

Tuning your Hoyt Avalon Plus

By Denise Parker

Recurve bows began to be manufactured with adjustable limb pockets in the 1990's, but really adjustable pockets have roots back to the 70's. Earl Hoyt patented an adjustable limb pocket system in May of 1978. In his patent, Earl described the advantages in that you could adjust the tune according to individual's hand placement or adjust the line slightly to improve clearance. But the misunderstandings of today, were the same reasons Earl Hoyt didn't introduce adjustable pockets back in the 70's. Bringing an adjustable pocket system into manufacturing would give the appearance that Hoyt was making up for imperfect tolerances, not improved and more accurate tuning methods. So Hoyt focused its attention back to exacting its tolerances and the recurve market did not see this pocket system until the 90's, when the market demanded it.

Just as Earl Hoyt had claimed back in 1978, adjustable pockets are not, against popular belief, made to cover manufacturing inabilities, but rather to expand the methods available to the archer for tuning their bow to their personal form and equipment preferences.

I have found that many archers under-use the capability of adjustable limb pockets. Most only use them to align their riser and limbs, so that the string runs in an exact line down the middle of the bow. This is a good place to start, but as I am about to show you, this is only the beginning of the Avalon Plus tuning process using adjustable limb pockets. Mike Gerard, top shooter and past Hoyt Recurve Specialist, experimented for endless hours while at Hoyt and watched the top archers in the world tune their bows and the following method is the best that he found.

1. First string the Avalon Plus riser and limbs only. Check the limb alignment by viewing down the bowstring from end to end on the face of the bow. While looking down the string line, check the location of the tip you are holding to the face of the limb in your hand. The limb tip should be in the center of the limb, like shown in [Fig. 1](#). If the tip is to the left of center, like [Fig. 1a](#), follow the directions in [Fig. 2a](#). If the tip is to the right of center, follow the directions in [Fig. 2b](#).

Fig. 1 - Perfect tip alignment down the center of the limb.

Fig. 1a - If the tip is to the left of the center line follow the directions in Fig. 2a.

Fig. 1b - If the tip is to the right of the center line follow the directions in Fig. 2b.

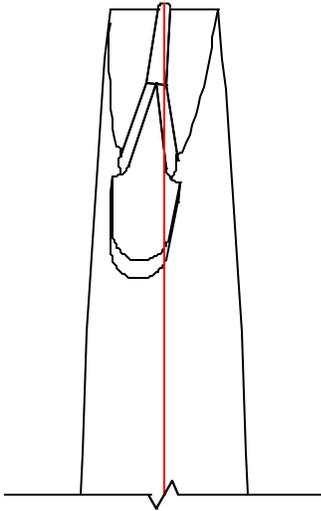


Fig. 1a

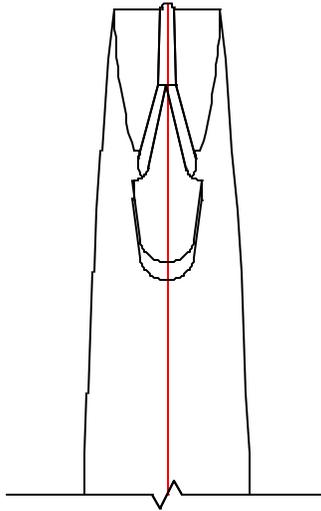


Fig. 1

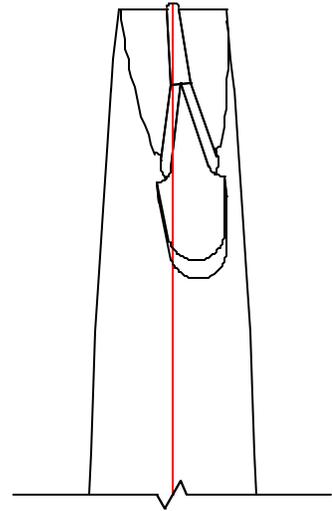


Fig. 1b

2. Next, center the string through the top and bottom of the riser. If you have a set of alignment blocks, place them on both the top and bottom limbs. If you don't have alignment blocks, make a small mark in the center of each limb approximately 2" from the riser. Then, align the string so that it runs through the center of the top limb mark, the top weight adjustment screw, the bottom weight adjustment screw and the mark on the bottom limb as in Fig. 3. You can also attach your center stabilizer for another reference point. If the mark is to the left of the desired location move the adjustment screws as in Fig. 2a, if the mark is to the right of the string, move the adjustment screws as in Fig. 2a. If the mark is to the right of the string, move the adjustment screws like Fig. 2b. Continue to do this until the string runs along the center of all these points.

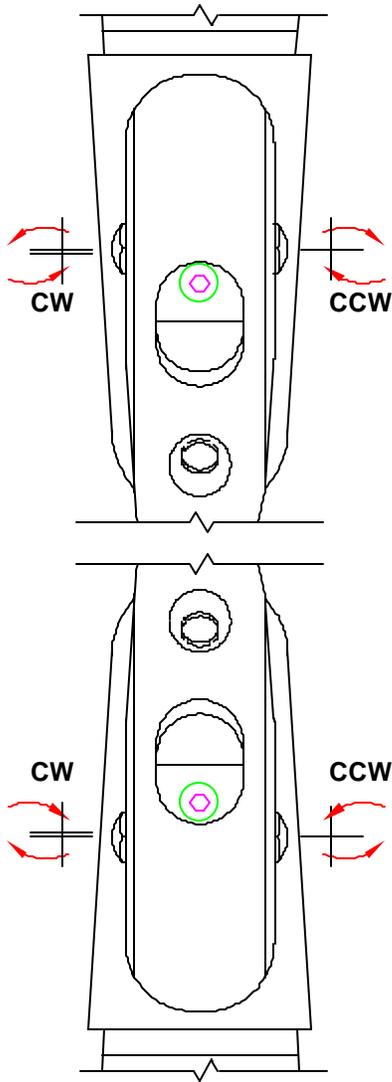


Fig. 2a

Fig. 2a - Viewing from the rear or bowstring side, loosen the center set screw. Then loosen the screw on the right side of the riser by turning counterclockwise and tighten the opposing screw (left side) by turning it clockwise an equal amount. Make adjustments in small increments (1/8 to 1/4 turn at a time). Tighten center set screw after adjustments.

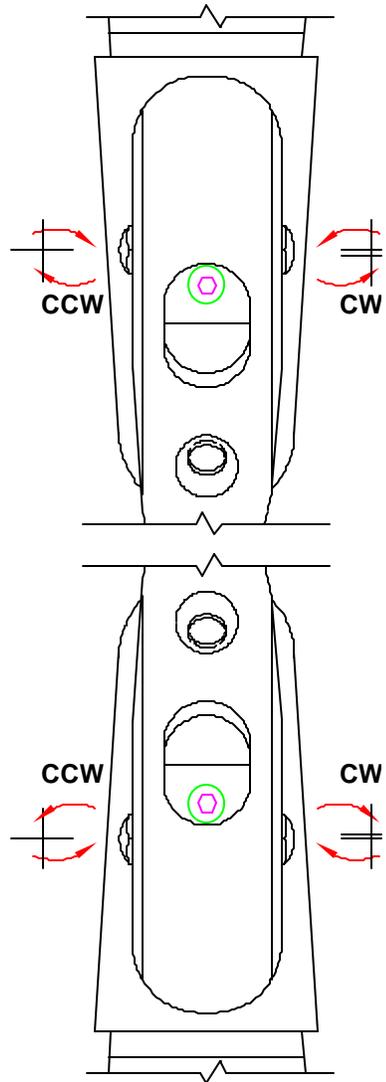


Fig. 2b

Fig. 2b - Viewing from the rear or bowstring side, loosen the center set screw. Then loosen the screw on the left side of the riser by turning counterclockwise and tighten the opposing screw (right side) by turning it clockwise an equal amount. Make adjustments in small increments (1/8 to 1/4 turn at a time). Tighten center set screw after adjustments.

Fig. 3 - Align the string down the center of the riser so the adjustment screws and the marks on the limbs line up.

Fig. 4 - Adjust the string until it just touches the outside of the arrow.

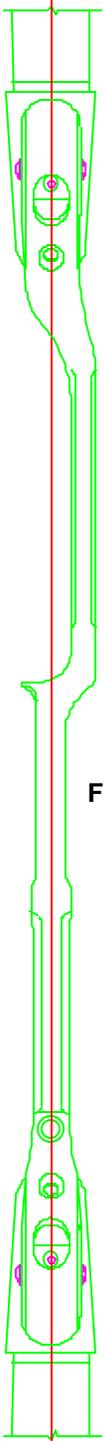


Fig. 3

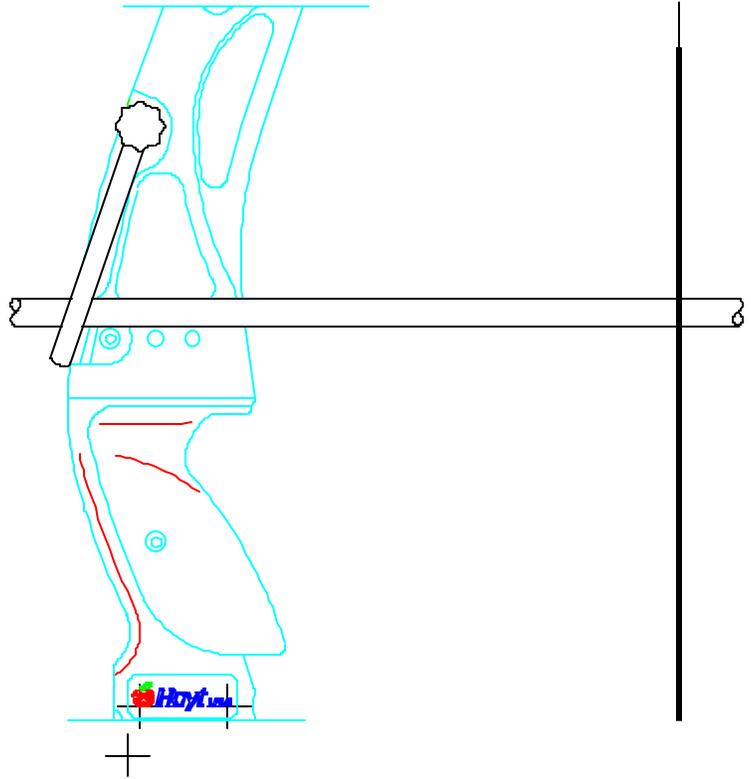
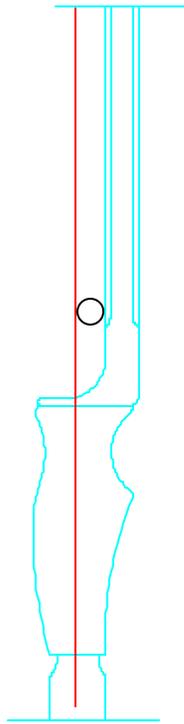


Fig. 4

At this point most archers stop the aligning process assuming that alignment is perfect. The problem with stopping at this point is that stabilizers are often not perfect, and alignment gauges measure from the outside edges of the limbs, not the exact center.

3. The next step is to center the string through the “true center” of the bow. The true center of the Avalon Plus bow is about .41” outside the sight window. So in order to get the string aligned in the true center of the riser, you must get the string as close to this point as possible. I have found that half the width of the string (using a standard of 18 strand Fast Flight) and a 23XX Easton arrow shaft’s diameter actually equals .41” the exact distance needed from the sight window to the string. So in order to align the string to the true center of the riser, place the 23XX arrow shaft under the clicker and right above the plunger hole, it is critical that the arrow lies completely flat along the sight window. Then, extend the arrow out until it runs along the string, while the arrow is still lying flat against the window. The arrow should be placed between the sight window and the string. From there adjust the screws together (top and bottom) until the arrow is just touching the string on the outside as in [Fig. 4](#). For right handers, if you want to move the string in towards the arrow, move the adjustments like [Fig. 2b](#). If you want to move the string away from the arrow make the adjustments in [Fig. 2a](#). Left-handed archers will be just the opposite.

4. Then re-check to see that the string is still centered in the riser and the tips are in the middle of the limbs. Shoot a few arrows and re-check once everything is settled. The most important concerns are that the bowstring just touches the edge of the arrow pressed flush against the riser, and that the string is centered through the top and bottom of the riser or in a straight line.

From here you have a great place to start the rest of your tuning process. What you have done is aligned the bow to its most natural and consistent place to shoot. I have found the bow to be the most forgiving with this set-up. Any bow is consistent, the key is to make it as forgiving as possible. You can then play with the adjustment screws just slightly to the left or to the right (make sure you move the top and bottom together) to see if grouping improves. Most of the time the bow shoots best with the string where we placed it in this exercise, but the beauty of adjustable limb pockets is that it can be adjusted exactly to your form. So start of with centering as we did, then just slightly move the limb pockets to the left and right together and see what happens to your groups. If you run into trouble, go through the above process again and start over.

Many people ask why it is important to know the true center of the bow and the effects of shooting a bow out of true center. If the string is not aligned in the true center, many times the archer will get a false read on their bare shaft test. They can shoot a bare shaft and the arrow looks much too weak or too stiff. Only to find out, when they moved their string to the true center, the arrow tuned much differently. The strings placement can drastically affect the tune, and to avoid tuning your bow to the wrong arrow shaft, use the above method.

As I mentioned in the first of this article, adjustable pockets have been around a long time and anyone who is afraid of them simply doesn't understand the benefits. Just as the plunger and tiller adjusting gave archers more ways to fine-tune their bows, so does adjustable limb pockets.