rounds

How to Sight In Using a Collimator.

To save time and ammunition, start out with a bore-sighting collimator (a spud and an optical assembly) to "get on the paper." Remember that adjustments made during bore-sighting will appear to move in the opposite direction than that indicated by the adjustment dial.

Assemble the collimator with the correct spud and insert it into the barrel.

Look through the scope. Note the collimator display grid. The centre of the scope reticule is normally some distance away from the centre of the this grid This shows the scope's line of sight relative to the axis of the bore.

Begin with the windage adjustment. (Remember, when possible, it is better to make the initial windage adjustments to the mount base before using the scope's windage adjustment.) Turn the windage adjustment until the vertical crosshair of the scope covers the centre of the collimator grid.

Adjust the elevation until the horizontal crosshair of the scope covers the centre of the collimator grid. With that, the scope should align with the axis of the bore.

Remove the collimator spud from the barrel.

Having zeroed the rifle reinsert the spud and reassemble the Collimator, take a reading off the scale for the distance and ammunition you are using, when you need to re-zero at that distance and with the same ammunition all you need to do is refit the collimator and readjust the scope to the reading you took and it should be close to target.

Minute of angle

Ask most shooters to define minute of angle (MOA) and you'll probably elicit the reply, "It's an inch at 100 yards." A purist overhearing this will almost certainly chime in with a smug correction to the effect that a minute of angle is really 1.0471996 inches at 100 yards, but if you're numerically challenged and ask nicely, you may round it off to 1.05 inches. As a lifelong nitpicker, I admire the precision the purist brings to the party, but as a shooter I think I'll stick with a simple, useful, rounded-down inch. After all, even at 1000 yards the additional decimals don't quite add up to a half-inch.

The MOA is a useful tool for shooters because it varies in direct proportion to distance. Our nominal inch at 100 yards is a half-inch at 50 yards, 2 inches at 200 yards, 3 inches at 300 yards, and so on. This makes it possible to calibrate adjustments for range and windage on precision iron sights and optical sights in easy-to-use standardized increments of fractional and whole MOA.

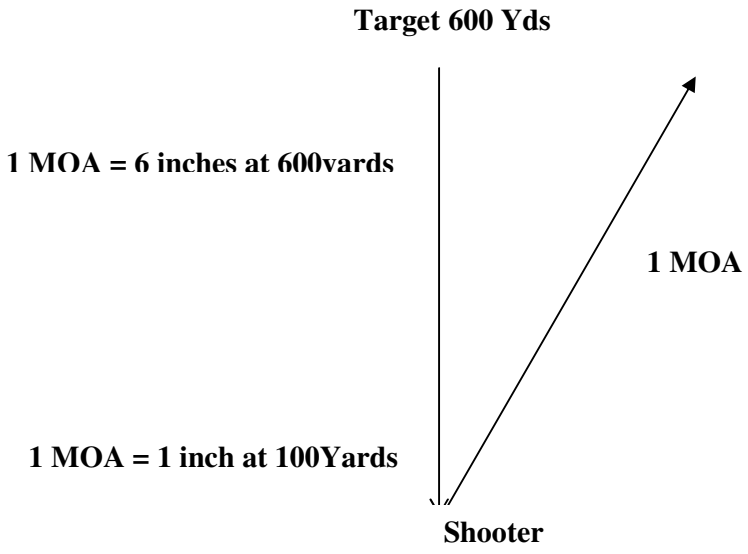
A typical hunting scope is likely to have adjustment dials click-stopped and marked at minor intervals of 1/4 MOA with major calibration marks at 1 MOA intervals. A high-power scope for benchrest, target, or varmint applications may have 1/8 MOA adjustment capability. And it's not unusual for red-dot handgun sights to have coarser

adjustment intervals of 1/2 MOA or so for convenience at typically shorter handgun distances.

Not all scope adjustments hew to the familiar 1/8, 1/4, 1/2 increments. European optical sights usually feature MOA increments attuned to the metric system. A case in point is the Zeiss Victory Diavari 6-24X 72mm long-range model, which has 1/5 MOA clicks that correspond neatly to a 0.5cm shift in point of aim at 100 meters. Most optical sights have elevation and windage dials marked with the click values to reduce confusion. If you have a sight that doesn't indicate the adjustment increment, write the click value on a self-stick label or snippet of tape and stick it on the sight or firearm. A day will come when you'll be glad you did.

Remember

If you move your scope 4 clicks or 1MOA it will move the point of impact on the target 1 inch at 100 yards, 5 inches at 500 yards, and 10 inches at 1000 yards,



THE Bristol Muzzle and Breech Loading Gun Club

High Muzzle Energy Zeroing Training Record

I confirm that I have been trained in the NRA Zeroing procedure for High Muzzle Energy Rifles and Ammunition.

I can use a collimator

I can Boresight a rifle

I can Use a chronograph

I understand how to ascertain if my ammunition is likely to exceed a muzzle energy greater then 4500j

I understand that it is my responsibility to ensure my ammunition conforms to the required standards and will inform the club and RCO if any ammunition is likely to exceed 4500j

I agree that in the event of any incident I will cooperate fully with the Club the NRA and the MOD in any investigation or inquires they make.

Club Member……Date……

Signature …….

Club officer……Date……..