RMS Rm 14 Makerspace
Epilog 40 watt laser cutting notes
(Originally September 2018 by Teresa Cheng)

Also might be good to reference paper [manual](#) or [Nico's Full Spectrum Laser Notes doc](#)

Document size
Use consistent document size across:
- Inkscape document size
- Epilog Dashboard piece size
- Material size for laser cutting

[Robert Taylor few notes on laser cutting troubleshooting in room 14, April 26, 2019](#)

1) I went back to the original svg files to ensure proper coloring and line thickness (pure blue or red, 0.001 in thick). Ungrouping as needed, doing all troubleshooting and modification in Inkscape SVG format, then re-saving as .pdf is super important.
2) I set up a new configuration file (RT v4) that makes the words slightly lighter (a bit of an improvement)
3) I noticed that the USB was not reliably connecting to the Epilog, and purging the print jobs in Windows, unplugging the USB and plugging it back in, and resending the jobs was helping get the jobs I wanted on the laser cutter.
4) Page size is important. Within the job manager under the Information tab when a job is selected, the page size can be viewed. While it may be possible (and recommended) to set the job location with the Preview tab, if some of the job is placed off of the page as specified in the Information tab, that part of the job won't show up, and that won't be clear before it just doesn't show up. To clarify, if the default 8.5x11 page size is used, you either need to make sure the whole job is within those borders or all (possibly any) won't go to the laser cutter.

Inkscape setting:

Raster:

       Fill use RGB: 0, 0, 0,

       No need to set stroke paint or stroke width/weight

       To raster a line (instead of a cut through), set stroke width greater than 0.007 inches (or 0.177 mm). I tested a 0.4mm line which comes out fine.

Vector cutting:

       Fill - do not set anything

       Stroke paint: RGB: 255, 0, 0

       Stroke width/weight: 0.001 inches (equal to 0.025 mm)

Epilog references that explain how the machine interpret lines

Note on Vectors: If you are in Vector or Combined mode, all thin lines will be vector cut! This can be disconcerting because even if the lines are not visible in your artwork they will still cut. Usually, this happens when incorporating a clipart image that has hidden lines that are not readily apparent. Please refer to **"Setting a Vector Cutting Line" on page 59** for an illustrated explanation of how this can affect your work.

Setting a Vector Cutting Line

The laser determines which lines to engrave or cut based on the width (stroke) of each line. If you're using CorelDRAW, any line set to hairline width will cut. But in other software what width should you set a line to? Different line weights will engrave and cut at different widths and resolutions.

The table below shows various line widths and which will cut at the different resolutions. To be safe, set all vector lines to .004" (.101 mm) or less to make sure they will always cut.

Line Width	150 DPI	200 DPI	300 DPI	400 DPI	600 DPI	1200 DPI
.001" (.025 mm)	Cut	Cut	Cut	Cut	Cut	Cut
.002 (.058 mm)	Cut	Cut	Cut	Cut	Cut	Cut
.003 (.076 mm)	Cut	Cut	Cut	Cut	Cut	Cut
.004 (.101 mm)	Cut	Cut	Cut	Cut	Cut	Cut
.005 (.127 mm)	Cut	Cut	Cut	Engrave	Engrave	Engrave
.006 (.152 mm)	Cut	Cut	Cut	Engrave	Engrave	Engrave
.007 (.177 mm)	Cut	Cut	Engrave	Engrave	Engrave	Engrave

Eplilog settings for Cardboard:

Raster:

       DPI: 400

       Speed: 20

       Power: 90

Vector:

       Speed: 20

       Power: 45

       Frequency: 500
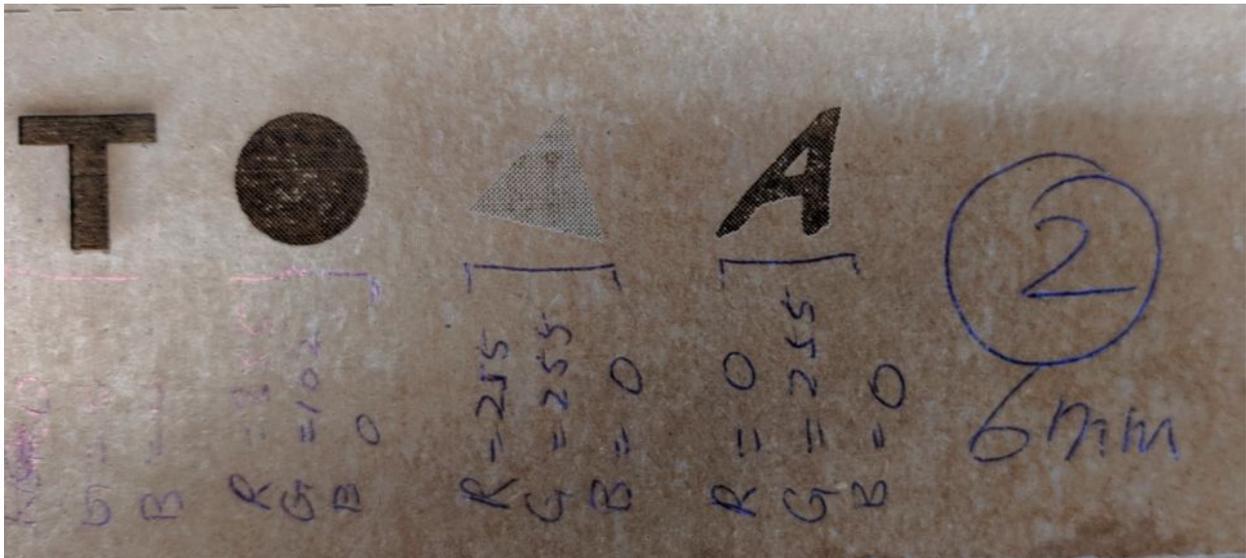
Epilog settings for wood:

Used these settings:

I always use the 400 DPI. Then based on the thickness of the wood 3mm or 6 mm, set the speed, power, frequency.

	300 DPI RASTER ENGRAVING	400 DPI RASTER ENGRAVING	600 DPI RASTER ENGRAVING	VECTOR CUTTING
	SPEED/POWER	SPEED/POWER	SPEED/POWER	SPEED/POWER/FREQUENCY
Wood Cherry – Alder - Walnut	40/100	50/100	60/100	⅛" (3 mm) – 40/100/500 ¼" (6 mm) – 10/100/500 (multiple passes may allow cutting of thicker materials)

Wood: 3mm thickness

Wood: 5 to 6 mm thickness

T ● ▲ A ② 6mm

R=102, G=..., B=0
R=255, G=255, B=0
R=0, G=255, B=0

Black 0.152 mm

T ● ▲ A

or 0.001"
Red 0.025 mm
Black 0.4 mm

□ T ● A ▲

Blue 0.01mm "Vector engrave fail"

J# cherry 600 DPI

③ 6mm

I find the older version of Epilog Helix manual material setting is simpler to digest. Start with page 197.
https://www.epiloglaser.com/downloads/pdf/mini_helix_4.22.10.pdf

The latest version of manual has give more details but require more testing on your part. Start with page 139.
https://www.epiloglaser.com/assets/downloads/manuals/legend-manual-web.pdf