

Compatible with the Current Version of

VCarve | PRO
& DESKTOP



This month's project is for the Violin and Guitar players out there. The samples were made using Walnut, Maple and Alder however, you might use woods of your own choosing. We recommend using any suitable hardwood. This is a nice project to give as a gift or make for yourself. These projects have epoxy inlays and painted parts. Each Instrument Stand have 5 basic parts, the body, a neck and head, stand legs and neck holder. At the end of the article are picture of the stands with instrument on them. The videos and instruction are for the violin stand. The others are made in a similar fashion.

[So here we go!](#)

The Instructions, crv. files and videos are found on Nextwave's Automation Website nextwaveautomation.com

This project is aimed at the woodworker with moderate to intermediate skills. You will need access to the current version of V-Carve with updates, and the tools are listed below.

With the V-Carve software, open the project CNC files. Carefully review all the toolpaths and make necessary changes to suit your tools and machine. The toolpaths are currently set with tool, feeds and speeds that were used in designing the original project. Be sure to review them for your machine. Edit the tools and change the settings to fit you own machine and requirements. It is very important to recalculate all toolpaths after making any changes.

Once having made the necessary recalculations for your own machine and tools, reset the preview, and then preview all toolpaths again to visually verify the project outcome. Create the tap file for your machine by using the correct post processor. Once satisfied with your settings, save the tool paths using the appropriate Post Processor for your machine. Check tool paths by air cutting the project or use rigid foam board to run a sample tool path. If satisfied with the outcome, now you're ready to make your own **Custom String Instrument Stand!**

Project material list for Violin Stand:

- 1- 20"x14"x.75" Hardwood Blanks
- 1- 20"x6"x.75" Hardwood Blanks
- 1- 12"x8"x.75" Hardwood Blanks
- Various grade of sandpaper

Project Tool List:

- 1/4" straight bit
- 1/4" dia. 60° V-Carve bit
- 1/8" straight bit
- Sanding and finishing tools.

Project CNC Files:

Video Files: found on nextwaveautomation.com

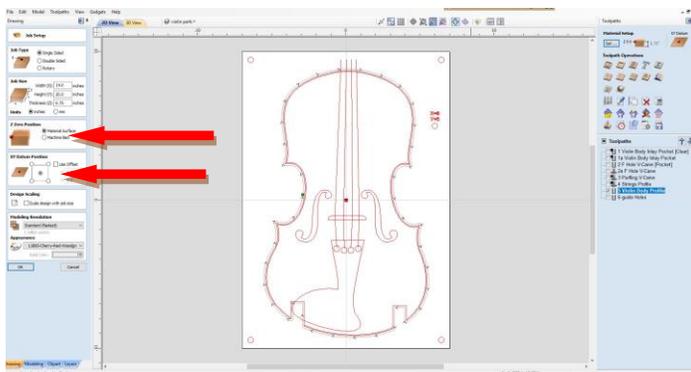
- Instrument Finishing.mp4
- Instrument Finishing 2.mp4
- Instrument Machining.mp4
- Instrument Designing.mp4
- For more information on how to create the Instrument Stands tap files and how to modify the Instrument Stands, watch the video Instrument Stands Designing.

Milling the Stock:



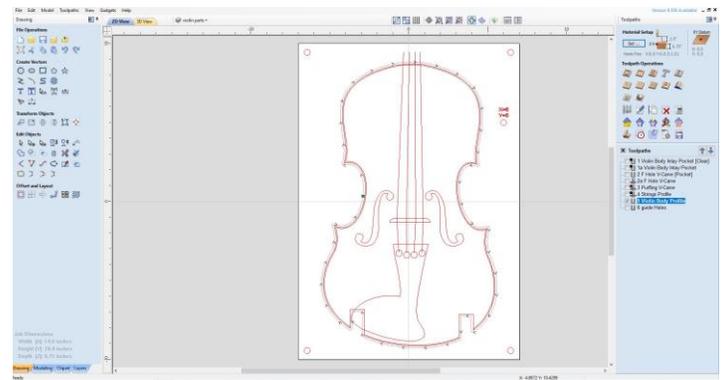
Mill all of you stock according to the material list. Use contrasting woods for the best effect. Clamp down to your blank to the spoil board I use screws in the corners. Now, you are ready for machining.

Step 1: Creating Tap Files:



Make sure to have the following items checked in the Job setup menu to get the best results.

Zero position: Material Surface
XY position: Center



The first step in creating a tap file is to open a project file crv. Make necessary changes for styles and personal taste. Carefully review all the toolpaths and changes to suit your tools and machine. Use the correct corresponding post processor to save the tap files. For this project you should be creating many tap files. When everything is prepared, go over to the tool path menu and save each of the tool paths. Each stand should have 3-8 tool paths.

Step 2: Machining the Body:



Project Tutorial

October Project: String Instrument Stands

Designs by Rick Frazier

Mount the material so it is square with the X and Y axis. (See above illustration.) Secure in the corners with screw or clamps as in the figure above. Make sure the clamps or screws do not obstruct the bit during machining. Install 1/4" spiral straight bit. Touch off the Z-axis on the "TOP of the Material" (see Reference Video).

Load the [1a Violin Body Inlay Pocket.tap](#) Run the tap file with a router speed at 12,000 to 16,000 RPM.



Clean the fixture of all debris. Install a 1/8" spiral straight bit. (See above illustration.) Touch off the Z-axis on the "TOP of the Material" (see Reference Video). Load the [1 Violin Body Inlay Pocket \[Clear\].tap](#) file. Run the tap file with a router speed at 12,000 to 16,000 RPM.



Clean the fixture of all debris. Install a 1/4" 60o v-carve bit. (See above illustration.) Touch off the Z-axis on the "TOP of the Material" (see Reference Video). Load the [2a F Hole V-Carve.tap](#), [3 Purfling V-Carve.tap](#) and [4 Strings Profile.tap](#) files. Run the files with a router speed at 12,000 to 16,000 RPM.

Clean the fixture of all debris. Install a 1/4" bit.



(See above illustration.) Touch off the Z-axis on the "TOP of the Material" (see Reference Video). Load the [5 Violin Body Profile.tap](#) file. Run the tap file with a router speed at 12,000 to 16,000 RPM. You will perform all of these tasks on the individual body.

Step 3: Machining the Neck:



Vacuum the top of the fixture. Mount the material so it is square with the X and Y axis. (See above illustration.) Secure in the corners

with screw or clamps as in the figure above. Make sure the clamps or screws do not obstruct the bit during machining. Install 1/8" spiral straight bit. Touch off the Z-axis on the "TOP of the Material" (see Reference Video).

Load the [Tuner Pocket 1.tap](#), [Pegs V-Carve \[Pocket\].tap](#), and [Top Groove Pocket.tap](#). Run the tap files with a router speed at 12,000 to 16,000 RPM.

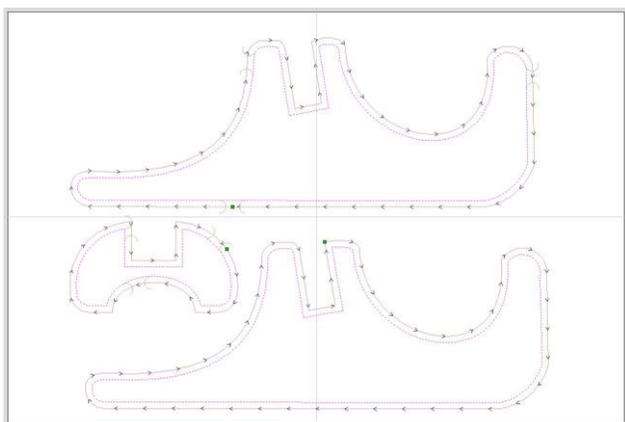


Vacuum the top of the fixture. Install the 1/4 60o V-varve bit. (See above illustration.) Touch off the Z-axis on the "TOP of the Material" (see Reference Video). Load the [Pegs V-Carve.tap](#) and [Strings](#)



[Profile](#) files. Run the tap file with a router speed at 12,000 to 16,000 RPM.

Vacuum the top of the fixture. Install the 1/4 straight spiral bit. (See above illustration.) Touch off the Z-



axis on the "TOP of the Material" (see Reference Video). Load the [Violin Neck Profile.tap](#) file. Run the tap file with a router speed at 12,000 to 16,000 RPM.

Cutting the feet:

Remove shield, flip the shield over (left to right). Vacuum the top of the fixture. Mount the shield. Install the 1/4" straight spiral bit. Touch off the Z-axis on the "TOP of the Material" (see Reference Video). Load the [Feet and Neck bridge Profile 2.tap](#) file. Run the tap file with a router speed at 12,000 to 16,000 RPM.

Step 4: Removing the tabs, Epoxy inlay and Sanding the Instrument Stand:



Cutting Tabs:

Cut the Instrument Stand Parts free from the blank by using a trim router. Be careful some of the parts are fragile.

Epoxy Inlays:

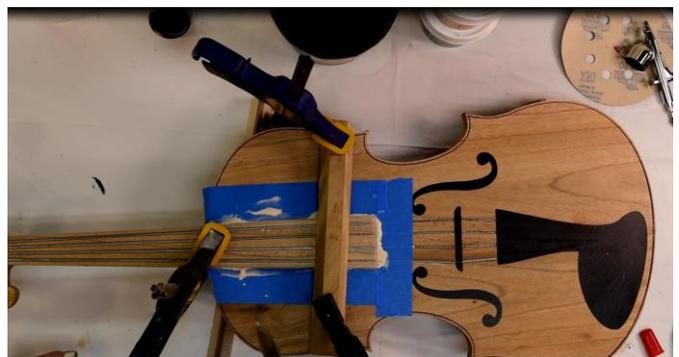


Before completing epoxy inlays, always seal the project with a sealant that is compatible with the epoxy. This is so it seals the pores of the wood and the paint or epoxy doesn't migrate. At this time you want to mask off any areas you do not want the epoxy to be in, like the grooves, in these areas I used modeling clay to block the epoxy. Mix the epoxy first then add the colorant. Thoroughly mix together. When applying make sure to fill all of the voids and eliminate all of the air bubbles. Allow to cure for 24 hours. Carefully sand flush with the top surface of the Instrument Stand parts.

Sanding:



- Using hand and machine sanding, sand with 120 grit sandpaper and remove any unwanted material from the detailed areas of the Instrument Stand. Be careful not to oversand, it will take away features away on your Instrument Stand. Sand everything



down to with 240 grit sandpaper. Once satisfied with the sanding and detailing, prepare the Instrument Stand for finishing.

- **Step 6: Assembling and Finishing the Instrument Stand:**

Assembly

To assemble the stand, take the neck and body and glue together. I mask off around the neck to avoid getting glue on the body. The feet and neck support will be finished separately and installed after finishing of the body and neck are complete. The feet and neck support are screw on to the body.



Finishing

After sealing and final sanding, it is time to spray one coat of amber topcoat. I use CrystaLac All-purpose topcoat with an amber tint added. This gives the instrument stand a warm tone. Then I spray 3 coats of Bright Tone Topcoat. Sanding with 320 grit sand paper and wiping down with a damp lint free towel between coats.

Then Assemble the feet and neck support to the body and you are done.

Hope you enjoy the making of this project. So, keep your creative juices flowing and come back next month for another cool project.

Happy Carving!
Rick Frazier

