

John Dudley takes us through the steps involved in setting up a Hoyt Cam & 1/2 system

CAM & 1/2

It's no secret that I am shooting a different bow to the one I've shot for the past decade. Just like many athletes in pro sports, things change, and so does their equipment. I went from being the strongest supporter of single-cam bows in the European market to now shooting the Cam & 1/2 system. Since changing over, it has been overwhelming how many Hoyt supporters have blasted me with emails asking me to write about setting up a Cam & 1/2 bow. This topic obviously needs some attention, so in this article I will walk you through the process of how I got my new Hoyts working to the level I require for peak performance. At this point I'm not going to stand on a post and crow about which system is better or worse; I will say that it has been eye-opening experience working with Hoyt's cam technology. The two systems are different in many ways and I had to make some slight adjustments in how I got my Cam & 1/2 ready for target season.

The first step I take when setting up any new target bow, regardless of brand, is replace the stock strings and cables. Don't get me wrong, most the OEM strings are high-quality strings. However, they're designed for performance, vibration reduction, and bow longevity. My primary concern is length consistency over time. I took my new Ultra Elite out of the box, checked the top cam for synchronisation, and marked a temporary pencil line on the bottom cam using the limb for a straight

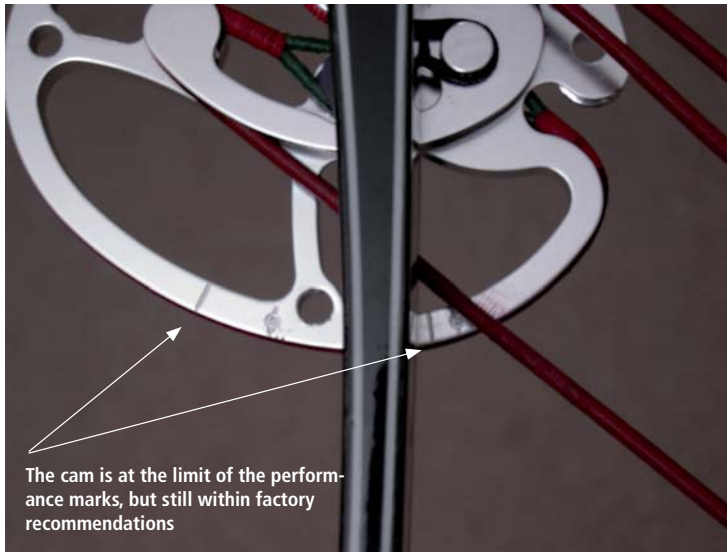
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edge. That way I can get the replacement strings to the same length as the stock rigging as a starting point. I'm using Nealy Custom Bowstrings (nealyststrings@hotmail.com) that were made to my specs with 26 strands BCY 452X material. I don't like to mess with my bows once I have put so much time into making them right. Having professional-quality strings, designed for high-repetition target shooting, will help ensure that I won't have to make future adjustments. I get many emails requesting information about how I keep bows shooting consistently from one tournament to the next. The simple solution is getting a professional-grade string and cable system that doesn't creep, and keeps cam rotation,

draw-length and synchronisation consistent under all conditions.

After changing the strings, I first synchronise the cams then adjust their orientation to meet my desired draw-length by either adding twists to the string or equally twisting both cables. I have a draw machine set up at my house that I pull all my bows back on to make sure the draw length is set exactly. It is a pretty simple machine, consisting of a board with a large post in it that holds the bow grip while I pull the bow using a hand crank. On the board I have a tape measure and a mark to the exact place I have decided my draw should be. Alternatively, you can have a friend mark an arrow at the throat of your grip (which is





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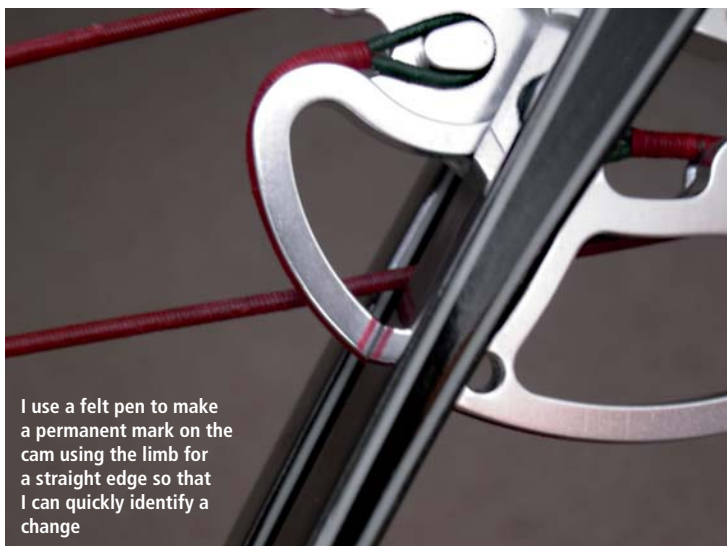
the buttonhole on most bows) on your old bow at full draw; then match it by adjusting the draw-length on your new bow using the method I just described. On a Hoyt, the grip throat coincides with the centre of the rest hole. This will help you set your draw the same from bow to bow. I usually order 31" bows and slightly lengthen the draw as I need a draw-length of 31.27". Performance marks can be found on the bottom cams of Hoyt bows that indicate the recommended rotation range to maintain optimum performance. I twisted up the bottom cable until the draw length was exactly where I need it to be. As you can see, my cam is at the limit of the performance marks but still within factory recommendations.

Next, verify the top cam is synchronised with the bottom cam at full draw. If not, add or subtract twists in the control cable until they are. Yes – I did say

synchronise! Even though hybrid cam systems are linked together by the control cable that forces the wheels to rotate together, you should still set the cams to finish the draw cycle at the same position. The top cam has a straight portion in the track at full-draw that should be in contact with the control cable at full-draw

You can make draw-length changes more efficiently if you synchronise the cams first, then add or subtract equal twists to both cables for fine-tuning your draw-length. This way you're never more than a twist away from being synchronised.

Single cam bows do not require individual cam synchronisation. However, they are still sensitive to cam orientation. The cam orientation for a single-cam bow dictates the bow's draw-length, peak weight, and proper nock travel similar to the way synchronising a hybrid cam affects these parameters. When a cam's orientation

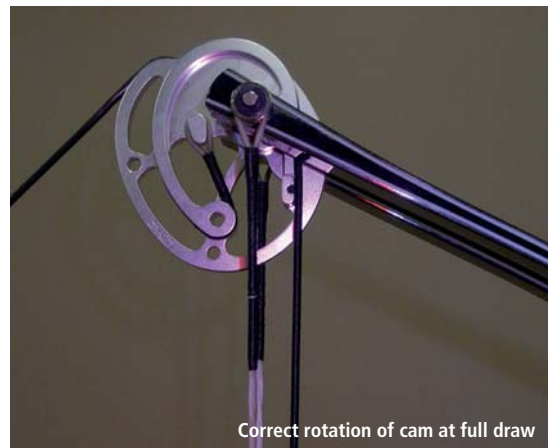


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changes due to cable creep, your bow will vary from your desired setting, no matter whether it's a single cam or hybrid system. Therefore, it's very important to keep track of this setting. Once I have set my draw length and synchronisation, I use a felt pen to make a permanent mark on the cam using the limb for a straight edge so that I can quickly identify a change. This also provides a convenient reference for quickly fixing the problem and getting it back to where I started.

Next, I install my arrow rest and nocking point. I use the Trophy Taker Spring Steel – one with a 0.010" blade. It has worked flawlessly in the past and has a good blade angle. There are a few choices in loop/nock options. I know that most Hoyt shooters favour a single-nock set with the loop directly above the arrow and the nock point tied



Correct rotation of cam at full draw



underneath the arrow. However, I don't like the idea of the arrow being directly against the loop because if I needed to change the loop, I would lose my top reference point. With these two systems in mind, I tied a standard loop with double-nocks but I tied the nocking point above the arrow about 2mm smaller than normally would and I tied the nock underneath the arrow about 1mm larger than before. This provides the extra downward force of the single-tied nock system without sacrificing a consistent top reference point.

When setting the position of the nocks I ran the arrow shaft directly through the centre of the rest hole. I have tried the arrow in several locations on the string. For me, that's where the bow aimed best. I discovered this when I was at Hoyt several months ago. I had set-up two bows exactly the same, but found I was holding and grouping much better with one than the other. The bows were identically made and matched on a computer. The only difference in the two was the positioning of



Check out the Hoyt website: www.hoyt.com for more details of the Cam & ½ technology



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the nocking points on the string. When I moved the other nocking point so the arrow ran through the centre of the hole, it sat still on the dot the same as the other bow. I encourage you to play around with your nock and rest-position with trial and error to determine what works best for you. I found this to be beneficial with my old bows as well.

I set my arrow at 90° as a starting point on my bows. Since the arrow rest has micro adjustability, it's easy to make adjustments from there depending on how it is grouping later on. After setting the rest and loop, I roughly set the centre shot which for me on the Ultra Elite was 2cm from the inside of the riser to the centre of the arrow shaft. I checked my indoor bows through paper and they shot a clean hole. For 18m, this is a good starting point and my additional left to right tuning will be done with point weight in the arrows. My outdoor bows will require more advanced tuning techniques than just paper. Long distances are more demanding and require precise tuning for optimum results. I will be using a tuning method that I call "French tuning" that you can read about on my website www.dudleyarchery.com

Now that we have set the strings, cams, nocks, loop and rest we can move on to some additional steps. Since the riser and limb-designs are so different from my old bows, I had to change my stabiliser weight and the position of my accessory weights on the bow. The bows I shot before had longer risers, shorter limbs, and a lower grip so they were more top-heavy and front-heavy in my hand. With the Hoyt, I found that I was able to shoot more weight on the end of my front stabiliser than before. When I tried a heavy-front weight in the past I felt as though I was fighting it. Now, the additional front-weight felt better and solidified how the Hoyt aimed. I also moved

the side rod closer to the front of the bow using a Shibuya v-bar bracket. This is the first time I have used these brackets and they are very adjustable and well-made. I think the shorter offset sight window and the shoot-through strut on the outside of the shoot-through riser on the Elite Series bows help maintain a better neutral balance; I didn't need to have my side rod at 90°. Since the overall weight of the bow is much lighter I was able to put a small Doinker on the back of the riser to help stabilise it and reduce vibration. I see that many people also stack weights for balance in the lower holes on the side of the riser. Overall, physical weight is a personal preference so you should experiment and place weight where it works best for you. The Hoyt bows have threaded holes in several places that provide a lot of flexibility. After weighting the bow I made a few changes to my arrows. For the first time, I found that vanes shot better than the feathers on my indoor arrows. That's



a nice surprise, because I hate fletching feathers and they are a pain to travel with. The 4" Easton vanes worked great. I shot both feathers and vanes side-by-side and I found that my bad shots were worse with feathers. I stayed with the X7 Eclipse 2315 arrow shafts; but I did find that I now need to shoot more point-weight than before. I had to go up nearly 40gn with my Pro Points to get the arrow spine to break down so my left and right groups were nice and tight. No matter which bow I shoot, I always tune with point-weights and Pro Points (see *Bow* issue No 38). I also made a quick adjustment to my Carter release and installed a slightly stiffer spring. I usually do that at the beginning of every season so that I force myself to make stronger shots. The C2 cams have a very hard back wall and when I shot my old spring the release would fire too quickly. This is why having the ITS system in your carter release is so beneficial.

Setting-up new bows, even of the same brand, often requires trial and error. Sometimes you may get lucky and be able to use the same set-up as a previous bow, but to be honest, it's very unlikely. You need to put time into your investment and be willing to try new things. Don't be afraid of going to the range and honestly evaluating your set-up. Shooting a totally new system requires learning and adaptation; this is proven in the performance of others. I have enjoyed getting out of my normal tuning ways and trying new things again. After a little trial and error, I am very pleased with how my new bows are performing. Whether you are new to the Cam & ½ system or a long-supporter of it, hopefully you find these tips useful. Good luck and good shooting!

