

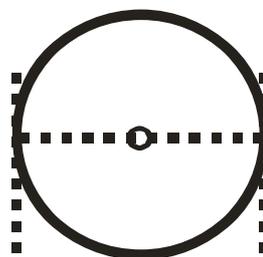
Range Finding in HFT - or how to cheat within the rules.

Why is range finding so important?

The key to success in HFT has little to do with shooting ability believe it or not, it's simply a case of playing the odds. It is true that a .177 zeroed at 35 yards will drop a pellet into a 40mm kill zone from 8 yards to 41 yards by simply aiming at the centre of the kill zone for each target. This is a very common (hit and hope) method adopted by a surprising number of HFT shooters. I'm sure it will come as no surprise that those that adopt this method seldom score well in HFT events.

Firstly, not all targets are 40mm in diameter - if you use the above approach (aim dead on for every shot) on a 25mm kill zone at 20 yards you will miss the kill! Secondly and most importantly there are other factors to consider. The wind being the most significant and least predictable. However, knowing that there are people on the course using this method can actually help you to range find the target accurately.

If you know the aim point for every distance and you can range find the distance to a target with reasonable accuracy then you'd hope to be getting the pellet landing somewhere along the horizontal centre-line of the kill zone. Since kill zones are circular in shape, the horizontal centre-line of the kill is also the widest part of the kill. Being able to put a pellet in the widest part of the kill will give you the largest margin for misjudging the windage.



We'll cover wind estimation in another section, but you should also be aware that the wind doesn't just blow from left to right - it can also cause your shots to go high or low as well!

There are several methods of range finding in HFT, relying on any single method is a recipe for some missed targets. But knowing what those methods are will actually help you to identify traps that have been set by the course designers and it'll actually help you to judge the wind better as well!

If you come to a target, you've gone through all of the range estimation techniques and decided on the most likely range of that target but when you look through your scope you notice that the vast majority of misses on the face plate are all hitting low, then you may need to make an allowance to your holdover. Being able to identify the likely reason will help you with this. If one of the range estimation techniques would give a range much closer than your own estimated range, then it's reasonable to assume that the people that missed the target low did so because they fell into the trap of the course designer. It may also mean that there is some wind effect that is causing shots to go low on this particular target.

One thing you can be sure of, it's almost certain that course setters will be aware of most if not all of the methods of range finding and will place targets and obstacles at ranges to deliberately catch people out.

Are Mildot scopes the key to range finding at HFT ?

This is a common misconception and it's one I'm in no hurry to dispel for the rest of the HFT shooting community, in fact because of my routine I will quite often lead people to believe that it is my sole method of ranging targets.

The actual truth of the matter is that using mildots to bracket the size of a kill zone or bracket the faceplate of a 'nockover' target is something I seldom rely on. It's also a method that course setters are most aware of and most likely to set 'traps' for those foolish enough to believe the myth.

I will cover mildot bracketing in some depth because it's quite a complicated subject, but don't fall into the trap of thinking that the amount of page space devoted to a subject is in any way a sign of it's importance.

The most important reason for knowing how to range find by bracketing is to help you identify the traps that others have fallen into!

All of my other methods of range estimation I keep to myself when I'm in a competition but I am happy to make a show of the fact that I'm checking my bracketing chart before I take a shot because it helps to spread the misconception.

Mildot scopes can be very useful in HFT for other reasons however. The primary use is to give you more aim points on your reticule and to give some sort of graduated scale to help with wind estimation. It's far more important to have a scope with good quality optics than it is to have one with mildots!

Range estimation Techniques

Some methods of range finding only work at certain ranges, and some ranges are more forgiving of range errors.

I've split the two categories of techniques into general rules that apply to all ranges and techniques which are only useful for certain bands of ranges. For example, you'll use a totally different method of range finding targets between 38 and 45 yards than you will for targets closer than 12 yards.

General rules applicable to all distances

Learn the Rules!

Hit zone sizes and maximum distances

Between 15mm and 19mm – 8 yards to a maximum of 25 yards

Between 20mm and 24mm – 8 yards to a maximum of 30 yards

Between 25mm and 35mm – 8 yards to a maximum of 35 yards

Between 35mm and 45mm – 8 yards to a maximum of 45 yards

As silly as it might seem, you'd be surprised at the number of people that haven't read the rules or the course building guidelines before they shoot in HFT competitions. All UKAHFT courses will be meticulously checked by officials prior to the start of a competition to make sure that they adhere with these rules.

The things to be aware of are the maximum allowed distance for different sizes of kill zones and the maximum distance for forced positional shots.

If you come to a standing or kneeling lane, then from the rules you'll know that the target cannot be any further than 35 yards. If there's a very small kill zone (15mm for example) then you know from the rules that it cannot be any further than 25 yards.

Know your target

You'll notice from reading the rules that for the 2006 season there are 4 categories of kill zone size - 15-19mm, 20-25mm, 25-35mm and 40-45mm. Some of these kill zone sizes aren't easy to tell the difference between using your eye alone, so it pays to do a little homework first.

There are 4 categories of target that are used at HFT competitions

1. Standard knockdown targets made by 'nockover' - these are by far the most common targets on any course, there are over 18,000 targets of this type in circulation around the world!
2. Gamo copies of Nockover targets. The patent on 'Nockover' targets ran out a few years ago and as a result Gamo have been manufacturing cheaper copies of these targets. They aren't exact copies however although externally they look the same. Gamo targets require 4 pounds of energy to cause the faceplate to fall and Nockover targets require just 1 pound!
3. Home grown targets - these are fairly rare and only tend to appear at clubs that have been operating for a long time. Quote often clubs will make their own faceplates, but still use a standard Nockover mechanism behind the scenes (The Redfearns Phoenix targets are an example of this)
4. Modified Nockover targets. These can be targets that have had the faceplate replaced or have had a plate welded in front or behind of the original kill zone to make the kill zone smaller.

Anston FTC has targets that fall into 3 of the 4 categories above - we don't have any Gamo targets at the club, because generally they are unreliable and they can cause stoppages at events because of the increased energy required to knock them down.

For the purposes of range estimation, you can group Gamo and Nockover targets as a single category of target.

Nockover targets only come in 4 kill zone sizes - very old targets can be 45mm, the most common are 40mm, there are some that are exactly 25mm and more recently they have started to produce a Rat target with a 15mm kill zone. The Gamo targets all have 40mm kill zones.

If you spot a Nockover target on the course (which will be by far the most common target) then you'll be able to easily match those targets with the range rules in the UKAHFT course setting guidelines. So any 15mm rat Nockover target you see on the course will be out to a maximum of 25 yards, 25mm Nockover targets will be out to a maximum of 35 yards and 40 and 45mm targets can be at any distance (unless they are forced positional shots, in which case they can be at a maximum of 35 yards).

Home grown and modified targets are more difficult to use to give you a clue as to the maximum distance, but clubs don't generally have many of these targets and are more likely to use this sort of target to try to set a mildot bracketing 'trap'

Look for deliberate traps

A good course designer will look at the landscape available to them and consider what types of targets they have and place them in a location to make them as tricky as possible.

There are two general types of trap that course settings will use - range finding traps and trajectory traps and some traps will be a combination of the two. The most common range finding trap is to place a 45mm kill zone target at 45 yards but put it in a location where the natural surroundings and available light make it look much closer. The intention of this type of trap is to try to catch out those that range find by bracketing the size of the kill zone. The intention is that the victim will assume the kill zone is 40mm, and bracket the target giving them an answer of 40 yards. This will be enforced by the fact that the lighting conditions make the target look closer than it actually is (45 yards really) and they will miss the target low.

There aren't really any other deliberate range finding traps that I know of (if you spot any, please let me know).

This particular trap is easy to avoid by using the range finding techniques in this guide, but it's still important to be able to recognise it when you see it so that you can understand why lots of people seem to be hitting the faceplate below the kill zone.

Know the trajectory of a .177 zeroed at 35 yards (see Appendix 1)

The other type of trap that course designers set are trajectory traps. Regardless of whether you use a .177 zeroed at 35 yards or not, it still pays to learn this trajectory because this is the most common calibre and the most common zero range and therefore the most likely trajectory that course designers will set traps for. There's not much point setting a trap that's only likely to catch one or two people out!

This is the time when being able to range find a target isn't the only thing you've got to consider. You also need to be able to range find other obstacles on a course and appreciate the significance of those obstacles regarding the .177/35 yard zero trajectory.

The main trap that is used is the top of trajectory trap. At ranges between 18 and 26 yards approximately, the pellet will rise above the line of the crosshair by approximately half a mildot (if you don't have a mildot scope, then you will need to find your own reference point on your reticule for this range). There are two traps that stem from this - small kill zone targets will often be placed at this range with the intention of catching out those that just aim at the centre of every target on the course. The other trap that course setters use is to place an obstacle at about 25 yards that allows you to see all of the kill zone on a target at perhaps 40 yards, but will not allow enough clearance to be able to hit the target without clipping the obstacle at 25 yards first.

Another trap that designers use is to position a shooting peg so that there is raised banking very close to the peg (typically at around 5-7 yards) If you don't know the holdover for 7 yards (approximately 2.5 mildots) then you may clip the bank when taking your shot even though you have a clear view of the target's kill zone through your scope.

Knowing your trajectory, knowing the common trajectory and knowing the ranges where difficulties will arise will help you to spot traps and avoid them and it'll also help you to figure out the likely range of the target and any obstacles in the way.

Look for clues

When you get to a shoot, always look at where the main course is set and look at the location of that course compared to the zero range or other features that can be legally paced out before hand.

At the Tawd Vale round last year, the majority of the course was set out in a straight line and was next to the zeroing range. There was a convenient zeroing board set out at 45 yards that was in line with the edge of the wood where the main course was set up. This meant that while shooting the course, if there were any targets at the edge of the wood they were likely to be set at 45 yards. This particular example probably isn't of much use, since range finding 45 yard targets is fairly easy to do anyway, but it's an example of how thinking ahead can help you to range find.

North Oxon was the best example of this. Part of the course was actually set out on the club zero range, with range marker pegs still left in place! The shooting line had been moved forward by about 5 yards (which you could pace) but it meant that all you needed to do to find the correct range was read the range marker on the ground and subtract 5 yards from the figure. Since the course was set in a straight line, it was easy to look along the line and locate other targets at the same range that weren't actually on the zero range.

You can't hope to be this lucky in a competition, but it does happen, so watch out for it!

Other things to watch for are fence posts set at regular intervals along the side of a course. It may be possible to pace out the distance between posts on a part of the course where the fence extends behind the shooting line, in which case all you need to do to range find is count the number of fence posts between the peg and the target (or something parallel to the target) and multiply that by the paced out distance between fence posts.

Again, you aren't always that lucky, but it's something that course setters don't think about often and it can give you vital clues which will give you the ranges for 10 or more targets!

Learn from previous targets

Very often large sections if not whole courses are set in a straight line. If you can correctly guess the range to a target, then you instantly have a reference point you can use for other targets along the line. For example if you knock over a target at 35 yards (or even if you miss one) but are able to see where the pellet strikes on the faceplate then that can give you a vital clue about the exact range of that target. All you need to do is remember a tree or some other landmark at the same range and you'll have a 35 yard marker you can use for subsequent targets along the same line. Other features such as fences or streams that run along a course parallel to the firing line can also make excellent range markers for you.

Of course, it's not just previous targets that can give you clues - it often pays to look for clues on targets you have yet to shoot. You can casually wander over to the next target on a course while you're waiting to take your shot or you can quickly scan a course looking for markers while you're walking from the briefing to your start peg.

The Mark 1 eyeball

In the absence of other clues, don't underestimate the accuracy of using your eyes to try to judge a distance.

This is something you can practice whenever you're out walking - look at a distant object and estimate how far away you think it is, then pace the distance out (try to avoid Basil Fawlty style strides because it tends to scare animals and small children). The more you practice, the better you will become. Start with small distances first perhaps try to estimate things that are exactly 10 yards away. If you can learn to accurately judge 10 yards, then you can use multiples of this to break a distance down.

For example if a tree on the course looks to be at about 10 yards and it looks like it's at the halfway mark between the peg and the target then you can guess that the target is probably about 20 yards away.

This method works surprisingly well out to about 30 or 35 yards and it's something you can practice every day. It does require a lot of practice to become good at though!

You should also be aware that the Mk1 eyeball can be fooled by different lighting conditions and other optical illusions. It can even be fooled by a different colour target faceplate (another trap to watch out for) so it isn't always the most reliable method of range finding.

While we're on the subject of pacing out distances, of course you should also be aware that a single stride is unlikely to be exactly one yard so it is a good idea to pace out various distances and then measure those distances to see what allowances you need to make for the difference between a natural stride and a measured yard.

Range finding by Scope Parallax

Yes, I know you aren't allowed to adjust your scope in HFT, but there's nothing in the rules about setting the parallax at a known distance before you start shooting a course.

This is by far the most reliable method of range finding targets beyond about 38 yards.

Decide on a magnification for your scope if you have a variable magnification scope and then set a target out at 43 yards on your zero range. Adjust the parallax setting of your scope until the 43 yard target is slightly out of focus. You'll be able to tell this by focusing your eye on the target through the scope. When the target is in focus, you'll notice that your crosshairs are slightly blurred. Similarly when you focus on your crosshairs you'll notice that the target is slightly out of focus.

On my scope with my magnification set at 10x I set my parallax to about 25 yards.

If you set your scope up in this way you'll notice that 40 yard targets are just slightly out of focus and 45 yard targets are quite noticeably out of focus. Using this method, 45 yard targets are fast and easy to identify.

Not all scopes are suitable for this, it requires a good quality scope. You should also be aware that some scopes are temperature and light sensitive for their range finding abilities. Try to set your scope up in the sort of conditions you're likely to be shooting in. If you're likely to be shooting in a fairly dark wood, then set your parallax in a fairly dark

wood. It's also something that's worth checking while you're on the zero range at a competition.

Parallax adjustable scopes make things much easier but most scopes can have their parallax adjusted - some are easier to set than others.

This is one of the reasons why I prefer the Bushnell Trophy 3-9x40 mildot scope to the Bushnell 10x42 sniper scope for HFT (it's also much cheaper too)

The parallax trick works at close range too. Once you've set your scope up to tell the difference between 40 and 45 yard targets, try experimenting with closer range targets to see where they go out of focus, mine starts to lose focus at about 15 yards.

Pacing out close range targets

You aren't allowed to walk onto the course during a competition and if you started pacing out the distance to a close target, it wouldn't be long before you were banned for life from competing, but you can still do it!

With very reduced targets (15mm kill zones) the difference between ranging a target as 10 yards instead of 8 yards (or vice versa) is enough to miss the kill zone! On some targets it isn't so critical, but for the very reduced kills an error of as little as a yard in range estimation can lose you a point.

The method is very simple and surprisingly accurate, but is best kept as a secret.

Stand at the peg and look at the target position, then try to imagine you're standing at the centre of a circle that runs through the target. You should be able to fairly accurately project an arc from the target to another object that's the same distance on the course pathway.

All you do then is pace out the distance to the object on the pathway and you've just paced the distance to the target.

This works well up to about 12 yards, but obviously you don't want to be pacing 30 yards along the pathway! I don't do this very often, but when I do I'll hide what I'm doing by pretending that I'm walking over to look at the next target (which I might also do to give me further clues on other targets)

Use this method sparingly and don't make it obvious what you're doing. So far I don't think anyone has caught on that I use this method.

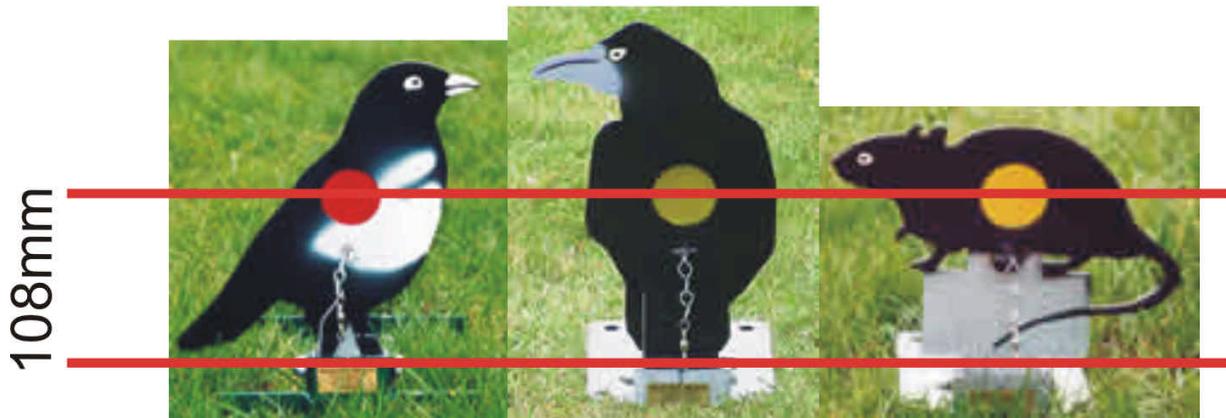
Bracketing

The theory behind bracketing is that the apparent size of an object of a known size will be different at different ranges. The further away it is, the smaller it will appear in your scope.

This is what mildot scopes were invented for and it does work surprisingly well indeed. It does rely quite heavily on measuring an object of a known size though and the smaller the size of the object the greater the margin for error.

When HFT first started, there were two sizes of kill zone - 40mm and 25mm so it was fairly accurate to write down the apparent size of the kill zone (in mildot increments) on a piece of paper and use that as a guide to the range of the object.

HFT has changed since those early days. We now have kill zones of any size in theory, although in practice they tend to be one of 4 sizes generally. So range finding by bracketing the kill zone is on the whole not particularly accurate. There is however a little trick you can use to make it more reliable.



Even though kill zones can be any size from 15mm to 45mm, the distance between the top of the faceplate hinge and the centre of the kill zone (no matter what size it is) is always about 108mm on all types of Nockover and Gamo targets (and usually on the modified targets as well). The added advantage of this standard object size is that it's much larger than just using a 40mm kill zone, it's totally independent of the size of the kill zone and it's far less prone to error.

It is however prone to error, so I don't normally use it as my main method of range finding, although I'm happy to let people think that I do.

The problem with this method is that firstly it requires you to hold your rifle perfectly still on the target so it's only really effective on very steady prone shots. It's not particularly accurate at distances out past 35 yards (although it's very accurate at closer range) and the biggest problem with it is that it's a known method by course designers - although not many people know about the hinge to centre of kill standard measurement.

Some course designers will set traps specifically to catch people out that rely on this method or they'll cover the hinge of a target so that you don't have a clearly defined starting point for your measurement.

It's worth knowing how to use this method however because it will help you to spot traps that other people have fallen into.

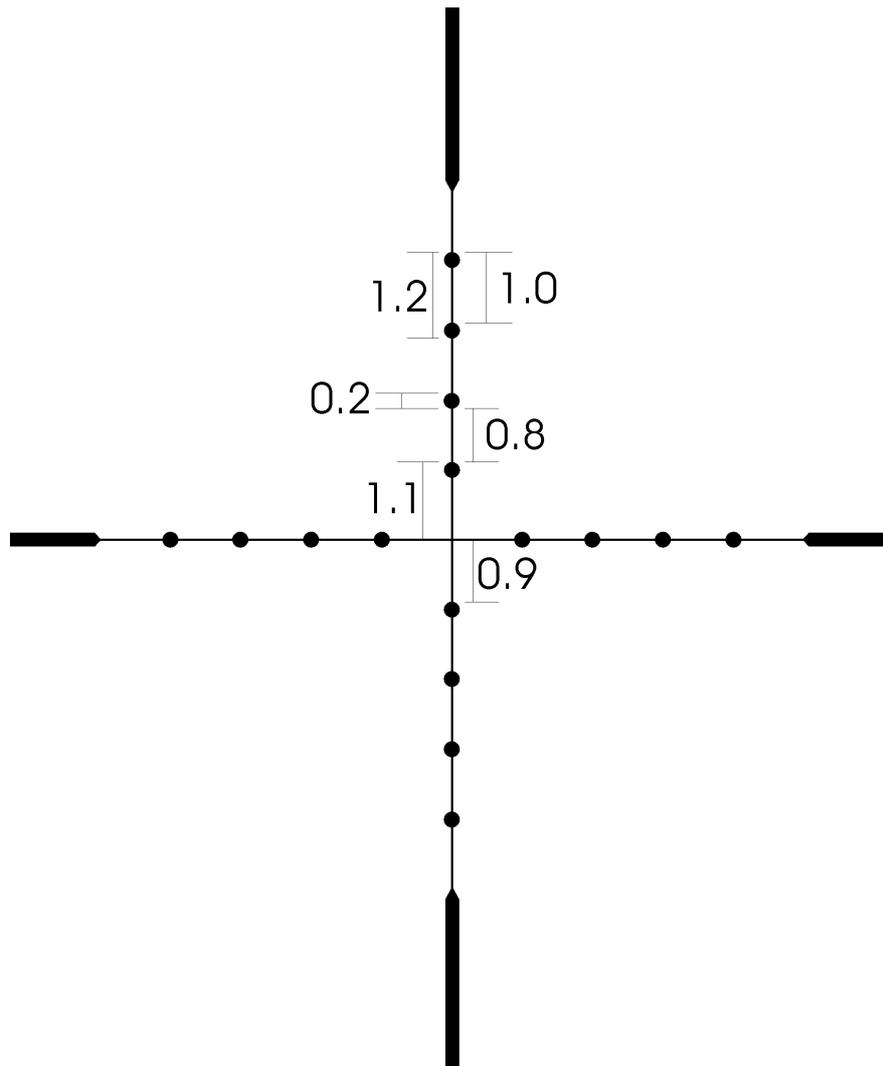
Do I have true mildots?

Not all mildot reticules are true mildots, to test whether yours is take the calibration chart included with this document and pin it up at exactly 15 yards from your scope. If your scope is set with true mildots, they should line up with the dots on the calibration chart.

The increment scale on a mildot reticule.

Each dot on the reticule should be exactly 0.2 mildots in diameter and the distance between the centre of one dot and the centre of the next dot is exactly 1 mildot. It's also true that the distance between the bottom edge of one mildot to the bottom edge of the next mildot will also be exactly one mildot in length.

So far you can accurately measure anything that's 0.2 of a mildot (because it'll be the size of a dot) and 1 whole mildot (the distance between the centre or edges of each dot) But how do you measure other distances?



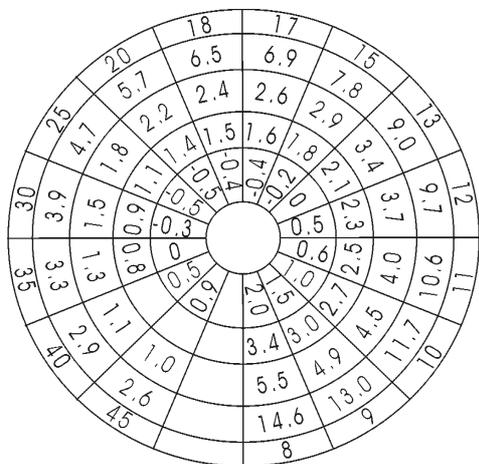
The distance between the crosshair and the start of the first dot above it is 0.9 mildots, the distance between the crosshairs and the outer edge of the first mildot is 1.1 mildots, the distance between the inner edges of two dots is 0.8 mildots.

Once you know these measurements it shouldn't be too difficult to work out other known mildot measurements.

There are some distances that you have to guess however - for example there is no graduation on a standard mildot reticule to give you exactly half a mildot, but it's not too hard to guess at the mid point between two dots.

I've included the Butler Creek insert that I use on my HFT rifle for you to use if you wish.

The outer ring of my chart is the distance to the target in yards. The next ring in is the size measurement in mildots between the top of the hinge and the centre of a kill zone on a standard Nockover target.



The third ring in is the size of a 40mm kill zone in mildots at the range indicated by the outer ring and the ring after that is the measurement of a 25mm kill zone.

The inner ring are my own holdover's and holdunder's for the marked distances. 35 yards is my Zero, 40 yards is +0.5 mildots, 45 yards is +0.9 mildots etc.

So as an example at 30 yards (the segment marked 30 on the outer ring) you can see that the faceplate will measure 3.9 mildots, a 40mm kill will measure 1.5 mildots, a 25mm kill will measure 0.9 mildots and my hold over is -0.3 (which means I aim low by 0.3 of a mildot)

The values may be different on your rifle/scope combination, but if you'd like me to print out a custom insert for your own settings, then please ask.

When you first start using this method you'll be very surprised by how accurate it can be, and you'll more than likely have a tendency to ignore all the other methods of range finding in favour of this method.

The best advice I can give you is not to do this though! - I use this method as a last resort when everything else has failed.

Putting it all together

So far I've documented 9 different range finding techniques that you can use, some of them apply to all ranges and some are more appropriate for different bandings of ranges.

From a simplistic point of view you can break targets down into just two bands - those in sharp focus and those that are slightly or very blurred in your scope.

The ranges where this happens will be dependant on the quality of your scope, the magnification you use and the range your scope is parallaxed to. You often hear claims of new scopes on the market that are 'ideal' for HFT because they have a clear sight picture for all ranges between 10 yards and 45 yards. A scope that is clear at all ranges is probably the worst scope you could have for HFT because it renders one of the most effective methods of range finding totally useless (range finding by parallax).

You will need to check the ranges of these bandings on your own scope but for the sake of this document I'll use my own scope as an example.

If a target is in sharp focus, I know that it is between 15 yards and 36 yards. If it's blurred I know it's either closer than 15 yards or further than 40 yards. (If you can't tell the difference between 15 yards and 40 yards by using the mk1 eyeball, then give up!, there's no hope for you)

This now gives us 3 bands of ranges that we can tell instantly just by parallax and the mk1 eyeball.

Close range targets (15 yards and under)

Running through the methods of range finding, Rules aren't going to be a help at this range apart from telling you that the target must be further than 8 yards.

Range finding traps - there aren't any range finding traps that I know of at this range.

.177 Trajectory traps - at very close range you need to aim high, a surprising number of people don't know this, so the most common trap that is used for close range targets is to place reduced kill targets at very close ranges 8-12 yards. From 13-15 yards you can aim at the centre of the target because it's the close zero point for a 35 yard zero. Watch for signs on the faceplate. If lots of people are missing low then it's likely to be below 12 yards. Clues - you should always watch for clues along the course for every distance, fence posts at regular intervals, previous targets etc.

The Mk1 eyeball should be able to give you a pretty good idea about the distance, if the kill zone is particularly small, you may need greater accuracy in your range finding.

For greater accuracy mildot bracketing of the faceplate works very well. But for very close targets you may run out of mildots on a standard reticule (standard reticules only allow you to measure objects up to 10 mildots)

You can also use the pacing out an object on the pathway that's at the same distance as the target. This also works very well, but use it sparingly and don't make it obvious what you're doing.

Mid range targets (16 yards to 35 yards)

These are generally the most difficult targets to range find correctly, but fortunately this range of the .177 trajectory is at it's flattest so you have a much greater margin of error.

All targets from 18 yard to 26 yards will pretty much be at the top of the trajectory, so you just aim half a mildot low. You can use your knowledge of target types and rules to give you clues about how far away something is - if it looks like the kill is smaller than 25mm then the target can only be out to a maximum of 30 yards.

It's not often possible to judge the exact size of a kill zone with the mk1 eyeball, but this is where your mildot bracketing can really help.

Bracket the distance using the faceplate of the target and then bracket the kill zone as though it were a 25mm kill. If it's 25mm the two methods will give you the same answer, if bracketing the kill gives you a much greater distance then you know it's likely to be smaller than 25mm and you can apply the rules to give you clues about the actual distance.

Targets between 16 and 18 yards are the most difficult to judge, if the target is a 15mm Rat then getting the range right is going to be vital!

Fortunately the faceplate bracketing method is very accurate on these targets, so give greater reliance on mildots at this range.

For targets between 26 yards and 35 yards again the trajectory is very flat for this range of target. The difference in holdover is only a quarter of a mildot. Use whatever methods of range finding you can - clues, traps, previous targets etc. to give you a better idea of the range. Kill zone and faceplate bracketing also works quite well at this range too.

You will very often find that you will be able to fit the aim points for all ranges between 26 yards and 35 yards inside the area of the kill zone, so it's also possible to play the odds in this situation as well should you need to.

Long range targets (36 to 45 yards)

These are probably the easiest targets on the course, although they look like they should be the hardest because they're the furthest away!

If you've set your scope up correctly you should be able to tell targets that are between 42 and 45 yards instantly (they'll be blurred slightly).

All the kills are likely to be 40mm, although be careful because 45mm targets may also have been used as a trap for people bracketing kill zones.

Use the parallax trick as your primary method, but also double check by bracketing the kill and the faceplate - everything should come up with the same answer! - if bracketing the kill gives say 40 yards but the other methods suggest it's actually further, then it's probably a trap. You'll also be able to see how many people fell into the trap by the number of hits on the faceplate below the kill.

You can either decide to shoot the target as a 45 yard shot or hedge your bets and shoot at as though it were 43 yards.

Targets between 36 yards and 40 yards are again difficult to range find, but fortunately the aim point will be very similar - top of kill. Again at this range the kill zones will be large enough for you to be able to hedge your bets and still get both aim points well inside the kill zone.

When all else fails - Play the odds

There are times when you aren't going to be sure about a range no matter which range finding method you use. Or it could be that several methods give different ranges. Fortunately the trajectory of a .177 running at 11.3fpe (777 fps) is reasonably flat and there are range bands where it doesn't matter if you get the range wrong, even by a large amount!

In the cases where you don't know the range for sure, it is normally possible to guess the range to within 5 yards reliably.

In these cases the best advice is to play the odds game. You should know your aim points for all ranges (or at least have them written down on a bit of paper or stuck to the inside of your butler creek cover) When you can't decide between two ranges always consider the situation where you've got it wrong. If you get it wrong, will the pellet still hit the kill zone? When in real doubt, use the furthest range. It's better to hit high in a kill zone than it is to hit low. Hitting high requires less energy to knock the target over, so if you do manage to split the pellet at the top of the kill, it's more likely to go over anyway than if you'd split the pellet at the bottom of the kill.

Leave everyone else guessing

I've documented 9 different methods of range finding at HFT, all but two of them are done before I put my eye to the scope for the first time. You should have gone through the first 7 before you even get down for a shot. When you look through the scope you'll be able to use the parallax trick without anyone else being aware of what you're doing.

The only range finding method that's obvious to an observer is the mildot bracketing method. I prefer to let people think that this is my only method of range finding - I don't tell people about faceplate bracketing either. Quite surprisingly not many people know about the faceplate method, and I'm quite keen for it to stay that way.

Appendix 1 - .177 Trajectory 777fps 35 yard zero

Mass:8.440 Grain, BC:0.021 MV:777 Ft/s, ME:11.317 Ft-Lbf, Zero:35 Yard
Scope Height:1.660 Inch

