User Guide, Tips and Fixes
US Cutter Refine MH Series Vinyl Plotter Cutter

By Mark Pryor
www.Vorticy.com
• USCutter.com offers a decent vinyl cutter at a low price. The Refine MH 721 is a great little CNC machine (plotter/cutter). They come in different widths but to my knowledge they are basically the same.

• For beginners it is a great way to get into the vast world of vinyl cutting; however, there are many things to get beginners hung up, annoyed and pissed off. I’ll try to address a few of them here.

• For starters, I’m using Windows XP SP3 and CoralDraw X4. The plotter is connected to the computer via the serial cable and COMM port.

• If you have a Red Sail plotter from hflaser.com this is the exact same machine, just different covers i.e. Red Sail RS720C is the same as the MH 721.

This is the one I have been using for 3 years. Works great but loud.
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Here is my Refine MH 721

Left side cover has been removed in this shot.

Teflon cut pad lifting up at edges. Hard to get things to stick to Teflon. They should have anchored with a small plate and screw.

I put some clear tape over the ruler so that the vinyl wouldn’t get caught up on it.
Display panel of my Refine

You can see the tape a little more clearly here.
Right Cover and Carriage Stepper

Cover is held on with 4 screws.

This is the USB, LPT and serial port connectors.

Carriage stepper. Really not the culprit of all the noise. That’s the feed roller stepper.
Carriage Axis (or Y-Axis) Stepper
Communication Connectors

Communication cable to motherboard.

Serial RS-232

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USB 2
Left Cover Outside and Removed

- Power wires to power supply.
- Carriage belt tension screw
- Feed Roller belt.
Panel is screwed on with 4 screws and 2 rubber feet with screws. Also has double back tape that you'll have to pry the cover off of.
Closer view of the Motherboard

Memory Module
Click Here Increase your stock memory by 300% for $19.95.
I’m using CoralDraw X4 for creating and editing graphics. This software is not cheap but well worth the price. Coming from an engineering background, it is mostly intuitive although can be frustrating at times.

A cool feature is the ability to edit nodes easily.

Get started by going through some tutorials on the net such as

- Tutorials on Corel.com
Rip software

• Rip software is super critical and can cause most people a lot of grief. My machine came with a trial license of SignCut Pro and a free license of SignBlazer which apparently is not longer supported as the owner past away.

• I first started using SignCut Pro and found it relatively easy to use with occasional bugs. I will go into some more details on the next slide. In short, I didn’t want to pay for the software after the license expired.

• I switched to SignBlazer and have been relatively pleased. There are still some annoyances but no deal breakers yet.
Some general tips and annoyances include:

- Zooming in and out with the mouse scroll wheel is backwards.
- Zooming using available tools is also annoying.
- Copying and pasting from CorelDraw requires the objects to be fills only.
- Sometimes copying and pasting doesn’t work. Try exporting as an AI or ESP file. I found AI version 5.X to be the most reliable.
- You can’t preview the cut path until you hit print. To see the cut path, take the printer offline or turn it off temporarily.
- Reduce the nodes of your graphic by using the node editing mode in CorelDraw, selecting all the nodes, change curve smoothness to 5 to 20 and click the reduce nodes button.
SignCut Pro v1.07

- SignCut Pro is easy to use and easy to transfer graphics to. All you do is go to File -> Send To -> SignCut. Sometimes it fails to launch and you need to restart your computer but this only happens if you close SignCut so don’t close it if you use it a lot.
- The downside is that it is not free and the trial license will expire after a year.
- Also, I had issues with this software stopping in the middle of large files. SignBlazer cut the same file without problems but then again SignBlazer had a similar problem on a different file.
- Here is a fairly weak setup guide by SignCut [Setup Guide](#)
Signcut is not free

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Prices are tied to the current USD/EURO exchange rate and may fluctuate. Actual pricing will update at check out.

To make a purchase please first register and download a trial, once you have installed the trial you may click help>login to customer area and choose purchase to review your options. You may also login to the site using your trial registered email and license number.

*SignCut Lifetime License

The Lifetime license is a purchase and not a subscription. This version runs with a USB Dongle and may be used on any computer as long as the dongle is present and the operating system supports it. Currently the dongle and software runs on any computer running Mac OS X, Windows XP, Vista, and Windows 7 32 bit. The dongle also runs on many 64 bit machines but should be tested for compatibility on your machine prior to making it a mission critical system.

**Hobbyist edition

The Hobbyist edition is also a purchase and runs after activation for as long as your hardware and operating system supports it. It has all the features of our full version but is restricted to a cutting area of 20"x20".
Grounding and static

China based products are notorious for poor grounding. To properly ground this unit, I just connected as many components together as possible with copper wire and tested for continuity using a multi-meter.

I scraped the paint of this roller and connected it to the rest of the chassis. Not sure how much this helps bleed off the static that is on the vinyl.
Why is this thing so loud?

- The majority of the noise comes from the feed roller stepper motor which vibrates the vinyl. The vinyl with its backing paper acts like a speaker. You can easily test this by feed with and without vinyl. Remarkable. Roland uses servo motors which provide smoother feeds. Servo motors require encoders for feedback necessary for precision and are thus more expensive.
Reduce the noise using foam rubber

You can reduce some of the noise by dampening the sheet metal parts. I used 1/2in foam rubber with adhesive backing from www.McMaster.com. This helps but the main problem is the steppers vibrate the vinyl causing it to amplify like a speaker. This is where 70% of the noise comes from. You can dampen the vinyl as it is pulled off from the roll but this is harder.
• Make sure that your pinchers are spaced evenly with the exact same pressure. But not too much pressure. Just enough to keep the vinyl secure to the roller.