

# Intro to Laser Etching/Cutting

# About MakerFX

MakerFX Makerspace is a unique makerspace in South Orlando. This space is organized by a group of like minded makers who saw the need for a new space in Orlando to fill the geographic gaps and walk hand in hand with other local spaces, FamiLAB and Factor. MakerFX is a makerspace program of The Maker Effect Foundation.

# The Maker Effect

The Maker Effect Foundation exists to activate and amplify the efforts of makers as they learn, build and work together in their communities. Our efforts include research, publication, community organization, event production, and startup advisement.

# What we'll discuss:

- Don't harm the laser, or people
- Designing cool stuff for a laser.
- Using our Epilog

# First, do no harm.

- Never leave the laser unsupervised.
- Do not disable any safety devices.
- Always run the vent.
- Always use the air assist.
- Know where the Fire Extinguishers are.
- Only cut safe materials.

# Materials

- **Never Cut/Etch**

- ▶ PVC
- ▶ Vinyl
- ▶ Polycarbonate / Lexan
- ▶ Any other material containing chlorine

- **Ok to Cut/Etch**

- ▶ Acrylic
- ▶ Wood
- ▶ Cardboard/Paper
- ▶ Certain Plastics
- ▶ Fabric / Leather

- **Ok to Etch**

- ▶ Anodized Aluminum
- ▶ Metals (Cermark\*)
- ▶ Glass
- ▶ Stone/Marble
- ▶ Mother of Pearl

# Materials

When in doubt...

**DON'T LASER THE THING!**

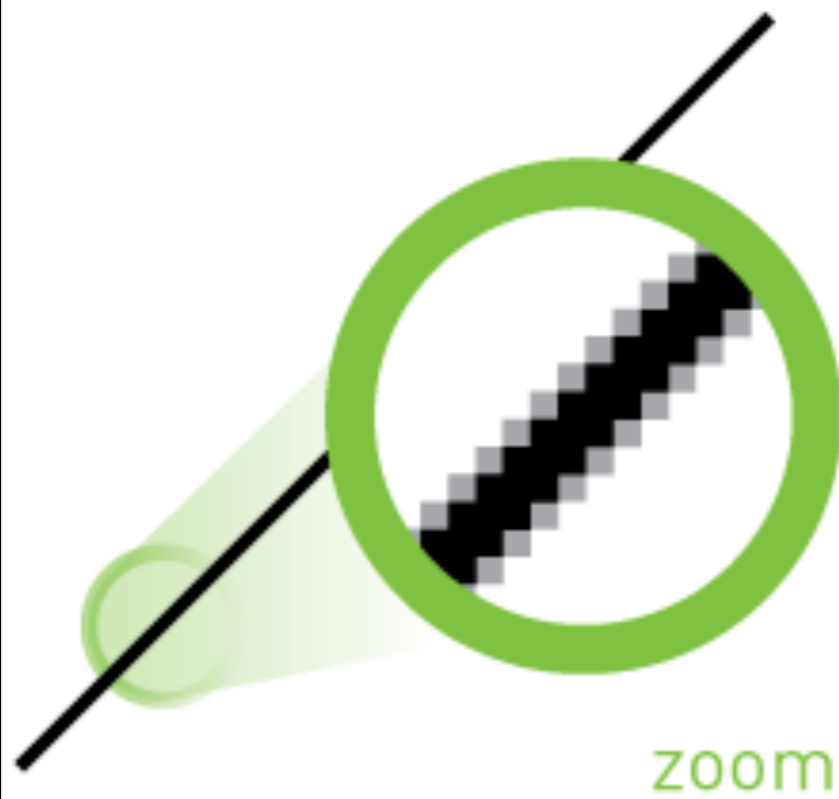
# Designing for Laser

- Which Areas to Cut vs. Which to Engrave?
- How dark to engrave?
- Sizing.

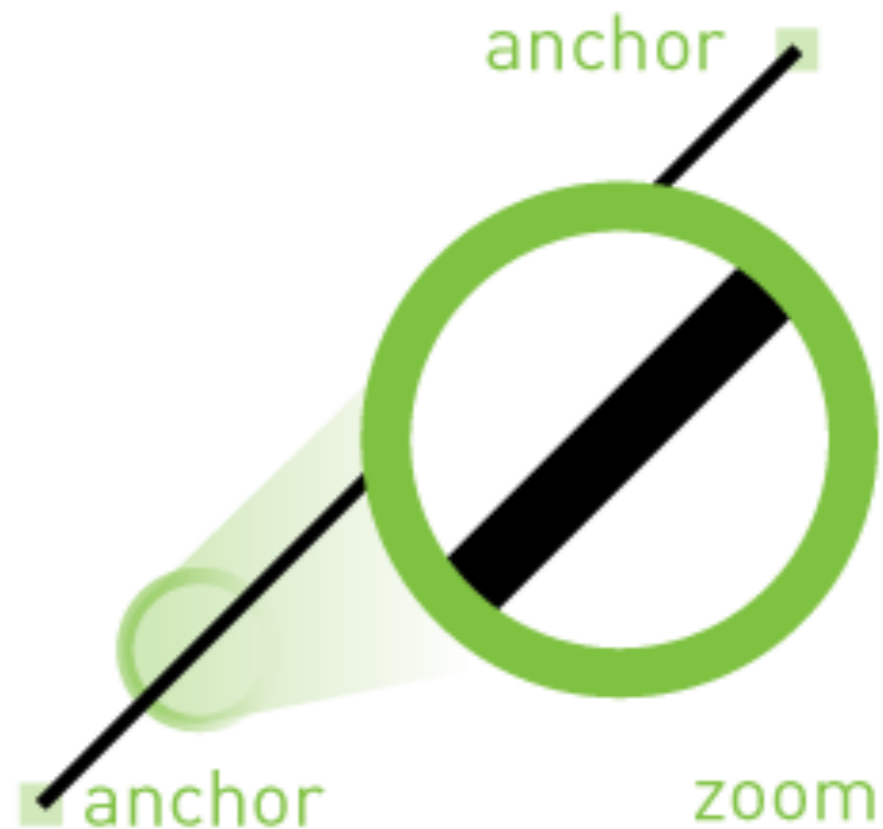


# Vector Vs. Raster

Raster/bitmap



Vector



# Illustrator Demo

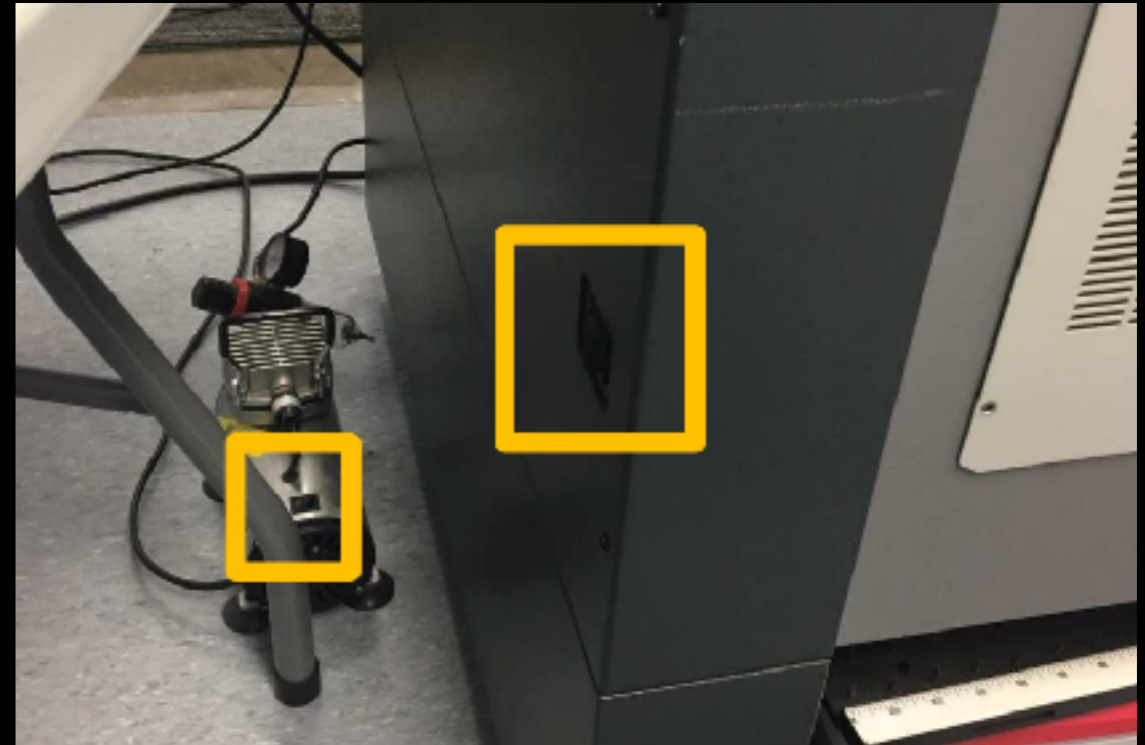


# Epilog Legend

Epilog Legend 36 EXT - 50 Watt

# Startup Procedures

- Power On The Laser
- Power on the Air Assist Compressor
- Plug in the LEDs
- Turn on the Vent



# Warm Up the Laser



- “Maint” Button
- Option 2 - “Align Laser”
- Press “Up” arrow to fire laser.
- Red button to ESC the menu.



# Cutting Procedure

1. Place the material to be cut on the Bed
2. Focus the Laser
3. Home the Laser
4. Send the Job to the Laser

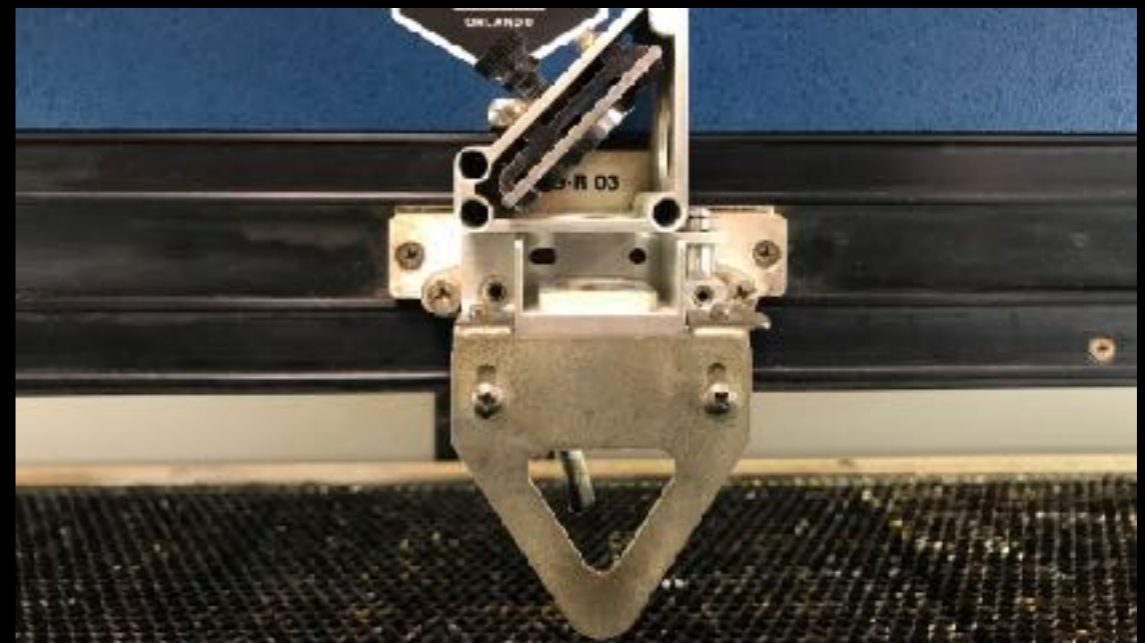
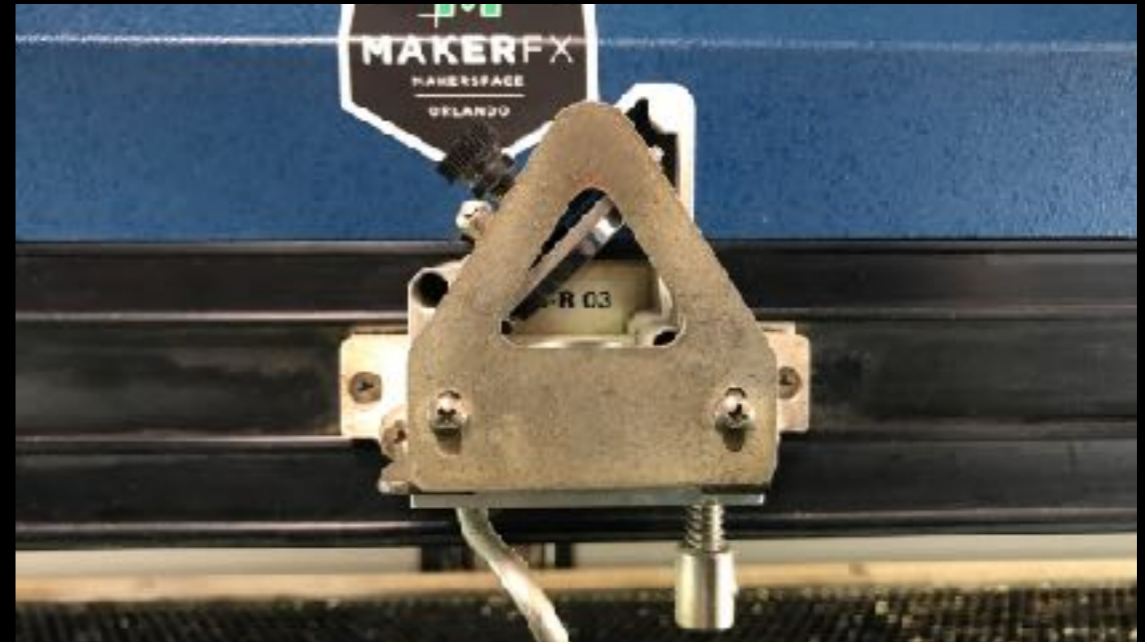


# Placing Your Material



# Focus

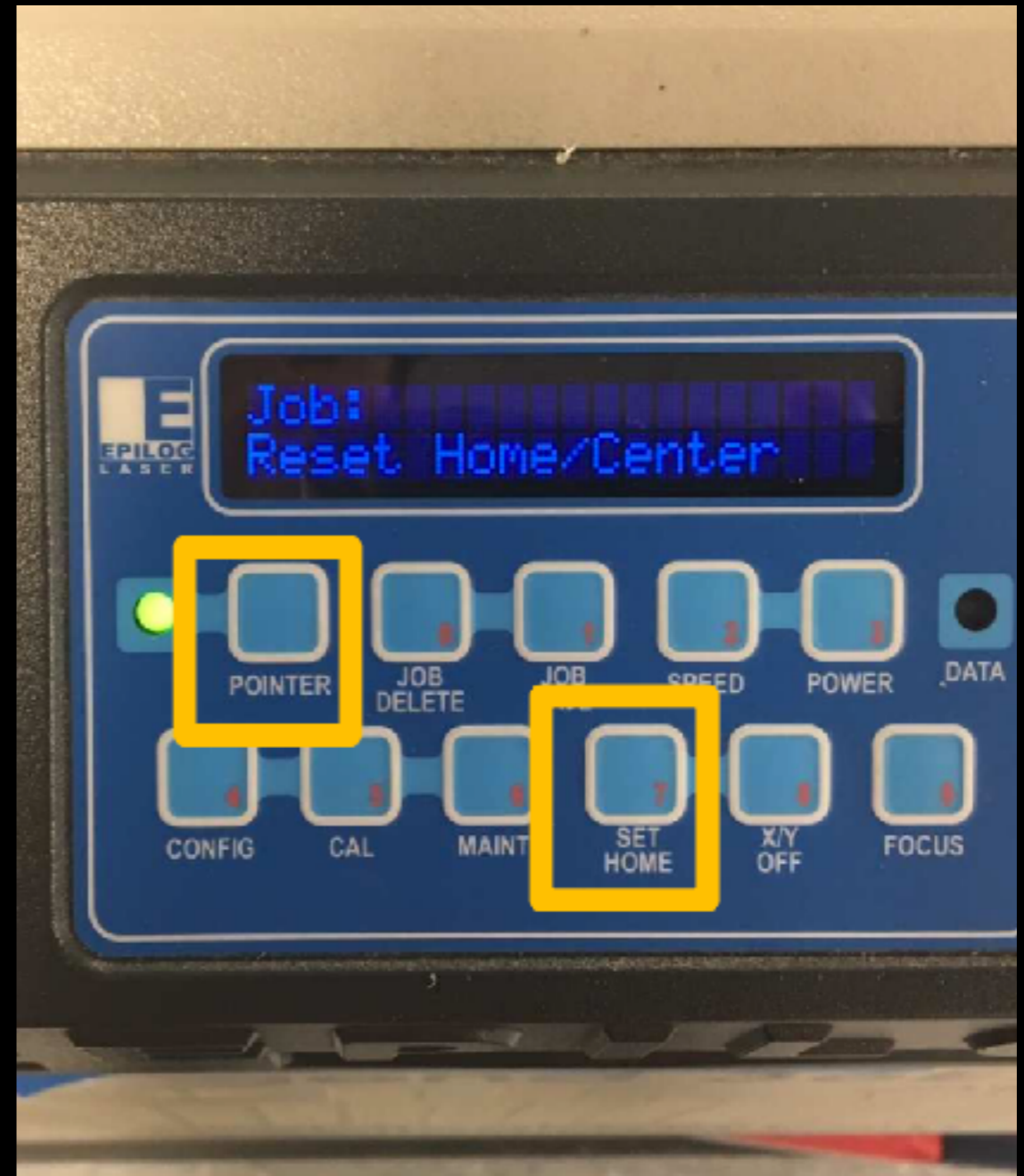
- Use the Focus Tool to determine correct distance from print head.
- Easiest if you turn off X/Y motors first.
- Switch on the left side will adjust bed height.



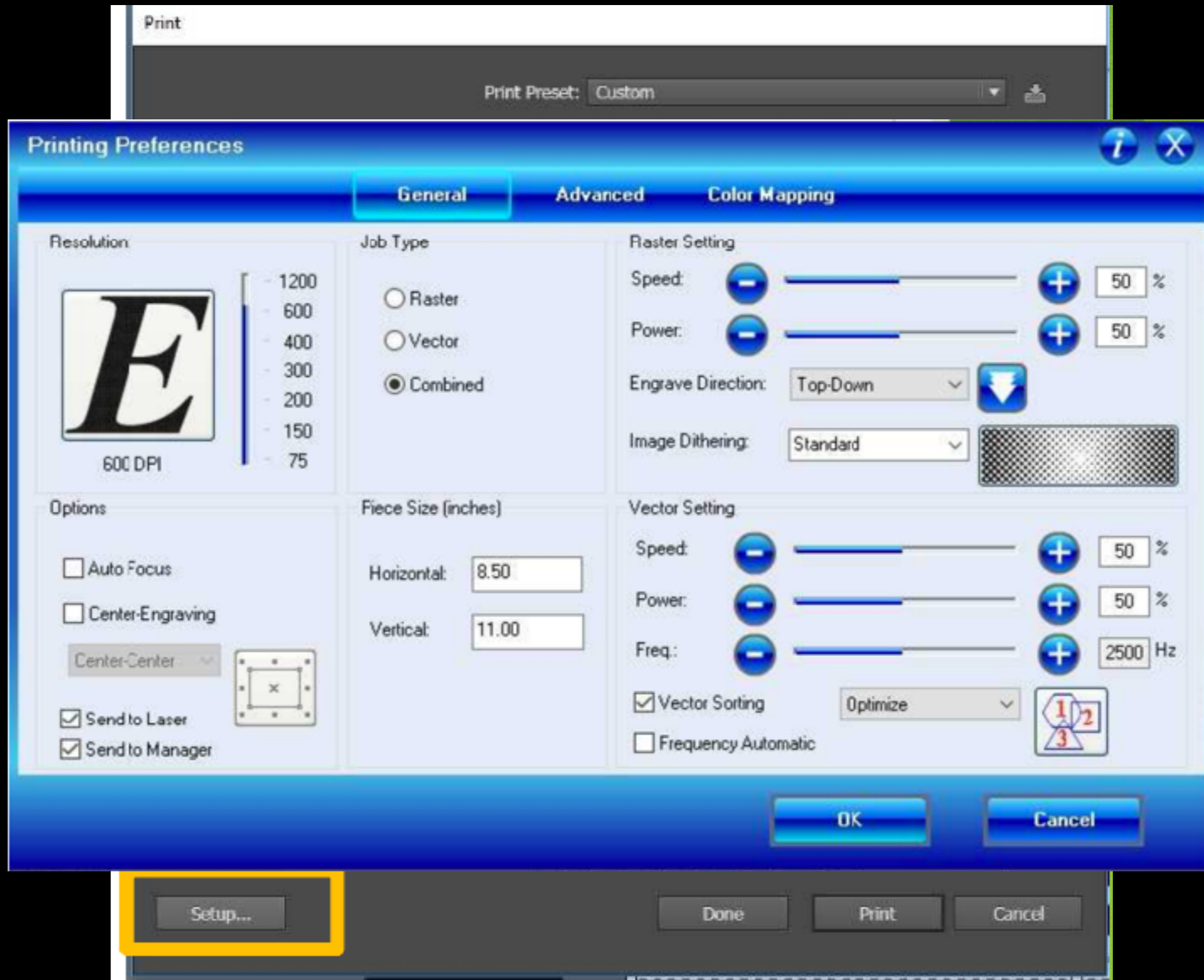


# Homing the Job

- Turn ON the Pointer
- Turn OFF the X/Y Motors
- Position the Laser Head (Starting Position)
- Set Home



# Send the Job to the Laser



# Printing Preferences



General

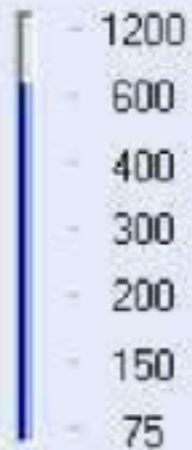
Advanced

Color Mapping

## Resolution:



600 DPI



## Job Type

- Raster
- Vector
- Combined

## Raster Setting

Speed:  50 %

Power:  50 %

Engrave Direction: Top-Down

Image Dithering: Standard

## Options

- Auto Focus
- Center-Engraving
- Center-Center
- Send to Laser
- Send to Manager

## Piece Size (inches)

Horizontal:

Vertical:

## Vector Setting

Speed:  50 %

Power:  50 %

Freq.:  2500 Hz

Vector Sorting

Frequency Automatic

OK

Cancel



## Section 13: Speed and Power Recommendations

### *50 Watt - Epilog EXT*

	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	30/100	50/100	70/100	1/4" (3 mm) - 30/80/500 1/2" (6 mm) - 10/100/500 3/4" (10 mm) - 6/100/500 (two passes may produce better results)
Acrylic	100/50	100/40	100/35	1/4" (3 mm) - 15/100/5000 1/2" (6 mm) - 8/100/5000 3/4" (10 mm) - 3/100/5000 (two passes may produce better results)
AlumaMark	100/40	100/35	100/30	N/A
Anodized Aluminum	100/60	100/50	100/40	N/A
Painted Brass	100/35	100/30	100/25	N/A
Marbleized Painted Brass	100/45	100/40	100/35	N/A
Corian Or Avonite	20/100	30/100	40/100	1/4" (3 mm) - 50/100/5000
Delrin Seals	100/60	100/50	100/40	60/95/5000
Glass	30/100	40/100	50/100	N/A
Laserable Plastic	100/50	100/40	100/30	30/50/5000
Leather	100/50	100/40	100/30	1/4" (3 mm) - 50/80/500
Marble	20/100	40/100	60/100	N/A
Mat board	100/65	100/55	100/45	50/50/500
Melamine	100/80	100/70	100/60	N/A
Stainless Steel With Cerdec Coating	N/A	35/100	40/100	N/A
Rubber & Rubber Stamps	15/100	20/100	30/100	20/100/100

# Final Checks

1. Laser is Warmed Up
2. Vent is On
3. Laser is Focused
4. Laser is Homed
5. Material is in Place
6. Air Assist is On

ENTER



GO

Demo!