Laser Projects with Universal Laser System Handouts
Provided by Mid-West 3D Solutions

CorelDraw

Laser Raster & Vector Colors

Use the **'Pick'** tool to select your text object
Left Click on the color in palette to **FILL** the text
Right Click on the color in palette to **OUTLINE** the text
The white box with an X at the top of the color palette is 'Clear'.

Raster - Black filled
(no outline)

Raster - Black filled
Vector Trace - Blue outline
make sure it's a 'hairline'

Vector Trace - Blue outline
(Clear fill) *(hairline)*

Vector Cut - Red outline
(Clear fill) (hairline)

CorelDRAW X7
Setup for Universal Laser Systems Inc

1.If you have not already done so, install CorelDraw X7 on your computer.

2.Open CorelDraw and start a new blank document.
Open CorelDraw X7➡File➡New

3. *(See Figure 1 below)*
On the Create a New Document screen, click on the landscape orientation (the sideways rectangle). If you would like the drawing units in metric, choose millimeters from the drop down list. Now type in the page width and height that matches your laser platform (Example if you have a VLS 4.60 system then your page dimensions will be 18" high by 24" wide. Set the primary color mode to RGB then select the checkbox that reads "Do not show this dialog again." Then select OK

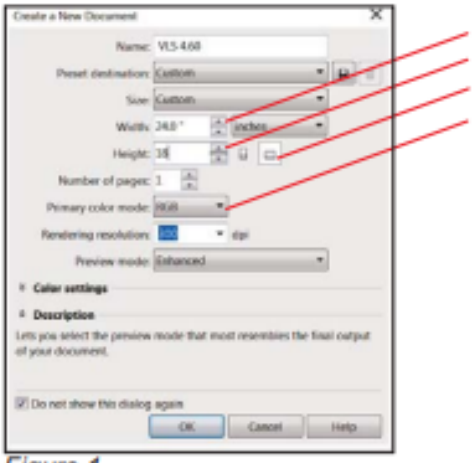


Figure 1

4.*(See Figure 2 below)*
Install the Custom Universal Laser Color Pallet
Select the Drop down Menu: Window➡Color Palettes➡Color Palette Manager
(The Color Palette Manager will then open on the left side of the screen)
In the Color Palette manager
Pallette Libraries➡RGB➡Universal Laser Systems

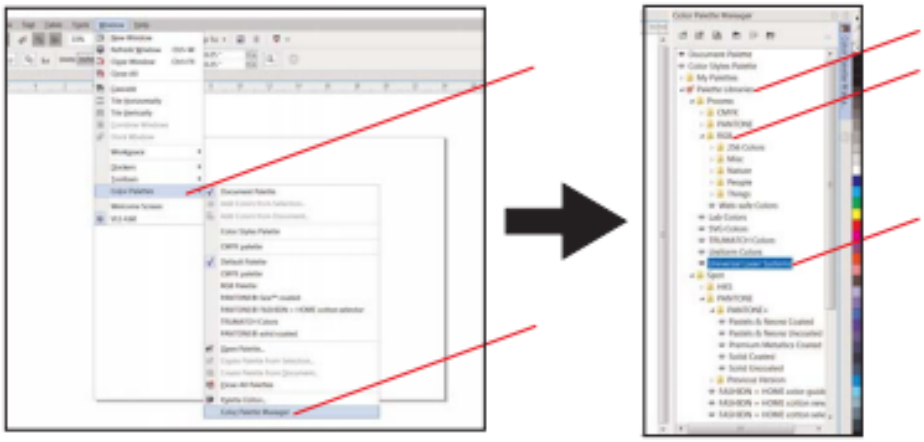


Figure 2

5.*(See Figure 3 below)*
We now need to adjust the vertical ruler on the left side of the screen to match the rulers in the laser system. To do this, we need to adjust the ruler's vertical origin. Double-click directly on the vertical (side) ruler. The **"Options"** dialog box will appear. In the vertical origin box, type in the same height value as you did when you set up the page height in the step 3. For example, type in 18 inches for a VLS 4.60 machine.

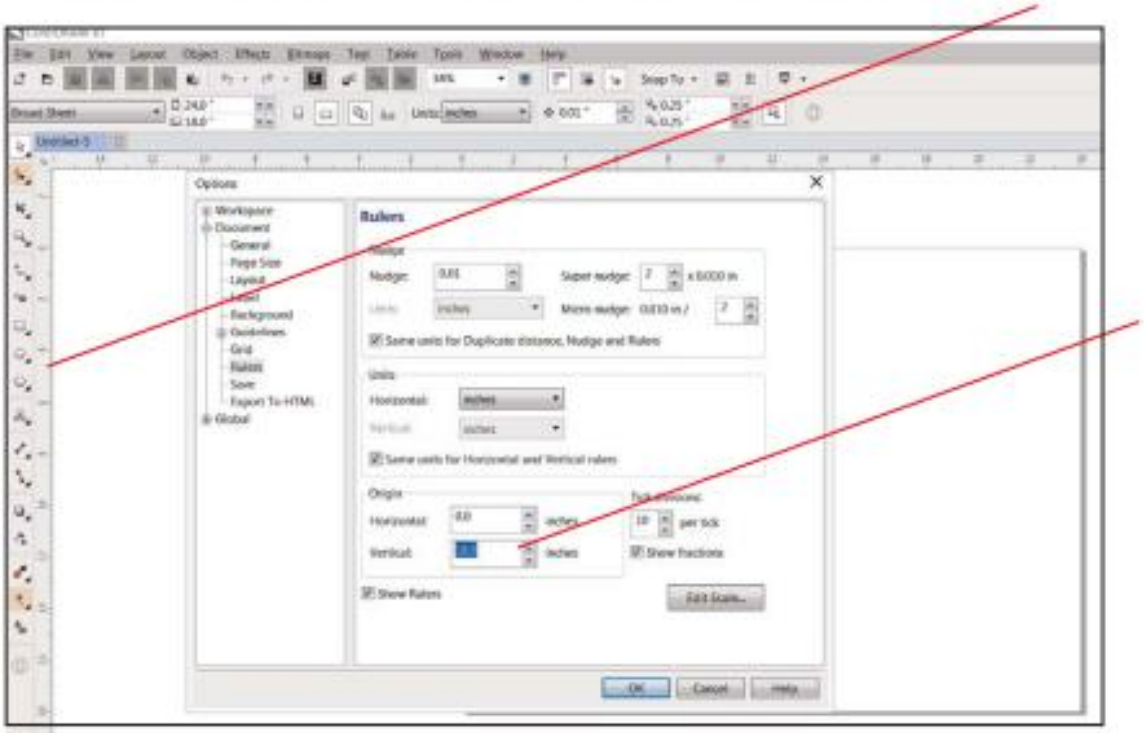


Figure 3

6. *(See Figure 4 below)*
The next step is to set the default value for the line width and color when drawing graphic objects. To do this, click on the Freehand tool and then at the top of the page you will see a drop down menu select **"Hairline"** When the **"Change Document Defaults"** dialog box comes up, **"Graphic"** should be the only thing selected. Click **"OK"**.

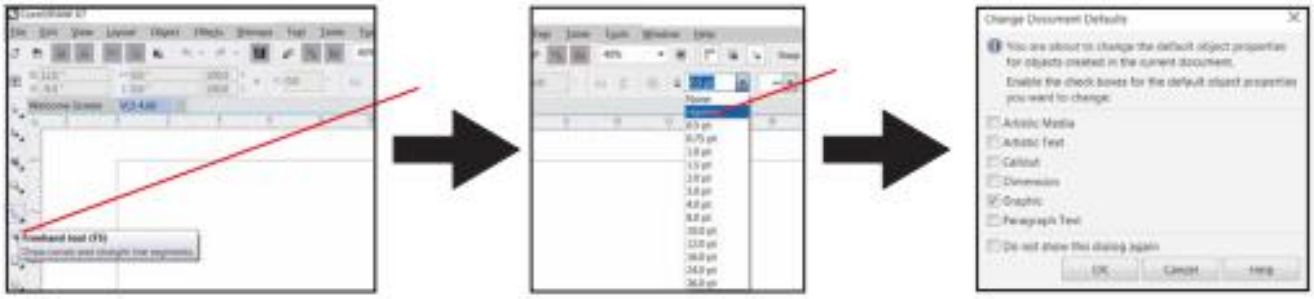


Figure 4

7. Click on the color red using the RIGHT mouse button. The **"Change Document Defaults"** dialog box should come up again and **"Graphic"** should be the only thing selected. Click "**OK**"

8.*(See Figure 5 below)*
In the top menu, click "Tools", and then click "Color Management." Then select "Default Settings". Click on the down arrow for "Presets" on the top of the page. Click "Simulate Color Management Off" from the Presets menu, and then click "OK".

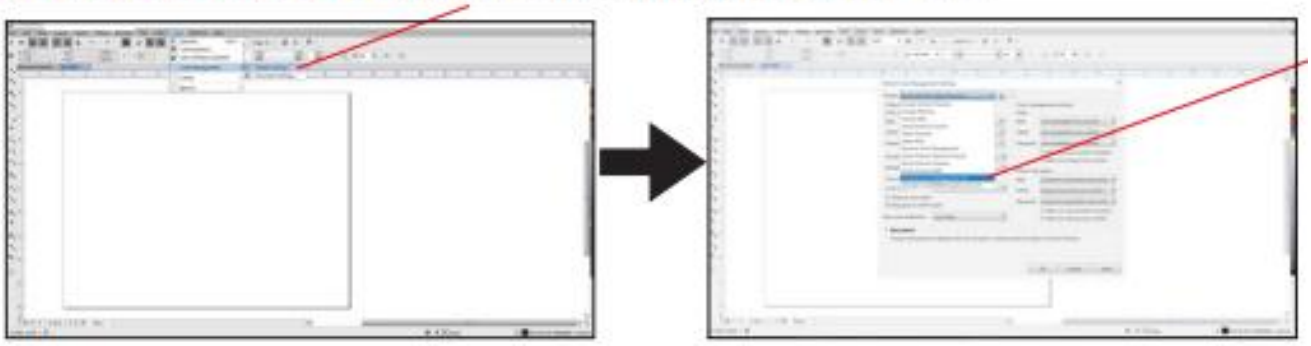


Figure 5

9.*(See Figure 6 below)*
Finally, at the top of the screen, click on "Tools", then "Save settings as Defaults".

Figure 6

10. The default settings for CorelDRAW X7 are now complete. Whenever you start a new document and select "new blank document," all of the default settings that we have set up will automatically apply to the new document.

TIP - *(See Figure 7 below)*
If this is not your first version of CorelDraw and you would like to know what is new in this version, click on the "Help" menu and then click "Highlight what's New." Select your previous version to highlight all the new features. To turn this off, go to the same screen and select "no highlight."

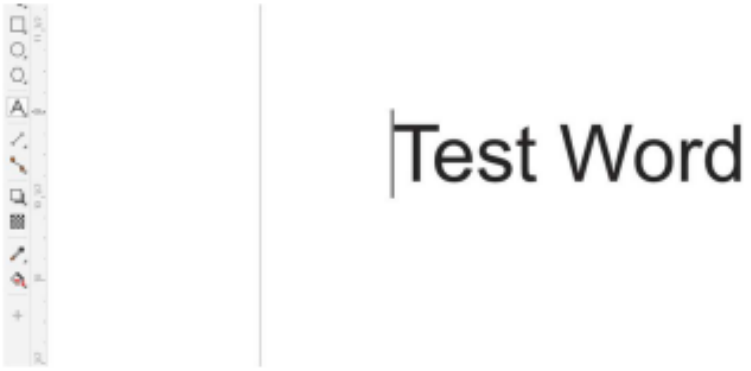
Figure 7

CorelDraw

Steps to Convert Text to 'Stencil' Format for Laser Cutting

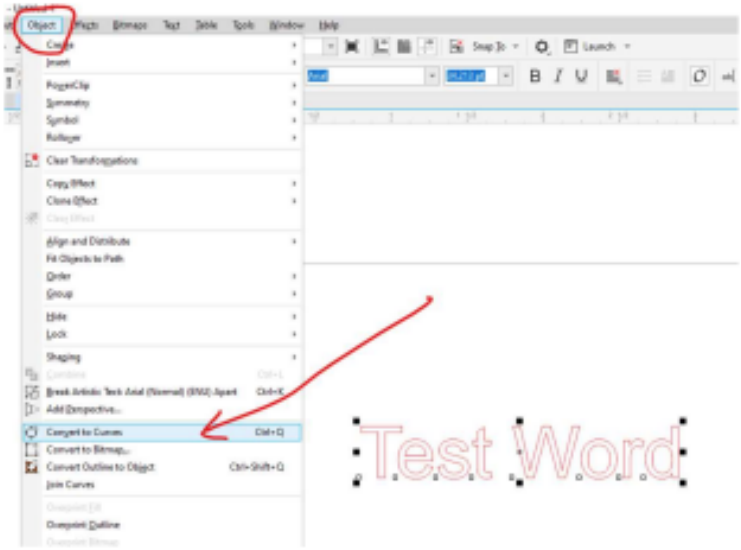
The problem is cutting text and the interior parts of non-stencil fonts will be lost once the text is cut into the material. The following steps should guide you to converting your text to 'stencil' type.

1.) Create your text like normal (see example below)

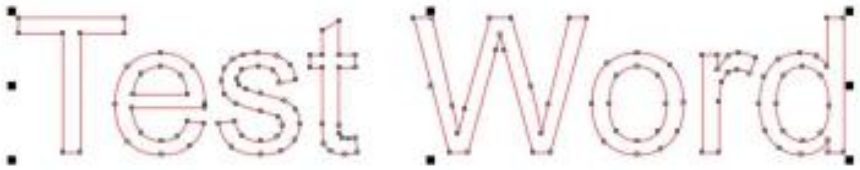


2.) Then outline your text with red hairline, and no fill

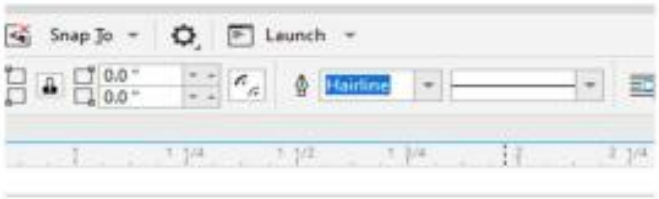
3.) With the text selected, convert the artistic text to 'Curves' (in Object menu)



4.) Your text should now have node points along the outline (see below)



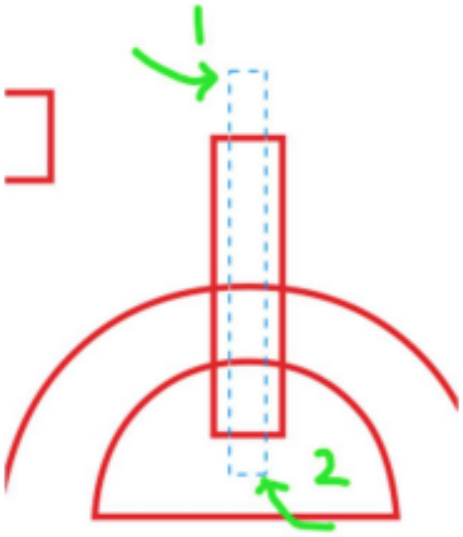
5.) Draw a red hairline rectangle. Make the size of it to work well with the size of letters you have created.



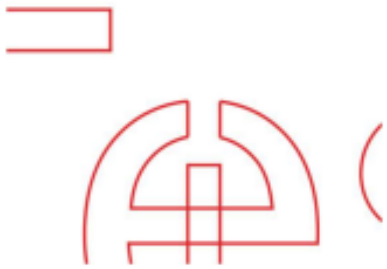
6.) Copy and paste the red rectangle wherever you need to create a connection point for the finished stencil text you need. You will need to create two rectangles for each letter which has a 'center' piece you don't want to fall away when the laser cuts the material. See the example below for 2 on the 'e', 2 on the 'o', and 2 on the 'd'.

7.) Select the 'Virtual Segment Delete' tool from Toolbox toolbar on the left side of the workspace (two items below the select arrow) The mouse cursor will change to the 'utility knife' image which allows us to cut away and trim entities.

8.) Click and drag a window on the rectangle to 'snip' away the parts and connect the remaining geometry of the letter. Step 1 is the top left corner, then drag to Step 2 and click.



9.) The result from the 'snip' shows the top of the 'e' correctly edited for converting the letter to a stencil format.



10.)Repeat the virtual segment tool snipping away all the rectangle pieces wherever needed.

11.)That's the process of converting text which is not in a 'stencil' mode to a format which may be used to cut out letters, without losing all of the center pieces of the letters.

We hope this helps! Let us know if you find any errors, corrections, or easier methods to do this in CorelDraw.

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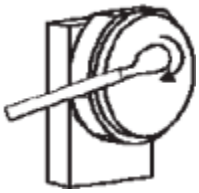
Optics

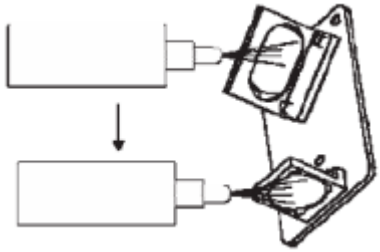
A visual inspection of the #2 and #3 mirrors, beam window and focus lens should be performed at least once a day.

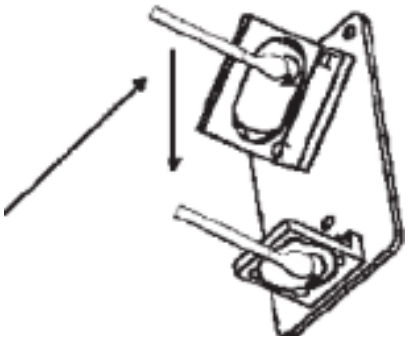


CAUTION: Do not clean an optic that is visually clean. Excessive cleaning can damage the optical coatings. To prevent contamination, wash your hands thoroughly before handling and cleaning any optic. Try not to touch the optical surfaces with your fingers, handle optics only by the edge or optical housing. Fingerprints can damage the optical coatings. Never clean any optic right after engraving or cutting because the optic may be hot and the cool lens cleaning solution may thermally shock the optic and crack it.

#2 Mirror

To gain access to the #2 mirror, the mirror cover must be removed. Remove the thumbscrew and slide the cover to the right and then lift the cover straight up.
Inspect the #2 mirror and clean it only if there is debris present. To clean the #2 mirror with a cotton swab, moisten the cotton swab with the lens cleaning solution supplied with the laser system. Do not use other types of cleaners or solutions. Gently roll the cotton swab across the mirror once. Do not drag the swab or roll it back and forth as this can scratch the mirror. If the mirror did not come clean, use a fresh cotton swab and repeat the procedure.





#3 Mirror and Focus Lens

1. The #3 mirror and the focus lens are both mounted to the front cover.

2. To gain access to the #3 mirror (3) and the focus lens (4), hold the front cover (2) with one hand and remove the three thumbscrews with the other hand. Pull the front cover straight out.

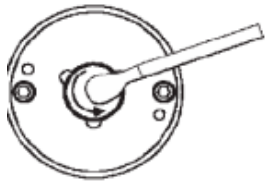
3. Tilt the front cover enough to enable you to apply the lens cleaning solution directly to the #3 mirror and to the focus lens.

4. Flood the reflective surface of the #3 mirror with the solution. If heavy debris is present, let the solution soak in for a minute.

5. Roll a fresh cotton swab across the mirror in one direction. Use a fresh swab for each pass. Be gentle when cleaning the optic to avoid scratching the surface. Repeat this procedure for the focus lens, but make sure you clean both sides of the lens.

Beam Window or Collimator

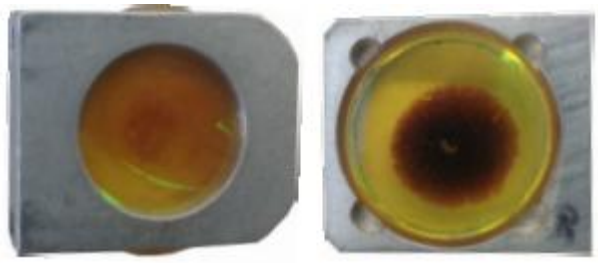
The beam window or collimator is where the laser beam enters into the processing area. It is located in the upper left hand corner of the engraving area against the back wall and is yellow in color. It is only necessary to clean the front side of the beam window. Do not remove the optic to clean it; simply clean it in the same manner as the #2 mirror.



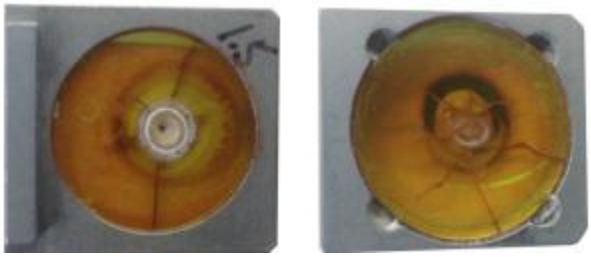
Note: If your system is equipped with Air Assist, you must remove the optics protection housing to gain access to the optic to clean it. Rotate the beam window cover counter-clockwise (2) and then off at a 45-degree angle (3). If the beam window cover is stuck, use a 1/16 Allen wrench to slightly loosen the screw (1) and try again. Set the cover off to the side and clean the optic, if necessary. Reinstall the beam window cover being careful not to scratch the optic.

UNIVERSAL LASER SYSTEMS

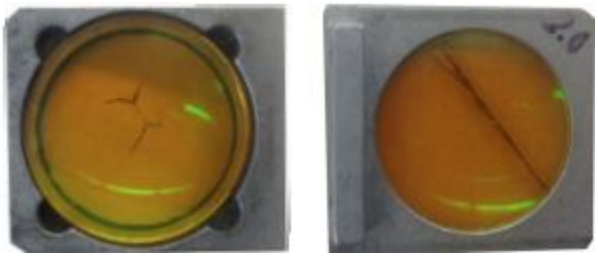
Optics - damage

1. Damage caused by no maintenance using a material requiring Air Assist.
2. 

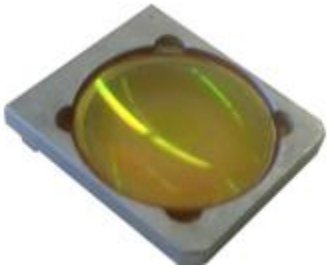
3. Damage caused by having a cone attached without a compressor or insufficient air flow. This can also be caused at #1 but with continued usage.



4. Damage caused by either cleaning the lens immediately after usage or use of lens immediately after cleaning.



5. Slight damage as in #1 caused by rubbing off dirt which can cause scratches as in #7.



6. Damage caused by rubbing off dirt which can also cause scratches as in #7.

7. Damage caused by rubbing off dirt which can also cause scratches as in #7.

8. Damage caused by rubbing in dirt and not rolling the cotton tip which causes scratches.

Optics are not covered under warranty as they are classified as consumables and good maintained optics can last for many years. Proper maintenance of optics will significantly extend the life time, see Universal Laser System manual.