

BASICS OF VINYL CUTTER

CREATED BY THE DI CREW

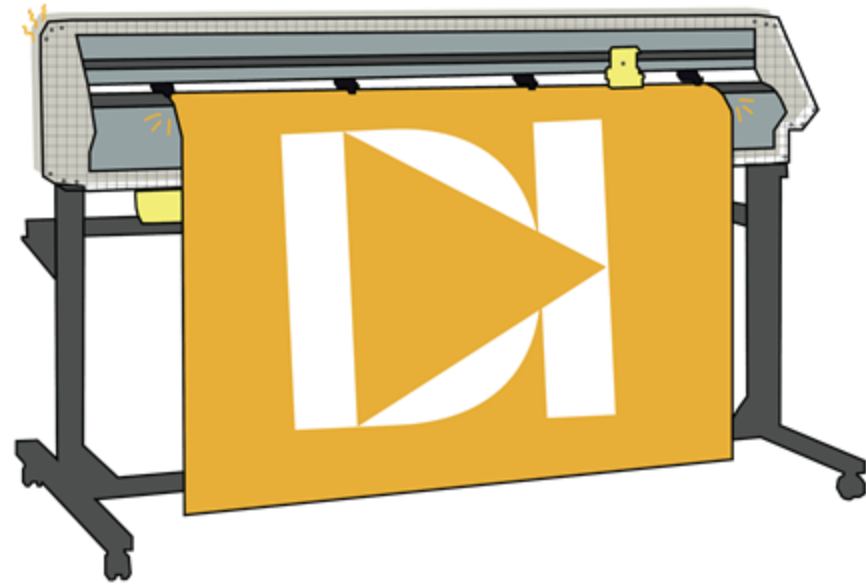


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BASIC INFORMATION



MACHINE INFORMATION

ACCESS

any DI Hub Member

*no prior/formal training required for access

COST

per material: vinyl, transfer tape / per inch

SPECS

Roland

GR-640

Width dimensions 65"?

LINKS

[Equipment Link](#)

[Technical Support Link](#)

Installing print driver on personal
laptop (windows)

https://startup.rolanddg.com/CA-MM-1/GR/GR_EN/On/GR_INS_EN_ON_2_2.html

SETTING UP A FILE



VINYL FILE SETUP

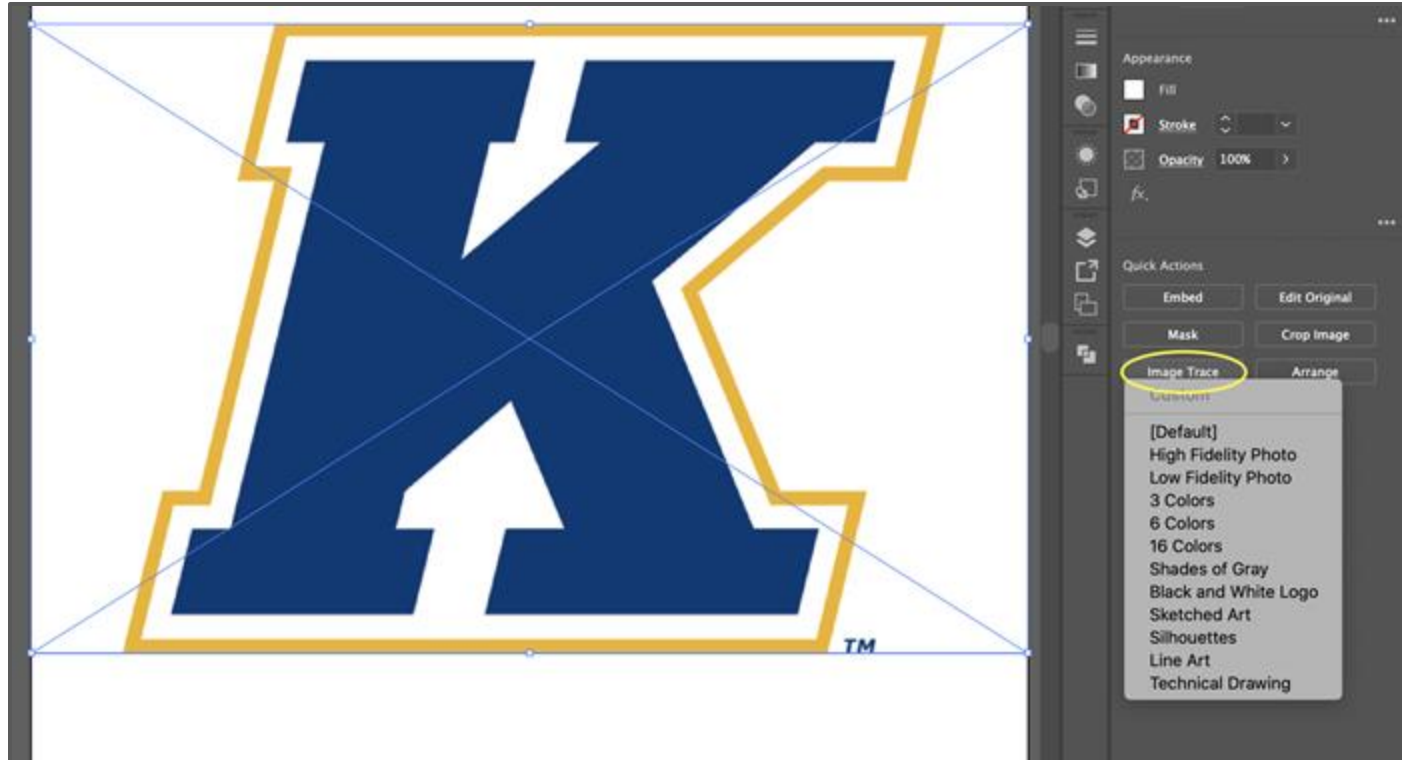
When setting up an image to be cut via the vinyl cutter, the image must be vectorized, as vectorization turns an image file into lines that the vinyl cutter can read. This can be done directly via Adobe Illustrator.

There are several factors that must be taken into account if one wishes to vectorize an image, however.

- The image must have a high amount of contrast with no gradient between colors. Otherwise, a solid line cannot be formed. (Black and White is ideal)
- Images with a high amount of detail will take longer to weed and prepare post-cut. Take this into consideration. While increasing the size of a detailed image will reduce chances of mistakes damage occurring during post-processing, it will take longer.

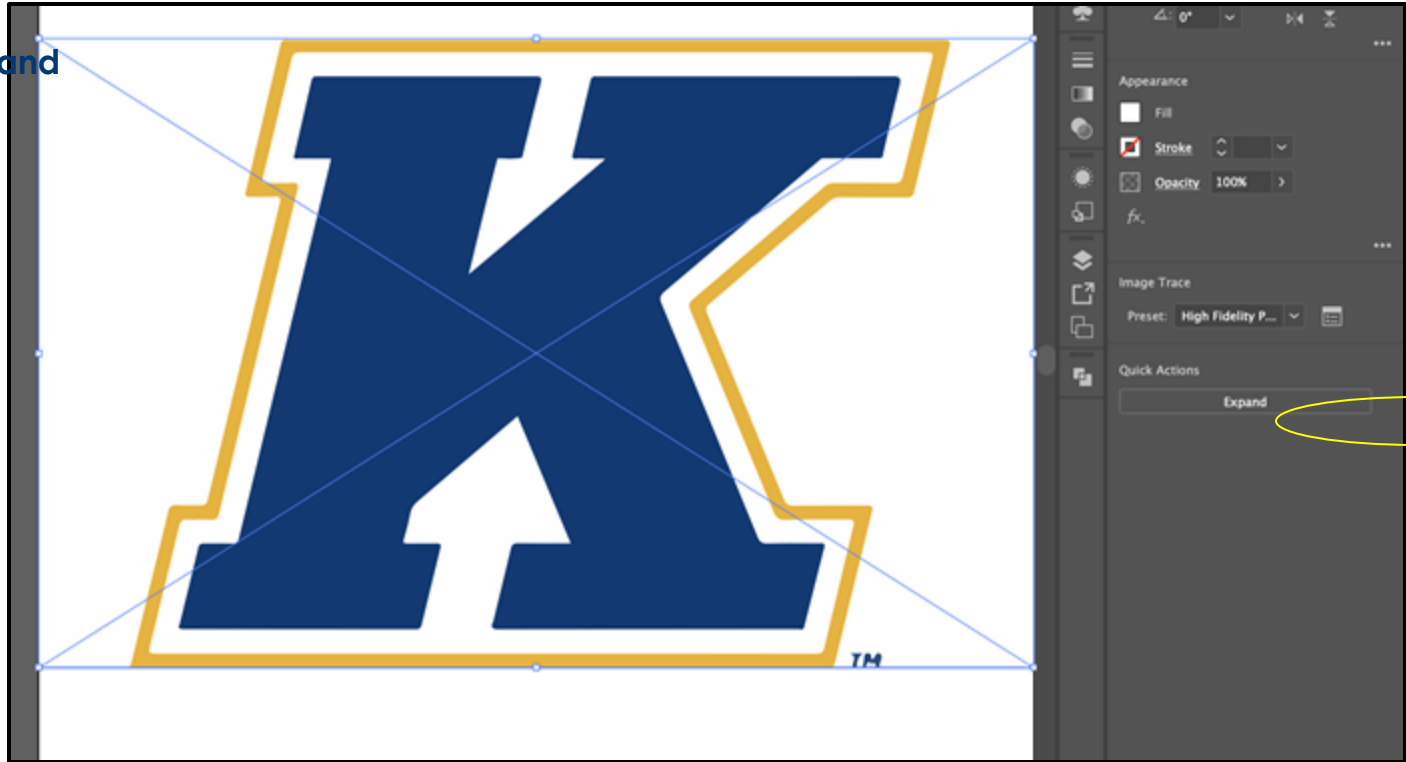
VECTORIZING IMAGE (IMAGE TRACE)

1. Select the image, then click **Image Trace**.
2. Choose a Tracing preset.
3. Try a few options to get best quality trace. For most images, **High Fidelity Photo** or **Line Art** works best. (go to **Edit** and **Undo** to undo image trace)



VECTORIZING IMAGE (IMAGE TRACE) CONT.

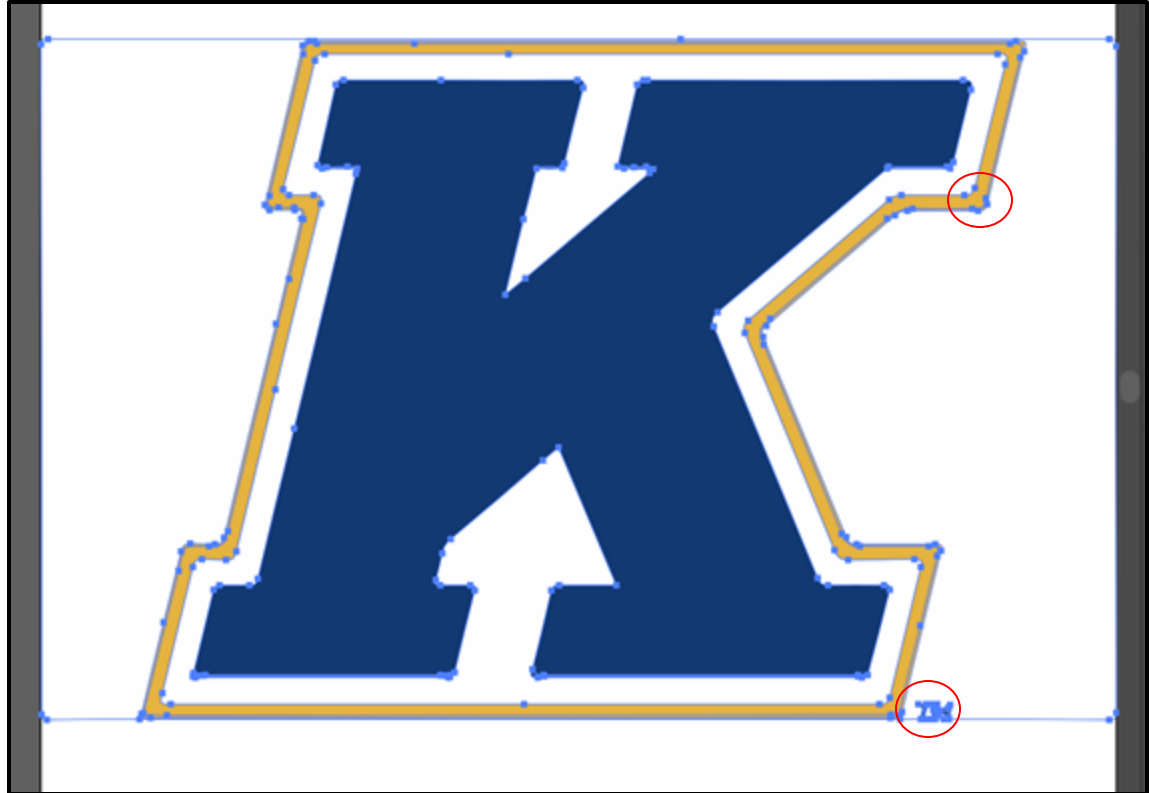
4. Click the **Expand** icon.



VECTORIZING IMAGE (IMAGE TRACE) CONT.

Make sure to check for unnecessary lines or points after you expand the image.

If you want to make adjustments make sure to ungroup the image first.



MULTICOLOR SETUP

- **If you wish to create a multicolored graphic with vinyl, you will need to use multiple files and layer the vinyl.**

MULTICOLOR SETUP

For example: to create one multi colored decal of the image on the left, it would be beneficial to cut two separate files, one solid black circle, and one solid image of the icon. (pictured on right)



MULTICOLOR SETUP

- Take the transfer tape and move the graphic layer on top of the background layer.
Notice how difficult it is to see the graphic's exact location because of the transfer tape. This is why you will want to place the image on top of a solid a solid layer, as precise alignment is very difficult.



MULTICOLOR SETUP

Finalized Graphic



PREPARING FOR CUT



SETUP ORDER

1 Insert blade correctly

2 Turn Machine on

The Power Switch is located on the right support post directly beneath the working surface of the vinyl cutter

3 Choose Vinyl

Differences between Calendar and Heat Transfer, White and Clear

4 Load Machine

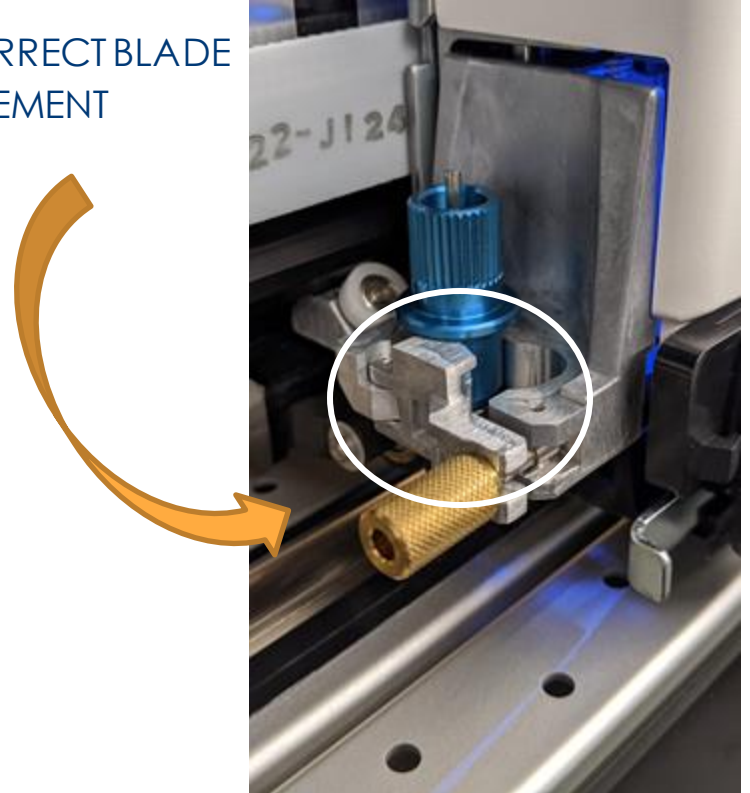
- Place the roll of vinyl on the vinyl loading station
- Feed Vinyl between Rollers, MAKE SURE TO LEAVE SOME SLACK
- Set pinch rollers above movement rollers based on the size of the vinyl you chose (The width)
- Align Vinyl with the two sets of ruler marks to ensure the vinyl is pushed through in a straight line.
- Press Pinch to prime the rollers
- Press Pinch again to lower the rollers and to secure the vinyl. The vinyl is secured when the Pinch Button glows solid blue
- Press Enter to allow the Machine to measure the length of Vinyl
- Cut off any scrap if necessary by using the Sheet cut button (Press and hold)
- Jog as close as you can to the lower left side of the vinyl (leave about ¼ inch margin for safety) and press and hold Origin to set as the origin.
 - THIS STEP IS IMPORTANT AS TO NOT WASTE EXCESS VINYL.

CUTTING HEAD INSTALLATION

CORRECT BLADE
PLACEMENT



INCORRECT BLADE
PLACEMENT

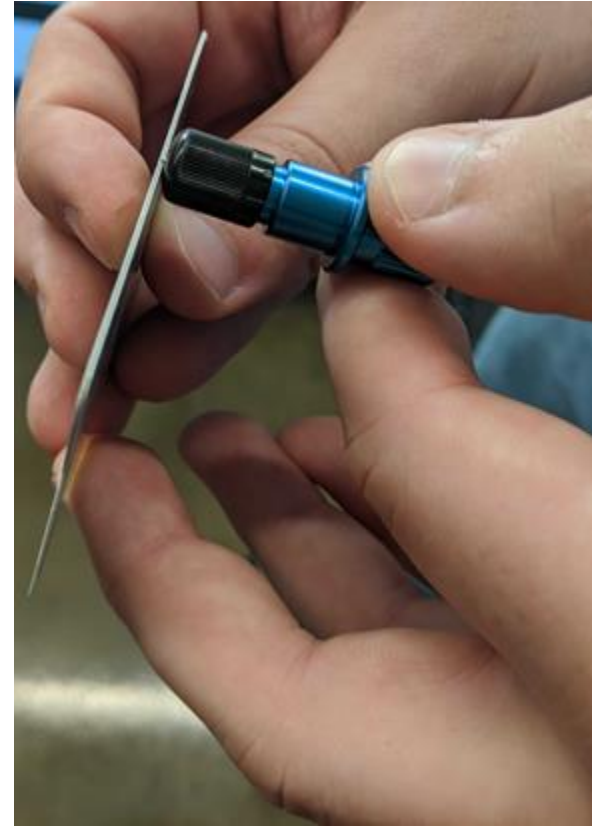


CUTTING HEAD INSTALLATION (CONT.)

The cutting blade used is a standard 45° blade used for standard vinyl. It is not compatible with thicker material.

In order to achieve the most effective cut, make sure that blade is sticking out of the blade holder by roughly the thickness of 1 credit card.

Make sure the blade is clear of any debris, as any small scraps of vinyl could interfere with the resolution of your cut.



POWERING ON THE MACHINE

The Power button is located on the right support post, under the control panel.



SELECTING VINYL PROPERLY

There are currently two types of vinyl available: Calendar Vinyl and Heat Transfer Vinyl.

Rolls of Calendar Vinyl currently in stock are 24 inches wide, whereas rolls of heat Transfer are usually 17 inches wide. Calendar Vinyl is also Glossy while on the roll, whereas Heat Transfer Vinyl appears Matte.

*Keep in mind that clear and white vinyl are nearly identical. In order to differentiate, the tubes of the Rolls of White and Clear vinyl have been labelled. However if you are still unsure, (gently) peel up a small corner of the vinyl. If the paper underneath is blue, then you are holding the roll of white vinyl. If the paper underneath is white, then you are holding the roll of clear vinyl.



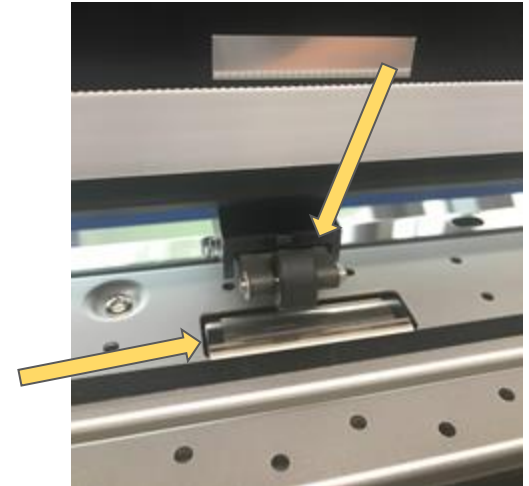
LOADING THE MACHINE

Make sure the Pinch rollers are lifted by observing the “Pinch” button. There are 3 different statuses indicated by the pinch button:

- Solid blue: Lowered
- Flashing: Raising/lowering in progress
- Off: Raised

To raise or lower the pinch rollers, press and hold the pinch button for one (1) second.

Before loading the machine, make sure the pinch rollers (black) are positioned above the movement rollers (indicated by silver marks on the pinch roller rungs). If these are not positioned correctly, then you will get a “bad position” error when loading your vinyl (insert photo here of pinch roller and silver positioning mark)



ROLL VS. PIECE FUNCTION

The roll function measures the width of the vinyl, letting the machine know how much room it has to work with.

The piece function will get length along with width, which not only takes longer, but will unfurl the entire roll of vinyl.

If you find the machine is on the piece function, make sure you change it to roll to save everyone a headache.

CUTTING PROCESS

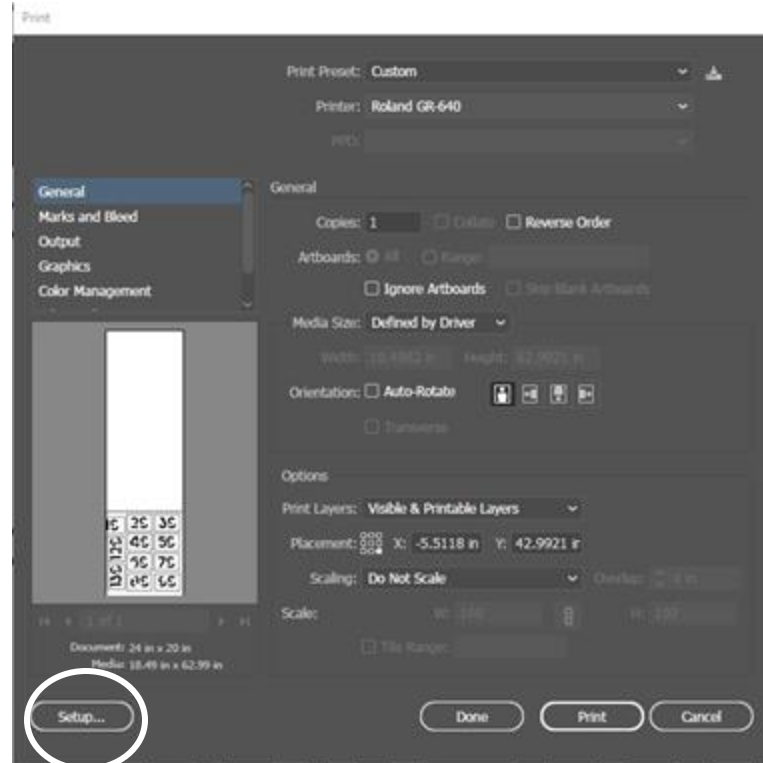


PRINT SETUP

Go to File > Print

Click the **Setup** options

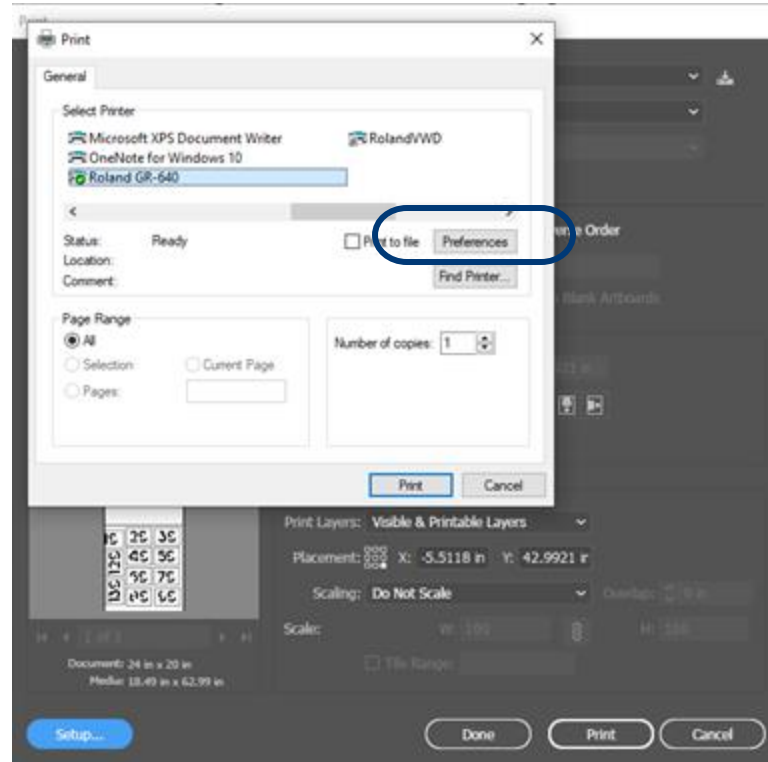
A pop-up box will appear



PRINT SETUP (CONT.)

Check that Roland GR-640 is selected.

Click on [Preferences](#)



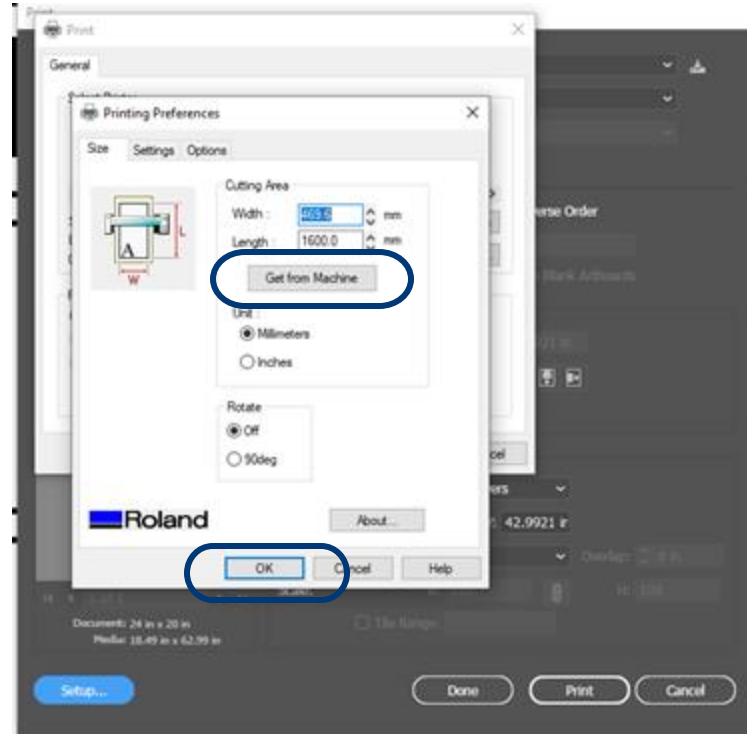
PRINT SETUP (CONT.)

Under the Cutting Area box

Select **Get From Machine**

This will get the printable area
of the loaded vinyl

Then Click **OK**



PRINT SETUP (CONT.)

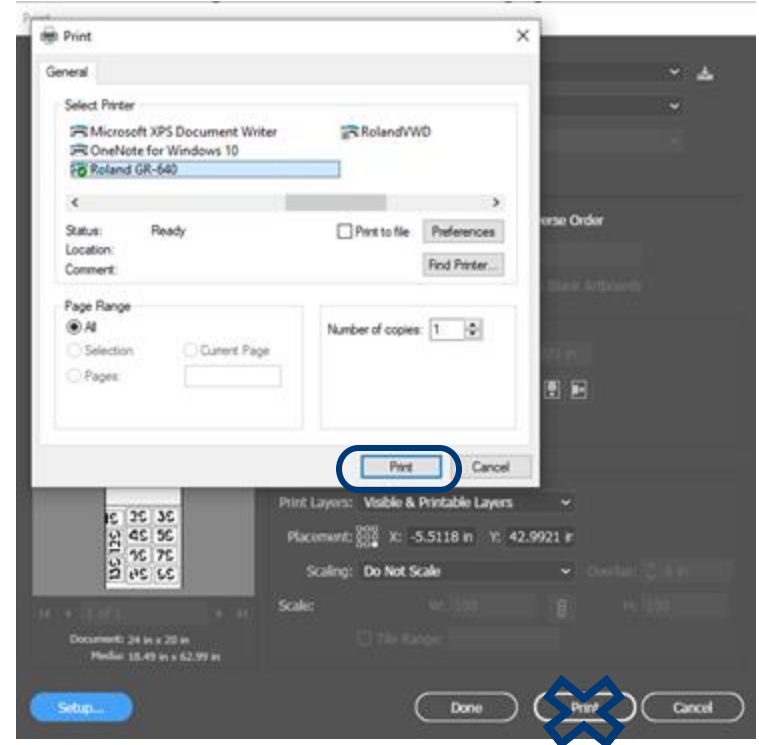
Be sure to click **Print** in the pop-up. This will save the preferences that were set.

DO NOT click “Print” in Main Screen yet!

Instead, hit **Done**, and reopen the Print Menu by pressing ctrl+p.

Click the lower right square of the Placement box.

You are now ready to cut. Press **Print**



POST CUT



LOADING & UNLOADING VINYL

After your cut is finished, jog your work so that it is at least $\frac{1}{2}$ inch below the border at which the black and silver pieces of metal meet.

Press and hold the **Sheet Cut** for 1 second



LOADING & UNLOADING VINYL (CONT.)

Load the Vinyl onto the back vinyl Support Rollers. Feed the Vinyl between the rollers

Make sure to leave some slack



LOADING & UNLOADING VINYL (CONT.)

Spread the pinch rollers evenly across the roll of vinyl, if they are not. You can move them by physically dragging them from the back end of the machine. It is important that the vinyl is supported across the entire roll. This is to avoid crimping and folding as the vinyl is cut

Notice how the black pinch rollers are distributed across the vinyl evenly. Any material to the left or right of the end rollers will be wasted (circled on left)



Each roller should be adjusted to align with the white bar at the top, corresponding to a roller under your material as shown to the right. (circled on right)



LOADING & UNLOADING VINYL(CONT.)

Align your vinyl with the 2 sets of ruler markings on the front of the machine. This is to ensure that your vinyl moves straight while doing up/down motion, and thus, avoiding any awkward cuts.

Hold it down with one hand.



LOADING & UNLOADING VINYL (CONT.)

Once your vinyl is aligned, with your other hand, push the pinch button.

If the cutting head is not at its origin, it will first return to its origin. Then you will need to push pinch one more time.

Once the vinyl has been clamped down, push the **ENTER** button to measure the width of the vinyl. This measurement will be stored in the machine's memory (to be accessed by us later)

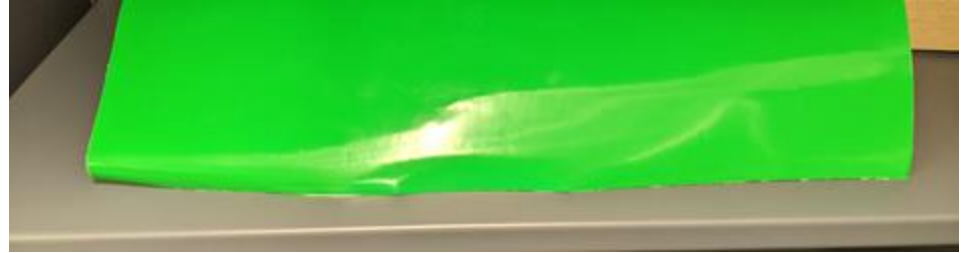


LOADING & UNLOADING VINYL (CONT.)

If the end of the vinyl is not uniform, push and hold the “Sheet Cut” button to trim off any unsightly ends.

Then, jog the vinyl upwards and the head toward the left side of the machine so that the head of the cutter is as close to the lower left hand edge of the vinyl as possible. Then press and hold ORIGIN. This prevents vinyl waste.

Note: to slow jog, push the arrow keys on the machine. To fast jog, push the arrow keys and hold **ENTER** as you do so.



LOADING & UNLOADING VINYL (CONT.)

To the left is an example of a properly loaded machine with origin set.



LOADING & UNLOADING VINYL (CONT.)

Press **Pinch** to un-pinch the vinyl

Remove Vinyl and return to resource library

Begin the weeding process. (next slide)



Weeding

Move your project to a table with a cutting mat

-Use scissors or a paper cutter to cut off any excess vinyl that's close to your design. It'll be easier to avoid transfer tape misalignment.

-Using tweezers or picks, peel off the negative space on your design.

When weeding designs with text or sharp angles, try to peel vinyl off at a 45 degree angle (e.g. peel from the bottom left corner to the top right corner), rather than parallel or perpendicular to your straight lines. Doing so will minimize any other parts of your design peeling up with your unwanted vinyl



Transfer Tape

Begin cutting off a sheet of transfer tape off from the roll. If applying to a larger design, use multiple sheets of transfer tape.

It is easier to use multiple smaller sheets of transfer tape on a larger design, than using single larger sheet of transfer tape and making mistakes or large air bubbles and ruining your vinyl.

Starting from one of your design, press down transfer tape onto your design, gradually working your way over the entire vinyl. Use a squeegee to press out air bubbles. Using your squeegee, press and drag across the design in multiple directions to ensure secure adhesion



Applying your Design

Position your vinyl onto the surface you wish to apply it to.

Gently press down and squeegee your design multiple times and in multiple directions to ensure a tight adhesion. Press out any air bubbles.

Peel off the transfer tape. Once again:

- Peel off at a 45 degree angle if your design has sharp angles or text. Again, this minimizes parts of your vinyl sticking to the transfer tape rather than the material you wish to apply it to.

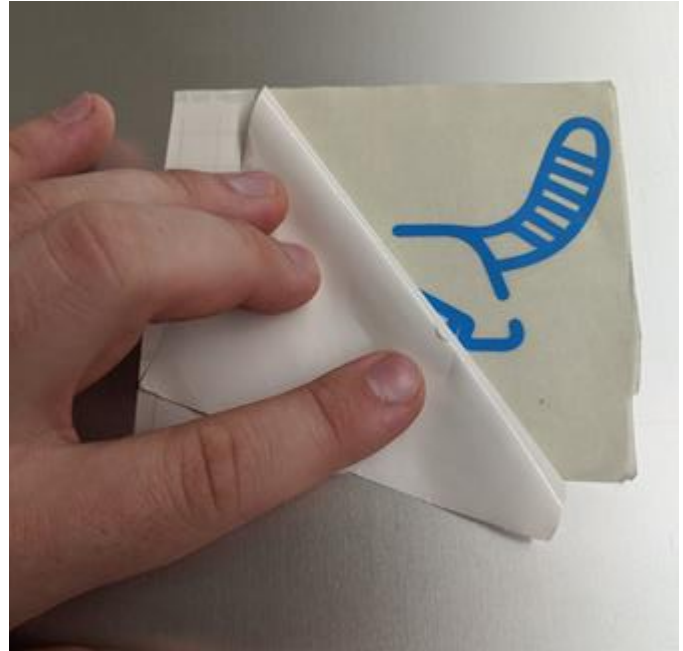


Applying your Design (CONT.)

Clean the surface you wish to apply your design to using a microfiber cloth.

Slowly Peel off the white backing to your vinyl.
Ensuring that your design is adhering the transfer tape.

-Peel off at a 45 degree angle if your design has sharp angles or text. Again, this minimizes parts of your vinyl sticking to the backing paper rather than the transfer tape.



Heat Transfer Vinyl



How to use Heat Transfer Vinyl

Follow the same process as for regular vinyl. There are only 3 things you must do differently.

- 1) Mirror your design in Illustrator before printing
- 2) Load the machine with the correct heat transfer vinyl material
- 3) On the machine, move blade power from 0 to -1. Heat transfer vinyl is thinner than regular vinyl and therefore does not need as deep a cut.

After your design is cut and weeded you will heat transfer your design to your intended material. Reference the heat transfer slideshow for more details.



PLOTTING



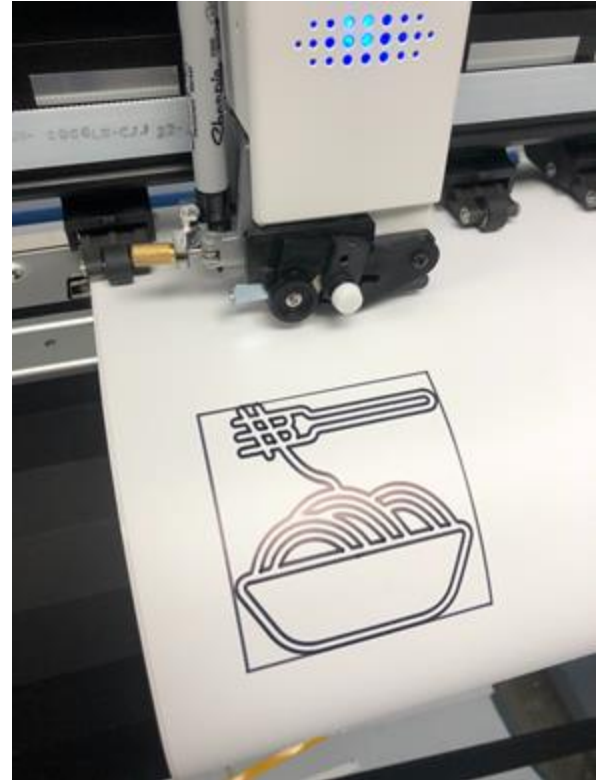
Plotting Overview

Plotting is the use of the vinyl cutter to draw out a vector schematic, rather than cutting something out of vinyl.

The functions of such vector schematics include:

- Assembly diagrams
- Clothing Templates
- Prototyping templates

The Vinyl cutter can efficiently and cleanly plot out vector graphics using a Sharpie and Sharpie mount.



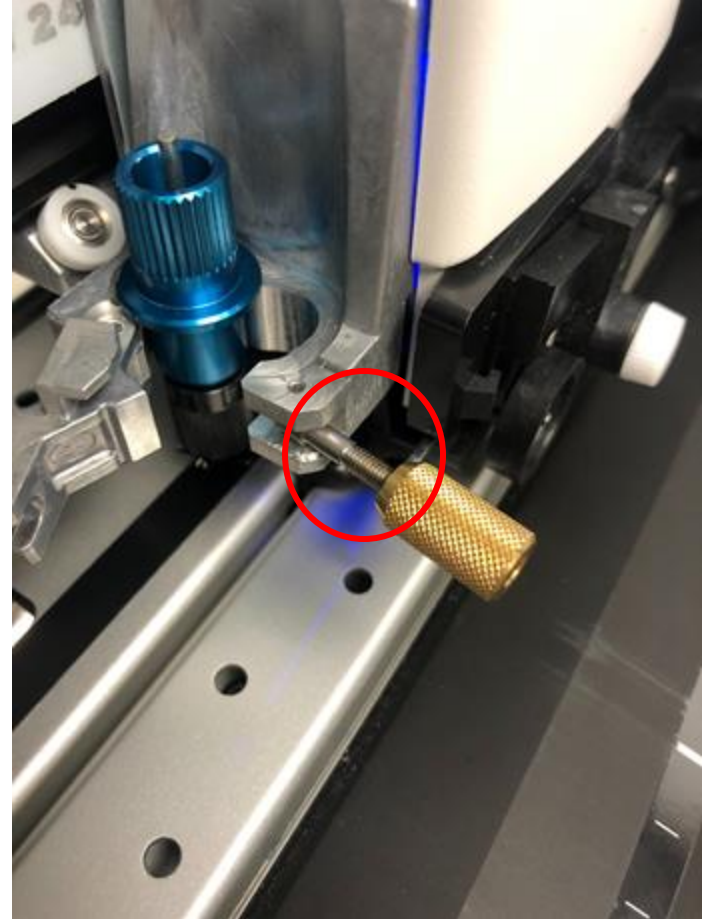
Blade Removal

- Unscrew the blade holder and set the blade aside in one of the designated blade holding holes.



Blade Removal

- Keep unscrewing the blade holder until much of the screw is exposed.
- Don't unscrew the knob itself, though.



Plotting Setup

- Gently insert a Sharpie into the Sharpie holding Grommet.
- Place the sharpie into the blade holder.
- Lock and tighten the blade holder, now holding the sharpie.

Notice that the blade locking mechanism does not close 100%. This is fine as long as the sharpie is held securely.



Plotting Process

- Load the machine according to the loading instructions mentioned above
- Prepare the file according to the file loading instructions mentioned above
- Setup the printer according to the print setup instructions mentioned above

