

Slimming Down

Shooting outdoors means all sorts of changes – **Duncan Busby** starts with the arrows, and here he explains the tuning process he goes through



The outdoor season is here, which means it's time to get your thin arrows out and start tuning for the longer distances. In the last issue of *Bow International* I showed you how to set your bow up in order to get the most out of your tuning, and I would recommend going over that procedure before starting this or any other arrow tuning method.

Once you are happy that your bow is ready for tuning, you need to select an arrow spine best matched to your poundage and draw length. This can be tricky as there are many different factors to take into account. The best advice I can give would be to consult your manufacturer's arrow charts, or to run your set-up through a spine selection programme such as 'Archer's Advantage'. These should get you very close to where you need to be, which is important as badly spined arrows will be difficult to tune and this will show in your results.

Once you've set your bow and chosen your arrows it's time to start tuning. The first test to run is the paper test: this involves shooting through a taut piece of paper and analysing the hole your arrow makes. To start, shoot as close as possible to the frame – you are aiming to achieve a clear bullet hole. If you find that your arrow caused a tear, you will need to correct this before you move on, and to diagnose and correct your results I advocate getting hold of a tuning guide – there are many available online or from an archery shop. I would personally choose the 'Easton Tuning Guide' as it's clear and comprehensive.

As a basic rule though, a high tear means that you either have a high nock point or are getting contact between your vanes and your rest. A low tear means your nock point is too low, and a left or right tear means that you need to move your arrow rest either in or out to centre the arrow in your bow correctly. Alternatively, a tear to the right or left can be an indication that your arrow spine is incorrect.

At this point I would stress that not everyone can shoot bullet holes. I've seen people going mad because they cannot correct a fairly small tear; achieving a



The first stage of walk-back or French tuning – getting up close to the boss

perfect bullet hole is the objective of this test but a small tear is certainly nothing to worry about.

Once you have got your bow shooting as near as possible to bullet holes at close range, you need to repeat the paper test from a longer distance, so walk back two or three metres and shoot the test again. Hopefully you will still be shooting a bullet hole. If you find a tear opening up go back to your tuning guide and make the necessary adjustments until you're shooting a clear hole at this distance as well. You need to keep moving back two or three metres at a time, re-testing until you get a bullet hole, up to around 20 metres. At this point you can be confident that your bow is shooting straight, which is important as bad arrow flight can interfere with your tuning results.



Start French tuning by getting an arrow right in the centre with your 50m sightmark

The next stage is to "French tune", which is a shortened form of walk-back tuning. To do this you will need to shoot on a very calm day, or alternatively, be able to shoot 50 metres indoors.

Start by setting your sight on your 50 metre sight-mark, standing two or three meters away from the target, without moving your sight, and shoot an arrow aimed at the middle of the target. Adjust your sight's windage until you are hitting exactly on the cross. Don't worry if it's a little high or low, as it's only the left and right movement that's important. Once your arrow is hitting in the dead centre leave it in the target and walk back to 50 metres. Without moving your sight, shoot at least three more aimed at the middle of the target. Your close range arrow and the arrows shot from 50 meters should be in alignment, again don't worry if they aren't the same height, they just need to be in vertical alignment with each other. If the arrows shot at 50 metres are to the left or right you will need to move your arrow rest slightly. To correct left results, move your rest to the right, and to adjust arrows hitting to the right, do the opposite. Once you have made your adjustments go back to two or three metres away from the

boss, re-set your sight's windage, and do the test again. The beauty of this test is you can keep repeating it until your arrows are perfectly lined up.

Once you have set your bow's windage you need to fine tune the nock point. Choose a distance you are comfortable shooting at (this works best at 50 metres or more), shoot several ends and make a note of your grouping patterns. Next, make a note of your nock height using a bracing gauge, then move your arrow rest either up or down by 1mm, making sure that you don't go under square (having your arrow pointing above 90 degrees to your string). Shoot several more ends, again making note of your group patterns.

Keep trying different nock heights until you have covered everything from flat (90 degrees to the string) to around 5-6mm high. Your results should show that there is one nock height that gives slightly better results than the others. If there are several positions that give similar results go back to each of them in turn and see which one is the most forgiving and consistent. Move your rest to this position and tighten it down.

By this point your bow should be perfectly set, so only your arrows will need fine tuning. On a calm day, set a target up

at a comfortable distance and shoot several ends. Examine your

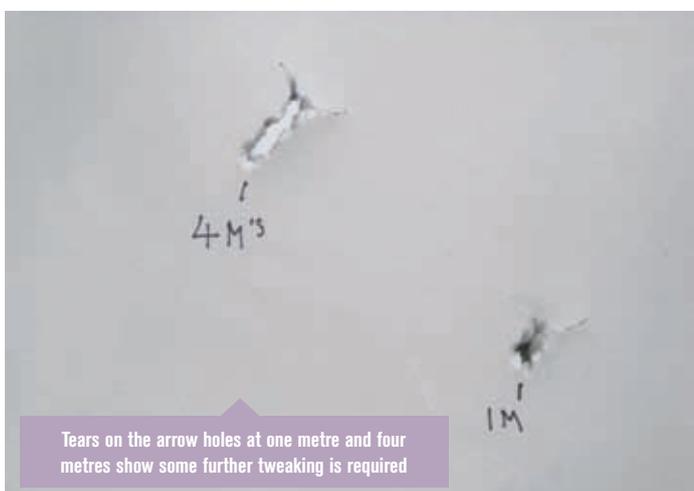
groups and compare their width to their height. If they are taller than they are wide, it means you may need to go back to the nock-tuning phase and run through it again.

If they are wider than they are tall try adjusting your poundage. This group shape indicates a problem with your arrow spine and

you will need to adjust your draw weight to compensate for this. Start by lowering your poundage, shoot a few more ends and then check your groups. If they are smaller, try lowering your poundage a little more and re-test. If they are larger, try adding a little draw weight. Keep adjusting your draw weight up or down until your groups are as tight as possible, then make a note of your poundage; this will be the perfect draw weight for your arrow spine. If you are not happy with the weight you are now shooting, you will need to make

At this point you can be confident you're shooting straight, which is important as bad arrow flight can interfere with your tuning

Hitting to the right of the initial close range central arrow at 50m for the second stage of the 'French Tune' - to correct these move your rest to the left.



the appropriate adjustments to your arrows. Either make them stiffer by shortening them or by inserting a lighter point, or make them weaker by using a heavier point or a longer shaft. Remember to re-test if you make any changes.

This is the process I use at the beginning of the outdoor season; it's simple, easy, and ensures that your equipment is working to its maximum efficiency, so you can get on with shooting without worrying about your set-up interfering with your results. I hope that it helps you to achieve your goals over the coming season, and that you can enjoy more relaxed shooting... whatever the weather throws at you. ☺