FAQ 17004 What is Brace Height and Tiller for your Recurve

1. Brace height and tiller ensure that your bow riser, bow limbs and string are set up to work optimally together.
2. The **brace height** is measured from the inside of the grip perpendicularly across to the string while the bow is strung.
    - It should be around 8 ½ to 9 inches, but you should listen to the sound of the bow here rather than slavishly follow manufacturers specifications or adamant statements from fellow archers. The bow should make a muted "boing" when shot instead of a slapping rattle.
    - A bow square is a useful tool here, which clips onto the string and measures the distance in inches. It will also allow you to measure the tiller distance. (The bow square is also useful for correct placement of nocking point on the string.)
3. The **tiller** is measured on each limb from the point where the limb fits into the riser, perpendicularly across to the string (also while the bow is strung).
4. A good indicator that the tiller is incorrect, is if widely different lengths of the string groove are visible from one limb tip to the other. (See FAQ 17003 point 2 to describe the string groove)
5. The tiller of the top and bottom limb should differ but only slightly. They should differ by not less than 2 mm, average is 3mm difference. The top limb tiller measurement should be greater than the bottom limb tiller measurement.
6. The two tiller measurements must be slightly different because the actual point at which the arrow leaves the bow is not the actual centre of the bow. It is located above centre. So to launch the arrow correctly one limb must be acting with slightly more strength than the other.
7. Tiller adjustment is carried out through the bolts on the limb pockets (where the limbs fit into the riser). It is done while the bow is strung.
8. First do a visual assessment. Hold the riser parallel to the ground, do the limb bolts in the riser look about the same height above the surface of the riser?
9. If the limb bolts were wildly different in height (but this is never the case in a bow just purchased new) then wind the longest bolt in to provide an approx. equal starting point.
10. Use a correctly sized hex key to adjust the bolts.
11. One you have a starting point measure the two tiller distances to see what adjustment needs to be made to bring them within the 2-3mm tolerance.
12. Turn anticlockwise to increase the measurement for that limb and clockwise to decrease it.
13. Make an adjustment to each limb alternately, ½ a turn at a time. Measure the distance of the tillers between each half turn so that you can identify when the difference between top and bottom limb tiller is 2 -3 mm.
14. So for example if the difference between two tiller measurements was 6 mm you would decrease the top limb measurement by incremental adjustments and increase the bottom limb measurement, until they were no more than 2-3mm apart.
15. Once tiller is set correctly (*and this should be done at point of purchase if your retailer knows what they are doing – unless you plan to set the bow up yourself or seek help from an experienced archer*), then it should not be significantly changed again.
16. Periodic checking of brace height and tiller measurements should be undertaken however as vibration over sustained periods of shooting can work things loose. Or if you store your string in such a way that it can untwist then the brace height may not be consistent