Merlin Bows

Technical Advice Sheet

Stabilising For Accuracy On Compound Bows

Stabilisers on compound bows are an integral part of any archer's equipment, but very little has been written about the actual function of the stabiliser.

Like all my articles, I try to hit middle ground. 95% of all archers will never be World Champions, and the other 5% can accommodate a more radical equipment in their quest for those extra points. The following cause and effects may help you get the best out of your stabiliser set up.

V-bars:-

The first area we will cover is V-Bars. In my opinion V-Bars on a compound is as much use as a hand break on a canoe. They may look the business, but there are only three reasons, I can see, to have them. Although there will always be archers who choose to use a full set of v bars, for every one good archer that uses them, I could name 10 that do not require them. Keeping both your form and equipment as simple as possible is always the most sensible way to attain consistency.

Reasons to use V-bars:-

1. To add mass weight

2. To offset a long stabiliser which, without back-weight, i.e. V-Bars, the bow would be excessively front heavy.

3. Some times a single v-bar may be used on the opposite side to the sight, to offset the weight of the sight window and sight. This does not necessarily need to be a rod, but can be just a weight.

At this point we will mention the original concept of a v-bar.- To help keep the bow vertical, like a tight rope walker uses the help of an extended horizontal balance. On a compound bow, the spirit level provides that function.

Without doubt, on recurve bows, the stabilising and balancing effect of a v bar adds to the overall performance, but we are talking about compounds.

Vibration:-

It is often assumed that one of the main functions of a stabiliser is to reduce vibration. In fact you will have no doubt seen numerous adverts claiming that 'reduced vibration equals improved accuracy' etc, etc. The fact of the matter is that reducing vibration will

have no effect on accuracy whatsoever, and should not be the overriding reason for selecting one stabiliser over another.

Of course it is more pleasurable to shoot a bow with less vibration and noise, and it will probably stop your accessories from shaking loose, and your elbow will last longer, but as far as improving accuracy? Nope!

Vibration can't affect accuracy because the arrow has left the bow when it all occurs. On releasing the string, the limbs fly forward and the arrow exits the bow. The original sudden stop of the forward moving limbs, string and cams, plus subsequent backward and forward oscillation of these (and other) parts is the cause of vibration. The arrow has long gone!

The point is, when selecting the best stabiliser system for your bow, look at the balance and aiming before anything else (or maybe colour for some people!). Then look to vibration, and remember, there are several after market accessories that are more likely to reduce vibration that just a stabiliser

Balance:-

It is said that the balancing and tuning of the stabiliser affects the tune of the bow. This is a myth. The stabiliser has little or no effect on bow tune, except for a negative effect when excessive front weight it used. It does, however affect the archer’s ability to aim better and to help offset and stabilise the reaction of the bow during and after the shot. It is the improved aiming that generates the improved grouping, not the bow shooting the arrow more accurately.

The forces translated to a bow by the archer are never in line, it is always a compromise. Bow companies have tried putting the arrow as the centre, others the grip as the centre of the riser, others a balance of the two. That is why stabilisers can give both a positive and negative effect on the way the bow reacts, both at full draw (your aim) and after the shot (reaction).

There is a trend now to avoid over weighting the end of the stabiliser, and this is due to a change in riser designs on compound bows. Some years ago almost all compounds were a longer, deflex riser design. This geometry is naturally more back heavy (the top limb wanted to fall back towards the archer), and requires longer and heavier stabilisers to bring the bow into a more balanced position.

With the gain in popularity of other riser designs, and shorter length bows, straight and reflex risers put the mass weight of the riser over and forward of the hand. This is where people often make a mistake of copying other peoples stabiliser systems and overlook that particular bows riser type.

So what is the best way to balance a compound bow? A good place to start is to attach a stabiliser that causes the bow to gently tip forward when the bow is lightly held. The

reason for this is a logical one. The arrow wants to leave the most stable platform possible. If the bow is excessively front weighted, it is possible for the bow to start tipping forward before the arrow has had a chance to disconnect itself from the string, causing the nock end to raise up. The arrow stays connected to the bowstring well forward of its original brace position.

Once this balance has been achieved, slowly experiment by moving the weights up and down the rod. You may find there will be an optimum point where the bow will settle quicker, and aim more steadily on the target. It is only a subtle change, and may be difficult to notice, so don't expect a sudden transformation in your aiming.

Length:-

The optimum length of stabilisers for the majority of male archers is between 30" - 34". Ladies with shorter draw lengths, and people with shorter axle bows, 25-30" is a good length. The extra long stabilisers being shot (up to 54") have only one advantage, but a few disadvantages.

The Advantage: At full draw it gives the benefit of reduced sideways torque on the riser. The longer stabiliser extending out of the bow, the more difficult it is to move right and left. Given the fact that as much as 70% of missed shots go right and left, the benefit is clear.

Disadvantages:-

Increased mass weight. The extra long length makes the bow very front heavy and so requires V-Bars or rear weights to offset the excessive front heaviness. On the high let off bows of today, torque is not normally generated from the riser, but due to pulling the bowstring out of line at full draw. Increasing the mass weight and the effect of the long stabiliser reducing any sideways movement of the riser can make pulling the string off line easier. Also, if you are bit shaky on your draw, then the extra long stabilisers can take a long time to settle down from their left right swing, wasting valuable aiming time.

A long stabiliser being shot by someone with bad technique may have the effect of lowering score rather than raising them. The very best archers will find some minor benefit to help them get that extra 1 point nearer to maximum, but it is not for the majority.

Over the years, stabilisers have improved. The main change is that the early stabilisers were of tapered design, relying on the weight at the end, where, today, it is common to have a parallel rod and less weight at the end giving a better distribution of the mass. This was because relying on a weight that was disproportionate to the rod caused a pendulam effect, like on a grandfather clock, that once it started moving it was difficult to settle.

With the current trend and innovation, compound bows have got shorter, faster, lighter, and have higher let-offs, so stabilisers play a bigger part than in years past. The

adjustable weight stabilisers, i.e. multi-rods, have come into their own. But it's the ability to move and place weights over it's length that is it's prime advantage.

This type of stabiliser, over all the others, in my opinion, can improve the accuracy of your shooting and, beware, can add to your problems. There is no such thing as a factory set position. With draw lengths from 21" - 33" and bow weights from 25 - 70 lb. plus many makes and models, no one setting is optimum. Best guess? Yes. Optimum? No.

I am a great believer in what works for you does not necessarily work for others. Too many arches, in their quest for improvement copy other archers set-up, hoping to improve and while it may be one way to learn, you have to know why these people use a particular stabiliser set-up. They may have just imitated someone else.

I hope this article has given you an understanding of what effect stabilisers make to your compound bow and how they can both improve and restrict the accuracy of your shooting.