
Equipment Issues? Here's a cheat sheet!

It's a good idea to do a general bow tune at the start of each season (indoor vs outdoor), or when you purchase new equipment such as limbs, riser, string, arrows etc.

If you're not sure where to start, here is a list of things to work through and the order to do them and make sure are set up "correctly". Note that there is no true definition of right and wrong when it comes to bow tuning. Every set up is different since it is a combination of many different items working together. This document will give desired ranges, but if you find that the best set up for you is outside of those, then that's ok (just check with a coach if you are unsure). It is also good practice to check the instruction manual that came with each piece of your equipment to ensure that the manufacturer's desired range agrees with what this document says.

When tuning, make sure you write down any change that you make, so that when you shoot after making that change, if something does not feel right, you can undo it and reset your equipment to how it was before.

I've explained how to tune each part of your bow after this section if you need to look anything up, and after that is a section on how to alter your equipment whilst tuning (e.g. adding tension to your pressure button).

General Tune

1. Limb alignment
2. Tiller
3. Brace height
4. Nocking point
5. Rest height
6. Centre shot
7. Bare shaft tune

If you buy new equipment, the best practice is to do a full "General Tune" but if you need a quick fix then the things to check depending on what the new equipment is are given below. When tuning, make sure you keep the twists in your string and the correct brace height. This is paramount to tightening up your group sizes.

When you're tuning a bow, don't worry about getting something wrong, like moving something too far or going the wrong way. Tuning is a lot of trial and error, there is no exact method that guarantees a perfect tune. As long as you write your changes down, if something goes wrong it is very easy to reset back to how you started.

New Limbs

1. Limb alignment
2. Tiller
3. Brace height
4. Nocking point
5. Centre shot
6. Bare shaft tune

New Riser

1. Check your bow weight has not changed (use bow scales, which are in most archery shops)
2. Limb alignment
3. Tiller
4. Brace height
5. Nocking point
6. Rest height
7. Centre shot
8. Bare shaft tune

New String

1. Brace height
2. Nocking point
3. Centre shot
4. Bare shaft tune

New Rest

1. Nocking point
2. Rest height
3. Centre shot

New Arrows

1. Rest height
2. Centre shot
3. Bare shaft tune

New Pressure Button

1. Tension check (press old and new button together and adjust tension on new button until both tips retreat at the same rate)
2. Centre shot
3. Bare shaft tune

How To Tune

Checking Limb Alignment

1. Balance your bow with the string facing upwards, and at an angle where you can look down and view from limb tip to limb tip. (Good examples are the stands that come with a long rod support, or you can balance the top limb on the back of the bench and the bottom limb tip on the floor. If you do this, be careful of the abrasive floor in DMTC)
2. Obtain 4 limb aligners. (If you don't have any, try asking the coaches or more experienced archers)
3. Place two aligners on the back of each limb facing you, spread out. (It can be a little fiddly to put these on, but persevere – it's mainly trial and error to find the right fitting)
4. Stand behind the bow, and close one eye. Line yourself up with the bow so that the string directly passes over the centre of both of the bolts in the back of the riser in your view.
5. Look at where the string passes through each limb aligner (they have a clearly marked centre to help you).
 - a. If the right line of the aligner is covered, then that limb tip is leaning to the right.
 - b. If the left line of the aligner is covered, then that limb tip is leaning to the left.
6. Adjust the limb alignment accordingly.
 - a. If your limb tip is leaning to the left, you should move the limb tip to the right.
 - b. If your limb tip is leaning to the right, you should move the limb tip to the left.
7. Repeat Steps (4)-(6) until the string is sitting in the centre of the limb aligners. It can be difficult to get this spot on. If you are struggling to get it exactly central, don't worry about it and move on to the next step of your tuning process.



Checking Tiller

1. Place a brace height gauge on the back of the top limb as close to the riser as you can get. Make sure it is perpendicular to the string.
2. Measure the distance between the limb and the string at this point.
3. Repeat for the bottom limb.
4. Subtract your bottom limb distance from your top limb distance. This is your tiller.
 - a. If you shoot recurve, you want your tiller to be slightly above zero (around 1/8" to 1/4").
 - b. If you shoot barebow, you may wish to consider aiming for a neutral tiller (exactly 0"), or negative, depending on how much you string walk.
5. Destring your bow. If you need to change your tiller, think about how your bow feels to shoot. Is it slightly on the heavy or light side? Could you handle a slightly higher poundage, or would it be better to go for a slightly lighter poundage?
6. If you decide you can increase your poundage:
 - a. If your tiller is less than the goal (especially if it is negative), wind your bottom limb in.
 - b. If your tiller is greater than the goal, wind your top limb in.
7. If you decide not to increase your poundage:
 - a. If your tiller is less than the goal (especially if it is negative), wind your top limb out.
 - b. If your tiller is greater than the goal, wind your bottom limb out.
8. Restring your bow and check the tiller again. If it is still not right, repeat Steps (6) – (7).



Checking Brace Height

1. Place a brace height gauge at the deepest part of the grip, perpendicular to the string.
2. Measure the distance from this point to the string. This is your bow's brace height.
3. Consult this chart to see the acceptable range for your bow size. (Your bow size is your riser length plus your limb length.)
 - a. If your brace height is too big, destring your bow and remove some twists to your string.
 - b. If your brace height is too small, destring your bow and add some twists from your string.
4. Restring your bow and measure your new brace height.
5. Repeat Steps (3)-(4) until your brace height is within the acceptable range.

Bow Length (inches)	Brace Height (min-max)
58	7.25 - 8.0
60	7.5 - 8.25
62	7.75 - 8.5
64	8 - 8.75
66	8.25 - 9
68	8.5 - 9.25
70	8.75 - 9.5

Checking Nocking Point

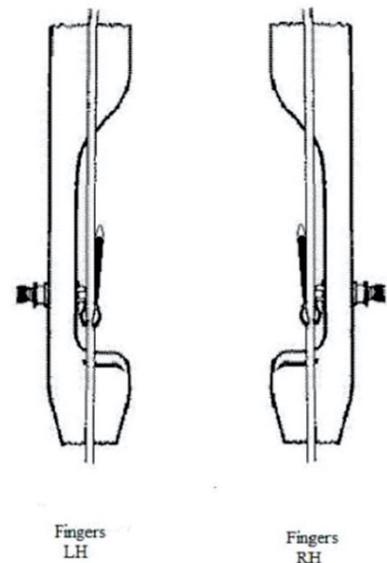
1. Clip your brace height gauge onto the string on either side of your nocking point.
2. Place the “ruler” part of the gauge against the riser and slide it up/down on the string until it sits on the rest, as an arrow would.
3. Measure the difference in height from the arrow rest (the bottom of the measurements on your gauge) and the bottom of your top nocking point.
 - a. If this distance is between 1/8” and 1/2”, leave the nocking point where it is and wait until you can do bare shaft tuning to move it.
 - b. If it is outside of this range, move the nocking point so that the bottom of the top nocking point is at 1/4”.
 - c. NOTE – barebow archers typically have a slightly higher nocking point than recurve archers. Don’t be concerned when you bare shaft tune if you need to move your nocking point outside of the range given in Step (3.a).
4. Use the bare shaft tuning method to tweak it any further.

Checking Rest Height

1. Nock one of your arrows.
2. Look at where the pressure button is making contact with the arrow’s circumference.
3. The centre of the pressure button should be touching the right-most (or left-most if left handed) part of the shaft.
 - a. If your pressure button is touching the bottom half of the arrow, move your rest higher.
 - b. If your pressure button is touching the top half of the arrow, move your rest lower.
4. After moving your rest, make sure you did not accidentally also alter the left/right alignment of the rest. The correct position for this is the tip of the arrow rest should be 1-2mm further out than the edge of your arrow shaft.

Checking Centre Shot

1. Balance your bow with the string facing upwards, and at an angle where you can look down and view from limb tip to limb tip. (Good examples are the stands that come with a long rod support, or you can balance the top limb on the back of the bench and the bottom limb tip on the floor. If you do this, be careful of the abrasive floor in DMTC)
2. Nock one of your arrows.
3. Stand behind the bow, and close one eye. Line yourself up with the bow so that the string directly passes over the centre of both of the bolts in the back of the riser in your view.
4. Without moving, look at your arrow. How much can you see behind the string?



- a. If you are right handed you should see half of your arrow poking out to the left of the string.
 - b. If you are left handed, you should see half of your arrow poking out to the right of the string.
 - c. NOTE – if you shoot relatively thin carbon arrows, you should aim to see slightly less than half of the arrow point behind the string.
5. Adjust the collar of your pressure button so that more/less of the pressure button pokes through the riser accordingly.
 6. Repeat Steps (3)-(5) until you can see half of your arrow width behind the string.

Bare Shaft Tuning

1. Gather 3 fully fletched arrows, and 3 bare shafts (arrows with no fletchings), making sure they are straight and have good nocks.
2. Shoot all six arrows in one end. (Try not to pay attention to which arrow your shooting)
3. Your goal is for your bare shafts to land inside of your fletched arrow group. If this does not happen:
 - a. First compare the height of your bare shafts group with your fletched group.
 - i. If your bare shaft group is higher than your fletched group, move your nocking point up.
 - ii. If your bare shaft group is lower than your fletched group, move your nocking point down.
 - iii. Shoot another end.
 - iv. If the height is still not the same, repeat Step (a) until it is.
 - b. Once your bare shaft group is landing at the same height as your fletched group, look at whether they are landing to the left or right of your fletched group.
 - i. If you shoot right handed and your bare shafts landed to the right of your fletched group, increase the tension in your pressure button.
 - ii. If you shoot right handed and the bare shafts went to the left of your fletched group, decrease the tension in your pressure button.
 - iii. If you shoot left handed, it is the reverse.
 - iv. Shoot another end.
 - v. If the left/right is still not the same, repeat Step (b) until it is.
4. Your bare shafts should now be landing inside of your fletched group. Now just move your sight or aiming point until your group is landing centrally on the target.

How To Alter Equipment

Changing Your Pressure Button

There are two things that can be changed on a pressure button – the collar placement and the spring tension.

To adjust your spring tension:

1. Use an allen key to loosen the screw that is furthest from the pressure button tip (be careful to not remove it entirely as they are so small and easy to lose!).
2. Place a second allen key in the end of the pressure button and rotate the desired amount.
 - a. To increase tension, rotate clockwise (with the tip facing away from you).
 - b. To decrease tension, rotate anti-clockwise (with the tip facing away from you).
3. Tighten the small screw that you originally loosed.

To move the collar:

1. Use an allen key to loosen the screw that is on the collar.
2. Spin the collar the desired amount.
 - a. If you would like more of your pressure button to poke through the riser, move it away from
 - b. the tip. If you would like less, move it towards the tip.
3. Tighten the screw you loosed in Step (1).

Loosen this screw in Step (1) of tension adjustment



Changing Your Rest

This is actually unique to each rest, so the best way to find this out is to look at the instruction manual that came with it when you bought it. Alternatively, you can ask a coach for help working out how to do this.

Winding In/Out Your Limbs

1. Destrung your bow and remove your limbs.
2. Check your manual to see how many turns out your limb bolt can go.
3. Loosen the screw on the back of the riser that is in line with the limb bolt you will be altering. Do not fully remove the screw.
4. Place an allen key in the limb bolt. If you are looking at the front of the riser:
 - a. If you want to wind the bolt in, rotate the allen key clockwise.
 - b. If you want to wind the bolt out, rotate the allen key anticlockwise.
5. Tighten the screw that you loosened in Step (2).
6. Repeat Steps (2)-(4) for the other limb bolt if needed.
7. Reassemble your bow.

Changing Your Limb Alignment

There are two different ways that risers are made when it comes to changing limb alignment. Typically, Hoyt risers use “washers” and the other manufacturers use “side screws”. This is not always the case, so check your instruction booklet that came with your riser if you are unsure, or ask a coach.

If your riser uses side screws:

1. Destrung your bow and remove your limbs.
2. Look in the limb pocket to see if your riser has a locking screw (example in image). Loosen it if you have one.
3. Looking at the riser from the back, determine which screw you will loosen and which you will tighten.
 - a. If you are moving the limb tip to the left, you will loosen the screw on the right and tighten the screw on the left.
 - b. If you are moving the limb tip to the right, you will loosen the screw on the left and tighten the screw on the right.
4. Loosen the screw that you decided to loosen.
5. Tighten the screw that you decided to tighten, by the same amount that you loosened the other screw.
6. Tighten your locking screw, reassemble your bow and check the limb alignment again.

If your riser uses washers:

1. Check your riser’s manual to determine which side you can add/remove washers to. It is usually the left side. If your riser already has washers in it, then this is the side that you will be adding/removing washers to.
2. Destrung your bow and remove your limbs.
3. Undo the screws on either side of the limb pocket. This will allow you to remove the limb alignment unit.
4. Add or remove washers to the side that you decided was correct for your riser.

- a. To move your limb tip to the left, add washers to the left side, or remove from the right side depending on your riser.
 - b. To move your limb tip to the right, remove washers from the left side, or add to the right side, depending on your riser.
5. Replace the limb alignment unit back in the riser, and tighten both screws.
 6. Reassemble your bow and check the limb alignment again.

Moving Your Nocking Point

You may need to enlist the help of a coach or other archer for this one, as you'll need some materials that you might not have:

1. Lighter
2. Nocking point thread
3. Scissors
4. Knife

NOTE – some archers will use superglue on their knots to keep them from unravelling. We do not advise this as it can soak into the string itself and cause it to become brittle.

Once you have this equipment, you can start tying your nocking point.

1. Remove the old nocking point by running your knife parallel to the string. Be careful not to cut the string or the serving.
2. With your nocking point thread, tie a single knot at the point that you have decided the bottom of your top nocking point will be, with the knot on the side of the string that faces you.
3. Tie a second knot above the first, but now with the knot on the side of the string that is furthest from you.
4. Keep on tying single knots above your previous one until you have around four or five, making sure you alternate the side of the string that the knot is on.
5. Cut the loose ends of the thread, leaving around 5mm of excess on each side.
6. With a lighter, melt the end of the loose thread. The thread will burn up towards your nocking point. When it is just about to reach your nocking point, blow out the flame and quickly press the remaining excess thread into the nocking point before it can cool down. Repeat for the other thread.
7. Remove the brace height gauge and nock one of your arrows directly underneath your nocking point.
8. Repeat Steps (2)-(6) to make your bottom nocking point, this time working down the string. Be sure to leave a gap of 2-3mm between you arrow and your first knot. Also be sure to remove the arrow before melting the thread with your lighter.

