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WOOD PENS & THINGS



Fine Handmade Wooden Products



The Neje Laser
Engraving Unit
Tips & Tricks

www.WoodPensAndThings.com

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WOODWORKS

The Neje Laser Engraving Unit is actually a woodburning device. It can burn most combustible materials like wood, paper, cardboard, etc. It can burn wood through a CA finish. The unit is not suitable for burning other materials. (But see Tricky Stuff #6 later!)



The unit is marketed under a variety of names, such as **Meterk**, **Qiilu**, **MVPower**, **WER**, **KKMoon**. All names are used on Amazon for the same unit, but **Neje** and **Meterk** are both directly mentioned in the product documentation. Price is from \$100-\$140, possibly with additional shipping.

Here are the specs for the unit. The model is **DK-BL** with a 1500 milliwatt blue laser. There are other models available including a new unit with 3000 milliwatt laser. The 1500mw is the lowest power unit recommended.

Technical Parameter

Size:	15.7x14.7x20cm	Roughly 6" x 6" x 7"
Communication Interface:	USB2.0 + Bluetooth 4.0BLE	
Weight:	1.6kg	
Input Voltage:	5V 0.45A / 1A	
battery capacity:	6000mAh polymer li-ion battery	
Laser Diode:	Nichia 405nm NDV4642	
Discharge efficiency:	3.7V 4A	
Laser temperature:	25°C - 45°C	
Image Size:	550x550 pixels(0.075x550=41.25mm) 350dpi	
Supported image formats :	.jpg	
Supported System:	Win Xp\7\8\10, Android4.0 , IOS	
Engrave Mode:	Bitmap carving	
Certificate:	CE,FCC,FDA	
Objective engraving material:	"Smooth, Organic, opaque, Non- flame- retardant material For example: Wood, Gray cardboard, bamboo, Leather etc.	
Unsuitable engraving material:	" Those material unable to burn &focus" For example: Pure metal(without coating), transparent plastic, White paper(Astigmatic),PP plastic etc.	

The laser head has a definite lifespan. It is rated at 100,000 hours, but generally lasts 3-12 months depending on use (or AB-use).

The laser life can be preserved by not running it longer than 30 minutes at a time. The laser should be allowed to cool for the same time as it was allowed to run.

Focusing time does not count in the above time limits.

It is recommended to keep a spare laser head on hand. They are under \$20 with shipping, and available from the same website as the software:

www.trusfer.com

The head is easily changed and calibrated.

Note that this model does NOT support MAC Computers,
but DOES support iPad and iPhone.
(The new 3000mw unit is advertised with MAC
compatibility but that has not been confirmed.)



Windows 8 & 10 are the preferred operating
systems, but the software will work on
Windows XP or 7. (Probably not Windows
Vista.) Apps are available for Android phones
and tablets, and devices running the Apple
iOS system.

Easiest place to buy the unit is Amazon. Search for “Neje” or
“Laser Engraver”. Here is an alternative source:

www.gearbest.com/top-brands/brand/NEJE.html

Best performance is obtained by connecting via USB cable to a desktop or laptop computer.

The system will connect to devices that are BlueTooth equipped, such as SmartPhones, Laptops, etc. Data transfer times are significantly longer. BlueTooth Version 4.0 compatibility is required on the host device.

The unit has an internal rechargeable battery which is charged via the USB cable connected either to a laptop or a dedicated cellphone charger.

Do NOT use the software that comes on the CD. It is either out of date or possibly contaminated. Reports have been frequent of viruses on the CD. For Windows, download the software from:

www.trusfer.com

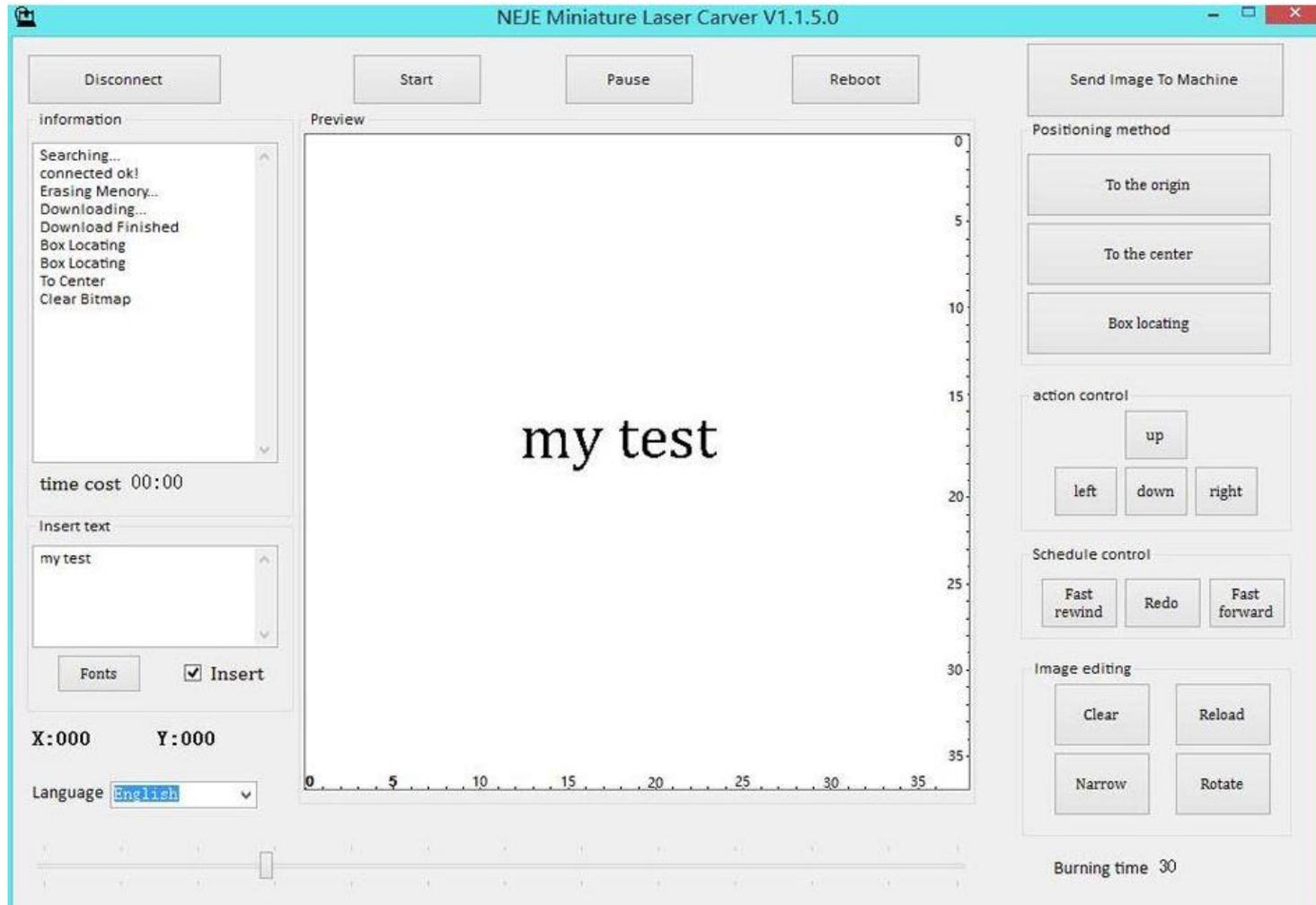
It is recommended to save the downloaded software to a CD or USB thumb drive for safekeeping.

If installing to a PC earlier than Windows 8, the software will prompt to install some additional Microsoft software. The needed software is part of the downloaded file. It is OK to install these files.

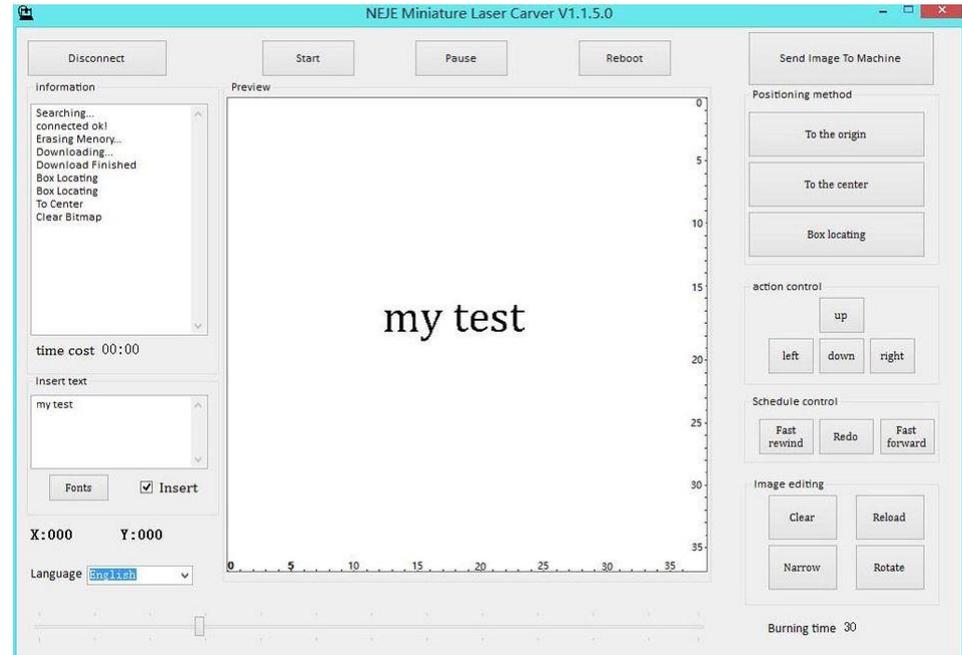
The first time the program is run it will come up in Chinese. A dialog box should give you the option of other languages. After selecting English, close the program and re-open it, and it should be in English.

When the unit is actually doing a burn, there will be some smoke and odors arising from the burned material. Good ventilation or air circulation is wise, but not mandated.

Here is the program screen as seen under Windows 10:

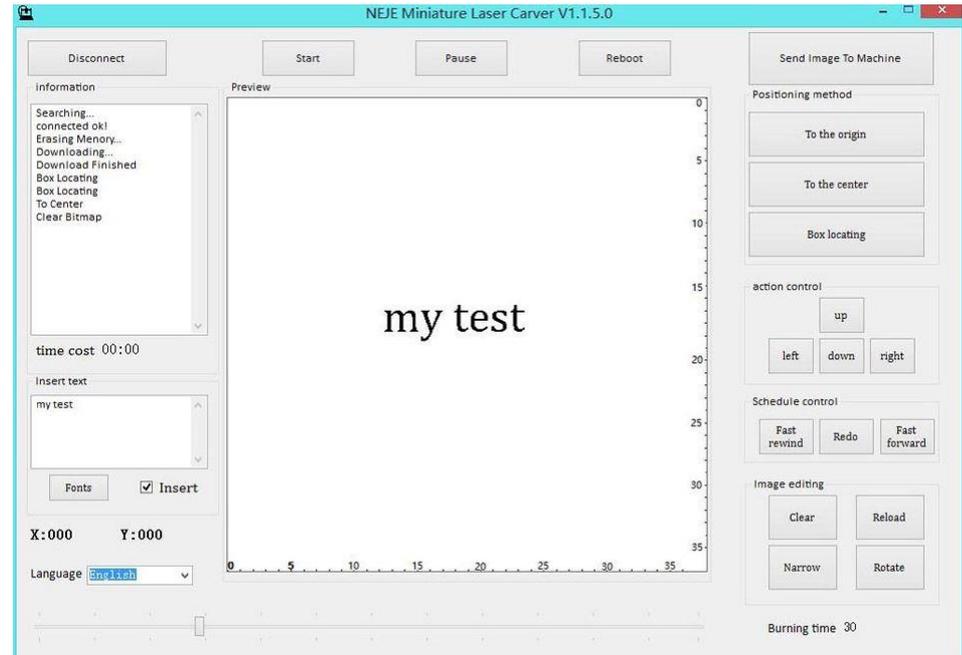


- First, enter your text in the Text box.
- Next, select a font.
- Then, click “Insert” and move the text into the large viewing area and position as needed.
- Then, click “Send Image To Machine”
- Next, load your target item onto the device’s platter.
- Now, click “Rectangle Locating” and watch the laser map out the actual location of the burned image.
- Adjust the target piece as needed. Click “Center Locate” to stop the area mapping.



Note: “Rectangle Locate” is the new name for “Box Locating” and “Center Locate” is the new name for “To The Center”

- The three locating buttons may have different names, but the order and function are as indicated here.
- Click “Any Position Locate” and then use the four movement buttons to precisely adjust the CENTER of your burned image on the workpiece.
- Finally adjust the Burn Time with the slider on the bottom. Always use the minimum burn time to preserve the life of the laser head.
- Then click “Start” and watch it happen!



“Any Position Locate” is the new name for “To The Origin”

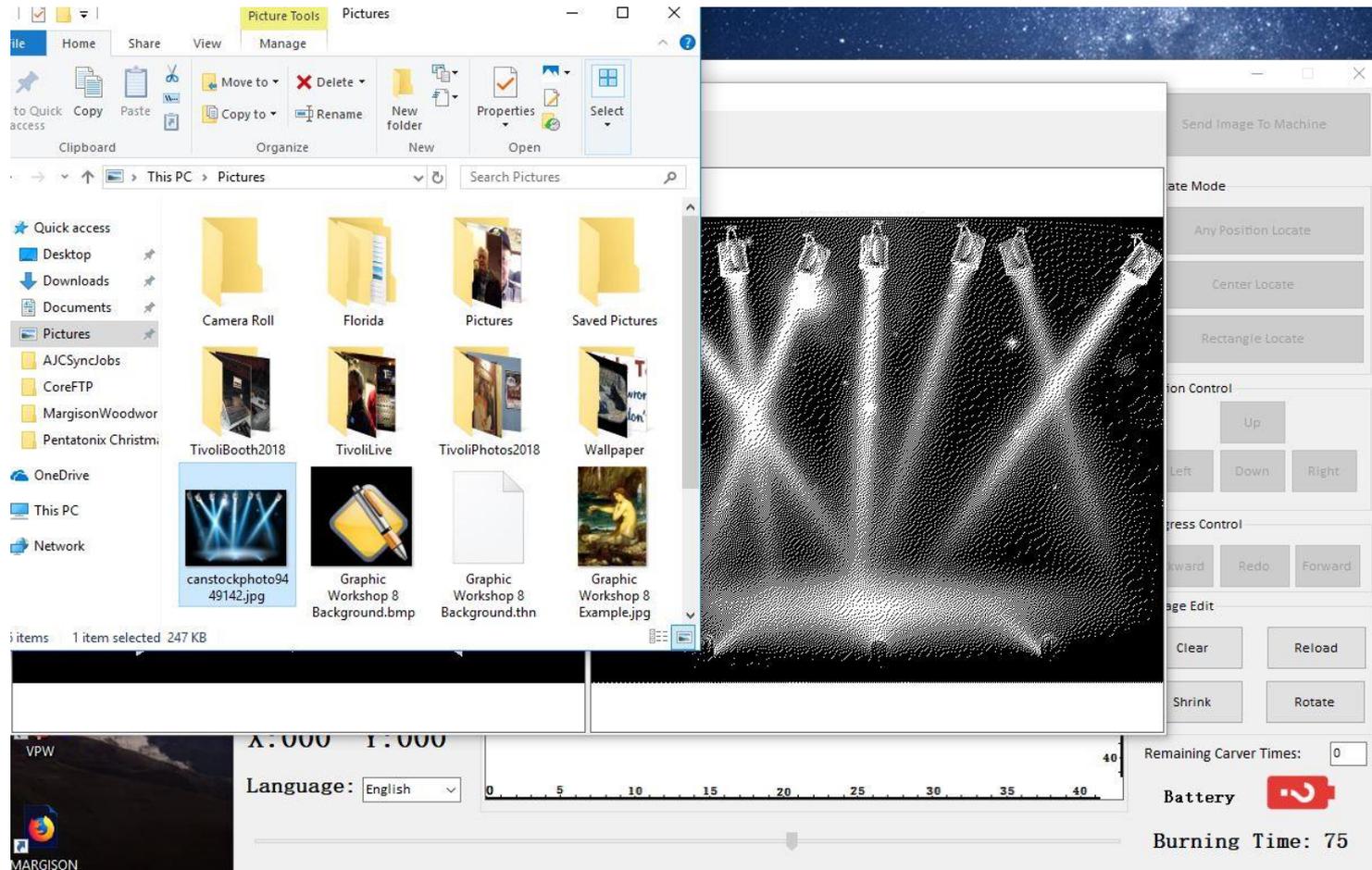
To burn a picture, drag a picture from a directory to the viewing box. A second box will pop up showing what the image will burn like in high resolution (left selection) or low resolution (right selection). Click on the preferred image and it will be centered in the viewing box. It is not possible to move the image in the viewing box; it will always be centered.

If you want text next to the image on the same line you may need to burn once for the picture and a second time for the text. That will depend upon your text and the image sizes.

To start over or make a new design, click the “Clear” button.

Use the “Pause” button to halt the laser process, and the “Start” button to resume it.

This is what the PC screen looks like after an image has been selected. Note that the high/low resolution window is behind the file list. This is a known bug. Keep the file listing small and to the side or it may cover up the selection box and you will not be able to recover control.



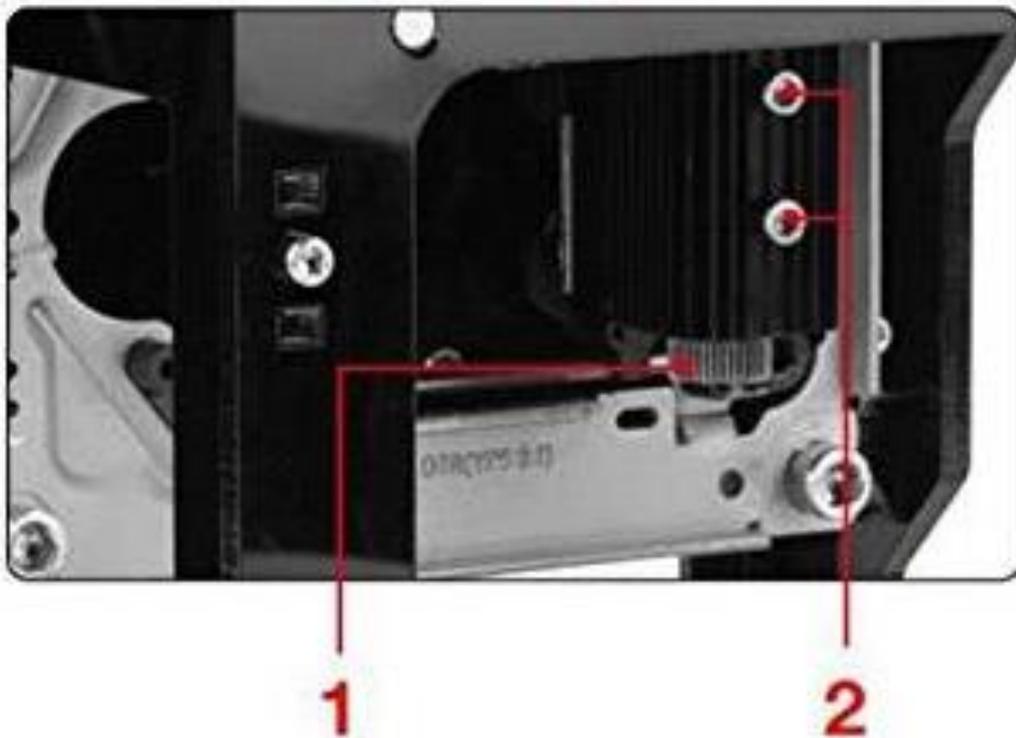
CAUTION!

**AVOID LOOKING AT THE LASER IN
BURN MODE FOR MORE THAN A
FEW SECONDS, IF THAT. THE
REFLECTED UV LIGHT CAN DAMAGE
YOUR EYES!**

WAIT!

But BEFORE starting the burn, be sure to focus the laser beam! With the target piece in place (so the distance from the object to the laser head will be accurate) carefully turn the chrome nut on the end of the laser head to obtain the smallest, sharpest, dot on the target.

Go gently! These parts are delicate and gorilla handling will break them.



- 1: Focusing knob
- 2: Screws holding the laser in place. Loosen ONLY to replace the laser head.

Testing power settings

It is a good idea to test samples of the materials to be burned to adjust the burning time value needed, and then record those values for future use.

Here are some values that have worked well:

Birch Plywood: 35

Canarywood: 35

Goncalo Alves: 50

Jatoba: 50

Olivewood: 35

PurpleHeart: 50

Walnut: 35

Birdseye Maple: 100

Cocobolo: 50

Honey Locust: 35

Oak: 40

Padauk: 50

Rosewood: 50

Zebrawood: 35

Very dark woods do not work well because the burned image is only slightly darker than the natural wood color, or extreme grain variations make it hard to find a clear spot for engraving. For instance:

Bocote, Ebony, Wenge, Ziricote

Tricky Stuff #1

- ❖ Smooth painter's tape on the object to be burned in the area of the burn.
- ❖ Burn image through the tape. Start with Burn Time = 70.
- ❖ Apply paint over the burned image.
- ❖ Let paint dry thoroughly.
- ❖ Remove tape, engraved image will be "painted" on the target object.
- ❖ Finish as needed, with something that will not affect the paint.

Tricky Stuff #2

Solving the text + image positioning issue

- ❖ Create a new image in Photoshop or Paint or any other program that will save a JPG image.
- ❖ Adjust the size and position of all elements.
- ❖ Save the image to a JPG file
- ❖ Pull the JPG file into the Neje software

Tricky Stuff #3

So you have a color image?

- ❖ Bring the image into any drawing or image editing program that has a feature to convert color to grayscale
- ❖ Convert the image to grayscale
- ❖ Make any “fixes” that might be needed from the conversion
- ❖ Save to a new JPG file (don’t overwrite your original color file!)
- ❖ Pull the converted image into the Neje software.

Tricky Stuff #4
Always test on scrap!

- ❖ Unless repeating something already done perfectly, a test burn should be done.
- ❖ Use 1/8" or thinner plywood in 2" squares.
- ❖ Burn at burn time setting of 35.
- ❖ Setup the image or text, burn it, adjust as needed.

Tricky Stuff #5 Build a text library

- ❖ Using 2” squares of thin ply or other suitable scrap, burn a test line of text in various fonts and sizes.
- ❖ These can be shown to a customer to give them an idea of what the final image will be like.
- ❖ Avoid fonts with extremely fine, sharp, lines, like `COPPERPLATE`. The fine lines will just not show up.
- ❖ Likewise, very heavy fonts like **Franklin Gothic Heavy** may force the wood to burn excessively, making the font look “smeary”.

Tricky Stuff #6
Burn The Unburnable

- ❖ For non-combustible materials paint the surface with a contrasting color and the laser will burn the paint, revealing the underlying color.

Wrapping An Image Around A Pen Barrel

For single text lines just position the pen barrel under the laser and burn it.

For larger images or multiline text use a Rotary Jig to allow the image to be wrapped around the pen barrel in realtime.

The jig can be made from plans online, or purchased from various craftsmen.

This site sells a computer printed version of the jig with great instructions and nicely made precision parts:

www.TShadow.com

Cost is around \$45

Note: This rotary jig cannot be used with the new 3000mw Engraver!

The jig has detailed installation instructions. The unit simply snaps onto the frame of the Laser Engraver and requires no modifications. Occasionally a slight adjustment of the jig's frame is needed if the unit does not fall squarely under the laser head. A little filing, a little sanding, and it's all good.

The pen barrel to be engraved must NOT be mounted on a pen, and the bushings for the blank must be available.

The blank is mounted on the axle supplied with the jig, using the bushings for that barrel. A pulley is selected from several supplied with the jig, which matches the bushing diameter the closest. If none is a perfect match, use the closest match but on the larger side. A special drive belt (rubber band!) is used to tie the axle to the moving platform. This causes the moving platform to actually rotate the pen barrel instead of moving it horizontally. Very clever!

Tricky Stuff #7
Mark Those Pulleys!

- ❖ Determine a good pulley size for commonly used bushings like Stratus or Sierra, then mark them with fine line permanent marker. Saves time matching blanks again later.

Tricky Stuff #8

Sacrificial Test Pieces

- ❖ Make dummy blanks from cheap dowel rods.
- ❖ Use rods of 5/8" diameter
- ❖ Cut into 2"-3" lengths
- ❖ Drill center hole of 1/4"
- ❖ Dummy blank can now be put onto the axle with 7mm bushings, using the right sized pulley, and the image burn can be tested.

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