



# BUILD A BOW

Since his first attempt at DIY Tony Connor has crossed over to the crossbow for good – and upgraded his design

Getting involved in crossbows should carry a warning. Once you start it's difficult to kick the habit. Regular readers of *Bow International* may recall that I described building my first crossbow in issue 50, inspired by Chris Aston's earlier DIY articles. Since writing that article, crossbow shooting has taken centre stage for me. It used to be a distraction from compound shooting, but a tendon injury now means that I can't draw a conventional bow, so the crossbow has become my saviour.

Before even finishing the first crossbow, I started to consider how I would do things if I were to build another, and I got so much pleasure and satisfaction from that first build that I found myself back at the drawing board not long after, eager to have a go at number two. It wasn't that anything was wrong with my first effort – it shoots very nicely – but I planned to build something a bit different.

I wanted a more high-tech version, rather than the traditional rifle-stock approach as before. I had previously found that the trickiest part was sourcing all the components, and the same applied this



Red alert: The stock was sprayed with car aerosol paint

A machined aluminium track sits on top of the bow, preventing movement in the stock

time. Archers who use the crossbow are in the minority, and the usual equipment vendors don't tend to stock the necessary bits and pieces, which adds to the challenge. You can buy a ready-made trigger unit, and the limb, but after that you need to be inventive.

I have absolutely no engineering experience, so everything I did had to be an adaptation of existing bits and pieces. This





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was fortunate that a local specialist shop had the part I needed as a spare. It was taken from an up-market scooter which they had stripped down and which they let me have for just £3. After many hours with different grades of emery paper followed by automotive metal polish, I had my bit of bling. The rest of the front end was finished off with the now redundant sight from my compound bow, minus the magnifying lens – which for some reason is not permitted under GNAS rules. The gold on a 60cm face at 60yd looks tiny without a scope. I also fitted a short, forward facing stabiliser, and I'm also experimenting with a V-bar set-up, which I'll return to later.

I decided that all this high-tech stuff just wouldn't look right with a traditional polished wooden stock, so al-



on the foot bar and drew the bow. I couldn't think of a suitable solution for some time until a youngster came towards me on an aluminium micro scooter by chance; there in his hands was the answer: its handlebar.

In case you consider going down the same route, be warned. The quality of many of the cheaper micro scooters is appalling, and I wouldn't trust the welded joint between the bar and the stem to last long when a lot of strain is applied, but I

**Recycling in action: The palm rest was made from carbon fibre bicycle handlebars**

**Inset: Second sight: Tony's now defunct compound bow provided the sight for the new bow**

is when you need to use your ingenuity. After shooting the first bow for a few weeks, I quickly learned that it would be useful to keep the back end light and the front end relatively heavy on the new build, in order to get a forward centre of gravity to push the front elbow further into my ribcage. To this end, I wanted to use carbon fibre towards the back. Not only is it incredibly light and strong, it looks sexy too!

If you look closely at the pictures, you may recognise the source of many of my parts. I am a cyclist as well as an archer, and modern, top-of-the-range bike components are often made from exquisitely formed carbon fibre. It broke my heart to take a hacksaw to an expensive set of oversized mountain bike handlebars, but that one handlebar yielded the cheek rest, the handle, the trigger guard support, plus part of the butt-hook and the palm rest support. The curved part of the butt-hook rest and the palm rest itself are mountain bike bar-ends, while the spacers that support the palm rest are headset spacers.

It took more head scratching to find a solution for the front end. I wanted something which looked glitzy, but of course it had to be strong enough to withstand repeated loads of 95lb every time I stood

Tony's proud that his club promotes crossbow shooting





who haven't tried it, it may seem simple to just aim and squeeze the trigger, but just as much can go wrong as with any other form of bow; developing a technique which allows you to loose a bolt while holding steady on that tiny gold is not an easy task.

So how does the new bow shoot? It immediately felt exactly right, as if I had been shooting it for years. The balance is as I had hoped, and my scores have steadily increased as the season has progressed. I only wish that there were more competitions open to us small band of crossbow enthusiasts. My own club, Bournemouth Archery Club, is the only club in the south that I know of which allows and encourages crossbow archers, and I'm perplexed as to why there is an apparent disregard for crossbow shooting in the UK. It's incredibly popular across Europe, but the attitude in the UK seems

though I constructed the stock using the same technique as with my first bow (five laminations of 9mm marine ply bonded together), this time I sprayed it red with a car aerosol. But first I did a lot of preparatory work with primer surfacer, followed by primer, and then a lot of rubbing down. I'm pleased with the final result. On top of the stock sits a suitably machined aluminium track; this is to avoid the possibility of any movement in the stock.

I have not yet mentioned the overall design of the bow. It's my own design, which practically drew itself once I had taken into account the necessary measurements to stay within GNAS and IAU rules, and the preferences regarding reach etc that I had established with the first bow. Everything is adjustable so that I could fine-tune it to fit me like a glove.

I used a Falco prod from Estonia on my first bow, but this time I've chosen a prod from Border Archery in the UK. I was lucky enough to buy both a flat and a recurve limb second hand, and I will be experimenting to see which groups the best. To start with, I've fitted the flat bow, which is much quieter than the recurve limb on the first bow because there is no slap of the string against the recurve part of the limb.

I mentioned earlier that I've been playing with various stabiliser options, and this leads me to one of the many aspects of crossbow shooting which appeals to me. In every other form of archery you can ask your local coach for advice, or read a book, or take a look at what other archers on the line are doing, but with crossbow you are almost alone in finding out what does and doesn't work. When I look

Removing the magnifying lens made it tricky to spot the gold...

Tony sourced his prod from Britain's Border Archery

## After many hours with different grades of emery paper followed by automotive metal polish, I had my bit of bling

at pictures of European crossbow archers, they don't appear to use much, if anything, in the way of stabilisation, but I can't see why it shouldn't work like a conventional bow, so I'll be playing about to see what effect stabilisation has on my scores.

Shooting technique is another area where it's difficult to seek help. To those

to be that it's not proper archery, even though it's covered in the GNAS *Rules of Shooting*.

To finish on a positive note, I urge you to give a crossbow a go, and especially if you decide to self-build. There is nothing more satisfying than shooting (and winning!) with a bow that you have built yourself.

