

STRINGWALKERS' TRILOGY

*A GUIDE TO TUNING YOUR
COMPOUND BOW FOR
WALKING-THE-STRING*

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FOREWORD

The most frequently asked question by anyone watching a stringwalker is, "How do they do that?" Really, it's very simple to explain, but fairly hard to master. Walking-the-string is not instinctive shooting, but is quite analogous to setting the rear sight on a rifle. . . the point of arrow (the front sight) is held on the bulls eye while the rear sight is adjusted for range (the yardage) by "walking" down from the arrow nock a distance (the "crawl") that's related to the yardage shot. Freestyle archers are just the opposite. . . their rear sight is fixed while their front sight is adjusted for yardage shot. Stringwalkers, however, cannot have any "written memoranda" telling them the relationship between range and their crawl. It must be committed to memory.

By reading the following three articles it's easy to see that stringwalking is still an art and not a science. In fact, don't be surprised if some of the suggestions are often contradictory among the three authors. Science is exact, art is not; and all three authors agree that what works best for them may not work for you. So, you may need to try more than one approach.

Our authors have impeccable credentials as United States or world champions in their own right, and/or as teachers of champions. Space doesn't permit us to list complete resumes, so here's a capsule summary of their national and international championship (only) achievements:

Brad Marshall has won three NFAA National Outdoor and one National Indoor Championships, two IFAA World Field Championships, three IFAA European Field Championships, one IFAA European Bowhunter Championship, four EFAA Outdoor National Outdoor and two National Indoor Championships, and one English Grand National Indoor Championship. Four of these were shot with a recurve bow. Brad is the current U.S. and World compound barebow champion, and set five IFAA and EFAA records in 1994.

Byron Korby is noted more as a teacher of champions than being one himself. Archery is his full-time job, and he spent many hours perfecting barebow shooting techniques. His students have won twenty-five NFAA National Outdoor and National Indoor Championships and one IFAA World Championship, while setting several records along the way. Wife Cathy, sons Bill and Pete, and daughter Becky have most of these championships. This year, Cathy was honored to be on the U. S. World Field Team as a FITA Barebow (recurve!) shooter. BBF member Don Snider (3rd, 1993 National Outdoor) is also a Korby disciple.

Way back In August 1978, Bruce Shelley wrote an article in "Archery" magazine entitled, "How to Set Up for Stringwalking." He's still at it. He has won one NFAA National Outdoor Championship himself, and has coached three others to fourteen National Outdoor and one IFAA World Championships. Wife Gloria has won an unbelievable twelve national titles. Primarily outdoor shooters, Bruce and Gloria missed the 1994 National Outdoor after making every one for twenty-three consecutive years.

PART 1 - BRAD MARSHALL

Most of my bow tuning over the previous three years was basically a hit-or-miss proposition, trying different things for a short time and then either incorporating it into my normal way of tuning or discarding it. Each variation tried, whether good or bad, gave me valuable information which I tried to remember.

Last year I finally broke down and bought Tuning Your Compound Bow by Larry Wise, and low and behold, there in print before my very eyes, was a majority of the things I have been trying and getting frustrated about for so long. Chapters 3, 4, 6, 7 and 8 are the ones that I believe you must read and heed. In Chapter 7, Section A, he writes two lines which I really agree with: "Don't be afraid to try adjusting in the opposite direction of what is supposed to work", and "Tuning is not easy if your expectations are high."

Here is a list of what I do (and use) to try and make a tuning process work for Barebow:

- 1.1 Arrow Rest - the Springie is the only arrow rest I've ever used for stringwalking. Others may work as well, but I have found this rest to be simple to tune and it is so basic, I never have any worries about it failing during a tournament (one less thing to think about).

Make sure you trim it so it never overhangs the side of the arrow shaft. It should have a slight upward tilt, which ensures the arrow stays on properly when the bow is canted or when there's a crosswind. The arrow should be near the center of the coiled spring. It doesn't have to be exactly in the center, but as close as possible while still having an upward tilt. I also file the end of the springie smooth so there isn't a jagged edge after cutting it.

I also keep another complete rest in my quiver at all major tournaments. This backup has been thoroughly "shot-in" so I know it is almost exactly the same as my original. Again, it's one less thing to think about.

- 1.2 Overdraw - I have been using the short PSE CF-Micro Springie rest for quite a few years. I like it because I can remove and reinstall it, or replace it with another one, with no change in nocking point. It has an easy way to adjust center shot and it's very convenient for installing a bubble level. It is also probably the shortest overdraw you can use. In 1994, on my new PSE LD2200, I put the Springie through the back hole in the riser. This eliminated some of the string alignment problems mentioned below in 1.8.

This is obviously something that everyone may not want to use. You have to evaluate this based on your own shooting form. My form is not the greatest, so it can't be extremely critical with a short overdraw. This overdraw can also be used on bows other than PSE's.

- 1.3 Bubble Level - If you don't have one on your bow, what are you waiting for? Mount it close to your arrow rest so it is not a major task to see it. Have it large enough to see clearly. Don't make it a huge part of your aiming process. You should get to the point where you are seeing it in your peripheral vision so it doesn't distract from your aiming process.

I cut mine from the Stanley Torpedo Level. You get two bubbles for about \$5.00. I super glue it to my rest and then put RTV around it to keep the water away. I have not yet had one fall off.

With the elimination of an overdraw on my LD2200, I have now modified the old overdraws by installing a bubble in them. By removing the insert where the springie is mounted, you can install a bubble which is fully protected from damage. It can also be easily removed and reinstalled on the same or another bow with no modification.

- 1.4 Nocking Point - Again, I try to keep this as simple as possible. I tune at approximately the 40-yd crawl, trying to get as close as possible to a clean paper tear at about 6 feet. A slight tear of about 1/4 to 1/2 inches at 330 degrees is about normal for me. I don't bother trying to get a perfect tear because I am more concerned with the flight at 20 to 40 yards. After paper tuning, I then check it and adjust if necessary to get decent flight at the longer distances. I then go back and do a paper test again to record the final results.

I use two nock sets... one above and one below. Initially, install them so you can turn them up or down, but tight enough so they don't slide when shooting. After the final tune, I tighten them down.

The nock goes under the top nock-set. When I crawl, the tab butts against the nock so if either nock-set has moved, I will notice a change right away. It would be rare that both nock-sets would move together without you noticing a serving problem.

My nocking point on my PSE Laser-Flites is 1/8" below 90. On my LD2000 with full Fast-Flite system, it is 3/8" above 90 deg., no matter what I did to wheel timing. When putting new LD2200 limbs on and going back to a tear-drop system, the nocking point went back to 90 deg., and the arrow flight improved tremendously. I'm not fully convinced that a full Fast-Flite system is the way to go when stringwalking. But maybe I haven't experimented enough with it yet.

- 1.5 Tiller - I have not noticed any advantage in changing the tiller on my bows. I have them set the same. Other makes of bows may obviously be different.

- 1.6 Wheels - Initially, I heard that you couldn't stringwalk with anything other than a round wheel. I have become particularly fond of the energy wheels. The slight cam definitely improves speed, and I haven't found them to be much harder to tune than round wheels. For my bows, it is critical that I be in the valley as close as possible (see Larry's book). Your method of being in the valley is up to you....clicker, cable stops, markings on the cables, or "feel." the clicker and cable stops are not my favorite choices. Currently, I just get into the valley from experience, but may soon try markings on the cables. It's hard to "feel" the valley or pull through a clicker on those nasty hill shots.

Percent let-off appears to be a personal preference. If you have a good release, you should have no problem with the 65% let-off wheels, but don't kid yourself about your release.

- 1.7 Wheel Timing - Whatever you do, get this right (see Larry's book). I can't tell you anything he hasn't already said.
- 1.8 Center-Shot - This has been a pain for me since day one. I always align my string with some portion of the bow to ensure consistent head position. If you change head position, string alignment changes and arrow impact point changes. The problem is that different distances have different string alignment points for me. My set-up is with the arrow slightly inside center-shot using the conventional method. At full draw, I look inside the string while aligning the string with a point on the bow or arrow. At the shorter distances, the string is very close to the arrow, while at longer distances, the string is farther away from the shaft and aligned with the riser, somewhere. I know that this doesn't sound very precise and I don't like it, but it works.

With the small overdraw removed on my LD2200, I now sight down the outside of the string with the string aligned on the riser. I have to cant the bow slightly on the bunny and also everything from 55 yards out. At least the string is now aligned on the same point and the cant is very minimal. The slight cant makes the difference between an inner four and a spot.

- 1.9 String - Fastflite with 0.018 or 0.21 monofilament works for me. Black is the only color I like; it cuts down on the glare and enables me to see the arrow tip more clearly when the string alignment is close to the arrow. I also make sure the serving goes above my eye. This seems to cut down some of the glare also.

Don't be cheap. If you see that your string is fraying anywhere, put a new one on. The same goes for your serving. I put a new serving on every few months, just out of habit, and especially a couple of weeks before big shoots. Also make sure you have at least one spare string already shot-in, so you have confidence in it when you have to use it.

When you get a new string, remove the serving and redo it yourself. This forces you to learn how to do it, and it also squeezes out much of the remaining wax. I think this wax tends to allow the serving to slip on the string. Typically, the string maker only serves it once, which opens the possibility of the serving slipping.

- 1.10 Arrow. - Avoid shiny shafts. The glare from the sun or inside lighting can play tricks on your aim. Remember how Dave Clem would powder the ends of his black X7's. It made sense to me. I like the camo XX75's or ACC's. They seem to be pretty consistent in all lighting.

My personal preference is for Macro vanes, either 3 or 4 inch. My arrow flight appears to be just as good with the vanes as with feathers, and I don't have to worry about the vanes getting wet. Again, one less thing to think about.

I have tried carbons and shot with many stringwalkers using them over the years, and they still seem to be extremely critical to me. The arrow flight looks terrific but it seems quite often there are shots which go into the three ring if the release is not quite perfect. Anyone that has seen me shoot knows that I need the most forgiving arrow there is, and the old XX75 has proven results for me. The forgiving nature of the aluminum is more important to me than picking up a few yards distance with the carbons.

- 1.11 Anchor - The more anchors you have, the greater the chance of error. You can accidentally come to the wrong anchor and it's basically impossible to have consistent multiple anchors. Every time you anchor it's the same as freestylers aligning their pin or dot in the middle of their peep. Since we don't have that advantage, we have to have as consistent an anchor as possible.

Some of us are lucky in that we have hand and facial bone structure which allows us pretty consistent anchor points. The bottom of my hand fits along my jawbone with my index finger in the corner of my mouth (resting on my incisor tooth), and the top of my hand rests against my cheekbone. It's a three-point anchor; not as precise as a freestyler's, but it's still consistent. Dee Wilde has written an article in one of the international archery magazines, in which one of his main points was basically the same as mine... you must have a consistent anchor. I prefer aiming off the target at 80 yards instead of changing my anchor, even for only two arrows a day. At the longer distances, you can use the arrow shell on the target and this should still give you the ability to crawl up or down a few wraps necessary for hilly shots. Dave Clem taught me that one.

- 1.12 Tab - I have used an old Wilson Tab for ages and still like it. It has never caused me any grief. But throughout 1994, I have used a new tab and it is super. It is a Cavalier "Elite" tab with the Saunders "Fab Tab" material installed. It has a small ledge which the freestylers use on their jawbone. I have this installed so that it makes contact with my cheekbone using the index finger in the corner of my mouth. It is by far the most consistent anchor I have used while stringwalking.

Dick Budd taught me to shoot compound barebow with only two fingers from day one, so that's what I've stayed with. It seems to work well for me and I'm sure it helps the release when holding only 18 to 20 pounds because of the 65 let-off.

- 1.13 Crawling - If you are not counting serving wraps then you are wasting one of your assets. Depending on your bow set-up, one wrap can make the difference between the top spot and the middle of the spot. It doesn't take that much to memorize your crawls.
- 1.14 Aiming - Do whatever feels comfortable for you as long as it's consistent. I put the spot on top of the arrow tip....sort of. Indoors, I'm concentrating on the spot totally, and the arrow tip just subconsciously comes under the spot. There's a gap between the tip and the spot, but it's always the same, so I don't force the tip up. It's basically the same when I'm shooting well outdoors. I just can't see the spot as well. The key is not to force it. If it doesn't feel right it's probably because your draw/anchor set-up was wrong. Let it down and start over.

I don't think it makes that much difference what type of bow you shoot as long as it is forgiving. It's obvious from the results at major tournaments that most makes of compound can be shot barebow. I haven't tried a bow shorter than 45 inches, so I can't give an opinion on short bows. It basically boils down to what feels good in your hand. If you are confident in your equipment, then you only have to worry about the main problem....your head.

Al Henderson has many good things to say in his books, and there are certain chapters in them that I read prior to major tournaments. I think it helps to get the head on straight.

PART 2 - BYRON KORBY

I will try my best to take you step-by-step through a basic procedure that has worked for several stringwalkers. Remember, the art of archery is your own shooting form. Your knowledge of your form will assist you in applying the stringwalking science. Tuning a stringwalking set-up is a science worthy of study. The proper application of archery laws to achieve the desired goal of aiming with the tip of the arrow at all distances is a very satisfying challenge.

Before we begin there are a few basic equipment needs to address:

- 2.1 String Angle - The angle between your arrow and string when at full draw should be as large as possible. There are three reasons: (1) maintain maximum control of your arrow launch, (2) minimize string crawl area, and (3) minimize your draw-length variation when using a draw check device. Factors which will give you a wider string angle are: (1) longer axle-to-axle bow, (2) longer limbs on your present bow, (3) more deflex riser angle, (4) more preload in the limbs, and (5) using a straight limb instead of a recurve limb. [CAUTION: ... Adjust preload only if your static string tension is low.] A string angle too wide can cause problems with chest clearance (critical), eye glass clearance, or cap brim clearance. As a general guideline, most 30" or longer draw-length shooters use 46-48" bows, and those with 29" or less are using 44-47" bows.
- 2.2 Wheel Size - Wheel size on a given bow determines the draw-length range for that particular set-up. The longer your draw-length, the larger the wheel will be. Also, consider that the longer the axle-to-axle distance is, the smaller your wheel will be for your particular draw-length. Larger wheels tend to have larger "valleys." This especially helps the clicker shooters.
- 2.3 Wheel Type - Wheels with the largest valleys are round. They can be either parallel or offset in design, but the string track and cable tracks are both truly round. The parallel wheel creates tighter string tension at full draw than a step wheel. A medium-to-small valley is found in energy wheels which have a round string track and an elliptical cable track. These smaller valleys help the non-clicker shooter get to a more definitive holding position at full draw, but also create draw-length problems for the clicker shooter.
- 2.4 Clickers - You can see that there is a distinctive difference between a stringwalker clicker shooter and any other style of shooting with or without a clicker. All riser-mount, cable-guard mount, and clickety-click type limb mount clickers will produce a different draw-length for every crawl position. This is easy indoors because you only have one crawl but your draw-length can vary over one inch on an outdoor set-up. This paradox is caused by the angle of your string that is above your fingers (crawl position). The actual distance between the tip of your arrow and your arrow rest changes as you crawl. With a deep crawl, your arrow tip is extended farther ahead of the arrow rest than with a shallow crawl. Freestyle clicker shooters are easy to set up because they keep their fingers on the string the same way each time. Again, the crawl and clicker combination is the one that needs the largest valley to provide the needed crawl range.
- 2.5 Arrow Rest - The arrow rest selection has an extreme variation in results for all stringwalkers. You need one that flexes vertically because the crawl produces a variety of downward pressures on the rest. Also, you need one that has horizontal flex because you are shooting with your fingers, which produces a horizontal oscillation in the string path. Examples of proven good choices are the Stanislawski Superb, Stanislawski Classic, Golden Key Star Hunter, Hughes and Korby arrow rests. Variations in vertical flexibility result in changes to your point-on distance and control over the arrow's porpoising action. Also, it controls how light or how heavy a shaft/point combination you can shoot. Horizontal variations will affect control of fishtail and your string alignment. I prefer my arrow tip to be aimed directly at the bullseye with the same string alignment through the entire range of crawls. For tuning convenience, the rest should be easily adjustable for center shot position.
- 2.6 Bubble - You can also add a bubble, which can be adjusted for plumb or any cant angle that works for you. If you use a bubble, it must be located below your arrow. A bubble can be a shooting-aid in crosswind conditions. Just cant into the wind, as appropriate, and continue to aim directly at the bullseye.
- 2.7 The Crawl and Tab - Stringwalking is an entire system of shooting, but the walk or "crawl," is an art within itself. Basically, you must get your fingers at an exact placement below the arrow nock in order to hit the bullseye at a predetermined distance. My crawl usually encompasses about 90 wraps of serving from the 80-yd position to the 20-ft position. That's a lot of counting to do for a 112-arrow Field Round! Some string walkers actually count each wrap at each distance. Wow! Being from northern Minnesota, we only get about four good weeks to practice outdoors before the Nationals. That doesn't give us much time to tune up, get our final crawls worked out, and then memorize it all. I developed a crawl system on a riveted tab that is quick and easy to memorize. In fact, most of our crawls are memorized in the car on the way to the Nationals! Some other stringwalkers use a stitched tab (Wilson-type) to "skip" down the string, while others use the finger-split in their tab to "jump" down in intervals and then crawl to the desired finger position.

You might say, "So what if I'm off one or two wraps?" Depending on your serving material diameter, above 40 yards, a one-wrap error is a definite miss for a perfectly aimed shot! You must be precise on your crawl and your view

perspective of it. Look at where your thumbnail is from the same head position every time you crawl. Also, sharpen your thumbnail to prevent slipping during your count.

Now that you have assembled your initial selection of tunable equipment, you can proceed to tune it. Because all models of bows are not built the same, tuning one bow will likely not be the same as tuning another. We have to start with approximate positions, then checkout by shooting, and then adjust to get to the final tune. FOLLOW THESE STEPS IN ORDER:

- 2.8 Consider your bow-hand position. This does not always relate to the grip design. Concern yourself with the actual pressures being applied: basically high, medium, or low wrist. We have found that the low wrist position (generally recognized as the most stable and reliable) requires a more positive tiller setting (usually 1/4" - 3/8") than a high wrist position (usually 1/16" - 1/4"). Also, longer bows can use more positive tiller than short bows. Final adjustments will be confirmed later, but for now, start with an approximated position.
- 2.9 For your nock-sets, use either: a new-style Saunders, which has a rounded edge, or a tied nylon one. Lately, we have been using a Saunders for the bottom nock-set and a tied nylon one for the top nock-set. Set the top edge of your bottom nock-set about 1/16" above the level reading to your rest. The bottom of the top nock-set should be placed to give you enough space between the two locators so that your arrow nock will just touch, without binding, both locators when at full draw. Before drawing the bow (static position), there will be about 1/16" to 1/8" "play" between the nock and the top nock-set. It is best to nock your arrow against the top of the bottom nock-set. Also, the longer your bow and/or draw-length, more "play" space will be needed between the arrow nock and the top nock-set.
- 2.10 Set your center-shot adjustment by visually aligning the string and the arrow over your bow-hand's center position. Do not be concerned about any other alignments at this time, as they will be adjusted during the tuning-by-shooting process.
- 2.11 Check to see if your wheels are synchronized in rollover at full draw with your fingers one inch below the arrow nock. Some set-ups at the static position will show the bottom wheel slightly advanced in rollover compared to the top wheel. They could be even here, but never have the top wheel advanced. Adjust rollover now, if required, then check and reset the nock-sets before proceeding.
- 2.12 10-ft Shooting Test - Stand ten feet from a bale that is high enough so that a target can be placed at shoulder height above the ground. Note: The bale must be made with non-directional material. Arrow entry angles are extremely important during the rest of this tuning process. Worn excelsior is a popular example. Compressed layers of cardboard can give false arrow entry readings. Use a 20 cm or 35 cm Hunter Round face. Crawl down the string one inch below the bottom nock-set and anchor near the corner of your mouth. Aim at the bullseye with the tip of your arrow either splitting the spot directly in half or at the bottom of the spot. Many shooters find aiming at the center to be a less tense method. Shoot to see how straight your arrow enters the target. More than likely, your impact point will be above the spot. . . . this is good. If it tails high, lower your nock-sets. Raise them if it tails low. If it tails right, adjust your center-shot position of your arrow rest to the right. Move it left if the arrow tails left. Combined adjustments will give you an arrow that enters straight. [Reminder: the nock-set must be adjusted before making adjustments to the center-shot position].

A clearance check can now be made by spraying foot powder (or something similar) on the last eight inches of your arrow, including fletching and nock, as well as on the entire arrow rest and sight window area. Any obvious impacts should then be corrected by the usual techniques of nock rotation or spine change (bow poundage, tip weight, shaft length, shaft stiffness, etc.) or by fine adjustments of the arrow rest.

Stay at ten feet and crawl down the string approximately one additional inch and shoot again, while aiming and anchoring the same as before. If you hit below the center of the bullseye, crawl slightly higher until you impact the center. If you are impacting high, crawl lower to hit the center. Use any natural reference marks on your tab to determine where your finger position is each time. Normally, your arrows will now be entering the target with a slight tail-high angle. This is OK.

Again at ten feet, shoot one arrow from every 1/4" position on your string from the point-on crawl up to the nock. Your first shot should enter the center of the bullseye and be slightly tail-high. As you proceed in 1/4" increments, the impact of each shot should be higher in the target than the previous shot. When you get to your one-inch position, the arrow should enter straight. From this position upward toward the nock, the arrows will be entering the target progressively tail-low.

If the entry angles appear to be excessive for both the top and bottom arrows, check to see how close to the middle of your crawl range is your "straight-arrow" entry position. You can now readjust your nock-sets, if necessary, to get your straight entry shots to relate to the middle of your total crawl range. Now your top and bottom impact angles should be about the same. If these angles are radical, try changing the arrow support portion of your rest to one that is more flexible. Another technique that has worked is to increase your tiller in 1/16" increments. Remember to relocate your nock-sets after each tiller change because as you increase your tiller, your nocking point moves lower with respect to the arrow rest. [Note: This is also what happens when just one limb bolt vibrates loose. You not only change your poundage input, but your arrow tuning is out of whack.] When you do a tiller change, keep your bow poundage constant by tightening one limb bolt 1/8 turn while loosening the other bolt exactly the same amount.

The hole pattern in your target is another thing to review at this time. Ideally, the holes should climb exactly vertical out of the bullseye all the way up to the top arrow. If there's a tilt, it can be adjusted by center-shot position, bow cant (adjust the bubble if you have one), bow poundage, or cushion plunger spring compression. Also, or instead, you may have to realign your anchor or head position with the string for a "sight picture" change in order to get your adjustment to hit on-center again.

2.13 10-yd Shooting Test - Now put up a larger target, move back to ten yards, and find what crawl position hits the bullseye, and write it down. Progressively move back in 5-yard increments, find the crawl, and record it. When you get to your arrow nock, you have reached your "point-on" distance. This should be at least 50 yards....better yet is 65 yards. A few of us have been able to get all the way to 80 yards. By trial and error testing, you will determine whether you want to use two anchors (and memorize crawls related to both) or to find one anchor that works for all your yardages while still giving you good flight control and grouping ability. Remember, before you enter any NFAA tournament, all your crawl positions must be committed to memory, and do not put any marks on your tab or serving.

2.14 Walk Back Test - I have devised a tuning test somewhat similar to the "French tune" method. Set up your target on the lower half of the bale. Using only your "perfect" tune crawl (let's say for now it's 35 yards), shoot one arrow from every 5-yard increment starting at 10 yards and up to whatever distance your arrows will stay in the bale. It's interesting to watch your arrows climb up to a certain point and then fall back down, passing through the bullseye at 15 yards, and continuing downward as you walk back. Watch for a climb that goes straight up and falls back down on the same track. Also, there's usually three distances that impact almost identically at the apex of the curve. If the rise and fall do not coincide, you should consider refining your tune once again.

2.15 In Addition... We have found that concentrating on the following variables will help you get the point-on distance and control you want:

A. Bow poundage (physical exercise helps to maintain control).

B. Arrow mass (lighter arrows have flatter trajectories). The arrow center-of-gravity should be sufficiently forward to maintain long range grouping. If you don't have enough point weight, the arrow will "flutter" down instead of coming down with the point lower than the rest of the arrow, allowing it to keep "driving" ahead.

C. Fletching drag (you must have enough to produce aerodynamic stability).

D. Anchor point (lower for more distance, raise for less crawl).

E. Stiffness of arrow support (stiffer gets more distance, but eventually less control).

F. Fine tiller adjustments (changes riser angle for ultimate control) .

G. Work on the three "T's": head turn, tip and tilt must be the same each time to hit the same spot each shot!

Achieving YOUR stringwalking tune is a time-consuming project but well worth the effort. As you practice these steps, you will be able to refine your set-up at any time. You will also be better qualified to choose the equipment that allows you to achieve the "perfect" tune.

PART 3 - BRUCE SHELLEY

In this article are the basic steps that I recommend for setting up a compound bow for stringwalking. A lot of the information contained in these steps was taken from articles written by my friends David Hughes and Al Tuller, both NFAA National Barebow champions. These techniques were further improved through experimentation and additional technical information obtained from Larry Sarivas, a mechanical engineer.

The following items should be considered when buying a compound bow for stringwalking or when setting up one you already own:

- 3.1 Limbs - You should use a limb that you can push to the maximum weight recommended by the manufacturer at your draw-length. For example, if you want to shoot a peak weight of 50 lbs, use limbs rated with a maximum allowable poundage of 50 lbs at your draw-length.
- 3.2 Arrow. - It helps if you can try two or three different sizes when you tuning your bow. Remember, try to get an arrow which will work at the draw-weight you want to shoot. Also, if possible, try to use a light arrow. This will give you increased speed. For example, An 1816 X7 and a 1913 XX75 are very close in spine-, but the 1913 is a lighter shaft, and will shoot just as well as the 1816, but much faster.
- 3.3 Arrow Rest - The Springie rest has always worked well for both Gloria and me. Shoot-through rests and homemade wire rests used with a cushion plunger have also been used with great success. The Hughes rest works well for some people and is worth trying.
- 3.4 Eccentric Wheel Size - Your eccentric wheel should be one to two sizes larger than that recommended for your draw-length.

The following steps should be followed in setting up your bow for stringwalking:

- 3.5 Unless your wheels are already indexed, you should make marks in both your eccentric wheels. See Figure 1. To do this, take a bow square or straight edge and align it so that it passes through both the center of the axle and center of the eccentric wheel. Make a mark on the edge of the eccentric wheel farthest away from the axle (or, at the 180deg. position) and in line with the center of the wheel. This is your "0" mark. Next make a mark 1/4" from the "0" mark, in the same direction as the wheel rotation during draw. This is your "1" mark. Figure 1 shows these markings for the top eccentric wheel. The bottom wheel is just the opposite, as illustrated in Figure 2. [Note: You may have to draw your bow slightly to make these marks in the proper places.]
- 3.6 Place a piece of tape in the center of both limbs as shown in. Figure 3. Then make a mark indicating the exact center of the limb. Next, measure the distance from the center of the string to the center of the limb as illustrated In Figure 4. Take this difference and make a second mark on the tape as shown in Figure 3. This second mark is the mark you'll use for center-shot adjustment in Step 3.9 below.
- 3.7 Adjust your bow limbs with the weight adjustment bolts until the bottom limb has 1/8" less tiller than the top limb. This will give you a good starting point; however, once your bow is balanced according to Step 3.8, the proper tiller can be found by balancing your eccentric wheels with 0, 1/8" and 1/4" positive tiller, then checking to find out which tiller measurement gives you the least variance in the balance between the top and bottom eccentric wheels.
- 3.8 Balancing your Eccentric Wheel (when using a conventional clicker) - Load an arrow on your bowstring and place your clicker over the arrow. Crawl down the string about one inch below the nock-set. This should be about one-half the distance between the crawl you use for your longest yardage and your shortest yardage using your normal anchor. If your shortest yardage is only 1 1/2" down the your string, then you should use a 3/4" crawl to balance your wheels. In either case, place your fingers at the halfway point and draw the string back to your normal anchor. Pull the arrow through the clicker and stop, but don't release. Have someone check the top and bottom eccentric wheels to see if the cables are coming off the wheels at the "1" mark. See Figure 2. If they are not, make the necessary adjustments until they are balanced. Recheck your tiller and adjust it, if necessary. If no adjustments are necessary, then your wheels are balanced.

If you had to adjust the tiller, then you have to recheck the balance of the wheels and re-balance them as necessary. Next, place an arrow on the string and crawl down to two inches (or where you crawl for your shortest yardage), draw the string back, and pull the arrow just barely through the clicker. The cable on the bottom wheel should be coming off the eccentric wheel on the "0" mark. Your wheels will only be in perfect balance when at the "1" mark. This is because when you down the string to shoot your shortest yardage, you will be pulling more on the bottom wheel, and when you go up the string near the nock-set, you will be pulling more on the top wheel. Therefore, an imbalance occurs as described in Step 3.7, above. This imbalance can be minimized by having the correct tiller.

- 3.9 Depending on the type of arrow rest you use, you should adjust the rest and/or cushion plunger so that when you line up the bowstring on the second mark on the bow limb, the center of the arrow tip is a little left of the bowstring, as illustrated in Figure 3. This is just a starting point, and may have to be adjusted to get your arrows to fly down the middle. Adjusting the cushion plunger pressure should do the same thing.

- 3.10 The next step is to put the nock-sets on the bowstring. you should use two nock-sets. Using a bow square, place the bottom edge of the first nock-set 1/8" above center. Place an arrow on the string and push it up against the first nock-set, then place the second nock-set 1/16" under the arrow's nock.

The next steps are done while shooting the bow:

[Note: Once my bow is set up, I use the paper test to tune my bow before I go to the 40-yd target. After I adjust my nocking point and bow poundage during the paper test, I will get a perfect hole in the paper when I shoot an arrow from my 40-yd crawl. I will get a hole with a 1/2" tear downward from my 60-yd crawl and a hole with a 1/2" tear upward from my 15-yd crawl.

- 3.11 Go to a 40-yd or 45-yd target. This should be about the yardage that is shot from the place on your string that is one-half of the total distance you walk down the string. This is also where your wheels should be balanced from Step 3.8, above. Shoot some arrows to see if they are hopping up and down (porpoising). If they are, adjust the nock-sets until all hop is gone from your arrows.
- 3.12 While still at the same yardage, continue shooting arrows to see if you are getting any left-right movement (fishtailing) in your arrows. If there is, then adjust the bow poundage to eliminate the fishtailing. You must adjust both limbs equally or you will change the limb tiller, and possibly affect the wheel balance. Steps 3.11 and 3.12 are designed to give you perfect arrow flight at 40-yd or 45-yd target.
- 3.13 If your arrows are not going down the middle, then adjust your arrow rest or cushion plunger in or out until they are hitting the bullseye. Repeat Steps 3.11 and 3.12 as necessary. Make sure you are getting perfect arrow flight at this yardage and the arrows are hitting the bullseye before you proceed to the next step.
- 3.14 Go to a 15-yd target and shoot a few arrows to see how they are flying. Make a note if you are getting any left-right movement or any tall hop.
- 3.15 Go to a 60-yd target and repeat Step 3.14.
- 3.16 Adjust your nock-sets up or down to give your arrows the least amount of hop at all three yardages.
- 3.17 Adjust your bow poundage up or down to give your arrows the least amount of fishtailing at all the yardages.

In summary, Steps 3.11 through 3.17 are designed to give you good arrow flight from 20 feet through 20 yards, exceptional arrow flight from 30 yds through 55 yards, and good arrow flight from 60 yards and up. When you are fine tuning your bow, remember that the goal is to have perfect arrow flight at the 40-yd (or mid-distance) target. Some hop can be expected in your arrows on the shorter targets. Don't worry about it because your arrows will still group well. You may find that on the shorter targets, your arrows may group a little to the left or right of the spot. This can be normal because of the arrow rest you're using. If the arrows are flying down the middle on the rest of the targets, leave the bow tune alone, and compensate on the short targets by the way you aim.

I have come to realize that some compound bows do not work very well when you string walk them. I had a bow that I worked on for a whole year and still couldn't get it tuned to my specifications. The problem I was having was excessive arrow hop on the short-targets. No matter what I did, I couldn't reduce the hop. I came to the conclusion that the problem was in the bow design. I have used this method for seventeen years, and it has worked extremely well on 95% of the bows I have shot. Therefore, if you try this procedure and it doesn't work, it could be your bow. Before you give up, try to find out if any of the top stringwalkers have been successful shooting the same kind of bow, or give me a call.

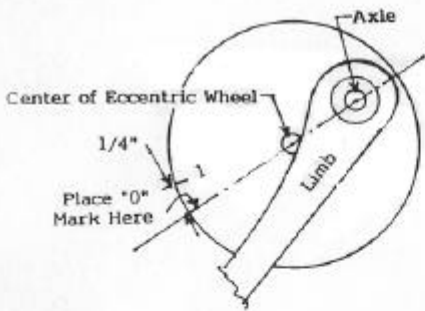


Figure 1

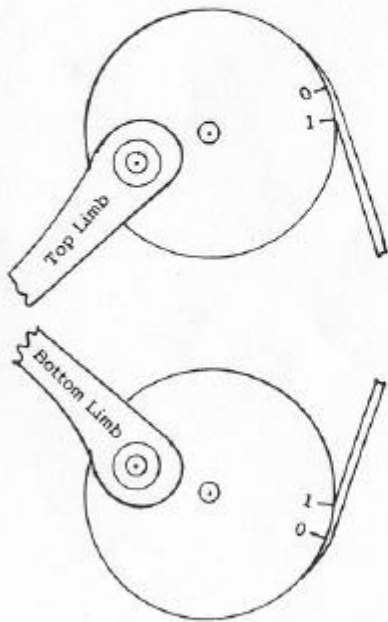


Figure 2

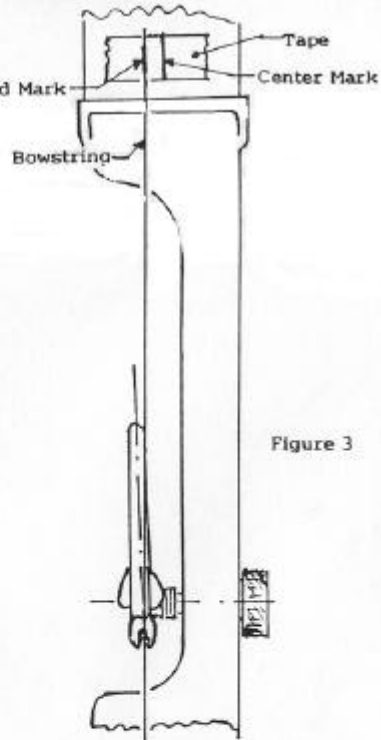


Figure 3

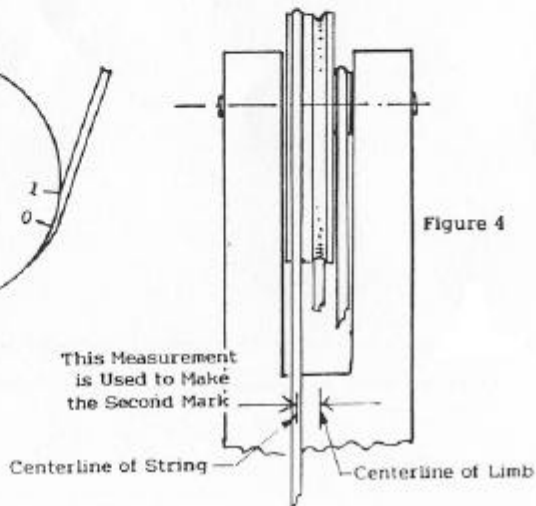


Figure 4