



Takedown Recurve Bow - Home made

by [Corasaurus Rex](#) on November 25, 2014

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Author: Corasaurus Rex

Don't take the world too seriously relax a little and enjoy the ride.

Intro: Takedown Recurve Bow - Home made

I had wanted to make a re-curve bow for some time now and I have finally done it!!

I made the bow by designing and building my own riser from 3 different types of exotic woods to give me a great look once complete. I used skis as the arms because of the flex and it was much easier than forming my own arms, though I may now attempt that.

I have included a whole bunch of pictures in each step to make things easier to understand.

Overall this project wasn't that hard.

materials needed

For Riser

- A single, 3" x 24" x 2-1/4" block of hardwood (I made mine by gluing 3 types of wood together)
- Pencil and paper for sketching the riser design
- Jig saw or ban saw (to cut out the riser)
- Wood Glue
- Lots of clamps
- Sand Paper and Belt Sander
- Wood Rasp
- Epoxy self mixing resin (\$9.50)
- Varathane and paint brush

For Arms

- 1 set of cross country skis
- measuring tape
- fine toothed saw to cut skis
- drill and attaching hardware
- paint
- Round wood file

Extra Items

- Bow String
- Arrows



Step 1: Designing The Riser

The first step is to design how your riser (the middle wood section) of your bow will look as well as function. I started by looking at bows online and trying to do simple sketches of what I thought would look good. Basically there are only a few main things you will want to be sure of. They are:

- **Total riser length** - Should be around 16" minimum to 24" maximum, My bow riser is 20"
- **Where the arrow will sit** - The arrow should sit when finished in the exact middle of the riser
- **handle location** - Your handle should be just below the arrow location.
- **Angles of arms when attached** - Most store bought bows have an angle of 15-20 degrees but because I am going to use cross country skis I will change my angle to 10 degrees so the skis will sit more upright. The reason for this is because they are quite flexible and I want to get the most power I can out of these arms.

I am proficient in " Google Sketchup" and actually did a rough 3D model of what the riser would look like before sanding. This is not necessary but helped a little.

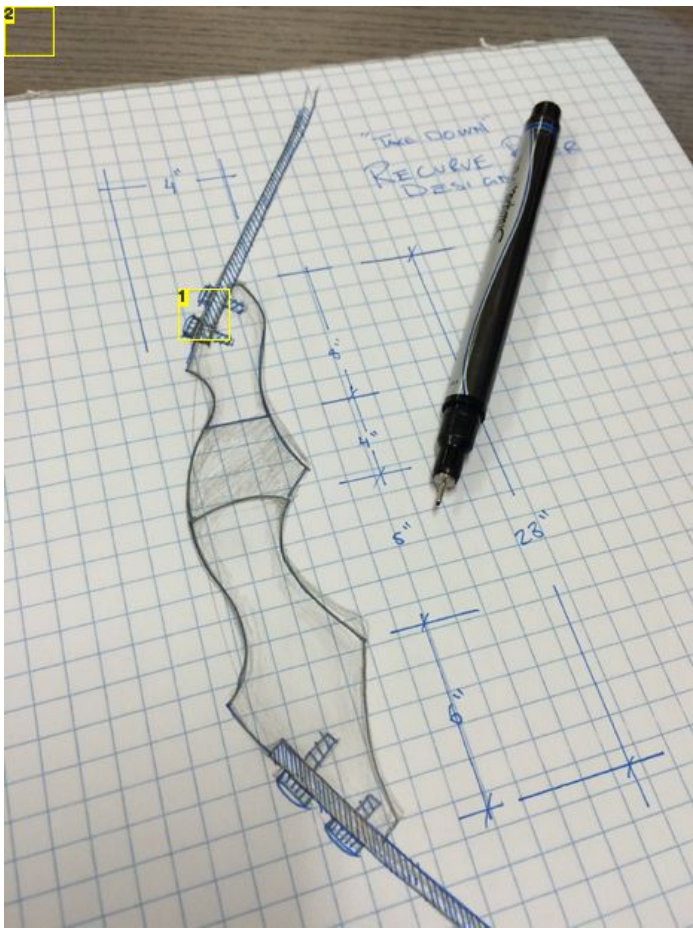


Image Notes

1. make the angle 10 degrees for cross country skis
2. I did about 3-4 of these sketches to get to a design I really liked.

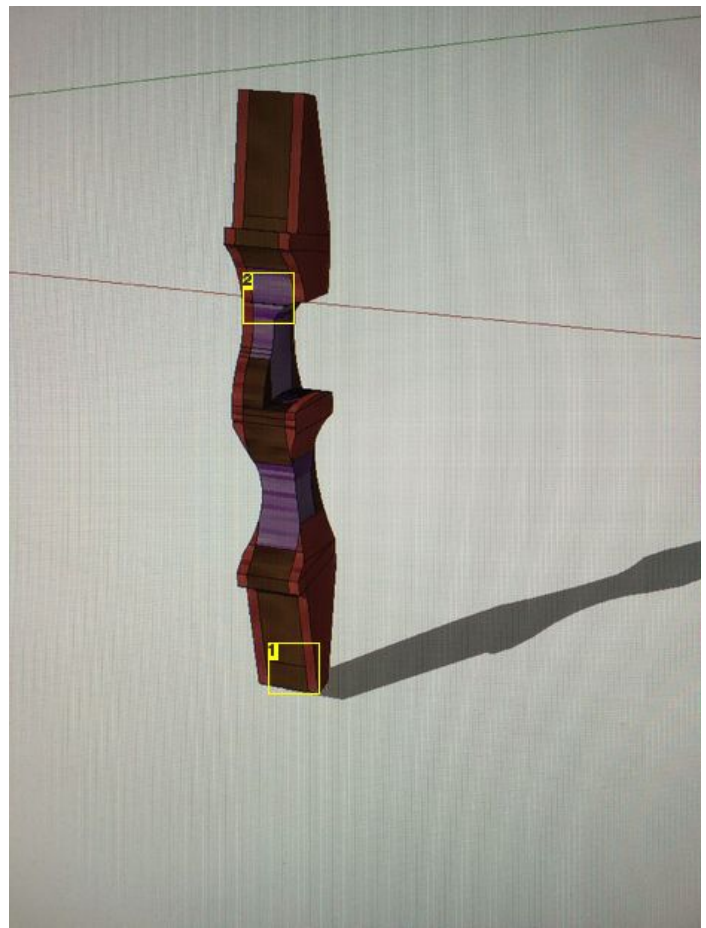


Image Notes

1. I made this 3D model to help me better understand how the riser would look after being cut out but not yet sanded.
2. The different colours represent the different woods I am going to use and where they will be visible after cutting

Step 2: Choosing Wood & Laminating it together (Glueing)

Choosing wood for a bow riser is not very hard and there is only 1 main rule that should be followed but in all honesty will probably work regardless.

Main rule - Use hard wood. - Hard Wood will make for a stronger and more powerful finished product along with the fact that hardwood usually has beautiful grain associated with it.

I went to Lee Valley and grabbed 4 pieces of wood

1- Zebra wood - 3" x 24" x 1.5"

2 - Purple Heart - 3" x 24" x 1.5"

3 - Padauk x 2 - 3" x 24" x 3/8"

*** I wanted a "fancy" riser so I bought pricy wood you don't have to, any hardwood will work just fine***

I cut the Zebra wood and Purple heart in half and laminated them together making sure to give the glue 24 hours to set.

After un-clamping, the 4 pieces we not totally flat so I used a clamp and a hand plane to smooth them out before attaching the Padauk to the top and bottom of the other pieces.

after all glue had dried there might be small gaps around the edges I filled these with a clear drying self mixing epoxy resin just to fill the gaps in the wood.

I now have a block of wood that measured 3" x 24" x 2-1/4"



Image Notes

- 1. zebra wood
- 2. purple heart wood



Image Notes

- 1. used a table saw to cut the pieces in half

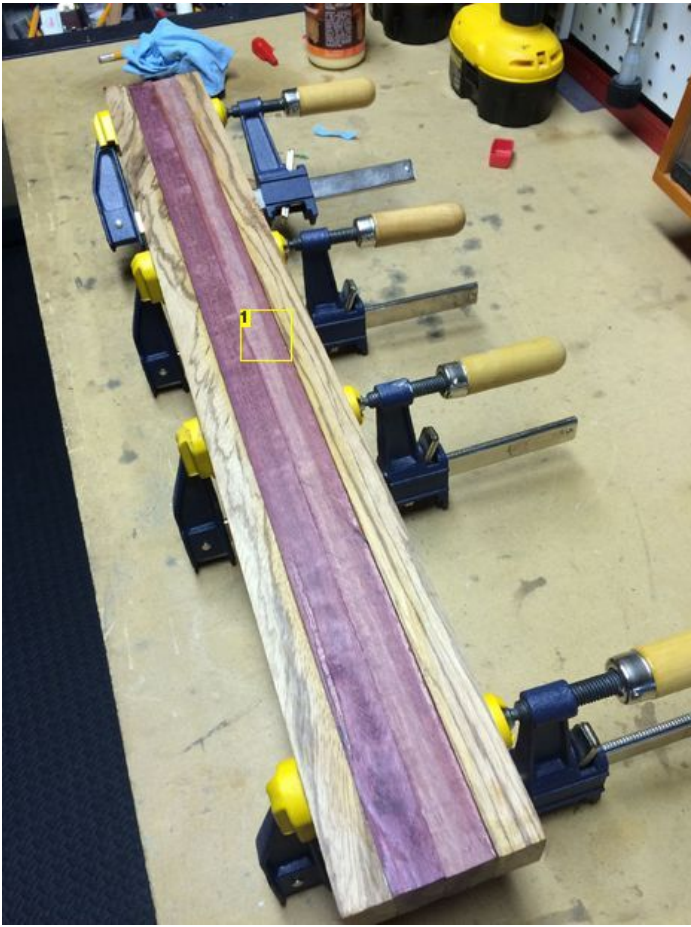


Image Notes

1. after cut, I glued and clamped the wood together



Image Notes

1. notice the wood is uneven? My table saw was bowed so I have to fix this.

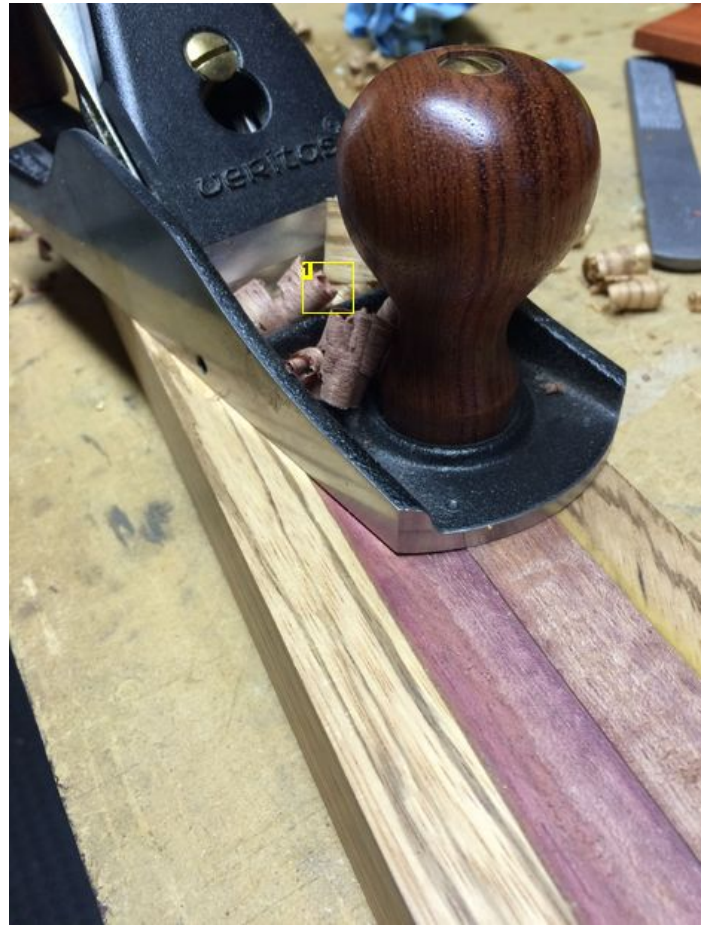


Image Notes

1. before gluing the paduak down I flattened out the uneven wood



Image Notes

1. gluing and clamping the last layer of wood



Image Notes

1. after I removed the clamps I filled any remaining gaps with epoxy resin
2. two part self mixing epoxy resin is simple and easy to apply

Step 3: Cutting out The Riser

Draw out your riser design to scale and place it on your wood block. Then trace the design with a pencil and then go over it in marker because its much easier to see when cutting and saw dust is everywhere. I used a ruler to draw where I would like to make my cuts in order to make cutting out the piece easier. I don't own a ban saw so I have to use a jigsaw which is harder for cutting smooth lines.

I made a series of small cuts perpendicular to my riser line to make cutting much simpler. My finished cut piece is very blocky and has saw marks all over it but that's okay we are going to sand that bad boy down and make it look nice.

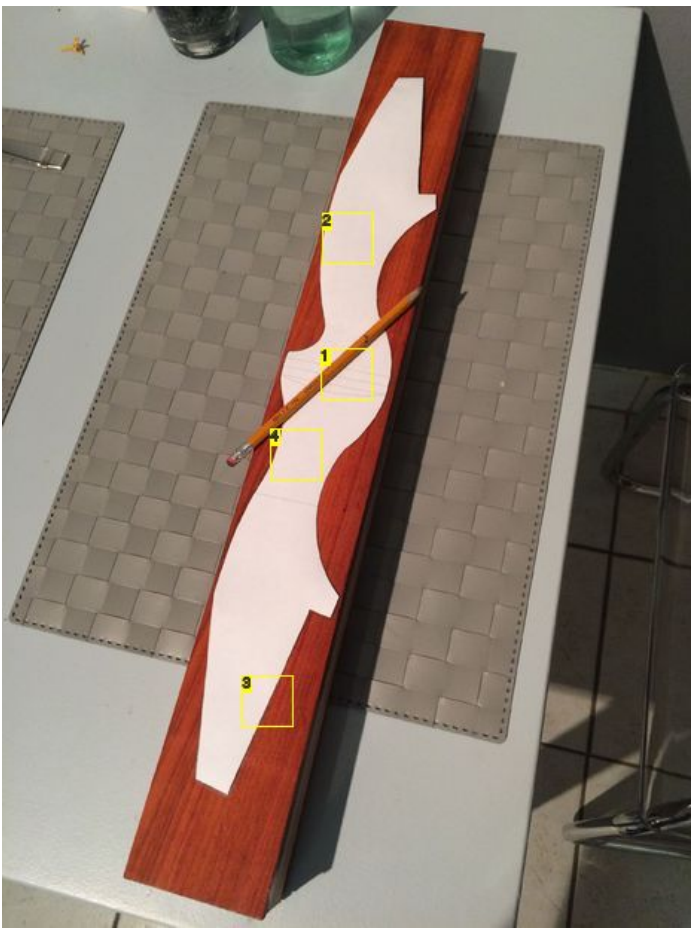


Image Notes

1. this is the exact middle of the riser where the arrow will sit.
2. this is the area where my hand will sit
3. the angle here is 10 degrees where the ski will sit
4. I will cut this cavity out to just over halfway through the block so the arrow sits dead center



Image Notes

1. the riser is exactly 20" and the arrow rest is exactly 10" on center



Image Notes

1. the dark lines help with visibility when cutting.



Image Notes

1. short cuts help when doing curves with a jigsaw



Image Notes

1. SO BLOCKY! but we will fix that in the next step. Now to cut out the area where the arrow will rest



Image Notes

1. yes a bit of a hack job but I got it cut. Now lets go sand

Step 4: Sanding and Shaping the Riser

Not really a fast way to do this other than some gritty sand paper and a power tool. I only have a belt sander so what I had to do was flip the sander upside down and sand my riser that way.

I just worked away at the riser until I began to get the shape I wanted.

after I got it close I used a wood rasp to sand where the belt sander could not.

Sanding tips.

- Be sure to always be moving your riser as to not take off too much material
- pay attention to other parts that may be getting sanded without you meaning to when working on weird angles.
- take your time and take breaks, no point rushing
- Wear a face mask and safety glasses to protect from ingesting wood dust.
- Wear ear protection, its going to take a while so don't damage your ears
- keep sanding until you reach your desired shape

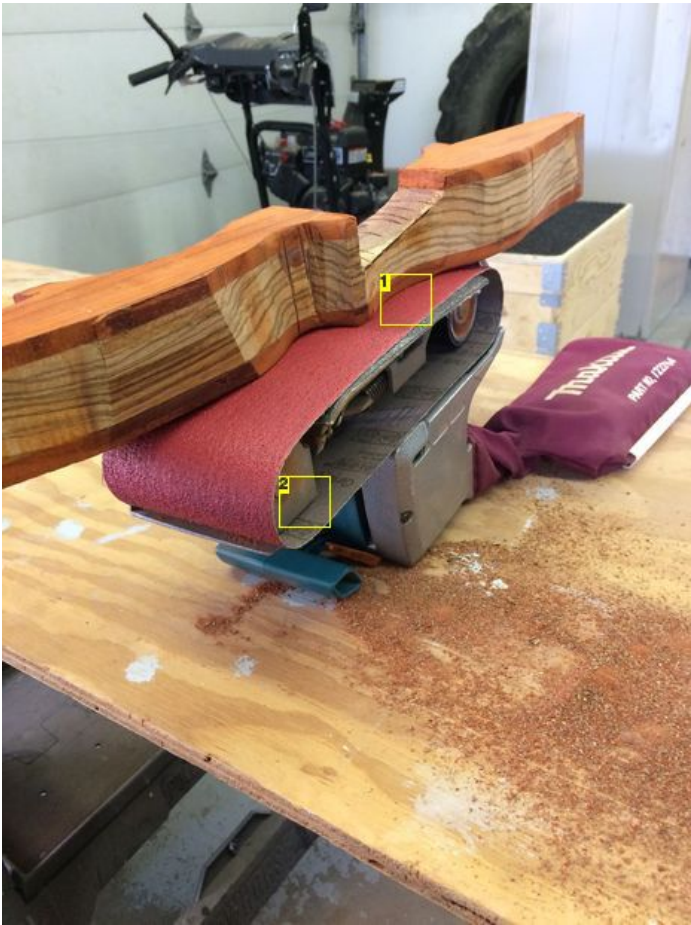


Image Notes

1. started with a 50 grit then 80 grit
2. belt sander flipped upside down



Image Notes

1. slowly but surely

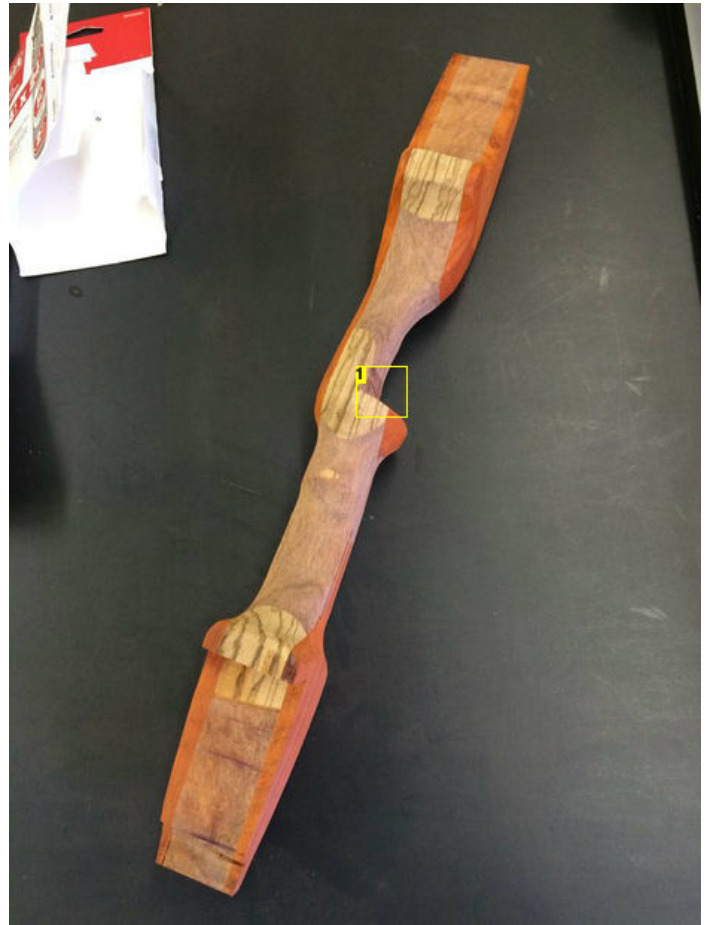


Image Notes

1. now use a wood rasp to remove saw marks that the belt sander couldn't get to



Image Notes

1. My entire garage floor was covered in saw dust it got everywhere so make sure you do this somewhere that can be swept easily

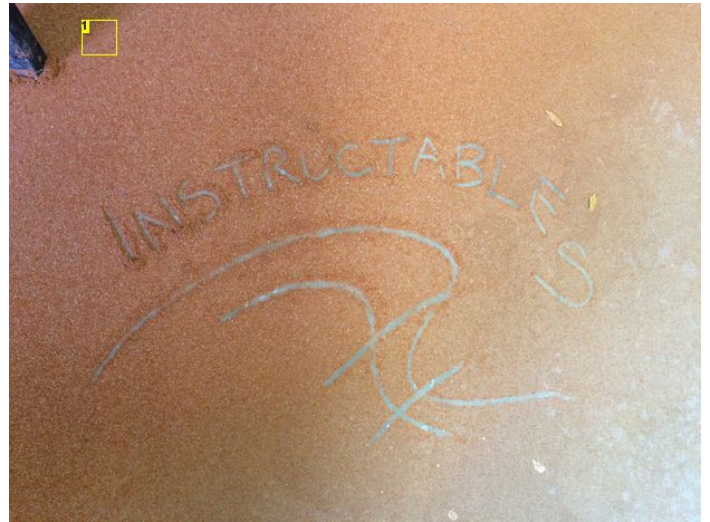
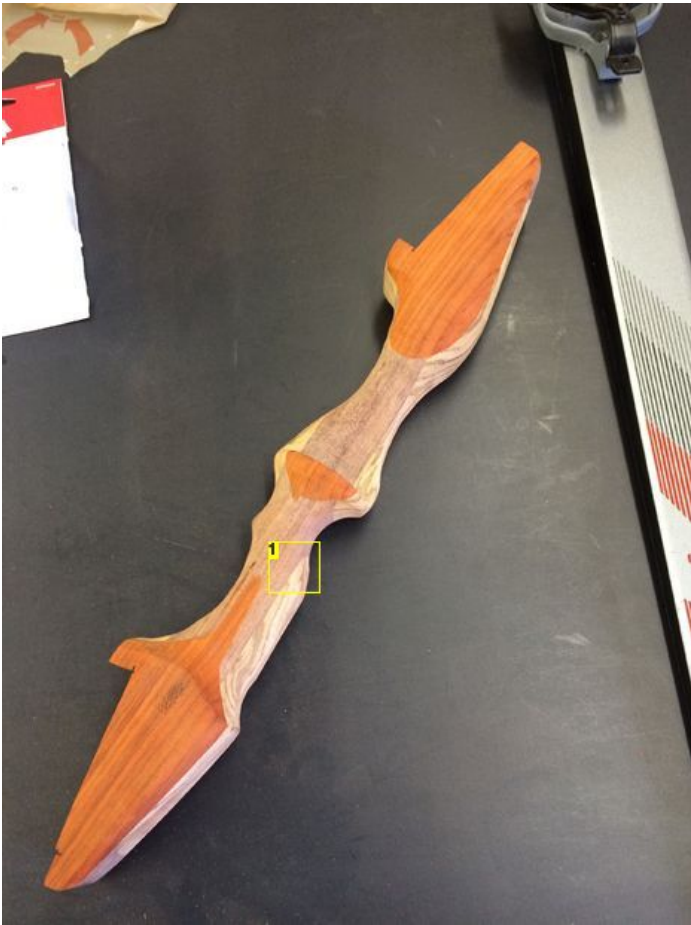


Image Notes

1. I use the rounded edge on the belt sander to shape my grip

Step 5: Making The Arms

I used a pair of old cross country skis for the arms. I got these at my local re-use center for \$20.

Measure your skis from the tip down anywhere from 20" - 26" for good spring power. I cut these at 23.5" from the tip.

I laid out the bow to see how everything was going to look.



Image Notes

1. Cross country skis \$20

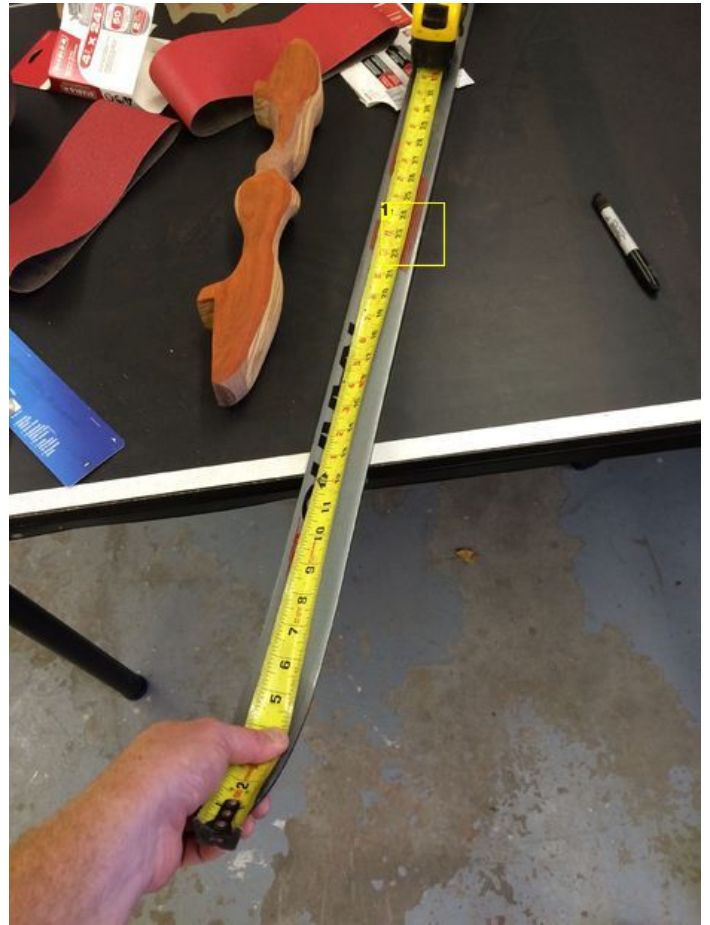


Image Notes

1. 23.5"

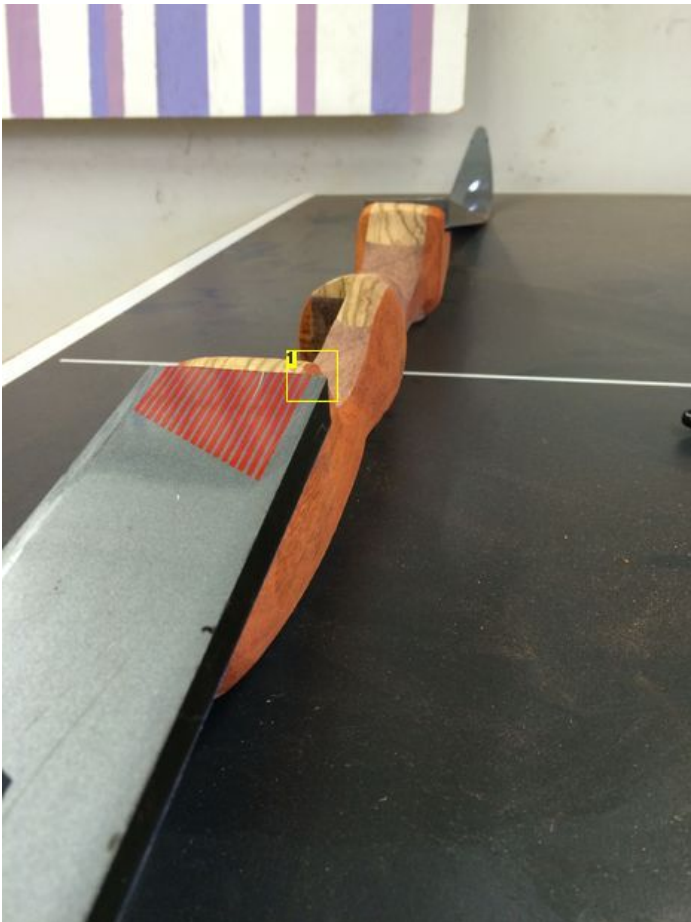
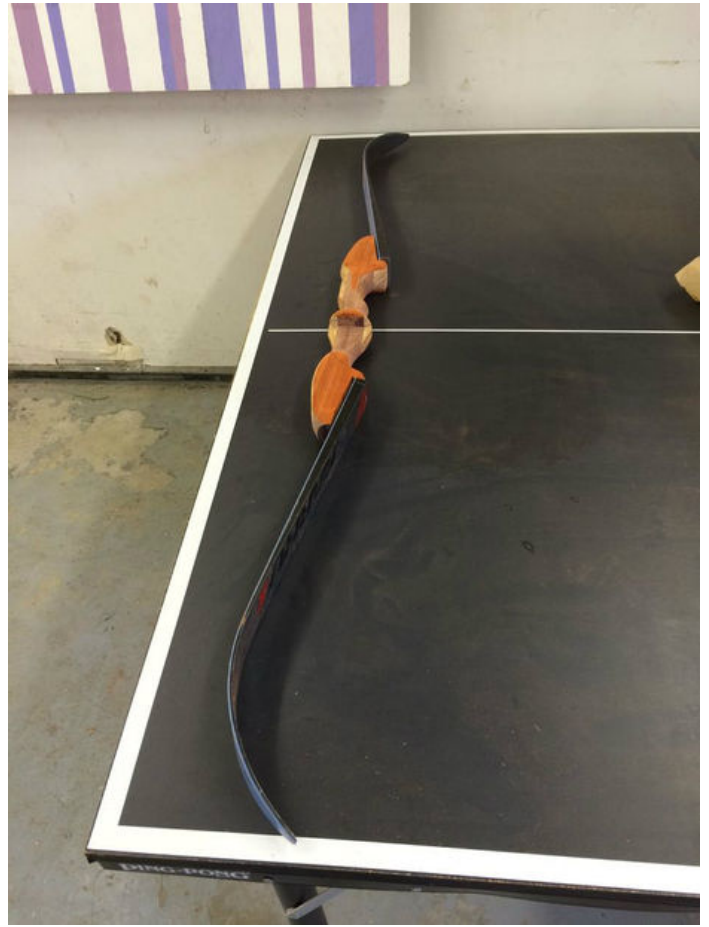


Image Notes

<http://www.instructables.com/id/Takedown-Recurve-Bow-Home-made/>

1. I don't mind the extra so I will not be sanding down the skis

Step 6: Attaching Arms

attaching the arms is easy but needs to be done correct so follow these steps

go and buy your attaching hardware;

2 bolts @ 3"

2 bolts @ 2"

4 washers

4 wing nuts

all hardware is 5/16

1 - measure where the wood of your riser stops on your ski from the bottom. draw a line across the top of the ski as guide.

2 - make points where you are going to drill that are directly in the middle of the ski. from the cut edge of the ski I made marks at 1" and 2.5".

3 - using masking tape tape the ski to the wood as best as you can exactly where you want it to sit when attached

4 - clamp the wood and ski down and using a bit that can be used for wood and plastic drill through the ski and wood. I used a 5/16 bit because that was the size of my bolts.

Using a hole cutter bit drill from the back of the riser making the holes large enough for the head of the bolt to fit in. drill the holes deep enough so the bolt sticks up just past the riser maybe 1/4-1/2"

after all holes are drilled use a nail set to hammer in bolts so the fit snug then add your arms and tighten down with a washer and wing nut.

Using a round file, work in some notches where the string will fit. Angle the notches away from the middle of the bow to act as a rest and not have the string fall off.

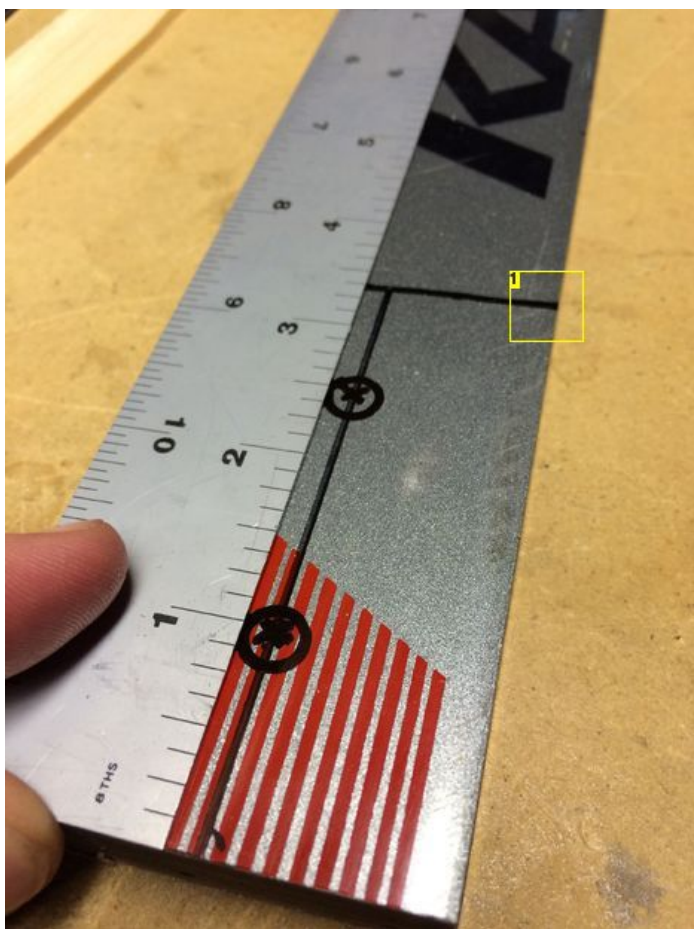


Image Notes

1. line where the wood stops underneath



Image Notes

1. I kept drilling a bit at a time until I reached the perfect depth



Image Notes

1. 3" bolt
2. 2" bolt



Image Notes

1. angle the notch to make sure the string won't fall off under pressure.

Step 7: Testing

At this point I have basically a functioning bow but it needs to be tested before paint.

Here is a quick testing video

This was shot at close range about 20'

Notice I only pulled it back about 50%-75% draw. I have another video of it at full draw. Because of where I was shooting I wanted to be safe.



Step 8:

Now that we know that the bow is shooting correctly we can make it look a little fancier.

After making sure everything fits nicely do a final sand on your riser then add some stain or varathane. I wanted the natural wood colours so I went right to varathane.

let everything set for 24-36 hours

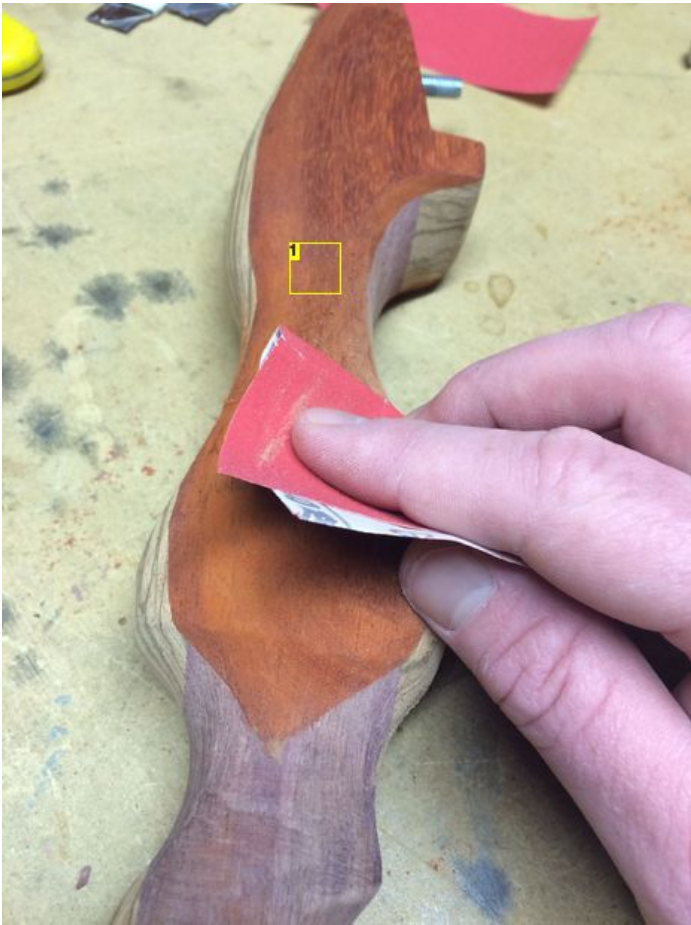


Image Notes
1. fine sanding



Image Notes
1. just need to add design to the arms and its done
2. fully collapsible take down bow
3. bought this at sporting goods store for 10 dollars. it was the cheapest I could find.



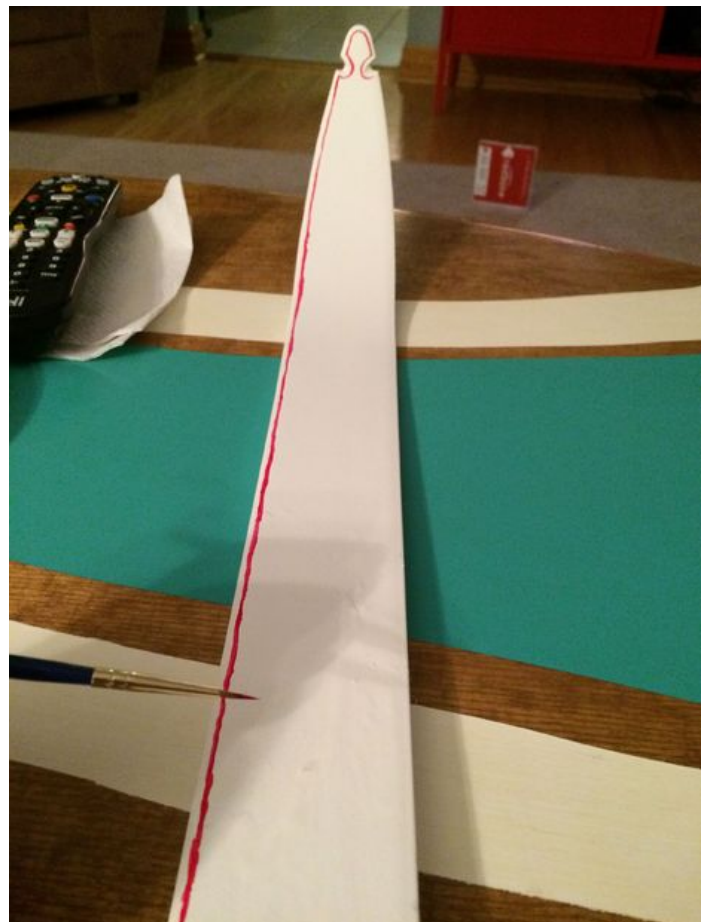
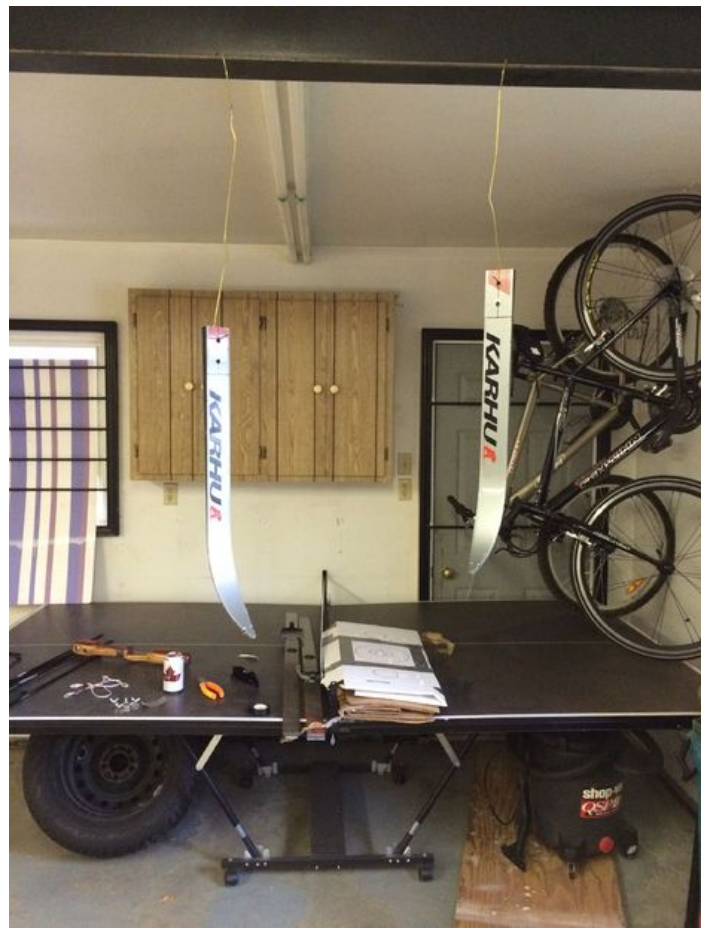
Image Notes

1. look at that grain!

Step 9: Painting and Design Detail

Hang it up somewhere and use multiple of layers of paint. Try to use a paint that has some flexing agents in it because the arms will have to flex quite a bit, automotive paint should work great.

keeping the bow all white looked good but I wanted to add a Canadian feel to it so I did some detail work.







Step 10: Complete Bow

All Done!!

The bow is complete and ready for real testing

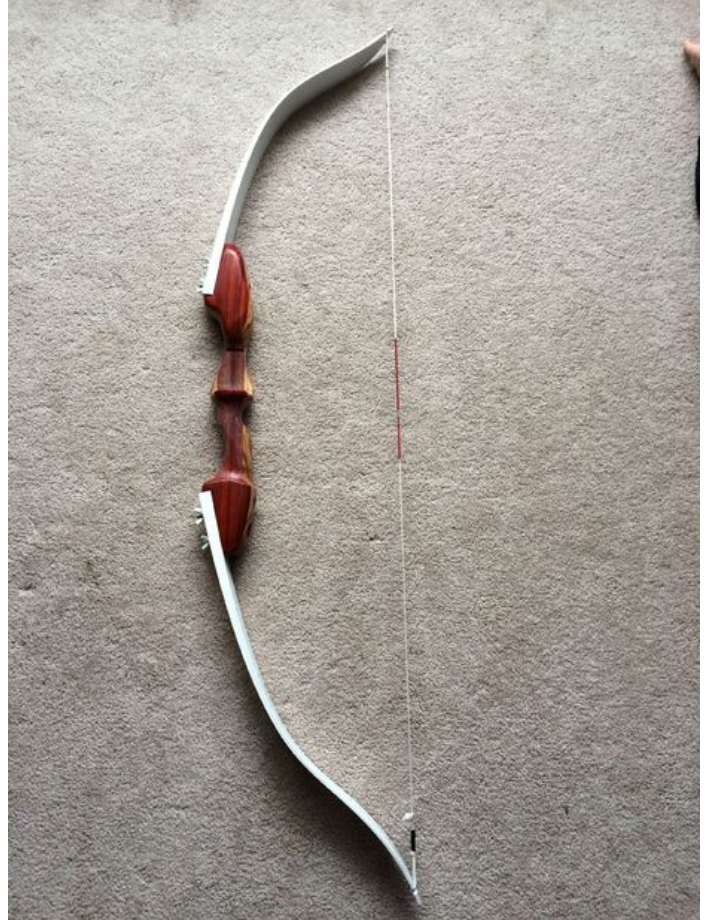
These shots were taken at about 35yds and the grouping is pretty good.

In the video it looks like the arrow is wobbly but in actuality it was flying straight I was using a cell phone to film it. When I walk up you can see how the arrows have hit the target for a better idea of how it was coming off the bow. All consistent

(sorry about not turning the camera)

I hope you have all enjoyed this instructable

I did this for fun enjoy.



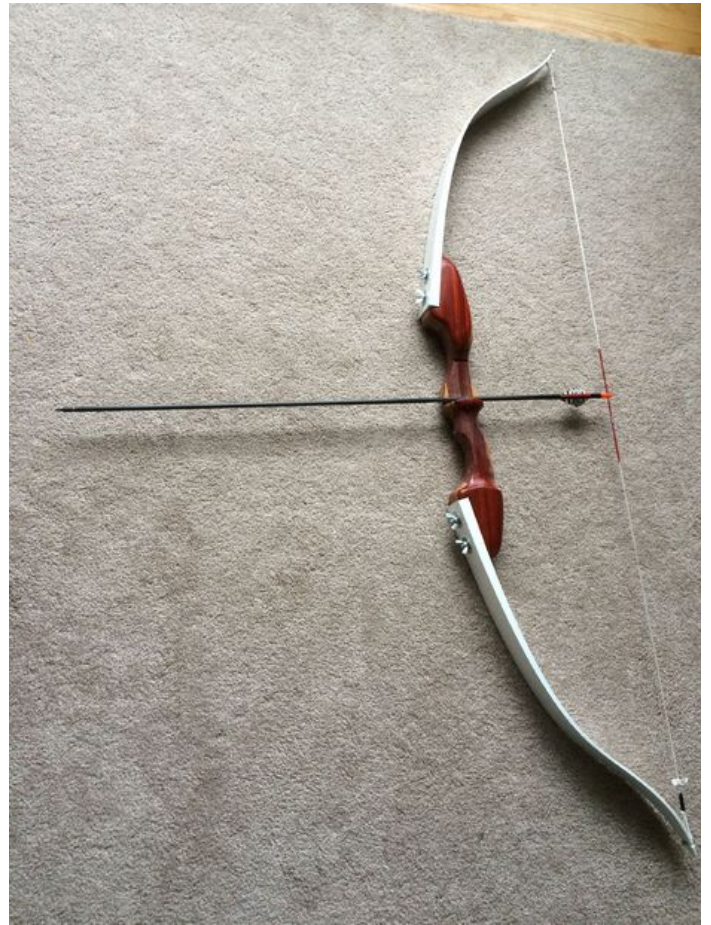




Image Notes

1. I made this table last year for my girlfriend :)

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Comments

2 comments

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Danger is my middle name says:

Wow, amazing job! I love that you used skis, it's so creative!

Nov 25, 2014. 3:30 PM [REPLY](#)



Orngrimm says:

Good choice with the limb-material (Skiers)! We often have schoolclasses in our club to try their bows. Unfortunately a lot break because of bad material-choice. The ones which normally hold are the skiers and the bed-planks.

Nov 25, 2014. 3:27 PM [REPLY](#)