

CHAPTER 8 SPOTTING SCOPES

There's an old adage often repeated in the shooting world that, "if you can't see it, you can't hit it". This refers to your sight picture generally, but there is another form of 'seeing' which plays a very important part in every rifleman's life, and that's being able to see where the shot went.

Sighting in (or zeroing in, whichever you prefer to call it), is vitally important but that's impossible to do properly if you can't see where your shots are going.

Imagine what it would be like if you were aiming at one 25 yards diagram and were using a new rearsight. If your first shot misses the card completely, how would you know (short of inspired guesswork) where to point your rifle in order to get the next shot on the target? That's what shooting without a scope is like.

Luckily the rules allow the use of sighting diagrams to get your rifle zeroed in *before* you start on a competition card, but think what the scores might be like if you weren't allowed those sighters, particularly at 100 yards.

All this sighting relies heavily on you being able to see where your shots are going, and although that may seem terribly obvious, how *well* you can see is also important.

Spotting scopes are usually bought as an extra to the rifle and it's amazing how little attention people pay to their scopes, ending up with all sorts of rubbish.



Straight and angle eyepiece spotting scopes

So many shooters make do with anything which allows them to see the target and then complain bitterly when they get caught out on a strange range with the sun in the wrong direction by not being able to spot their shots

Another old saying is “you get what you pay for” and, of course, spotting scopes are no exception to this rule. There has to be some reason for one spotting scope being twice the price of another - or even three or four times the price - but it’s quite possible that you don’t always need all that extra quality.

If this is starting to sound confusing and contradictory, then read on!

The largest market for spotting scopes in this country is for the bird watchers and they demand a considerably higher quality in their scopes than the average shooter. One reason for this is that bird watchers must have their lenses colour-corrected, whereas shooters generally shoot in black and white and have no worries about any colour discrepancies which may occur.



A typical good-quality spotting scope

The size of your pocket, or more importantly, what’s in your pocket, will help you decide on a scope to some extent, but here are a few points to look out for.

There is a relationship between magnification and the size of the object lens (the end nearest the target), and that relationship affects the amount of light which reaches the eye. As the magnification increases, so the light reaching your eye decreases.

Most spotting scopes used in shooting are in the range of 20x to 30x magnification and that’s usually marked on eyepiece lens. This sort of size will general cope with all types of smallbore and fullbore rifle shooting.

Some manufacturers produce a 'zoom' eyepiece covering magnifications from 20x to 60x. Although you may occasionally find this variability useful, the number of lenses involved in a zoom eyepiece means that the amount of light reaching your eye is reduced somewhat (approximately 3% per lens face) which doesn't do a lot for your sight picture.



A zoom eyepiece lens maybe useful

The other element in the equation, is the size of the object lens, and this is usually referred to by its diameter in millimetres. For example, if you have something which is described as a 22 x 60, then the magnification is 22 times, and the object lens is 60mm in diameter.

It's recommended for all normal smallbore target shooting that you don't use a scope with an object lens of less than 60mm, for the simple reason that you'll find the picture too dark should you get caught in bad weather (and who hasn't been caught under dark thunder clouds at some time or other?) Even indoors, although the range is much shorter, the light is also much less bright than outdoors and, while you may think you can see the shot holes, you could be straining your eyes to spot a shot if the picture isn't clear enough.

The question of which magnification to use is personal, although the range is limited anyway. It's not recommended that you use less than 20x magnification, and more than 30x brings other problems.

There is a formula for the increase in loss of light through a scope as the magnification goes up, but that is beyond the scope of this book.

The fact that there is a loss of light that results from increasing the magnification is sufficient for the rifleman to be wary. To what extent it would affect you, only you can tell, but bear in mind that doubling the magnification means that the amount of light reaching your eye goes down to 25% of what it was, assuming the object lens diameter stays the same.

If magnification - and lots of it - is your goal in life then as you go up in power you will need to increase the diameter of the object lens. Nothing is absolutely straightforward and "getting what you pay for" could lead you astray at this point. The higher the magnification the more critical the optics become; in other words a cheap high power may *not* improve your vision over a better quality low power within the ranges mentioned above.

Another factor is eye relief: as the magnification goes up, so the eye relief goes down and that means having to get your eye closer to the scope.

The smaller the eye relief, the more critical the scope position is in relation to your eye and the last thing you want to be doing is straining to see through the scope while you're shooting. Those of you who gradually change your position while you're going round a card could find yourselves having to move your head too far in order to see through the scope, which could result in considerable discomfort and could adversely affect your position.

With a nice long eye relief, it only takes a quick glance through the scope to tell you everything you want to know about your last shot.

You should find that your scope's optics are so good that you can see what's happening quite clearly, even if the aiming mark is right on the edge of the lens. With a good scope the eye position is not quite so critical and you consequently shoot with a very long eye relief, which enables you to fill the eyepiece lens with whatever aiming mark you're shooting on at the time, without any great head movement.

It's a bit difficult indoors because you really do need to see the whole card, and it becomes a struggle to get a 25-yard card and sighter in view; with a magnification greater than 25x you would probably have to move the scope during the course of your shoot.

Most scope manufacturers give you a choice of eyepiece lenses, and some even give you the extra options of high resolution and wide angle. I know Kowa offer H.R. or W.A. and their 25x H.R. eyepiece is excellent; in poor light particularly, you can really see the difference the high resolution makes.



A 25x high resolution eyepiece with 60mm objective lens

A new spotting scope is not something you will buy very often and one of the problems is that they do deteriorate with age. Unfortunately the deterioration is slow and most shooters don't realise, until they look through somebody else's scope, that their own has got so bad.

The thing which goes first is the edge definition and that can go unnoticed by a lot of shooters because they spend most of their time looking at the centre of the lens. If that's the case, why should you need to worry about it? The answer comes back to eye relief - if only the centre is sharply defined, the position of your eye is much more critical if you want to get a clear picture

If you're considering buying a secondhand scope, then the edge definition is the first thing to check. It's no good just looking through the lens at the first thing you come to and assuming it's OK because you can see what you're looking at. You need to rest the scope on a firm surface and look at something small some distance away, preferably in daylight. Focus on something like a sign or a notice about 25 yards away and then move the scope so that the object is right at the edge of the lens. Can you still read the wording as clearly as you could when it was in the centre?

Beware of a secondhand scope that looks as if it's been taken apart (damaged screws and misaligned joints could indicate this); some people have been forced to buy a new scope because they took their old one apart and couldn't get it back together properly. It would also be a good idea to avoid something which looks as if it's suffered a bad knock, or has been dropped, as this tends to loosen the prisms inside, or even crack them.

One of the most common spotting scopes on the market is the *Greenkat*. These may have different names on them, such as *Opticron* or *Rhino*, but they are basically the

same scope. They have been around for a long time and have given sterling service to lots of shooters, but beware if you're in the secondhand market: neglect and age do take their toll on scopes such as these.

These days they retail (new) for around £130-£150 and, considering how many years they last, that does represent value for money. Their usual configuration is 22 x 60, but 30x eyepieces are also available.

A typical *Kowa* scope will certainly cost you twice as much as, if not more than, the *Greenkat* but they can be well worth the extra.

There are other scopes on the market but it would be difficult to go through them all, so to help with any decisions you might be taking about making a purchase, do bear in mind the following points:

You get what you pay for, but you *may* not need all that quality.

Don't deviate from the standard size of 20x to 30x with a 60mm object lens. That's not to say that bigger is not better, it's just that bigger could get more expensive without any major benefit.

Do try and choose a scope that has the focussing adjustment right at the back, somewhere near (or on) the eyepiece; if you do have to make any adjustments when in position it's much easier if the knobs are close at hand. Beware of scopes which have a focussing ring half way down the body, as that may be where you have it clamped in your stand, or you may have it protected by a cover, making it impossible to get at.

Some scopes have a threaded boss which allows them to be mounted on a camera tripod - you'll have to decide on the value of that for yourself, as extra 'legs' can get in the way when you're shooting prone.

There is also one other major consideration which has been left till last, i.e. whether you should go for a straight eyepiece or an angled one. Most shooters find that an angled one is better because it gets the scope body down below your line of sight, allowing you to see any wind flags to your left (or to your right if you're left-handed). In addition, it physically requires less movement of the head when looking through it.

But (and there's always a 'but') angled scopes can be more expensive and they're not so easy to use at first. Some even have revolving prism heads so the eyepiece has more angular movement. However, straight eyepiece scopes are gradually dying out, so you may not have any choice in the matter, particularly if you're buying new.

Whatever type of scope you buy if you want to get the best service out of it get a cover to protect it, keep the lenses clean and use the lens caps to prevent scratching.

Having now got your scope, you need to get it into the right position and find out how to use it. (Before anybody turns the page muttering how obvious and easy that is, let me assure you that nothing in rifle shooting is as easy as it first looks.)

Before you can use your scope properly, it needs to be positioned in exactly the right place. There's no point in carefully aligning yourself with the target and getting both yourself and the rifle comfortable, if you're then going to crawl across the mat and get up on your hands and knees to look through the scope. That may sound terribly obvious, but some people very nearly do just that on the firing point.

Placing the scope in just the right position reduces movement between shots to the minimum, and can reduce the possibility of getting out of position, which *might* happen if you have to keep moving to see through the scope.

Modern scope stands all tend to be of the two-legged variety, and modern materials and manufacturing processes have produced some marvels of engineering which present the scope to your eye while staying well clear of your body.

A quick glance at some of the photographs within these pages will show you what's currently available.



A collection of scope stands

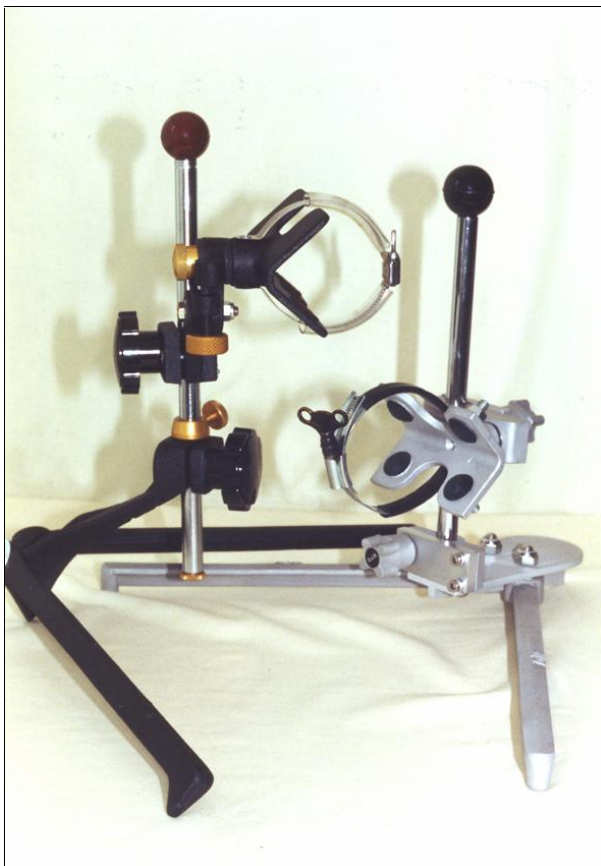
A very early decision which needs to be made is whether you will ever be shooting the 3-positional discipline in the near future. The most basic scope stand cannot be extended to cover the kneeling and standing positions, but as one of the longest-serving stands, which has supported countless varieties of scopes for thousands of shooters, it will be the first choice for lots of people.

First of all, a good stand must be rigid when in use; a shaky scope is impossible to look through, so you don't want one that will move in a wind, for example. Also, a scope should be able to resist those little knocks and taps that happen while you're getting into position, as the last thing you want is for the scope to move off target before you've even fired your first shot.

Secondly, there should be plenty of room for your left (or right) elbow under the scope, without you getting anywhere near the stand. This usually rules out tripods, as using one of the modern, short-bodied scopes means that one leg of the tripod nearly always gets in the way of an elbow.

Generally, modern scope stands provide 15cms-25cms of cantilever, which is enough for most people to get the scope really close to their eye, without fear of interfering with any part of the arm.

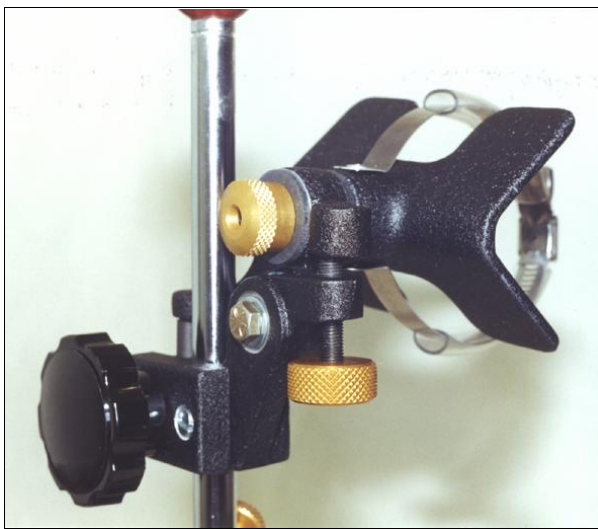
Thirdly, the stand should be light, but heavy enough to be stable, and should fold up fairly small.



Two more scope stands

The actual connection of the scope to the stand is not too important - providing it's secure. Once having fixed it to the stand and got it in the right position, you're unlikely to be constantly taking it in and out of its fixing (stretch-over springs, or a jubilee clip are favourites).

Look for nice big easy-to-use knobs which hold component parts together without any undue force. Small, stiff-to-turn, slippery plastic knobs can make life very difficult on cold ranges, with fingers one stage away from terminal frostbite. A large plastic round knob on top of the vertical rod also makes carrying very easy once the stand is assembled.



Big knobs help!

So, once you've got a decent scope and stand, what do you do with them?

Usually this combination is the second thing placed on the firing point after the mat which, as most shooters know, is carefully aligned with the target so that you can place the scope stand down relative to it. Some shooters even mark the edge of their mat to show where the scope legs should go.

Getting the scope in the right position relative to the eye for the first time will probably necessitate you enlisting the help of someone who can adjust it for you while you're in the shooting position. Once you've got this sorted out, however, you should be able to assemble it in the same position each time fairly easily.

The eye relief on scopes can vary considerably, so you'll have to experiment with the best position for *you*, but try to keep head movement down to the absolute minimum.

Some people don't bother spotting every shot once they've sighted in, but this requires both courage *and* the knowledge that you're not making any mistakes which might need correcting. Shooting without spotting your shots can be extremely good training, but it's not something to be recommended for competition work.

Scope stands require very little maintenance, apart from the odd nut or bolt coming loose, or springs stretching, but as most of them are actually manufactured in Great Britain, there should be no problem with spares.

One last word of advice - do spend time getting your scope and stand in just the right place; if you make any slight alterations to your sling or handstop, you may have to alter the scope height slightly as well. Quick and easy spotting of shots is essential - don't strain anything trying to see where the last shot went, as it could cause your sight picture to deteriorate, or it may make you lose your position.



Get that scope close to your eye!