Skycut Series CH with SignMaster Pro

September 26, 2020

Do NOT read this entire manual… unless you want to.

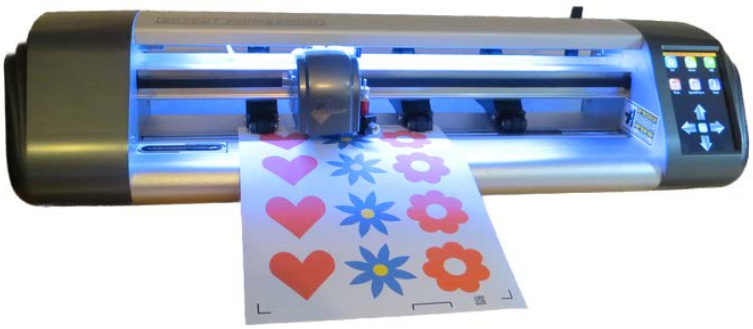
- At the start of *Chapters 1 - 4* are short sections with references to find what you need plus some important reminders. PLEASE read these short sections at the very least and refer back to them, when needed.
- Chapters 1 and 2 are very important in terms of correctly setting up your Skycut to work with SignMaster and learning the ins and outs of cutting.
- Chapter 3 is for those owners wanting to perform print and cut applications.
- Chapter 4 covers using the Skycut accessory tools.
- Chapter 5 covers several SignMaster functions of interest: creating contour cuts and engraving fills

It's not practical to print this entire manual because:

- It's a waste of paper and ink if you only ever need certain sections.
- The live links to videos and web sites in the manual will not work.
- This manual will be updated from time to time.
- You cannot search on individual words.

Also:

- Note the green Video icons which link to videos related to the section in which they are located. While some of the videos were made using the original Skycut C model, the information contained will apply to your Skycut CH and should enhance your learning experience.



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1. Introduction and Setting Up

1.00 Quick Reference for This Chapter

- How to download and set up SignMaster: *Section 1.11*
- How to set up communication between a computer and Skycut: *Section 1.12*
- How to use the control panel: *Sections 1.10* and *1.14*
- How to adjust the blade holder: *Section 1.07.3*
- Where to position the pinch wheels: *Section 1.09*
- The cutting mat is too sticky (or not sticky enough): *Section 1.08*
- How to use the USB Flash Drive feature: *Section 1.12.4*

Important Notes:

- Please read *Section 1.02* regarding safe operation of the Skycut.
- Report any damage or missing contents to your dealer promptly.
- Retain the original box and packing materials in case you ever need to ship your Skycut.

1.01 Support

- Thank you for choosing a Skycut digital die cutter. Before using a blade in your new cutter, we urge you to read *Chapters 1 and 2* and watch the videos linked in these chapters.
- If you run into difficulties with the operation of your Skycut, turn off the power and look for a solution in this manual. Note that *Appendix A* is a Troubleshooting section. If you continue to have technical questions or issues, please contact your dealer as soon as possible.
- If anything is missing from your order or you have mechanical issues with your Skycut, please contact your dealer as soon as possible. You can also contact Skycut directly using this email address: skycut@skycut.cn.
- For additional information and support with the Skycut, please check out the following:
  - ◊ Skycut web site: http://www.sky-cut.com/
  - ◊ Skycut Facebook page: https://www.facebook.com/skycutcuttingplotter/
  - ◊ Skycut Facebook group: https://www.facebook.com/groups/Skycut/
  - ◊ Skycut YouTube channel: https://www.youtube.com/channel/UCrPn5hFLbiRNDgccY8iXwoA
- For SignMaster support, please go to http://signmaster.software/support/

1.02 Safety and Warnings

Please be aware of the following safety guidelines when working with the Skycut:

- Pinch Points: Keep hands, long hair, loose clothing, jewelry, etc. away from the moving parts.
- Risk to Children and Pets: Please supervise children around the cutter when it is in use.
- Movement and Touching: Do not move the Skycut or touch any circuitry while it is plugged in.

- Power Adaptor: ONLY use the included power adaptor. Attempting to use a different model can result in seriously damaging the Skycut. If either the power cable or adaptor are damaged, replace with the appropriate parts.
- DO NOT touch or jam the plotter's track while it is operating. If the cutter is damaged, it is the owner's responsibility.
- DO NOT shake the cutter while it is operating.
- DO NOT cut any materials that have staples or other embellishments attached.
- DO NOT touch the cutter with a magnet. It is safe, however, to cut magnetic materials, such as those used on refrigerators and car exteriors.
- DO NOT allow any liquids to spill into the cutter.
- DO NOT allow small items to fall into the cutter.
- Place the Skycut on a sturdy and stable table, desk, or trolley. The optional Skycut stand can also be used.
- Always turn off the Skycut when not in use. Leaving the cutter turned on for extended periods of time can possibly damage the machine.
- Always turn off the Skycut before unplugging the power adaptor or removing the power cable from the wall outlet or power strip.
- Unplug the Skycut from a wall outlet or power strip during an electrical storm or when the cutter will not be used for an extended period of time.
- Transporting: When transporting the cutter, move the pinch wheel lever into the upward position. Remove the blade from the blade holder and cover the tip with the plastic cap.

1.03 Warranty

- ***IMPORTANT!*** If your Skycut is damaged during shipment or appears to be defective, your dealer should be notified as soon as possible.
- For additional information regarding your warranty, please refer to your Skycut dealer.
- It is recommended that you retain the original box with packing materials in case you ever need to ship your Skycut.

1.04 Unpacking Video

- Verify that you have received all contents. There is a checklist in *Section 1.05*. Please notify your Skycut supplier immediately if anything is missing.
- Remove all foam pieces and other packaging before turning on the Skycut. Currently, the cutter ships with two end cap foam protectors and one small foam piece tucked under the head. There are also three plastic zip ties that will need to be cut. Be very careful to only cut those ties and NOT the black cable behind them.
- Because the cutting mat must be folded over to fit into the box, it may have become slightly rounded during shipping. Gently and only partially roll the mat in the opposite direction to remove the roundness and place on a flat table to make sure the mat now lies horizontally to the surface. Refer to *Section 1.08* for additional instructions on preparing the mat for use.
- Use the enclosed test pen as you experiment and become familiar with operating the Skycut. Place scrap paper on the mat and simply draw shapes rather than cut them. This will prevent possible damage to the blade, mat, and cutting strip as you learn where shapes will cut and the basic operating procedures.

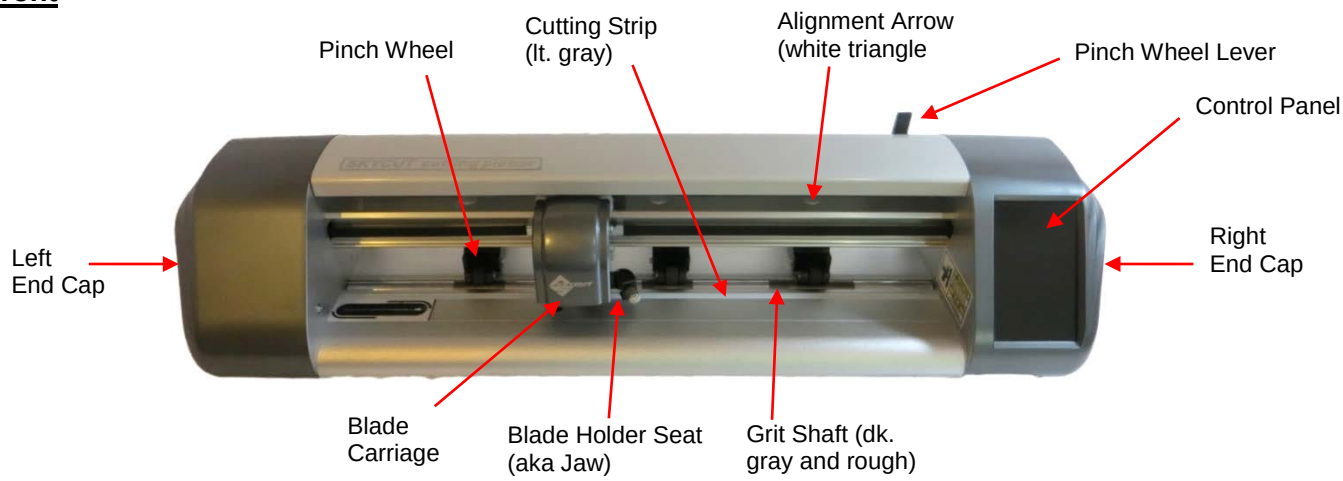
1.05 Contents Video

- Besides the cutter, your box should also contain the following items:

#	Description	Image	Quantity
1	Power Supply		1
2	Power Cable		1
3	USB Cable		1
4	60° Blade(blue cap)		1
5	45° Blade(red cap)		2
6	Blade Holder		1
7	Test Pen and 1 Refill		1 set
8	Cutting Mat		1

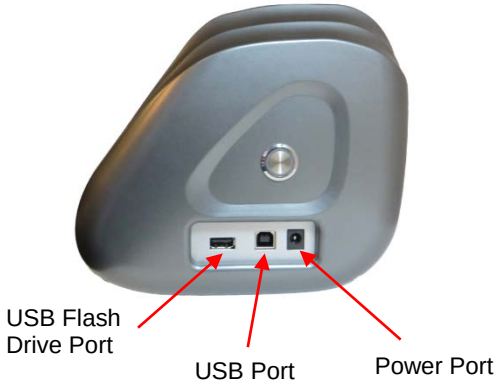
1.06 Parts of the Skycut Video

Front



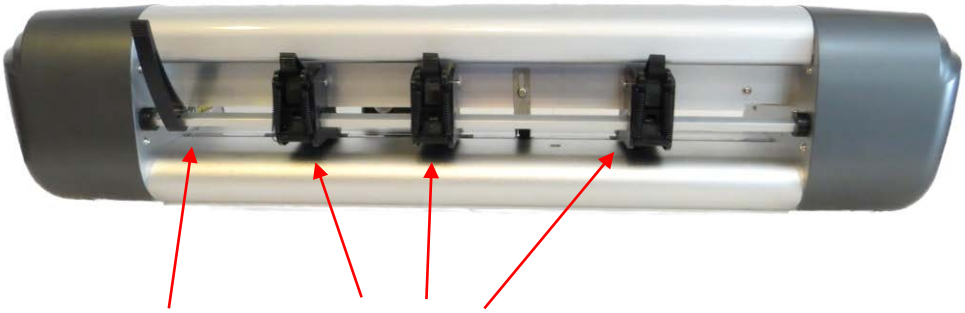
- Alignment Arrows: indicate to the user the available positions for the pinch wheels
- Blade Carriage: moves the Blade Holder Seat left and right
- Blade Holder Seat (Jaw): holds the blade holder, test pen, and other accessories
- Control Panel: used to change settings, set up Wi-Fi, calibrate camera, cut PLT files, and more
- Cutting Strip: protects a blade when cutting backed materials without using a cutting mat
- Grit Shafts (3 on 16" model; 4 on 24" model): allow the pinch wheels to grip the mat or material so they can be moved in and out of the cutter during cutting
- Pinch Wheels (3 on 16" model; 4 on 24" model): grip the mat or material so that the grit shafts beneath will feed the mat or material in and out during cutting
- Pinch Wheel Lever: lifts the pinch wheels up for loading the mat or material and then lowers the pinch wheels for cutting
- Power Button: turns cutter on or off

Right Side



- USB Flash Drive Port: used to load PLT files via control panel for cutting
- USB Port: option to connect computer to Skycut with included USB cable
- Power Port: connect Skycut power adaptor

Back



1.07 Accessories

1.07.1 Test Pen Video

- The test pen should be used until you are comfortable with the operation of your Skycut and know, with certainty, where images will cut. The test pen should arrive pre-assembled. However, if you need to change out the insert, note how the test pen is assembled:

Spring goes over the top of the pen insert and stops at a small ridge on the insert

1.07.2 Skycut Blades

- There are three kinds of blades that fit inside the Skycut blade holder:

Red Blue Yellow

◊ The 45^0 **red** capped blade is suited for cutting thinner materials such as paper, all cardstock types, heat transfer vinyl, and wall/auto/decal vinyl.

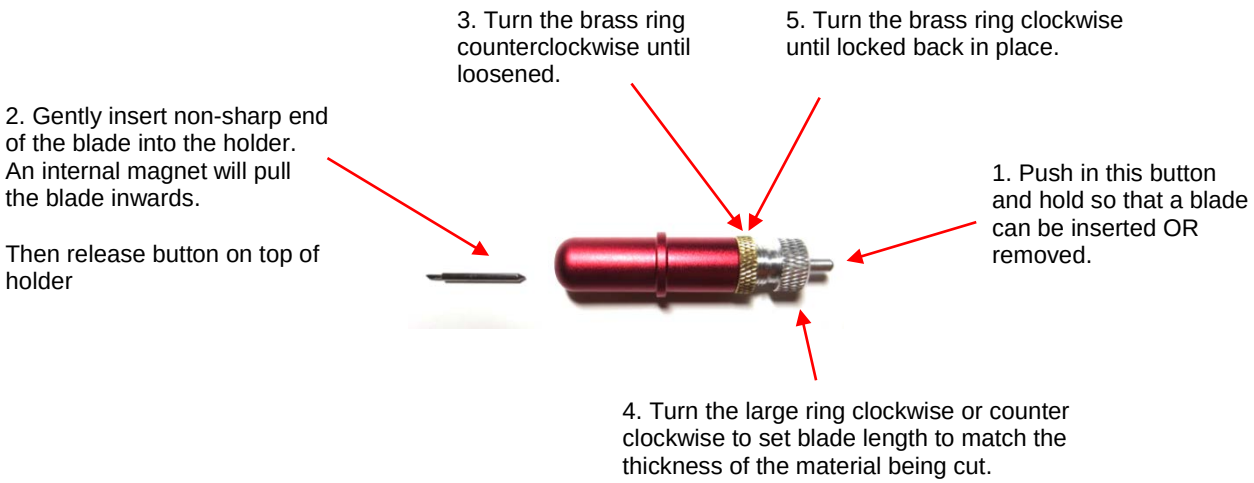
◊ The 60^0 **blue** capped blade is a much longer blade and is well-suited for cutting thicker materials, such as gum paste, craft plastic, craft foam, and rhinestone template material.

◊ Sold separately is the 30^0 **yellow** capped blade. It is a wide blade and is well suited for cutting fabric, felt, and tint. It has been reported that it also works well with cardstock that has been exposed to humidity.

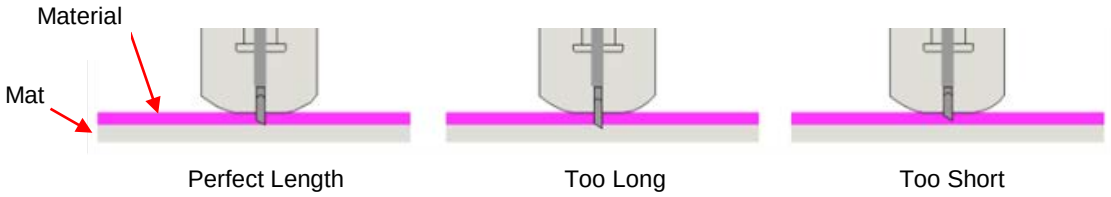
- Note that the red capped blade and blue capped blade have a cutback on the opposing side of the blade (right side, in the earlier photo). This reduces the blade offset value and allows for better detailed cutting of small shapes.
- Additionally, there are other tools sold separately, including a stand, an engraving tool and an embossing/scoring tool. Details on the engraving tool and embosser are covered in *Chapter 4.*

1.07.3 Blade Installation

- The blade must be carefully inserted into the blade holder. Do this over a soft surface (e.g. over a hand towel). It's important to protect the fragile blade! To install, follow the numbered steps as shown:



- The **Blade Length** (also called **Blade Exposure**) is how much blade is exposed at the bottom of the blade holder. For optimal cutting, you want this length to match the thickness of the material or be just a tiny bit longer.
- When setting the blade length (*Step 4* in the prior photo), hold the blade holder up next to the material before pressing the material to the mat, so that you can more accurately set the length to match the thickness of the material. For really thin materials, like vinyl and thin paper, just the very tip of the blade will be protruding from the bottom of the blade holder. In fact, you should just barely be able to feel it with your fingertip and not be able to see it very well, if at all. Having the blade fully extended will never result in better cutting. In fact, it can cause skewing, tearing of the material, damage to the blade, and damage to the mat.
- A good way to test your blade length is to fold a piece of the material onto itself and then cut a line into the material by hand. Press firmly but not too hard, as more force will not determine if the blade is set to the right length. If the blade cannot cut through the material, you will need to extend the blade. If the blade cuts through the material and cuts into the next layer, you need to retract the blade. If the blade cuts through the material but does not cut into the layer below, you have the perfect length.



- When conducting a test cut, be sure to check your mat (or the top of a backing sheet) for cut lines after the test. You should be able to set the length to get clean cuts but with only fine lines or no lines in the mat or backing sheet. If you do see deep cut lines, retract the blade length ~¼ of a turn counterclockwise. Repeat your test cut.

1.08 Preparing and Caring for the Cutting Mat

1.08.1 Tips on Using the Cutting Mat

- Always use a mat to hold the material to be cut unless the material has its own protective backing. For example, vinyl and iron-on transfer both come with a layer that you do not cut. Thus, this backing layer serves as the carrier for cutting. Paper and cardstock do not have a backing, thus they must be cut on the mat.
- ***IMPORTANT!*** A new mat may be too sticky if you are cutting certain products. This can cause difficulty in removing cut items without tearing. Place an old but clean bath towel over the surface of the mat and press with a brayer or rolling pin. Then pull up. Test the stickiness by pressing the palm of your hand in the middle of the mat and lifting. If the mat remains stuck to your hand, repeat until the mat can still be lifted but will release. It should only take a few pressings to greatly reduce the stickiness, as tiny (too small to be visible) fibers from the towel are added to the surface.
- Do not leave the pinch wheels in a down position when the Skycut isn't in use. This warps the plastic sooner, shortening the useful life of the cutting mat.

1.08.2 Cleaning and Replenishing the Cutting Mat

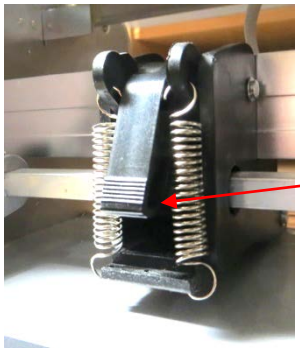
- When mats begin to lose their stickiness, they can be washed:
  - ◊ Use a mild dishwashing detergent, warm water, and a soft brush to thoroughly clean the surface. You're not trying to scrub the adhesive but just wet the invisible fibers that have been deposited from your cutting materials and get them released from the glue.
    - o Rinse well, shake off excess water, and place sticky side down onto a bath towel.
    - o Thoroughly dry the non-sticky side of the mat with another towel.
    - o Pull the mat up and the sticky side should now be dry enough for immediate use. Test by making sure the mat will stick to your hand.
- While washing with soap and water should revive the original adhesive, you can add more adhesive if necessary:
  - ◊ Virtually any repositionable adhesive may be used on the cutting mat. Some of the popular choices include: Krylon Easy Tack, Aleene's Tack It Over and Over (view the video at the start of this section), Crafter's Companion Stick and Spray, Zig 2 Way Glue with wide tip, Craft Smart Off 'N On, and Scotch Repositionable Craft Stick. There's another spray adhesive, Scotch Super 77, which does not leave a sticky surface but is excellent for stabilizing paper and cardstock.
  - ◊ If you are cutting thicker materials, such as oil board or styrene, then you may want to experiment with a stronger adhesive and use painter's tape to secure the material to the mat. If you are cutting thin paper, then you may want to experiment with a lighter adhesive.
  - ◊ With most repositionable adhesives, you can control the tackiness based on the amount applied. Thus, always add a little bit at a time. As mentioned above, if you add too much, just apply a layer or two of cotton fibers by pressing with a bath towel.
- Other reported methods for cleaning mats:
  - ◊ Use a plastic scraper (an old credit card will suffice) to scrape off any random material pieces remaining on the mat after a cut.
  - ◊ For finer particles of paper or lint, you can use a lint roller. Tear off a sheet and then press down and pull up across the surface of the mat to clean in sections. Baby wipes can accomplish the same task.
  - ◊ To completely remove adhesive from the mat, apply Goo Gone, Duck Adhesive Remover, or Avon's Skin So Soft Bath Oil across the surface. Allow a minute to soak in and then scrape off with a sharp metal spatula. Repeat, as necessary until the mat is thoroughly clean and no longer sticky. Wash, dry and then add any repositionable adhesive.

- When necessary, the rubber wheels and the grit shafts may be cleaned with isopropyl alcohol or Un-Du. Apply the cleaner to a clean lint-free rag and rub the entire wheel and/or grit shaft until free of adhesive.

1.09 Pinch Wheels Video

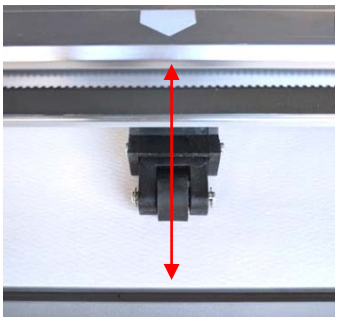
- The pinch wheels can be raised and lowered using the pinch lever located at the back-right side of the machine. Press down on the lever and the pinch wheels will be raised. Pull the lever up to lower the pinch wheels so that they can grip the mat or the material inserted in the cutter.
- There is also a small black lever on each individual pinch wheel. When the lever is raised, there is less downward pressure exerted. ***IMPORTANT:*** Only push these small levers down when an extra tight grip is needed, such as when cutting reflective file or thick chipboard. For normal cutting of most materials, it will not be required.

Lever is in up position. This is recommended for most cutting.



Lever is in down position. Do NOT use this position except with certain materials.

- Note that for a pinch wheel to grip properly, it must be positioned over a grift shaft. To facilitate alignment, note the white arrows positioned along the horizontal bar below the cover. Slide the pinch wheels along the bar, as needed.



Wheels should be centered under white arrows

- When using the cutting mat, it is recommended that the material be placed in the middle of the mat and the left most pinch wheel moved to the far-left side. Then slide the middle pinch wheel to serve as the left side grip and the right pinch wheel left in the far-right position as shown in the following photo. This keeps the pinch wheels off the material and provides an equal balance while the mat moves in and out during cutting:

Left pinch wheels is on far left side (not in use)

Middle pinch wheel is under left-most arrow

Right pinch wheel is under white arrow on right side.

- Note that if your material is very wide, then it is fine to have the pinch wheels over the material. However, you may need to be extra careful when removing any cut shapes or waste material in those locations.

1.10 Control Panel Video

- When you first turn power on the Skycut, after several seconds, the following **Main Screen** or **Home Screen** will be displayed:

Repeat last cut. While cutting, this icon and function changes to **Pause**.

Change settings
Refer to *1.10.1*

Open and cut PLT files from an inserted USB flash drive

Stop and cancel the current cut

Execute a test cut using current speed and force settings

Set the desired speed and force.

4 arrow keys for moving the head left/right and for moving the pinch rollers

Toggle the speed for moving the head and pinch rollers. In slow mode, the icon changes to:

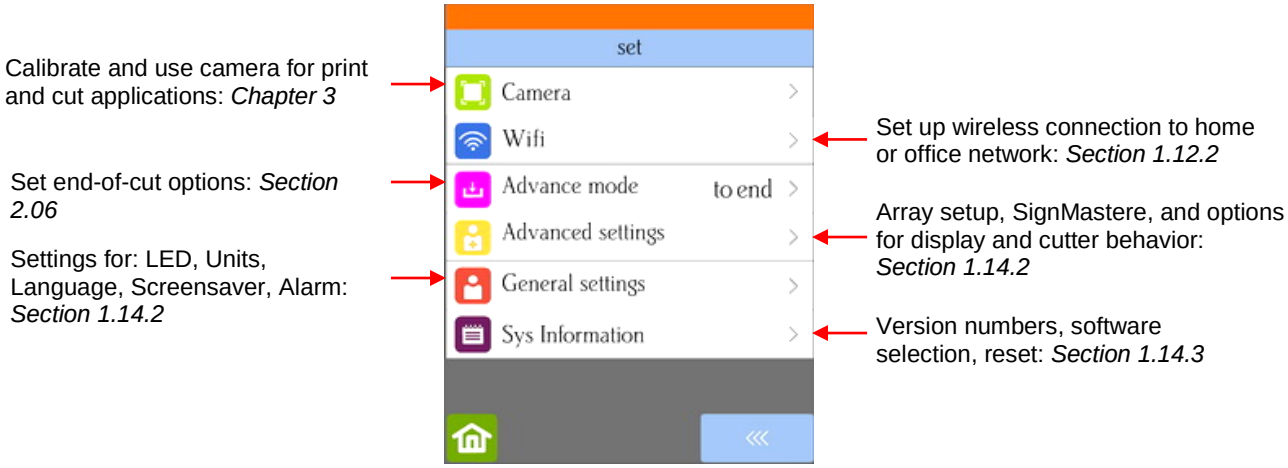
- Throughout this manual, the functions above will be referenced along with submenus and additional screens. You will also see the following icons at the bottom of many screens. Pressing the one on the left will always return you to the **Main Screen** above. Pressing the one on the right will return you to the prior window/screen.

Go back to **Main Screen/Home Screen**

Go back to prior screen

1.10.1 Set Screen

- Pressing the **Set** icon opens the **Set Screen** which contains access to many functions and settings. Note the general description and section number (if you wish to learn more about that function now):



1.11 Registering and Installing SignMaster

1.11.1 Installing from a Download

- Once you have purchased a registration for SignMaster, the software can be downloaded from the following link. It's important to use this link so that the Skycut will be installed as the cutter of choice. You will need your **Product Serial Number** that was sent to you. Since you'll also need this number every time you update the software, keep this number in a safe place.

https://signmaster.software/smc.htm

- Note where the file will be saved on your computer so that you can later browse to that folder and launch the .exe file which has been downloaded. Follow the steps in the following *Section 1.11.2*, starting with *Step (4)*.

1.11.2 Installing from a CD

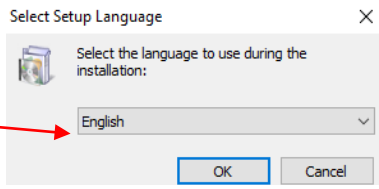
(1) Remove the CD from the case and insert into the CD ROM drive on your computer.

(2) The downloaded file is in.exe format, thus ready to launch.

(3) If Windows Autorun does not initiate a welcome screen, use Explorer to locate and click on the DVD drive letter for your computer. Double click on the *Welcome* file and the following window will open:

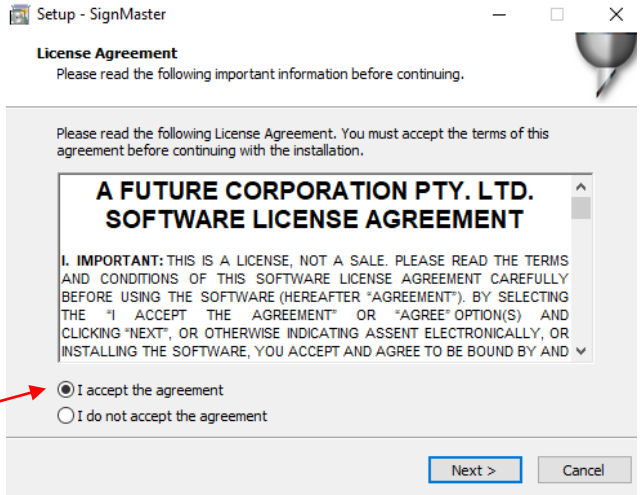
(4) Click on **Install Software** and wait for the installation program to open. Select the language you prefer:

Select preferred language and click on **OK**



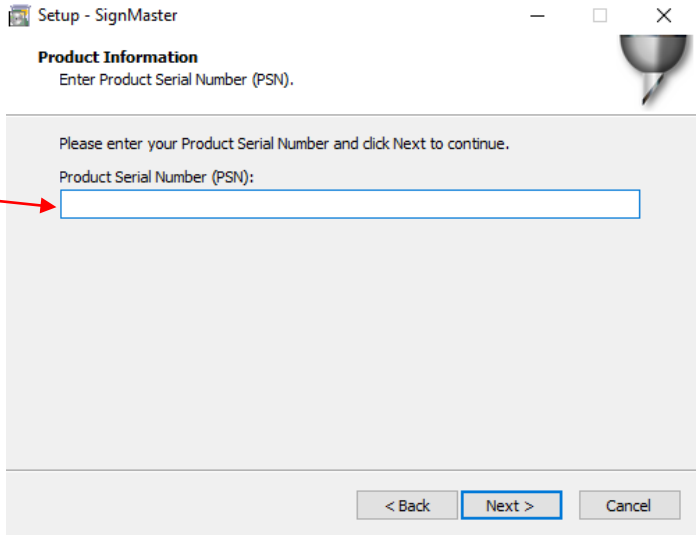
(5) Read and accept the license agreement:

Read the agreement, click on the accept option and click on **Next**



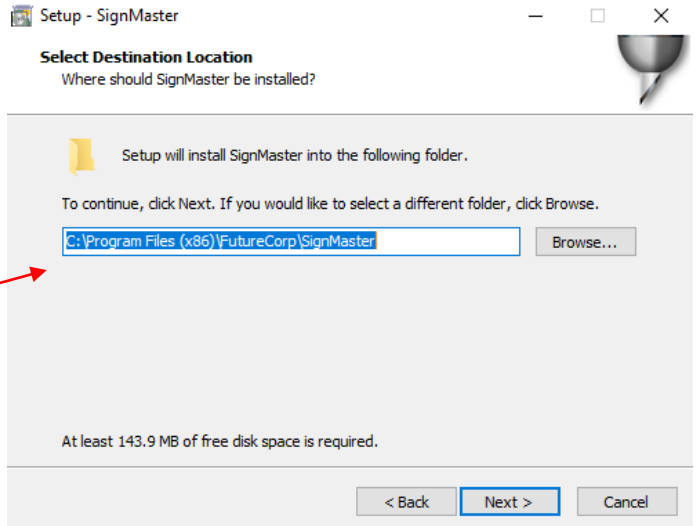
(6) Enter the **Product Serial Number** which should have been sent to you by email when you purchased SignMaster. Note that since you will need this same number any time you update the software, keep it in a safe place:

Enter the 20-digit **PSN** provided when you purchased SignMaster and click on **Next**



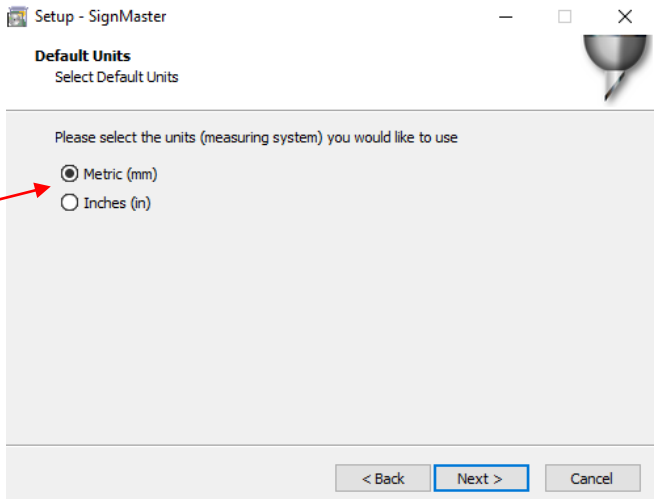
(7) Read and accept a second license agreement and then verify the destination for installing SignMaster:

Note where the program will be installed and click on **Next**



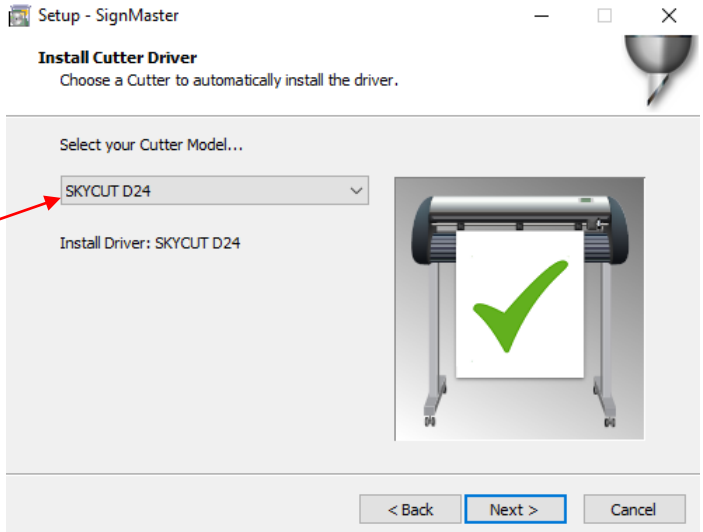
(8) Select your preferred **Units** but note that it can easily be switched once the software is open:

Select preferred **Units** and click on **Next**



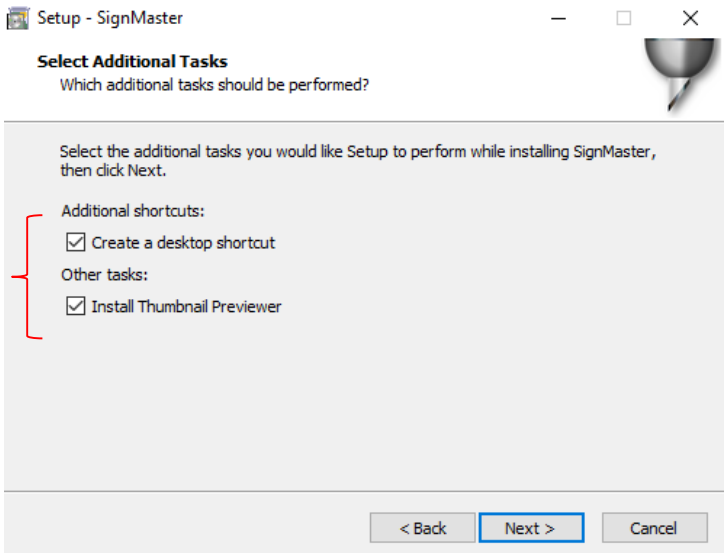
(9) Select **SKYCUT C16** (or the model you have purchased) from the drop-down menu:

Select the Skycut model you have purchased and click on **Next**



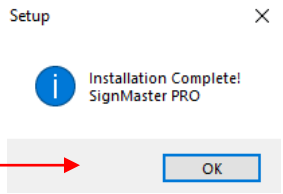
(10) In the next window, you'll have the option to create a desktop icon and install a thumbnail previewer. Both are recommended.

Select preferred options and click on **Next**



(11) At this point, files will be extracted and installed. Wait for the **Installation Complete** message and click on **OK**:

Click on **OK**



(12) Then the final **Finish** message will appear and you can choose to open SignMaster or wait:

Leave checked if you wish to open SignMaster now

Click on **Finish**

- If you run into any issues installing or activating the program, please visit this link:

  http://www.iifuture.net/faq/index.php?action=show&cat=44

- You may wish to periodically visit the link provided for SignMaster at the beginning of *Section 1.11.1* to download and install any new updates.

1.12 Connecting the Skycut to Your Computer Video

- Place your Skycut on a sturdy horizontal surface. If using the cutting mat, be sure to allow enough free room in both the front and the back for the mat to extend during cutting.
- Powering On:
  - ◊ Connect the power cord to the power adaptor.
  - ◊ Plug the power cord into a wall outlet or power strip. Then plug the power adaptor into the right side of the cutter.
  - ◊ Turn on the power using the power button below the control panel. After several seconds, the light inside the Skycut will turn on and the head will do a slight jog.
- Powering Off: Press and hold the power button until the light shuts off.
- You have four options for sending files and information from your computer to the Skycut:
  - ◊ **Direct USB** using the included USB cable
  - ◊ **Wi-Fi** – adding the Skycut to a home/office network that is also accessed by your computer
  - ◊ **Wireless Standalone** – connecting wirelessly to your computer
  - ◊ **U_Disk** - Exporting PLT files from SignMaster onto a USB flash drive and then loading those files using the control panel on the Skycut.
- Review the information in the following table to understand the differences between these options:

Connection Options for the Skycut with SignMaster Pro

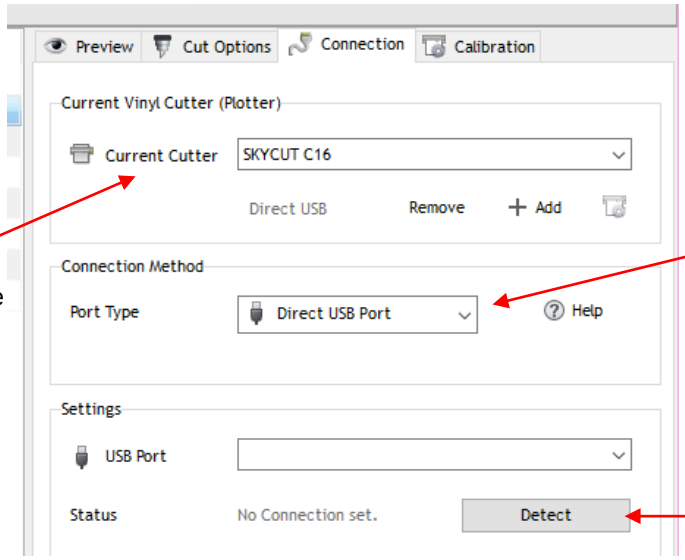
Option	USB	Wireless to Network (Wi-Fi)	Wireless Stand-Alone	USB Flash Drive
Description	The Skycut is connected to the computer via a USB cable	The Skycut is wirelessly connected to a network router	The Skycut is wirelessly connected to the computer.	Files are saved in PLT format from SignMaster to a USB flash drive
Requirements	USB cable (included)	Wireless network router and knowledge of router's name and password	Computer must have wireless capability	USB flash drive
Pros	Easy to install; Reliable and fast form of communication.	Skycut can be located anywhere within range of the router; Other computers can cut to the Skycut	Skycut can be located anywhere within range of the computer; Other computers can cut to the Skycut	Skycut can be located anywhere
Cons	Skycut is physically connected to the computer; Cannot be accessed by other computers at the same time	Requires more steps to set up; Some routers may require setting changes in order to work with the Skycut	Computer is now connected to the Skycut, thus no wireless access to the Internet or to other wireless devices	More steps due to saving and then loading the file; Cannot adjust size and certain cut settings once saved

- Note that implementing any of these options does not preclude you from changing to another one, as needed.
- The following sections present what steps are required for each type of connection. If you run into connectivity issues, please contact your dealer.

1.12.1 USB Connection

- Begin with the Skycut powered off and the USB cable unplugged from the Skycut.

- In SignMaster, click on the **Cut, Plot & Engrave Tools** icon (6th from the left on the upper middle task bar) and select **Vinyl Spooler.** In the window which opens, click on the **Connection** tab:

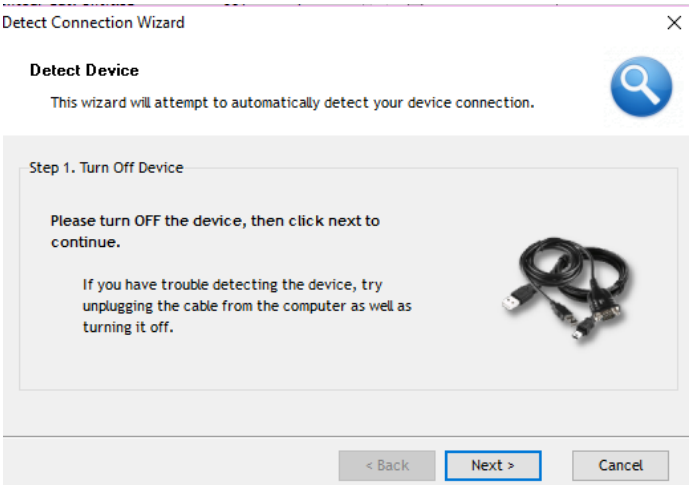


Should read **SKYCUT C16** (or the model you have purchased)

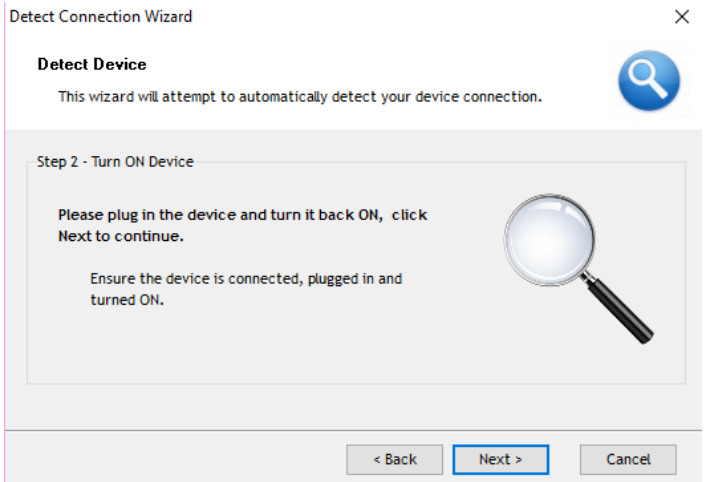
Select **Direct USB Port**

Click on **Detect**

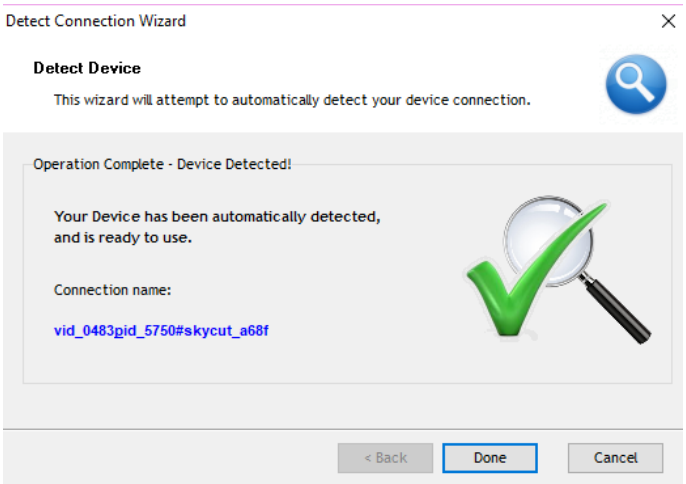
- Select **Direct USB Port**. Then click on **Detect**. The following window will open:



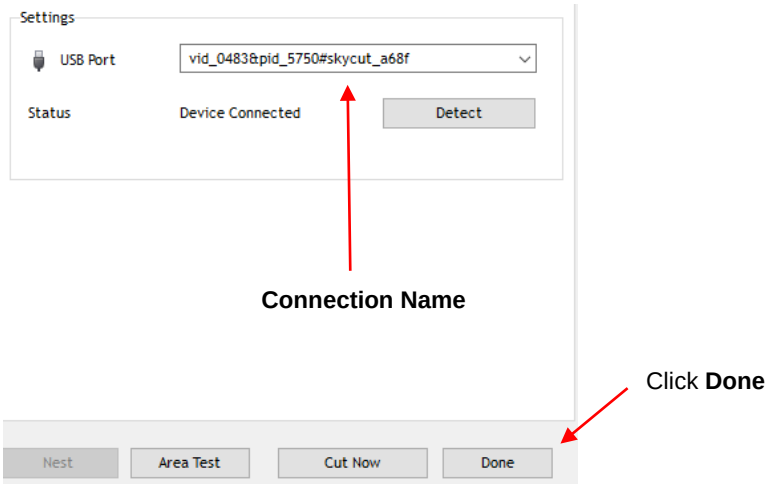
- Because you haven't yet plugged in the USB cable or powered on the Skycut, click on **Next:**



- Connect the USB cable to the right side of the cutter and into an available USB port on your computer. Power on the Skycut and wait about 20 seconds. The following window should open **without** the need to click on **Next**:



- Click on **Done** in the prior window**.** In the **Vinyl Spooler** window, the **Connection name** from the prior screenshot should now appear next to **USB Port**:

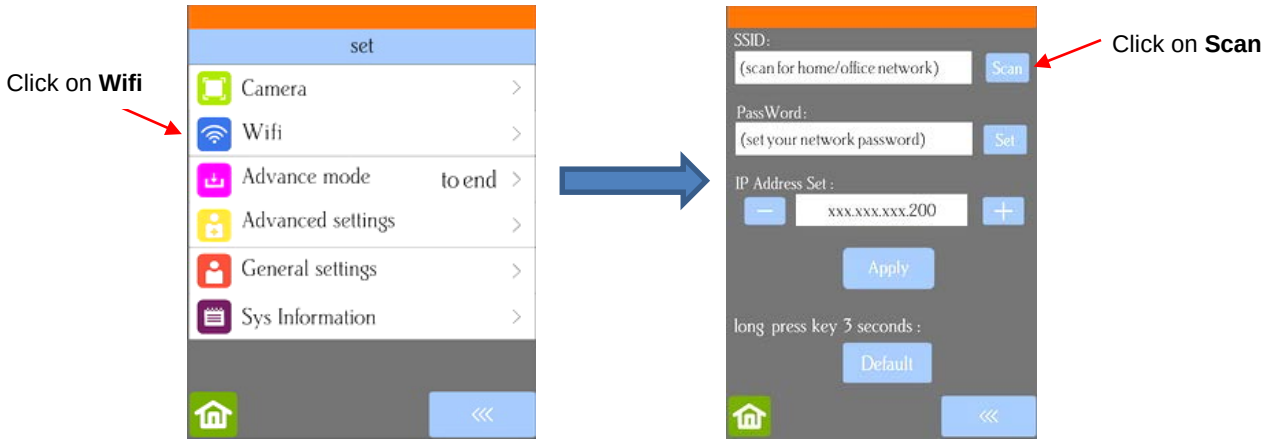


- Click on **Done** and proceed to *Section 1.13*.

1.12.2 Wi-Fi Connection

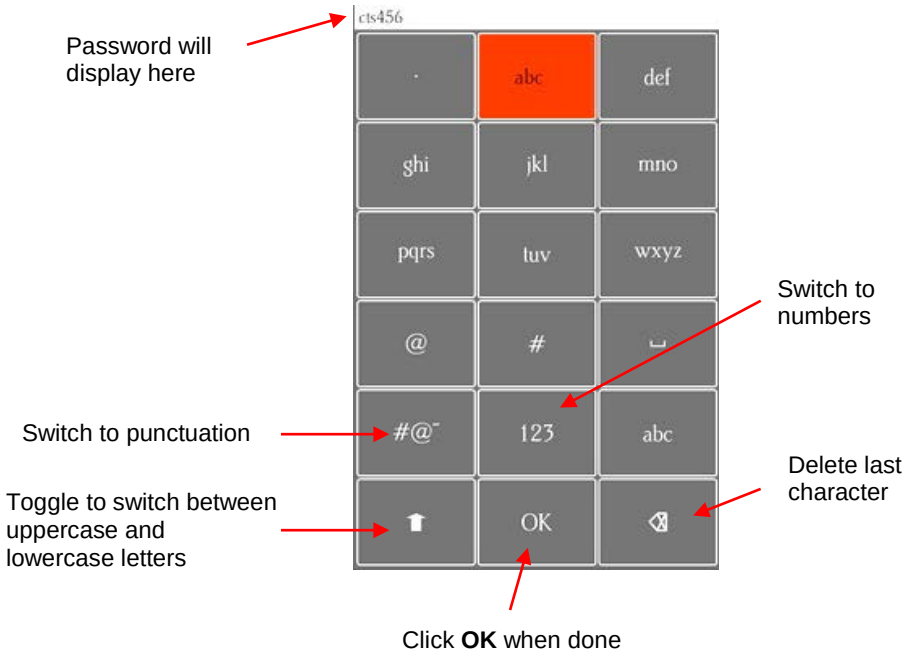
- Note: Not all routers have the same signal strength. It's usually best to connect the Skycut while it is in the same room with the router. Once connectivity is established, you can then experiment to see how far from the router the Skycut can be located.
- What you'll need:
  - ◊ Name of your home/office network
  - ◊ The password for your network
- Carefully complete the following steps:

(1) On the Skycut's control panel, select **Set** and then select **Wifi.** The **Wifi screen** will appear:



(2) Click on the **Scan** button and a list of the available networks will appear. Select your home/office network and click on **Apply**. You will then be returned to the **Wifi** screen:

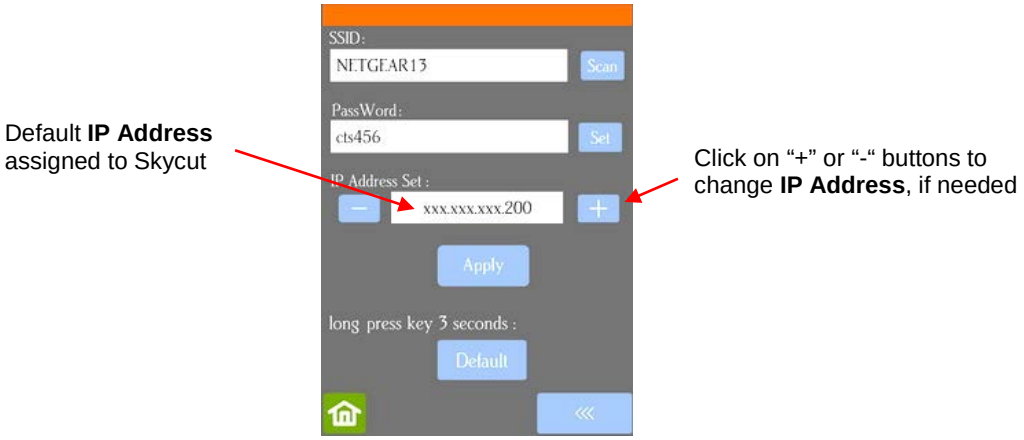
(3) Click on **Set** and the following screen will open:



(4) To enter the password, use the following tips if you are unfamiliar with this type of screen:

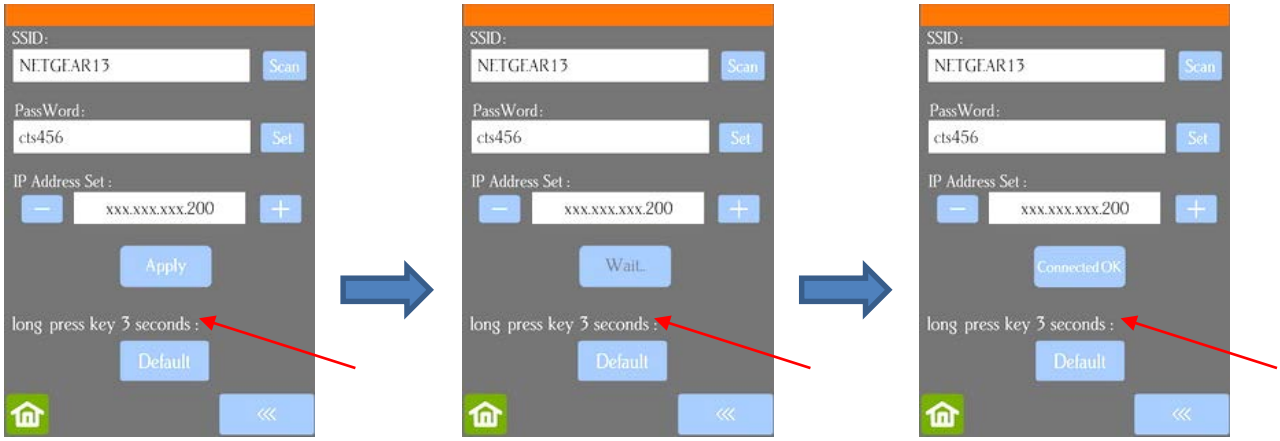
- ◊ "Rapid tap" multiple times in succession to select a letter. For example, if your network password is *cts456*, then to enter "c", you would tap three times on "abc" because "c" is the third letter in "abc". Next you would proceed to "stu" and tap two times to enter "t". Then you would only need to tap on "stu" once to enter the letter "s."
- ◊ To enter numbers, click on "123" to open the number entry screen.
- ◊ For punctuation, click on "#@~" to open the extra characters screen.
- ◊ To enter upper case letters, click on the up arrow in the lower left part of the screen.

(5) Once you have the password entered in the display box at the top, click on **OK** to return to the **Wifi** screen:



(6) Next check the **IP Address** that will be assigned to the Skycut. The Skycut will automatically pick up the first three sets of digits from your router but will continue to display them as shown above. You only need to decide if the last set, which should be defaulting to "200", can be used. Use the "+" or "-" buttons to make any needed changes.

(7) Click on **Apply** and wait for several minutes while your router assigns this **IP Address** to the Skycut. Eventually, you will see **Connected OK** appear:



Click on **Apply**

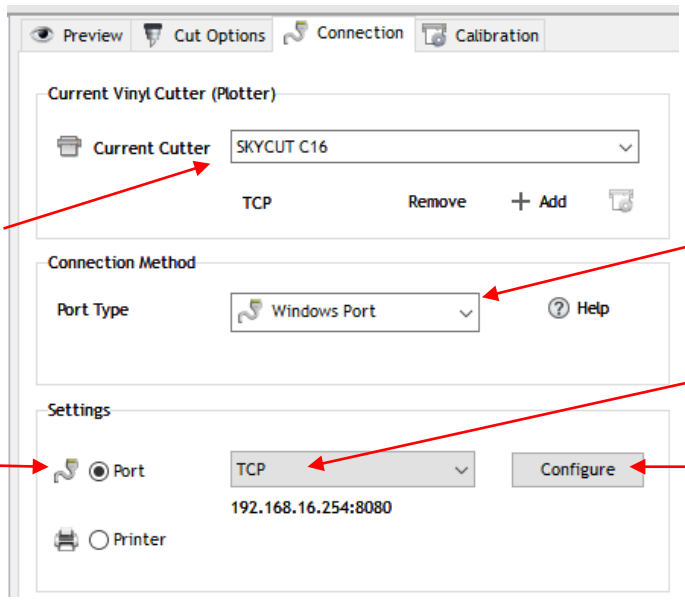
Wait will be displayed for several minutes

Success!

(8) If instead of receiving a **Connected O.** display, you see **Password err**, again verify the network you selected and the password you entered. If you are unable to successfully connect and the Skycut is within a few feet of your router, please check your router's user manual and/or search online for issues with your particular router model.

(9) If you wish to reset and start again, press and hold the **Default** button for 3 seconds until the button turns red. Then click on **Scan** and repeat from *Step 3.*

(10) Once you receive the **Connected OK** display, in SignMaster, click on the **Cut, Plot & Engrave Tools** icon (6th from the left on the upper middle task bar) and select **Vinyl Spooler.** In the window which opens, click on the **Connection** tab and make the following changes:



Should read **SKYCUT C16** (or the model you have purchased)

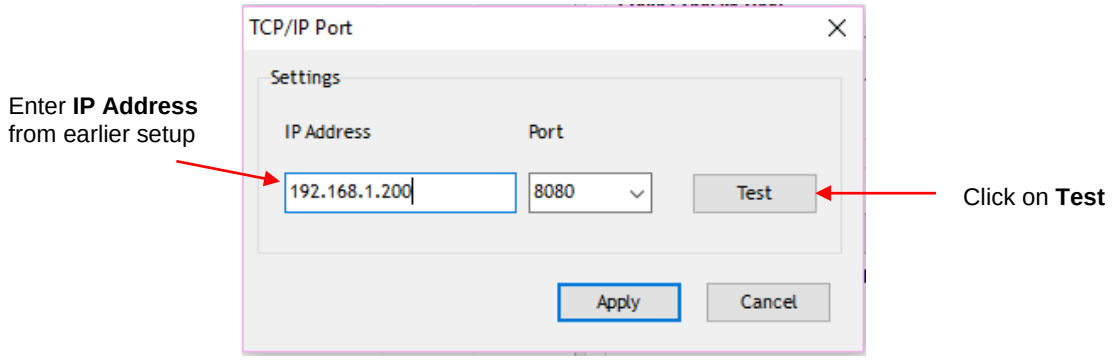
Select **Windows Port**

Select **TCP**

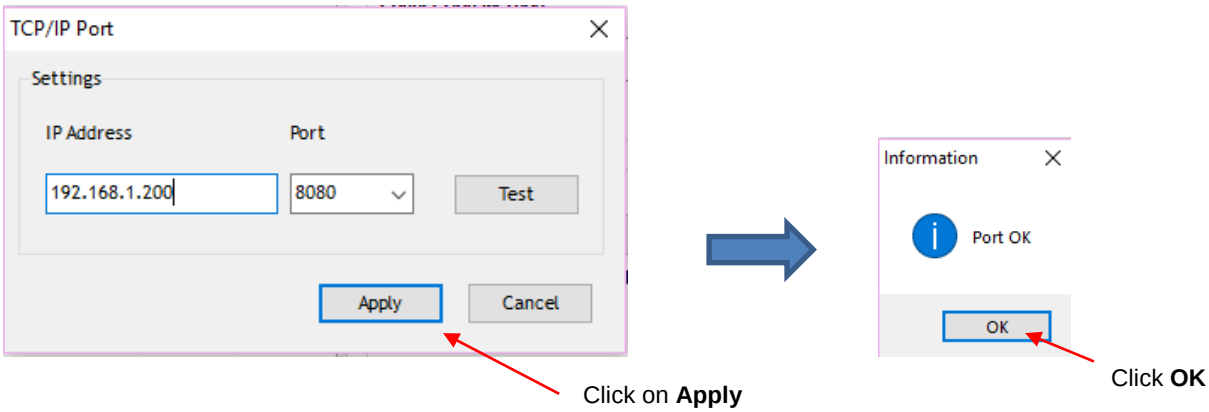
Select **Port**

Click on **Configure**

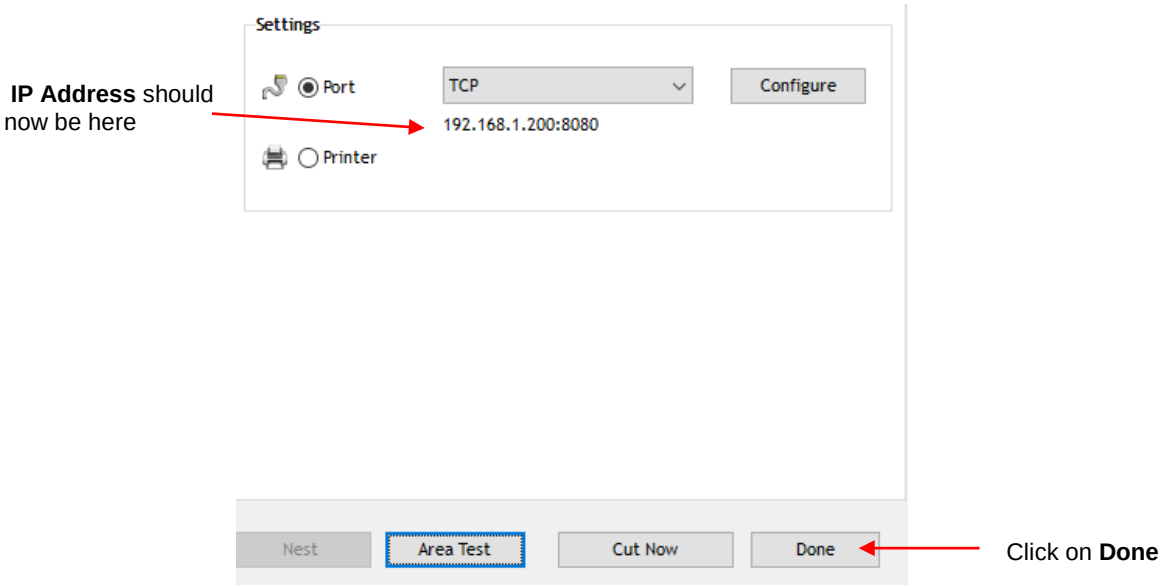
- Click on **Configure** and the following window opens:



- Change the **IP Address** to the one you set up on the Skycut control panel. Click on **Test**. A **Port OK** message should pop up. Click on **OK** and then click on **Apply**:



- The **IP Address** should now appear in the **Vinyl Spooler** window:



- Click on **Done** and proceed to *Section 1.13*.

1.12.3 Wireless Stand-Alone

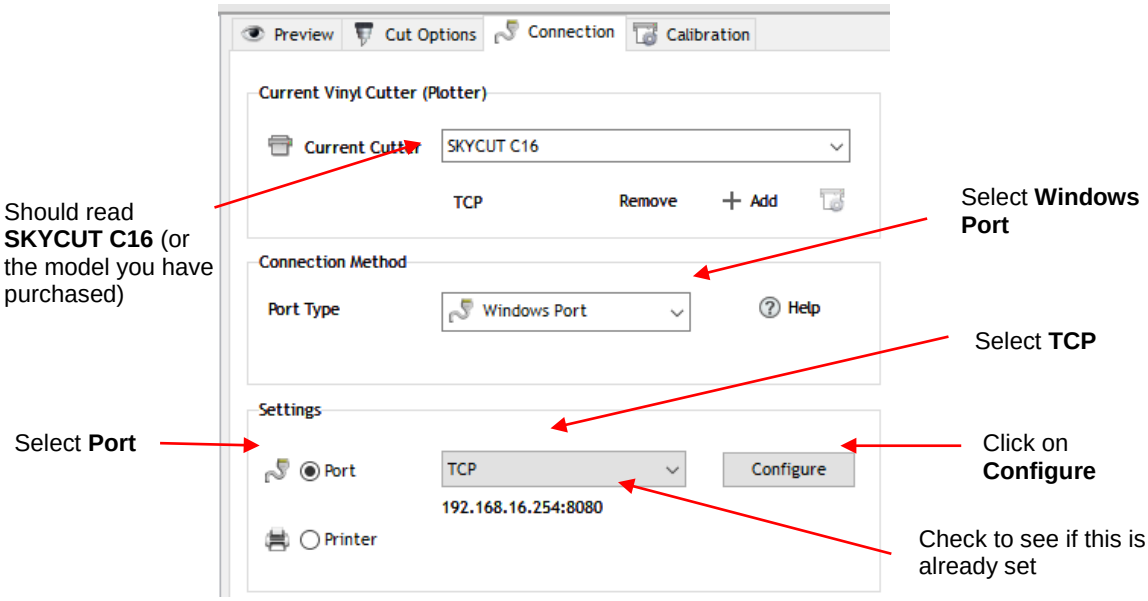
- It's usually best to connect the Skycut while it is next to the wireless computer. Once connectivity is established, you can then experiment to see how far from the computer the Skycut can be located.
- There are two situations to consider before getting started. If you are not sure which applies to your Skycut, then select *B* and go to that section first.

  A. The Skycut has never been set up wirelessly to a network.

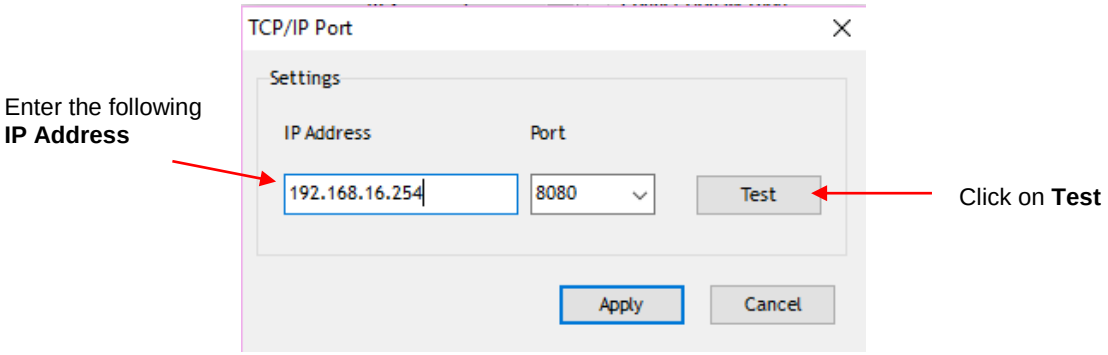
  B. The Skycut has previously been connected to a wireless network.

A. The Skycut has never been set up wirelessly to a network

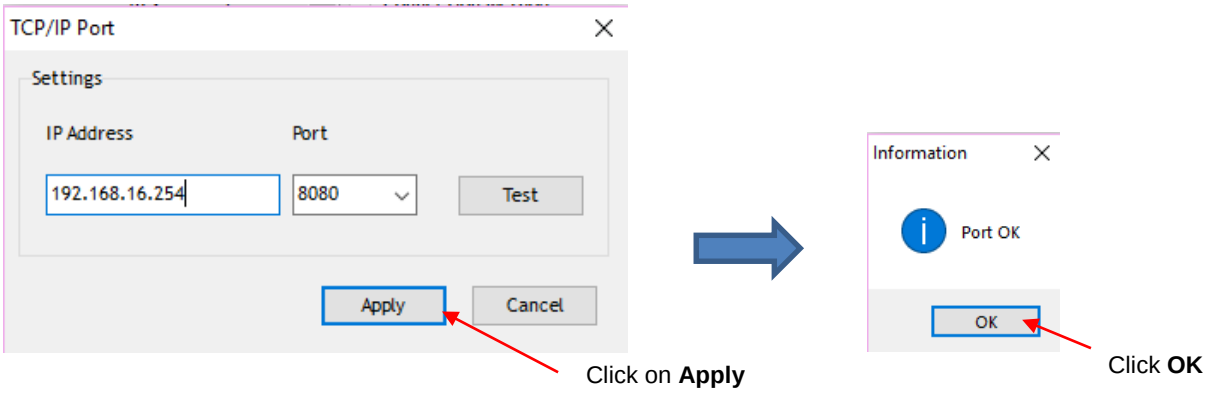
- Power on the Skycut and wait for the light to come on.
- On your computer, open your list of available networks. In the list, you should see one with this type of name format: *HI_LINK_XXXX* where "XXXX" can be any alphanumeric combination, such as "92BF" or "08A5".
- Select that network and enter the following **Network Key** when prompted: *12345678*.
- In SignMaster, click on the **Cut, Plot & Engrave Tools** icon (6th from the left on the upper middle task bar) and select **Vinyl Spooler.** In the window which opens, click on the **Connection** tab and make the following changes:



- In the prior screenshot, the **IP Address** is already set to the correct **Stand-Alone IP Address:** 192.168.16.254. If this matches what you see, skip the next two steps. Otherwise, click on **Configure** and the following window opens:



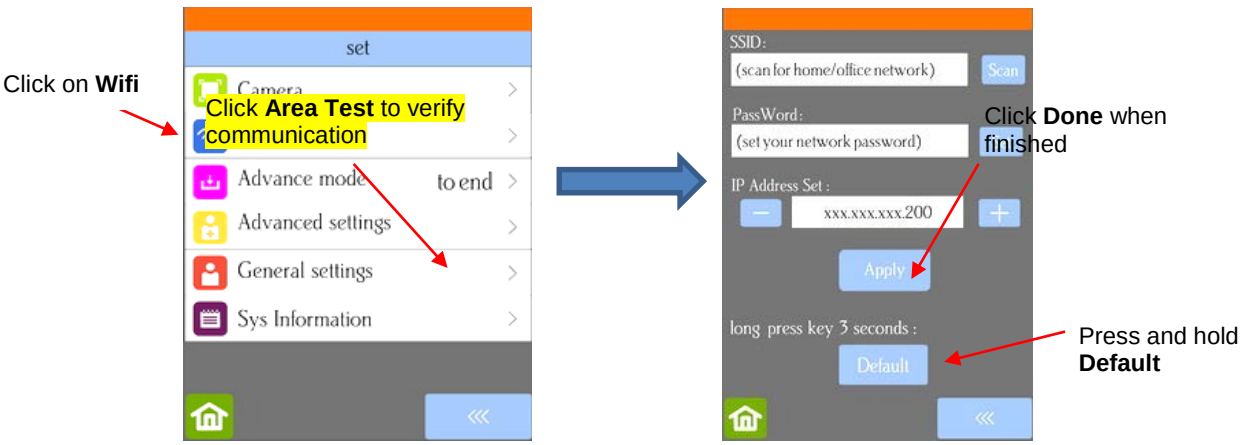
- Change the **IP Address** to 192.168.16.254. Click on **Test**. A **Port OK** message should pop up. Click on **OK** and then click on **Apply**:



- The **IP Address** should now appear in the **Vinyl Spooler** window. Click on **Done** and proceed to *Section 1.13*. Remember that your computer will not have access to the Internet or other network devices while in **Wireless Stand-alone** mode.

B. <u>The Skycut has previously been connected to a network</u>

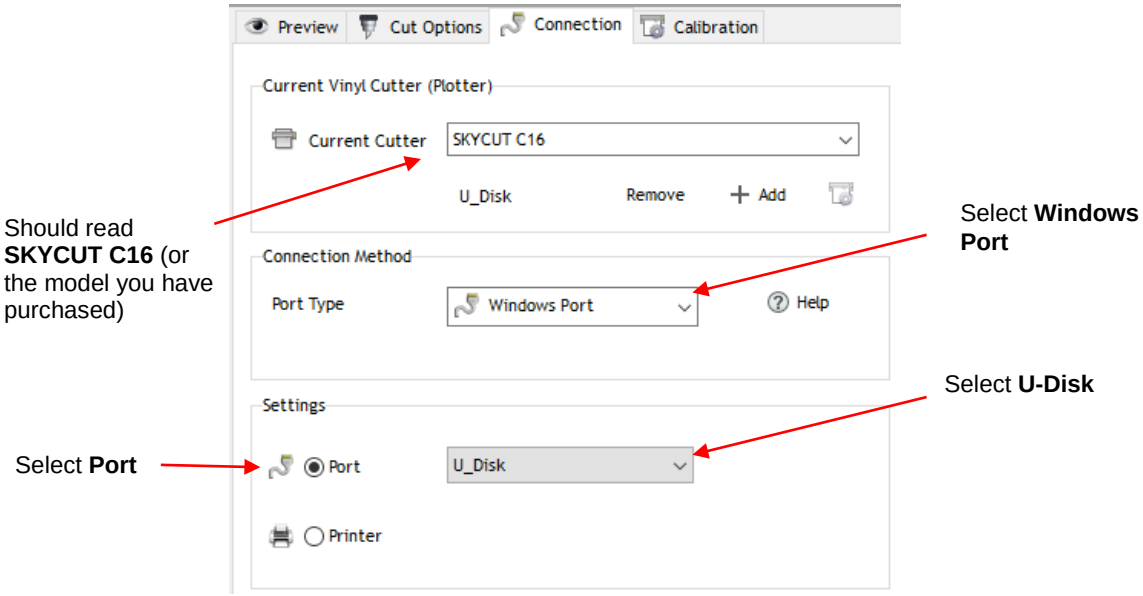
- On the Skycut's control panel, select **Set** and then select **Wifi.** The **Wifi screen** will appear:



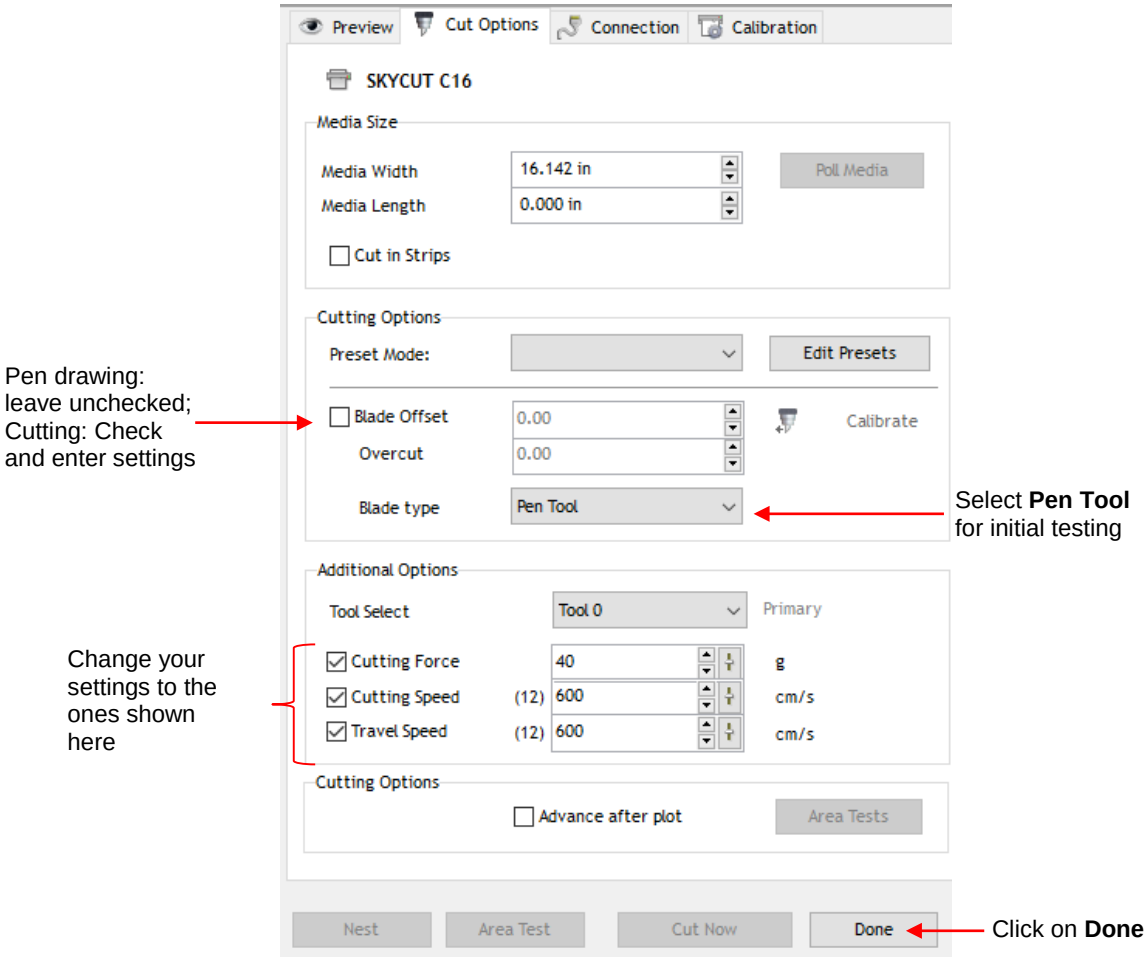
- To reset the Skycut so that it will be found as an available network, press and hold the **Default** button for 3 seconds. Release and you should see the **Apply** button now displays **Wait**. In a minute the **Apply** should return and you can then proceed back to *A*. *The Skycut has never been set up wirelessly to a network* and use the same procedure as if the Skycut was never set up on a network.

1.12.4 USB Flash Drive

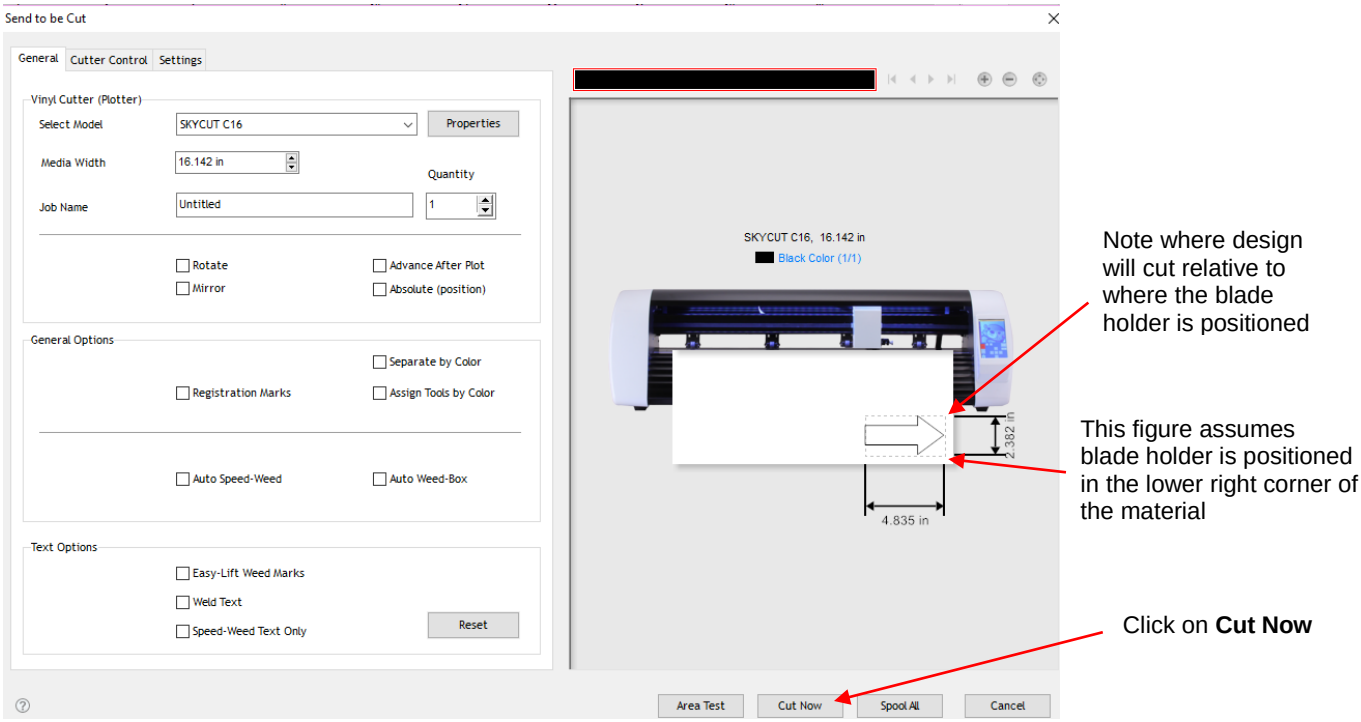
- With a USB Flash Drive connection, you will normally follow the steps presented in this section. If you are new to SignMaster and/or to your Skycut, it is recommended that you go to *Section 1.13* now and set up a file using the steps presented there. Then, when you are ready to cut, return to this section.
- Insert a USB flash drive into your computer and allow Windows to find it. Note the drive letter assigned by Windows.
- Design or open a file in SignMaster. After making any changes to the design, click on the **Cut, Plot & Engrave Tools** icon (6th from the left on the upper middle task bar) and select **Vinyl Spooler.** In the window which opens, click on the **Connection** tab and make the following changes:



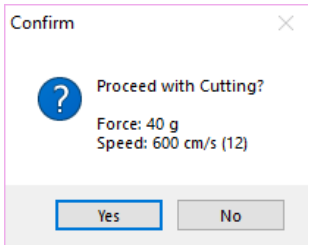
- Click on the **Cut Options** tab:



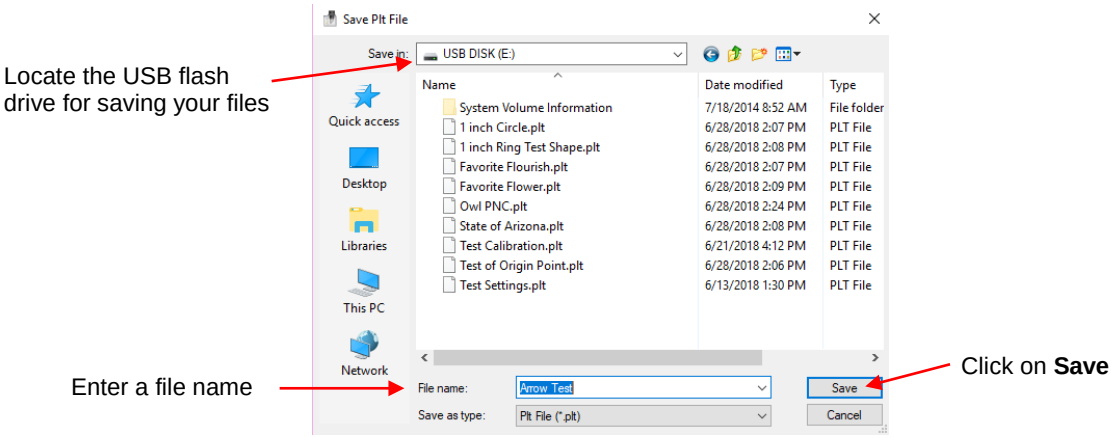
- For initial testing of your Skycut, it is highly recommended that the test pen be used until you know, with certainty, where shapes will draw.
- After you have entered the settings you plan to use, click on **Done** and the **Vinyl Spooler** window will close.
- Again, click on the **Cut, Plot & Engrave Tools** icon (6th from the left on the upper middle task bar) and, this time, select **Send to Cutter**.
- The following window opens. More about the settings on the left side of the window will be covered in *Section 2.03.* For now, just note where your shape will cut relative to the material and how to initiate the exporting of the PLT file:



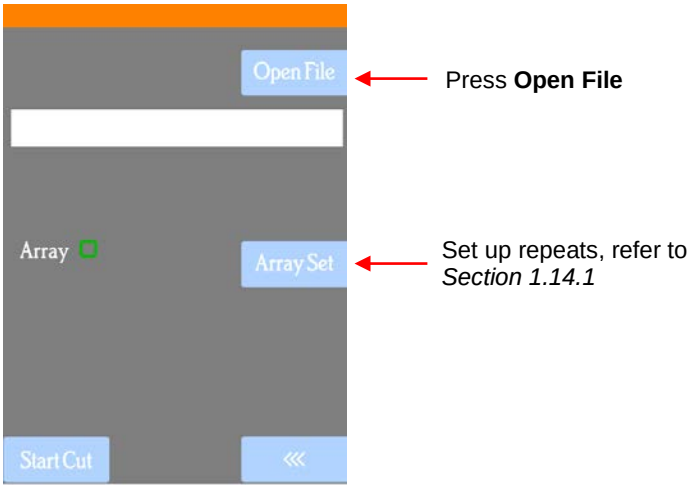
- Click on **Cut Now** and a confirmation window opens where you have one more chance to note the **Force** and **Speed** at which the material will be cut. Answer **Yes** to proceed, **No** to cancel:



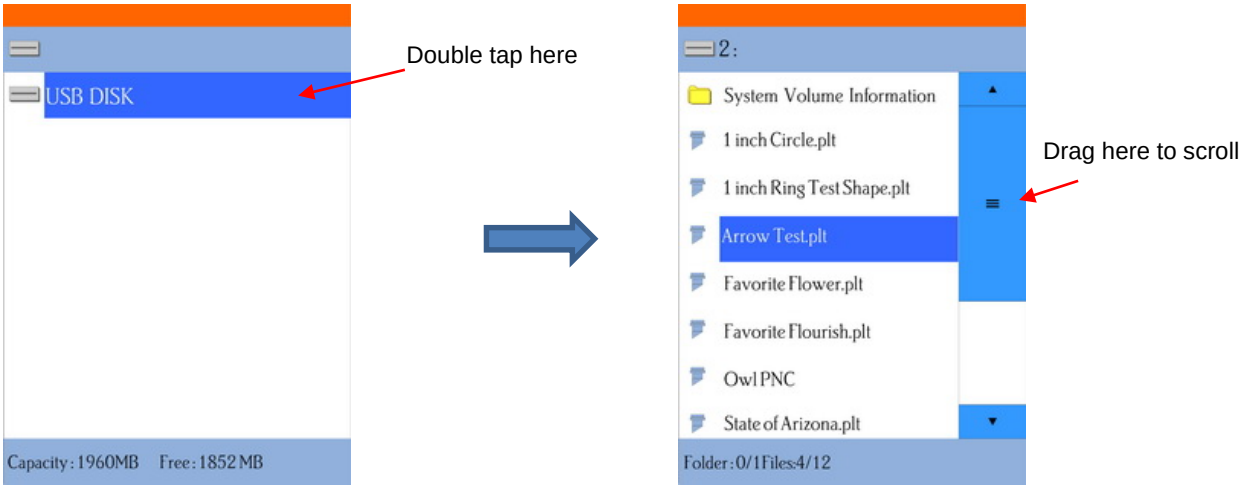
- After selecting **Yes**, a **Save PLT File** window opens because earlier you had changed the connection type to **U_Disk**. Browse to locate the USB flash drive you plan to use and name your PLT file:



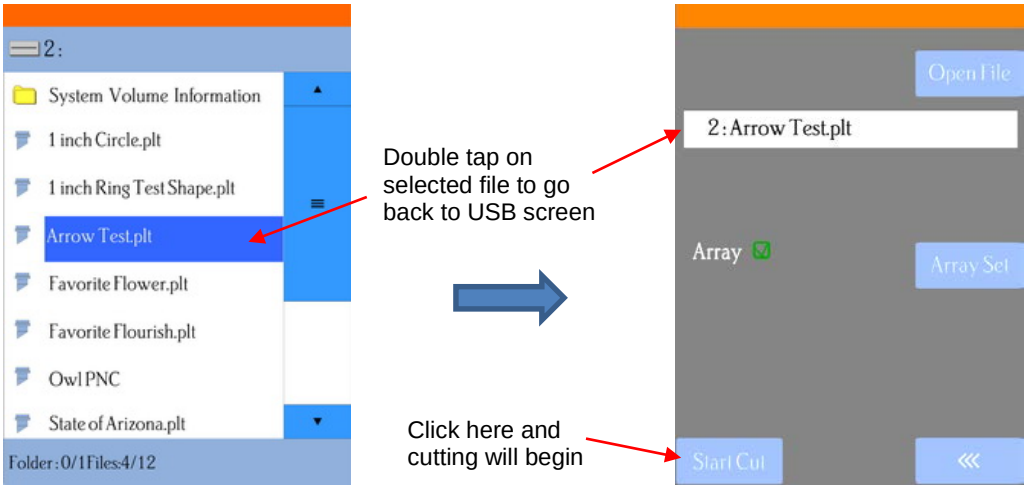
- After saving the file, you can close the **Vinyl Spooler** window. Insert the flash drive into the right side of the Skycut. On the control panel, select **USB** and then **Open File**:



(1) Double tap on **USB DISK** and a screen will open showing any folders and PLT files on the flash drive. Double tap a folder to open it, as needed. Drag the scroll bar on the right to see more files:



(2) Once you have located the PLT file you want to cut, double tap the name. You will be taken back to the USB screen and the selected file name will be displayed:



(3) If you wish to cut repeats of the file, select **Array Set** and a screen will open where you can then select the number of rows and columns of repeats, along with the spacing between the repeats. Refer to *Section 1.14.1.*

(4) If your project is a print and cut (aka contour cut) application, please refer to *Section 3.08*.

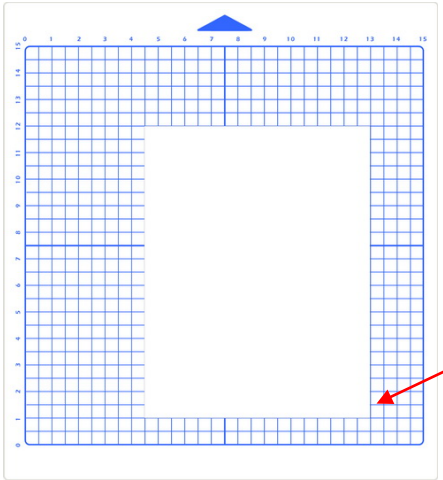
(5) When you are ready to cut, click on **Start Cut**.

1.13 Test Draw Shapes

- New owners tend to be VERY eager to try out their Skycut. It's important to test your cutter to ensure that data is being sent properly from your computer to the cutter. The following steps will allow you to do some testing with the pen tool. But note that **the following steps are for DRAWING, not cutting**. Before inserting the blade holder into your cutter, please read the following *Sections 1.07.2, 1.07.3, 2.01, 2.02,* and *2.03.*
- It is also very important to understand where shapes will cut based on various available options in SignMaster. This is partially addressed in the next section; complete details are covered in *Section 2.02.2.*
- Before setting up a file for testing, if you are new to SignMaster, it is recommended that you watch the following introductory video: Video
- You have two options when using the test pen:
  - ◊ Insert a sheet of paper directly into the cutter:

Observe how pinch wheels are centered with white arrows

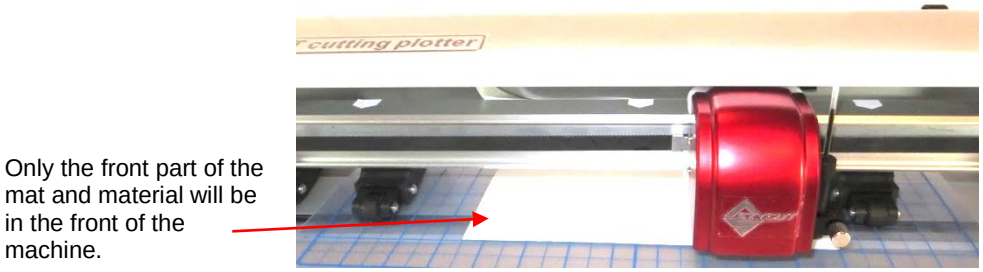
  - ◊ Or…Place the paper onto the cutting mat and then insert the cutting mat into the cutter:



- Before installing the test pen, make sure the pen will write by scribbling on scrap paper. Note that you will probably need to remove a tiny bit of wax on the end of the pen nib. Then follow these steps:
  - ◊ Loosen the screw on the blade holder seat.
  - ◊ Insert the blade holder allowing it to freely rest on top of the paper.
  - ◊ Before tightening the front screw, raise the test pen up a little bit (~ 1/8" or several mm). You don't want the pen still touching the paper but you also don't want the pen too high above the paper either.
  - ◊ Tighten the front screw to lock in the test pen. Be careful not to push down on the blade holder seat while tightening.

> ***IMPORTANT!*** This is NOT the recommended method for loading the blade holder into the cutter. This is presented as a quick way to insert the test pen so that it is in a good position for drawing. The instructions for inserting the blade holder and setting a blade distance above the material will be covered in *Section 2.01.3.*

- Use any of the horizontal markings at the front of the Skycut to align the mat so that it's straight. Lift the pinch lever to drop the pinch wheels onto the cutting mat. Most of the mat and the paper should now be behind the cutter, not in the front:



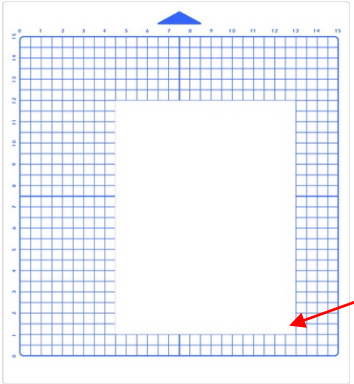
- The arrow keys on the Skycut's control panel will always be used to set the origin for cutting:

Use these arrows to move the mat in and out and move the head left and right

The middle button can be toggled so that the movement is much slower.

◊ Click on the buttons or the arrow keys on your keyboard to move the head left or right and the mat in and out. The goal is to have the tip of the pen close to the lower right corner of the paper:

Move pen tip to this corner of the paper.



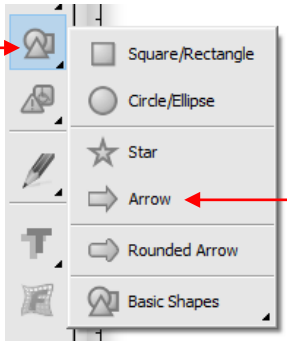
Feed the mat this direction into the Skycut

Move the pen tip to this corner of the paper

◊ Once the pen tip is in the lower right corner, you are ready to proceed with the test.

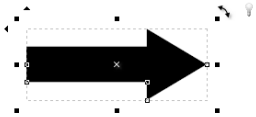
- In SignMaster, on the left side tool panel, press and hold the **General Power Shapes** icon and, from the drop-down menu, select the **Arrow** option:

Press and hold the **General Power Shapes** icon



Select **Arrow**

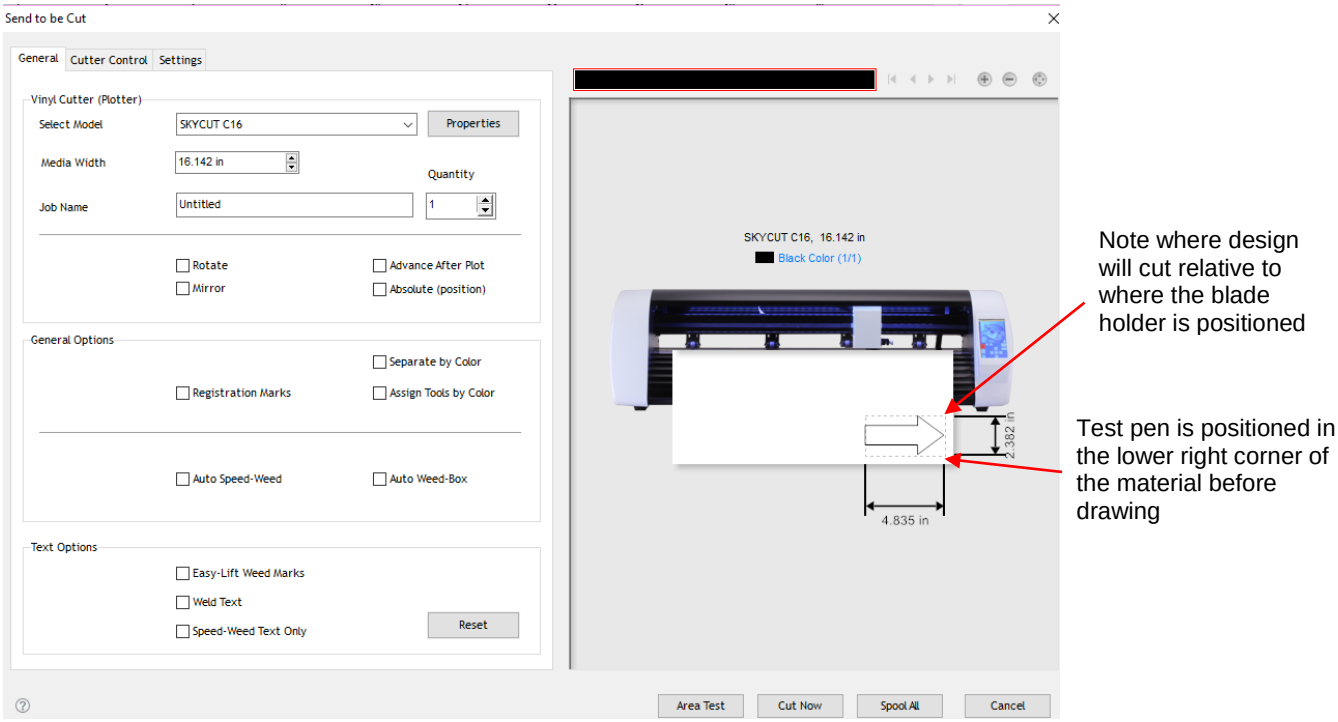
- Press and hold the left mouse button and drag the mouse in the **Drawing Area** to create the arrow shape. In this test, it doesn't matter where you place the arrow on SignMaster's **Drawing Area**, as it will be drawn at the origin you set on the machine.



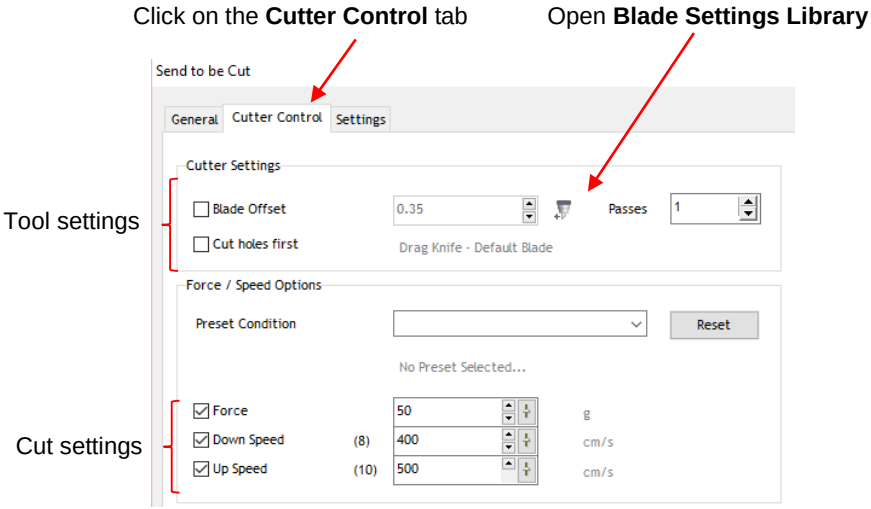
- If you wish to resize the arrow, either drag one of the square handles around the selected arrow or, in the settings above the **Drawing Area**, change the **Width** or **Height**, as desired:

- At this point, if you plan to export this file to a USB flash drive, rather than cut directly to the Skycut from SignMaster, please go to *Section 1.12.4* for instructions.

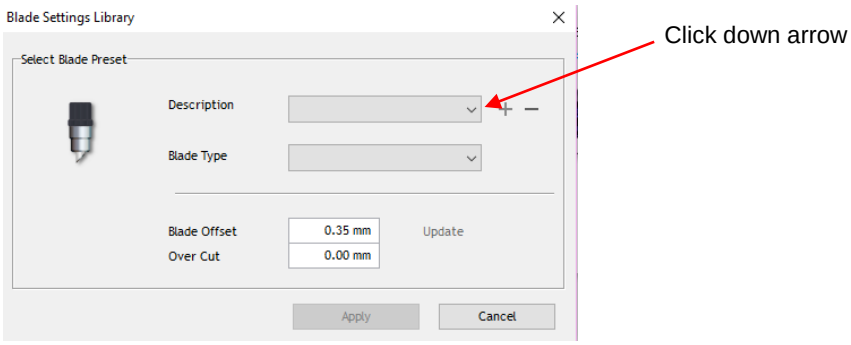
- After making any changes to the design, click on the **Cut, Plot & Engrave Tools** icon and select **Send to Cutter.** The following window opens. More about the settings on the left side of the window will be covered in *Section 2.03*. For now, just note where the shape will cut relative to the material:



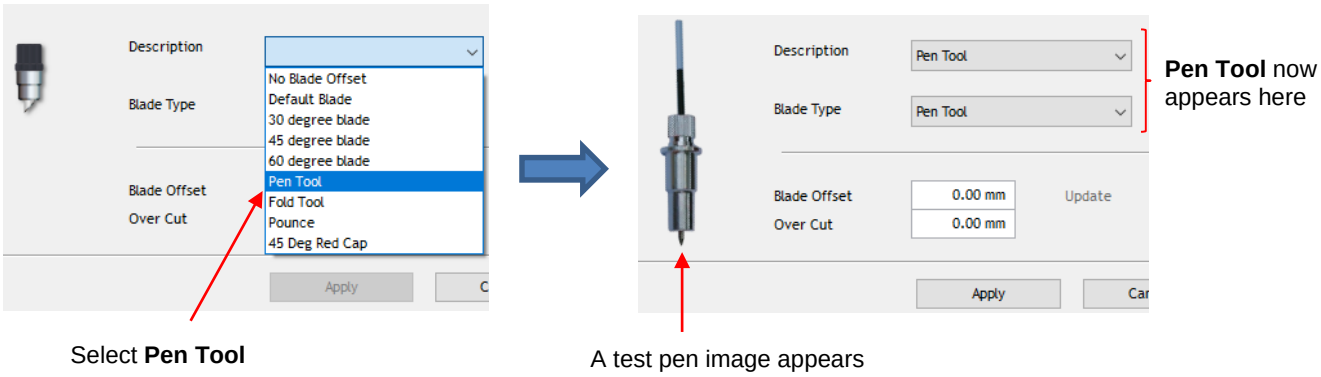
- Before executing the cut/draw process, appropriate settings need to be selected. Click on the **Cutter Control** tab and the following settings will be displayed:



- Click on the small icon to left of **Passes** and the **Blade Settings Library** opens:



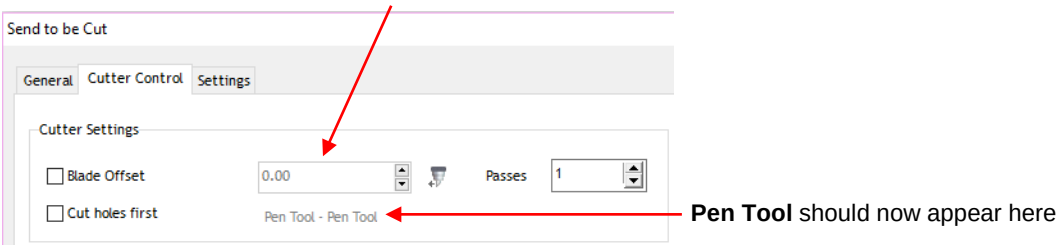
- To switch to the test pen, click the down arrow to the right of **Description** and select **Pen Tool**:



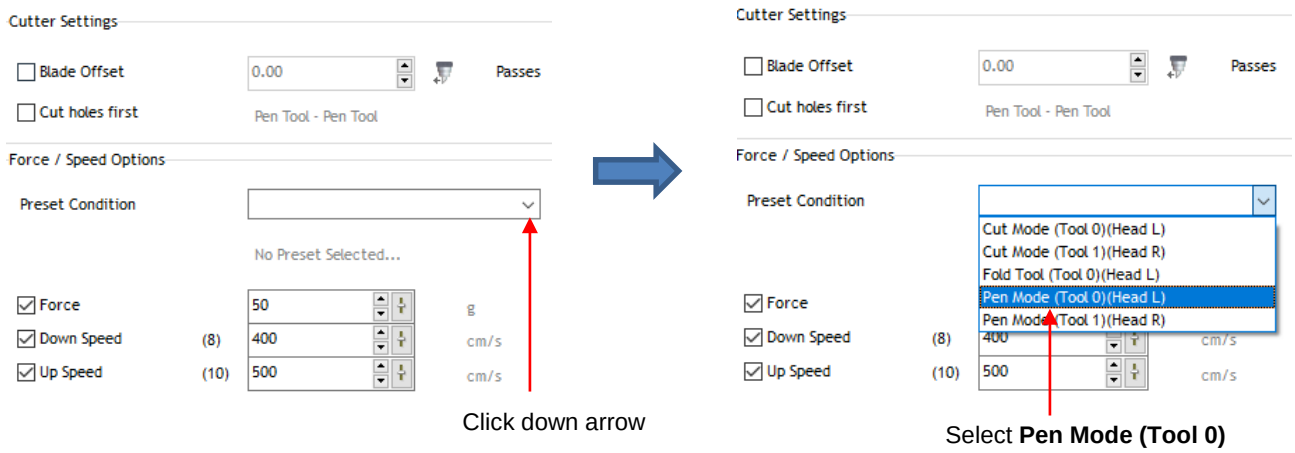
Select **Pen Tool**

A test pen image appears

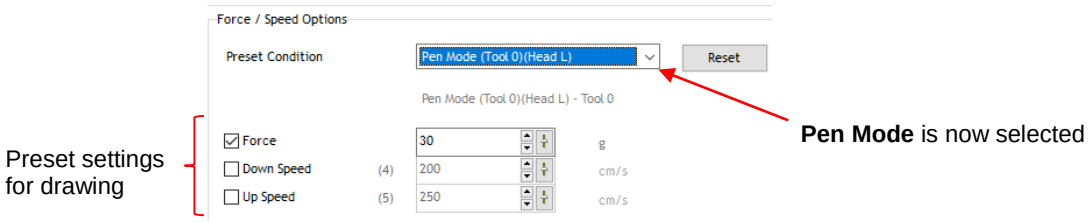
- Click on **Apply** and the **Cutter Settings (Tool settings)** will update showing a 0.00 setting for **Blade Offset** (more about this setting is covered in *Section 2.03.3*):



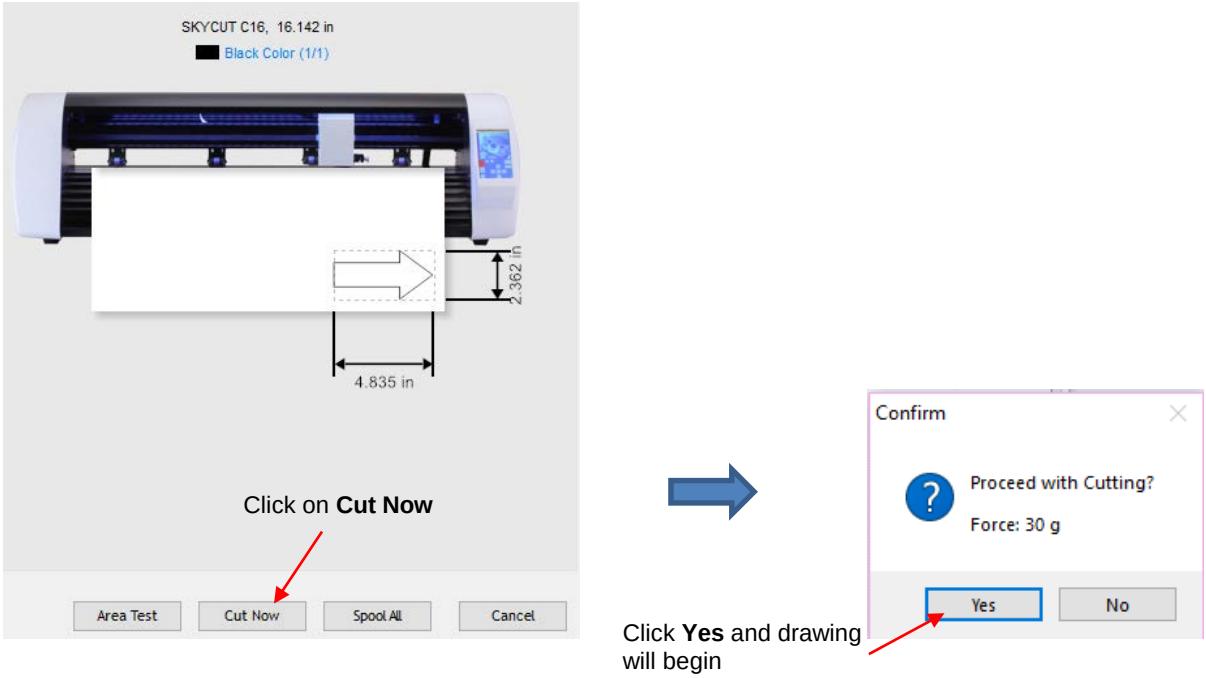
- Next, the preset for drawing with the test pen will be selected. Click on the down arrow to the right of **Preset Condition**. In the drop-down menu, select **Pen Mode (Tool 0)(Head L).** Note that on a dual head cutter, there are two options, but on a single head cutter, you will always select **Tool 0**:



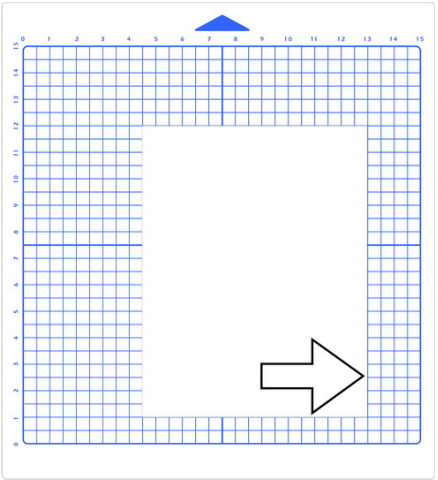
- The **Force** and **Speed** settings have now changed to settings appropriate for testing. Note that more about these settings will be covered in *Chapter 2.*



- Click on **Cut Now** and a confirmation window opens where you have one more chance to note the **Force** and **Speed** at which the material will be cut. Answer **Yes** to proceed, **No** to cancel:



- After selecting **Yes**, the Skycut will draw the arrow on your paper:

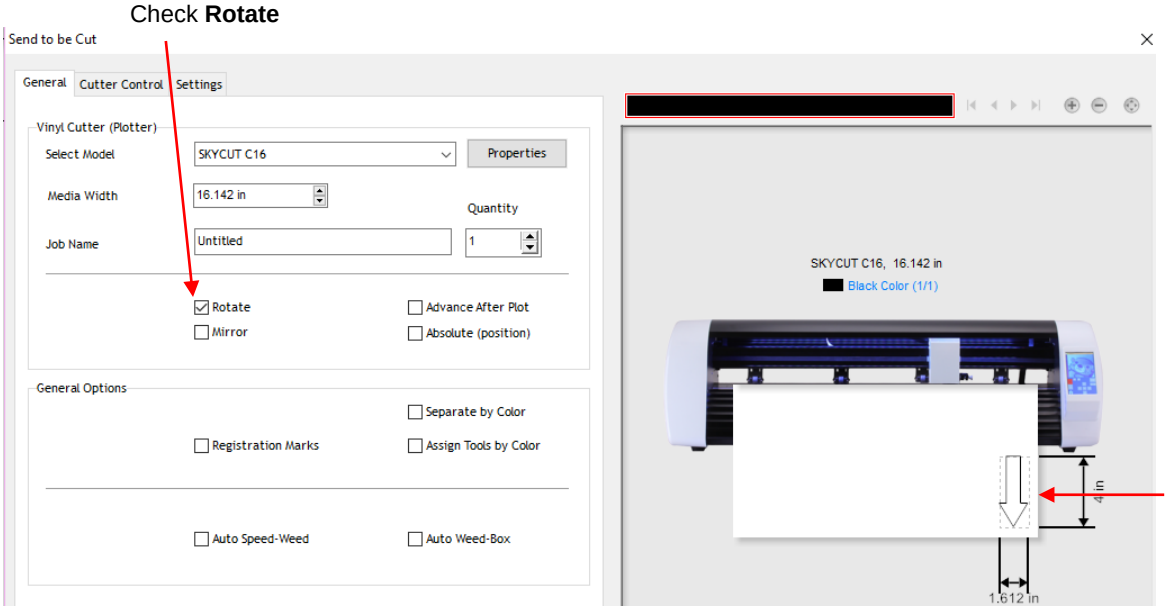


Feed the mat this direction into the Skycut

The arrow is drawn at the origin and points to the right.

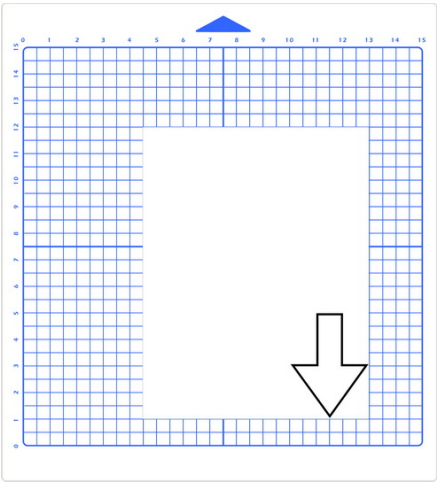
- To draw again, return to the cut window and choose a different origin. Practice moving the origin to different locations. If you want to have the arrow draw in a **Landscape** orientation, then mark the **Rotate** option. You will see the arrow rotate in the **Preview**:

Check **Rotate**



Note arrow is now rotated

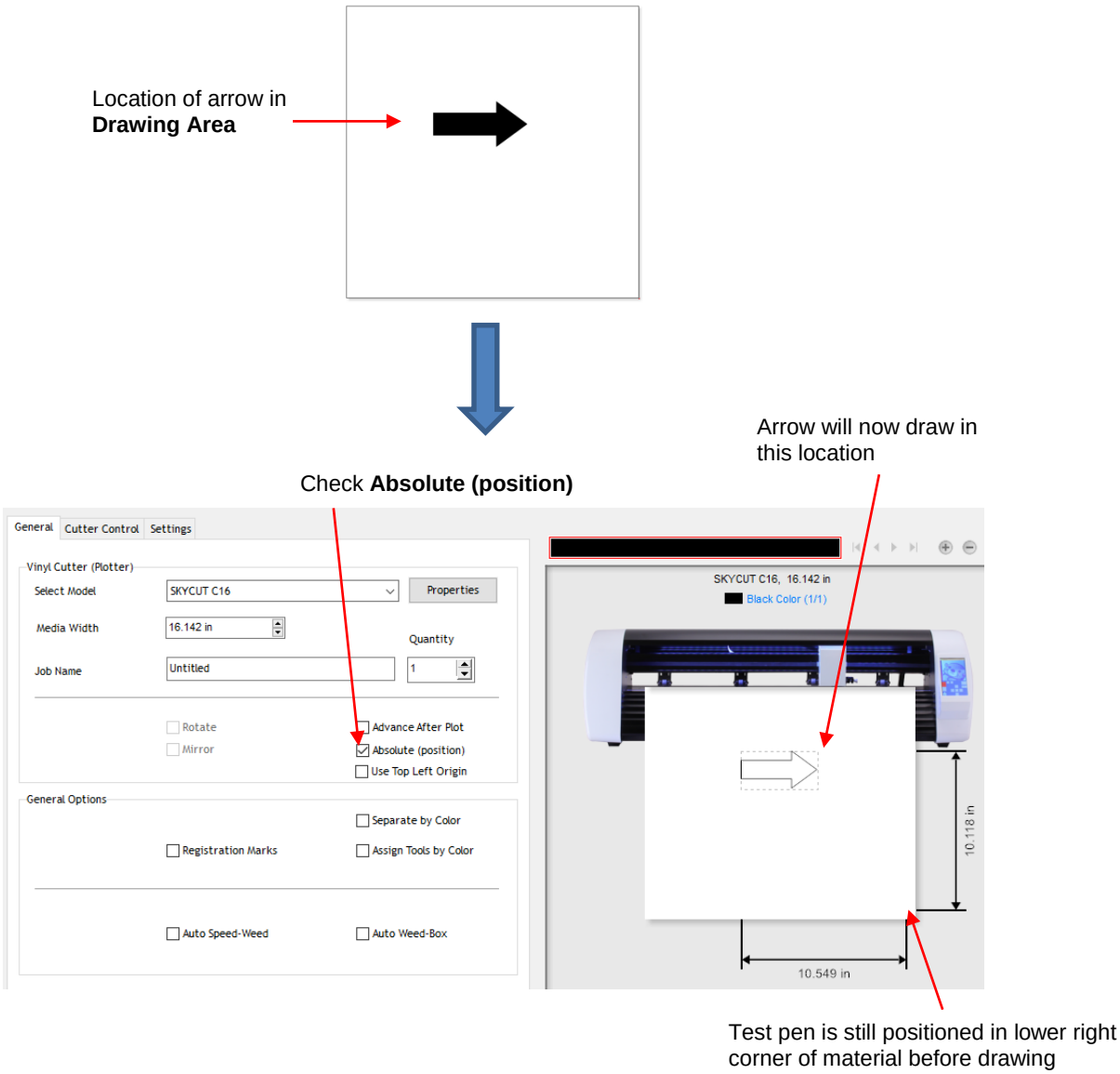
- Cutting with this setting results in the arrow pointing downwards as shown in the prior preview window:



Feed the mat this direction into the Skycut

The arrow is drawn at the origin and points down

- If you want the arrow to draw where you have it located on the **Drawing Area,** versus at the origin, then you need to mark the option called **Absolute (position)** in the same **Send to be Cut** window:



- Set the origin in the lower right corner of the mat's grid and then place the paper in the correct location on the mat to correspond to where the shape is positioned in SignMaster. Refer to *Section 2.02.2* for more details on controlling where images will cut.

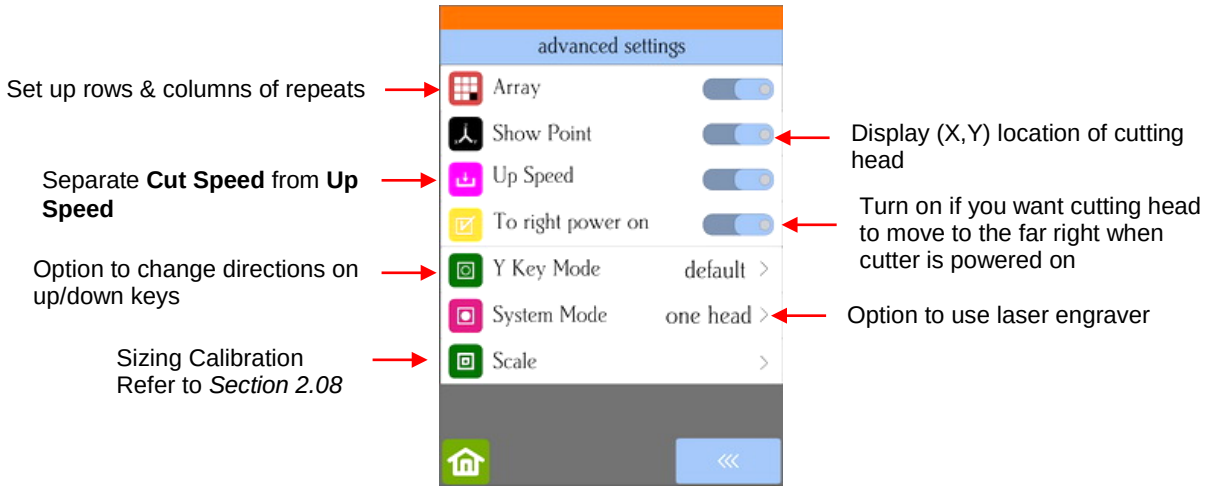
IMPORTANT: Please read *Section 2.01* before cutting!

1.14 Default Settings To Consider

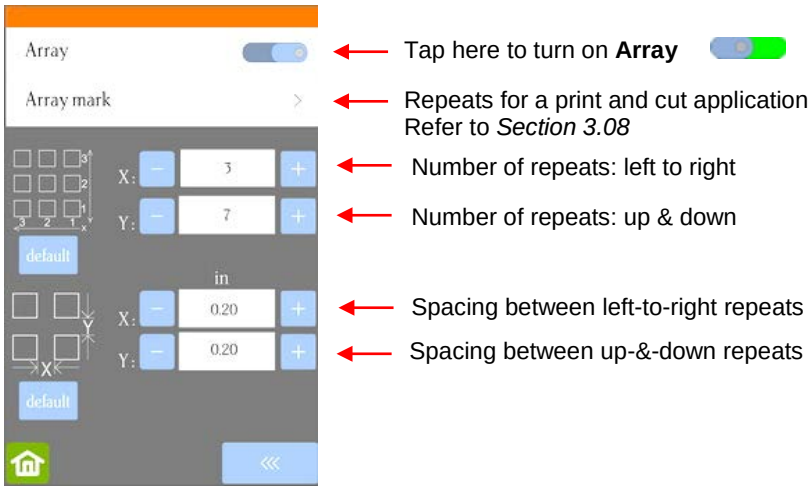
- The Skycut's control panel offers a number of default settings. Some of these may not be important at this point in the learning process. So, you may want to skip this section for now but remember that it's here and could provide you some options to improve your experience with the Skycut.
- Each of the following sections will refer to one of the settings in the **Set** screen.

1.14.1 Advanced Settings

- The optional settings in the **Advanced Settings** screen are:

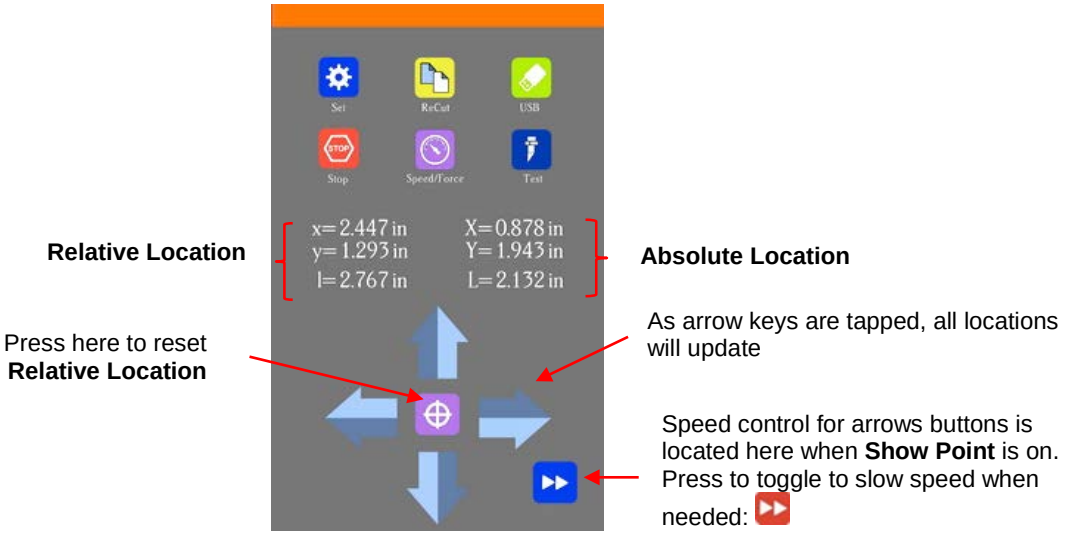


- **Array:** Tap the **Array** button to open the **Array** screen:



◊ In the above screenshot, the shape sent to the Skycut would cut 3 across and 7 up & down, for a total of 21 shapes. The spacing between each shape would be 0.20 inches (Note: to use mm instead of inches, switch the **Units** setting. Refer to *Section 1.14.2*).

- **Show Point:** When toggled on, the **Main Screen** displays movement and location output based on the position of the cutting head:



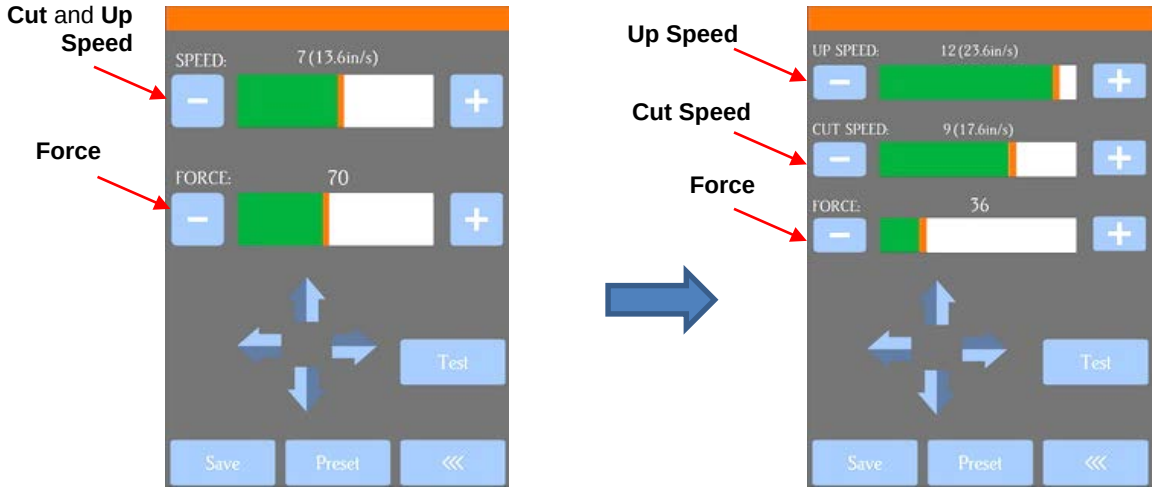
◊ **Absolute Location** displays the current location relative to a "power-on" location of (0,0):

- **X** is the left-to-right location
- **Y** is the up-&-down location
- **L** is the straight-line distance from (0,0)

◊ **Relative location** displays the change in location currently being made as you press the arrow keys:

- **x** is the current left-to-right distance moved from **X**
- **y** is the current up-&-down distance moved from **Y**
- **l** is the straight-line distance from the (**X,Y**) location

- **Up Speed** is how fast the blade travels while in the "up" position, such as when it is moving from the origin to the location of the first shape to cut or when moving from one cut shape to begin cutting another. When turned off, **Up Speed** will match the **SPEED** set for cutting. Turning on this setting will change the **Speed/Force** screen to display both speeds, allowing them to have different settings:



- **To right power on:** With this setting turned on, the cutting head will move to the far right whenever the Skycut is powered on.

- **Y Key Mode:** This setting controls the movement of the material or cutting mat when using the up and down arrows in the **Main Screen:**

Pressing an **UP** arrow will move the material forward

Pressing a **DOWN** arrow will move material towards the back of the cutter

Pressing an **UP** arrow will move the material towards the back of the cutter

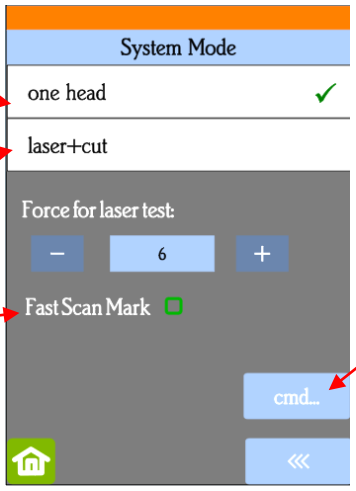
Pressing a **DOWN** arrow will move material forward

- **System Mode** has several options: note the *Section* numbers for some of these:

Normal cutting/drawing with just the blade holder or test pen

Option to choose when laser engraver is used

Fast Scan Mark (contour cutting) *Section 3.04.3*



Activating commands *Appendix B*

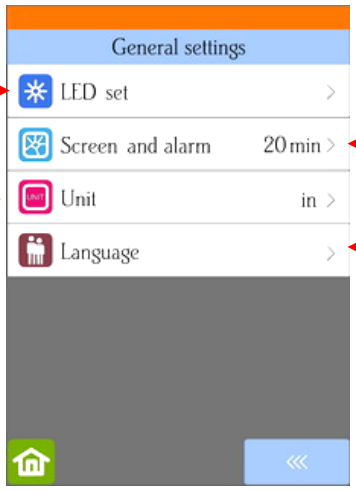
- **Scale** is used is used to input the sizing calibration. Refer to *Section 2.08.*

1.14.2 General Settings

- The optional settings in the **General Settings** screen are:

Set preferred lighting color

Select inches or millimeters



Select blackout time for screens and end-of-cut alarm

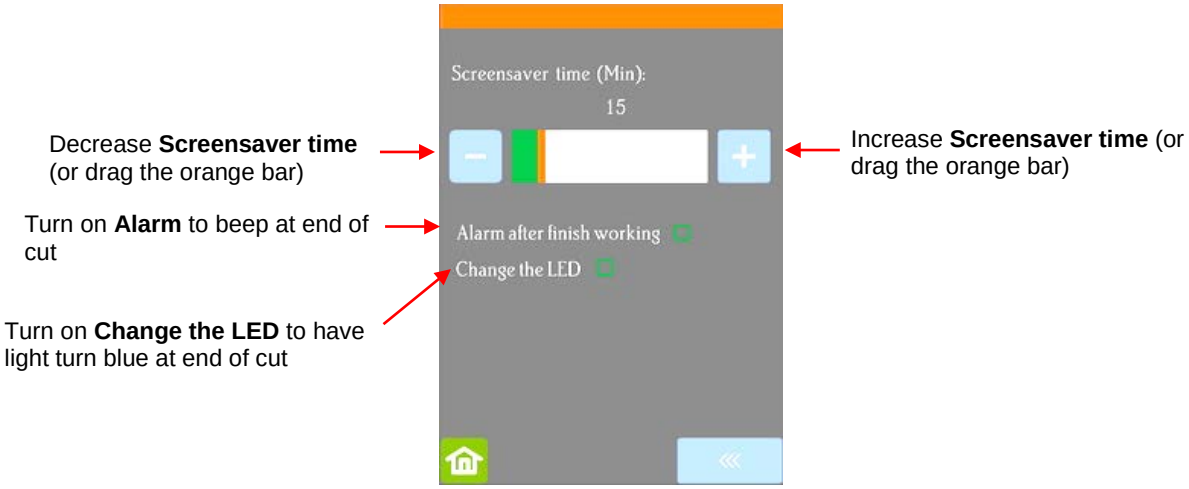
Select preferred language for control panel

- **LED set** allows you to change the color of the light inside the Skycut. The default is white but you can change it by dragging the scroll bars on the LED set screen. For example, if you wanted a blue light, you could drag red and green all the way to the left. For a purple light, only drag green all the way to the left, etc.

LED light: white | LED light: green | LED light: purple

  - ◊ Pressing **Off All** will set **R**, **G**, and **B** to 0 which turns off the light
  - ◊ Pressing **On All** will set **R**, **G**, and **B** back to 255 or white light mode.

- **Screen and alarm** has three settings:
  - ◊ **Screensaver time**: Set a black-out time, in minutes, for the control panel
  - ◊ **Alarm after finish working**: When a job is complete, have an alarm sound (five beeps)
  - ◊ **Change the LED:** When a job is complete, have the LED light change to blue

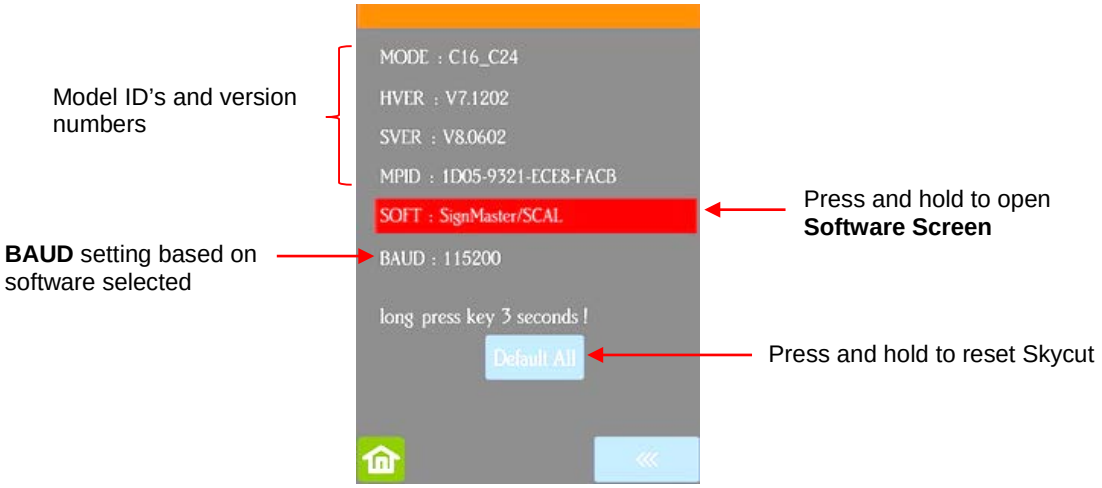


- **Unit** allows you to choose either inches or mm for settings such as **Show Point** and the **Spacing** setting under **Array.**

- **Language** allows you to choose from eight languages to be used throughout the control panel display screens:

1.14.3 Sys Information

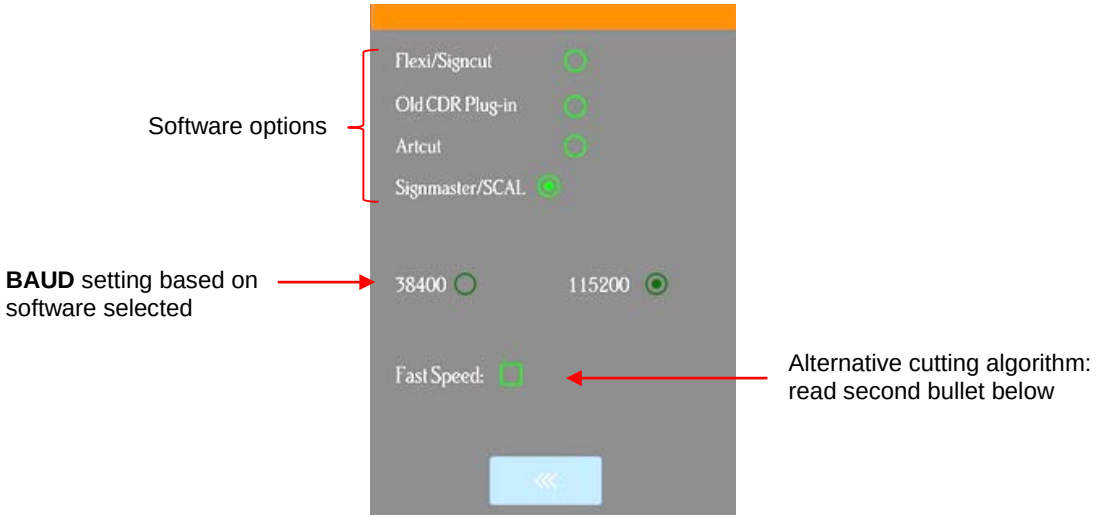
- The **Sys Information** screen displays information about the Skycut and only has three setting changes available:



◊ This initial screen displays current version numbers.

◊ If you ever need to reset your Skycut, press and hold **Default All** until it turns red. Then wait for the button to update to **Success!**

◊ If you ever need to change which software is in use with your Skycut, press and hold **SOFT** for two seconds and release. The following screen will open:



◊ To use a different software program to cut to the Skycut, press inside the appropriate circle. The **Baud Rate** indicator will automatically change if needed.

◊ **Fast Speed** changes the algorithm used for cutting long paths and can shorten the cut time for larger projects. However, accuracy is also compromised and this setting would certainly not be advisable for print and cut applications or when precise measurements are needed.

1.15 Maintenance

Skycut machines do not require any kind of lubrication or routine checks. However, here are a few things to keep in mind for successful operation of your cutter:

- Keep the pinch wheels clean. Depending on the adhesive being used on the cutting mat, it's possible for the pinch wheels to become sticky and pick up small pieces of cardstock or other material being cut. This can lead, in some cases, to the mat skewing or ruining materials during subsequent cuts. To clean the pinch wheels, use a lint-free cloth and an adhesive remover such as isopropyl alcohol or Un-Du to clean the pinch wheels thoroughly.
- Keep the grit shafts clean. Equally important as the pinch wheels, the grift shafts beneath the cutting mat should also be free of adhesive and tiny bits of material. They can be cleaned the same way as the pinch wheels. Note: Do not pour cleaner onto a grit shaft. Instead, dab some adhesive remover onto a lint-free cloth and then use the damp cloth to clean the shafts. You can also use tweezers to remove any material or adhesive that is stuck to a shaft.
- Keep the cutting mat clean and sticky. As mentioned in the *Section 1.08.2*, the cutting mat can be washed with soap and water to remove small invisible pieces of material which are reducing the tackiness of the cutting mat. After drying, you can add more repositionable adhesive, if needed.
- Check your blade holder, as needed. If suddenly you cannot get a clean cut, check the blade holder for any tiny slivers of material that may have been caught up by the blade and fed up inside the blade holder.
- If you cut vinyl or other backed materials regularly, you may need to replace the cutting strip at some point. You will be able to tell based on seeing deep cuts in the strip and an inconsistency in the cutting. Contact your dealer for information on obtaining a replacement.

1.16 Other Useful Tools and Supplies

- The following list has items you may or may not need while enjoying your Skycut. These are suggestions based on twelve years of collecting information from other cutter owners:
  - ◊ Brayer or Rolling Pin: (1) to apply lint from a towel onto an overly sticky mat (2) to press materials evenly onto a mat for cutting

- ◊ Post-It Notes: (1) for setting blade/tool tip height above a material (2) for draw and cut applications
- ◊ Old Fluffy Bath Towel: (1) to dry a washed mat (2) to apply an invisible layer of lint onto an overly-sticky mat
- ◊ Dishwashing Soap: (1) to remove visible and invisible fibers from the mat, thus renewing the adhesive (2) to clean the mat well before adding more adhesive
- ◊ Soft Brush: (1) to gently remove waste scraps during the washing of a mat. Refer to *Section 1.08.2.*
- ◊ Artist Palette Knife: (1) to gently remove cut shapes from a mat (2) to scrape off small waste pieces from a mat
- ◊ Blue Painter's Tape: (1) to tape around the edges of thicker materials that might slip during cutting
- ◊ Repositionable Adhesives: (1) to add more adhesive to a cutting mat (most any brand or type can be used, provided it is repositionable). Refer to *Section 1.08.2* for suggestions and instructions.
- ◊ Adhesive Removers: (1) to completely strip a cutting mat of adhesive (2) to disarm adhesive long enough to remove large scraps of material that will not peel off
- ◊ Lint-free Cloth: (1) for dusting off your cutter and cleaning pinch wheels and grit shafts
- ◊ Awl or Paper Piercer (or other sharp pointed tool): (1) to pick or lift out a test cut to verify results
- ◊ Stabilizers: A stabilizer is an adhesive material that is applied to the bottom of the material you are cutting so that cleaner cuts can be achieved. The stabilizer works in one or more of the following ways – (1) provides firmer contact with the cutting mat (2) provides a final layer that does not need to be cut if the stabilizer will be removed after cutting (3) prevent some slightly-elastic materials from being stretched by the blade. Recommended stabilizers include freezer paper, Thermo-web Heat n' Bond, and Steam-a-Seam 2.
- ◊ Double-sided Tape: (1) For securing metal tags or charms to the cutting mat for engraving
- ◊ Non-slip Shelf Liner: (1) To place under cardstock and other material when embossing

2. Cutting

2.00 Quick Reference for this Chapter

- How to *properly* mount the blade holder: *Section 2.01.3*
- How to control which shapes get cut: *Section 2.02.1*
- How to control where shapes get cut: *Section 2.02.2*
- Understanding **Blade Offset** and **Overcut**: *Section 2.03.3* and *Section 2.03.4*
- How to set a very precise origin: *Section 2.05.1*
- How to add weeding lines to a cut: *Section 2.06.3*
- How to get shapes to cut to precise dimensions: *Section 2.08*
- How to know which settings to adjust to solve cutting issues: *Section 2.09*
- Suggested settings for cutting materials: *Section 2.11*

The Most Common New Owner Mistakes:

- Too much blade is exposed on the blade holder (material is lifting up and/or tearing) - refer back to *Section 1.07.3*
- The blade tip (or pen nib) is too close to the material (inconsistent cutting) - refer to *Section 2.01.3*
- The pinch wheels are not properly positioned (material or mat is sliding around or bunching up during the cut) – refer back to *Section 1.09*
- Failing to do a test cut (recommended cut settings are not working) – refer to *Section 2.01.5* and *2.09*
- Not practicing enough with the test pen and paper (shapes are not cutting in the correct locations) – refer to *Section 2.02.2*

2.01 What You Need to Understand About Cutting

IMPORTANT: Please read all of *2.01*!!!

2.01.1 You Have to Make Mistakes

- The key to becoming successful at cutting is to do a lot of it! Those who shy away from using their Skycut will never get to the stage of mastering it. It's very normal for new owners to be intimidated by their cutter, so remember the following key things:
  - ◊ You won't break your new Skycut by cutting paper, vinyl, cardstock, and other easy-to-cut materials. The worst thing that might *possibly* happen is that you'll break a blade. That's it! And the likelihood of even that happening is low.
  - ◊ You need to start cutting so that you'll begin making mistakes. It's in making these mistakes that you start to learn. You realize that these mistakes didn't result in a broken cutter. Plus, you'll stop making the same mistakes as you remember more of the things you need to check before every cut.
  - ◊ As you make fewer mistakes you begin to build confidence and you begin to have more cutting success. From there, you begin to experiment more and produce more. Thus, your best course of action is to just start cutting… a lot! But first, read the rest of this chapter.

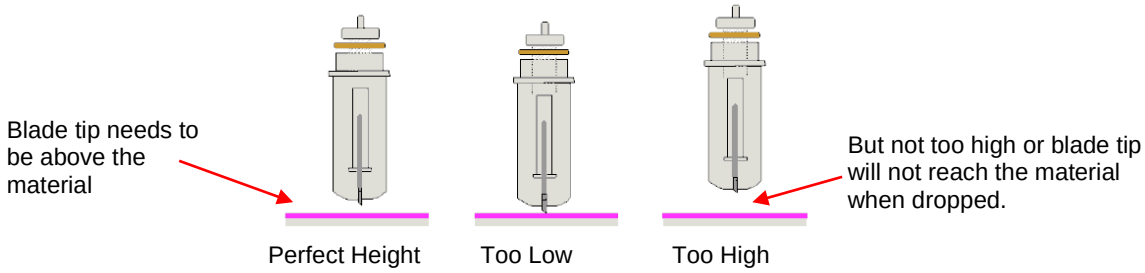
2.01.2 Record Your Successes

- As you have successful cuts, take note of the settings you just used, such as **Force**, **Speed,** blade type, number of passes, brand of material, etc. There is a blank form in *Section 2.10* that you can print and use to record your results. There are also suggested settings for common materials at the end of this chapter. Use these as starting guides but remember that your results may vary based on the many factors which can affect cutting.

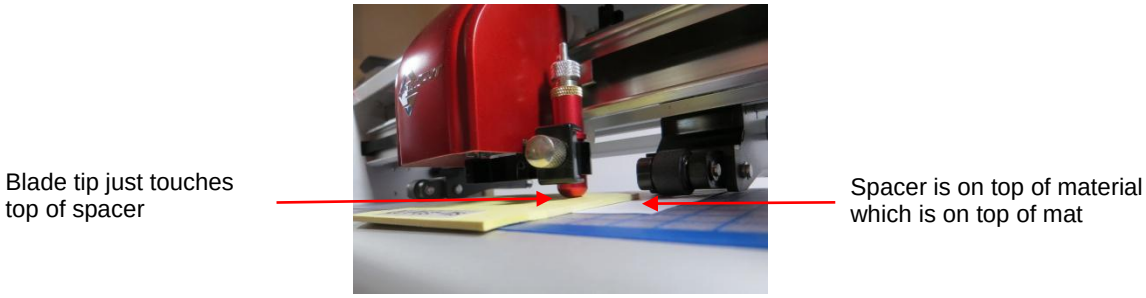
2.01.3 Set the Blade Height Above the Material

- The **Blade Height** is the distance from the tip of the blade to the top of the material you are about to cut. You have control over that height and will need to raise the blade holder up a little higher before locking it into place with the screw on the blade holder seat.

- Adjust the blade height so that:
  - ◊ The blade tip will not be dragging across the material you are cutting when moving to the point to begin the cut. This will ensure that the dropping of the blade will invoke more downward force… to a point!



  - ◊ In *Section 1.13.2*, you were instructed to raise the test pen a small distance above the material. However, this isn't a very accurate method and does <u>not</u> necessarily optimize the cutting force on the Skycut.
  - ◊ The recommended method for getting the same height set from one cut to the next is to use a spacer of some kind:
    - o Place the spacer <u>on top of the material</u> you are cutting, with the material loaded into the Skycut.
    - o Loosen the screw on the blade holder seat and insert the blade holder so that the tip of the blade is touching the top of the spacer:

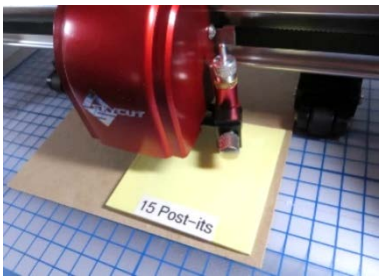


    - o Now tighten the front screws carefully making sure you are NOT pushing down on the blade holder seat. Once tight, remove the spacer. You should feel the blade <u>gently</u> scratching the top of the spacer.
    - o This distance will provide the blade some "punch room" to give extra force and more consistent cutting of your material.

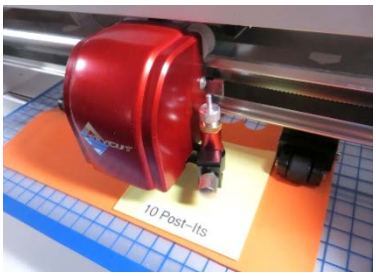
  - ◊ What to use for this spacer?
    - o Post-It notes which are the same thickness as 20 lb (75 gsm) copy paper work well.
    - o For materials such as cardstock, vinyl, and fabric, use 20 Post-It notes or 20 sheets. This is ~ 2 mm.

- When cutting thin chipboard with the red blade, use 20 Post-It notes. When cutting any material with the blue blade, only use 15 Post-It notes.
- For very thick materials, such as balsa or craft foam, use 10 Post-It notes. Note that you do not want the rim of the blade holder mounted above the black tool-holder piece. Otherwise, the blade will not reach the material or will be too high to apply the needed pressure for cutting.
- The table at the end of this chapter includes a column for blade height based on the number of Post-It note sheets used by the testers.

Use 20 for cardstock, vinyl, fabric



Use 15 with blue blade and for slightly thicker materials



Use 10 for thick materials like craft foam and balsa

2.01.4 Adjust the Speed, Force, and Number of Passes Based on the Material and Shapes

- Using correct cut settings is equally important as the type of blade, blade length, and blade height. Refer to *Section 2.03* for details. Suggested settings are located at the end of this chapter and settings for using the various Skycut accessory tools are located at the end of *Chapter 4.*

2.01.5 Perform Test Cuts!

- You have two options:
  (1) Perform the built-in test cut on the Skycut itself using the **Test** option on the **Main Screen** or from within the **Speed/Force Screen.**
  (2) Select any basic shape and size it to be around 0.3” – 0.5” (~ 8 mm – 13 mm):
    - I personally like using a design with an internal shape, such as a ring. You can then easily see if the blade is cutting into the mat (or into the backing sheet on rolled materials) when you lift out the cut shape and observe where the internal shape cut. To locate a ring, click on the **General Power Shapes** icon on the left side **Tool Panel** and go to **Basic Shapes>Basic**.
    - When cutting intricate shapes, use a small letter or a shape will lots of sharp turns for testing. For a rhinestone project, use a small portion of your rhinestone pattern as a test.
- There is a flow chart in *Section 2.09* which will help you determine which settings to change when test cutting a material.

2.01.6 Keep the Cutting Mat Clean and Sticky

- Press your materials evenly to the mat. Consider using a brayer both before AND after cutting. Repressing the material after cutting can greatly aid in weeding the cut shapes from the waste.
- When necessary, tape thicker materials to the mat to keep them from slipping during the cut.
- If you cut a range of materials, you might need more than one mat so that you can use stickier mats for certain materials.
- Refer back to *Section 1.08* for information on cleaning the cutting mat and adding more adhesive,

2.01.7 Don't Get Frustrated, Get Help!

- Besides having your own Skycut dealer as your first line of contact, there are other resources where you can ask questions and get answers. Utilize the resources listed in *Section 1.01.*

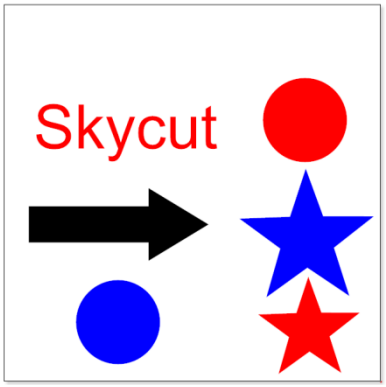
2.02 Choices Before Cutting

- There are a number of factors under your control for cutting:
  - ◊ What shapes to send to the cutter: *Section 2.02.1*
  - ◊ Where the shapes will be cut from the material: *Section 2.02.2*
  - ◊ What tool(s) will be used for cutting (or drawing, scoring, engraving, etc.): *Section 2.02.3*
  - ◊ What settings will be used: *Section 2.02.4*

2.02.1 Controlling Which Shapes Will Cut

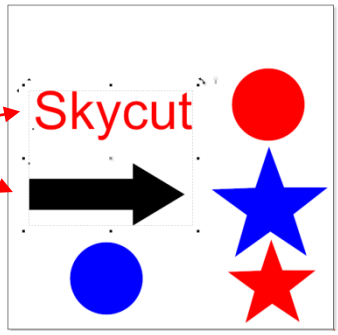
Video

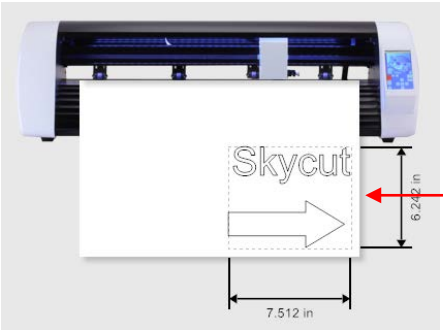
- There are three ways to control whether a shape will be cut or ignored. In explaining these options, the following shapes have been added to the **Drawing Area.** Note that this file (called *Controlling What Cuts*) is shared in a zip file available here.



  - ◊ Option 1: If no shapes are pre-selected, then all shapes will be sent to cut. However, if you pre-select, for example, only the "Skycut" and the arrow, then only those shapes will appear in the **Send to be Cut Preview**:

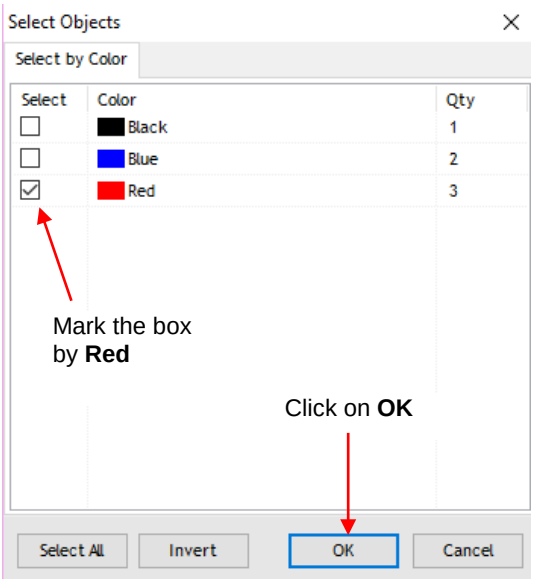
These two shapes are selected

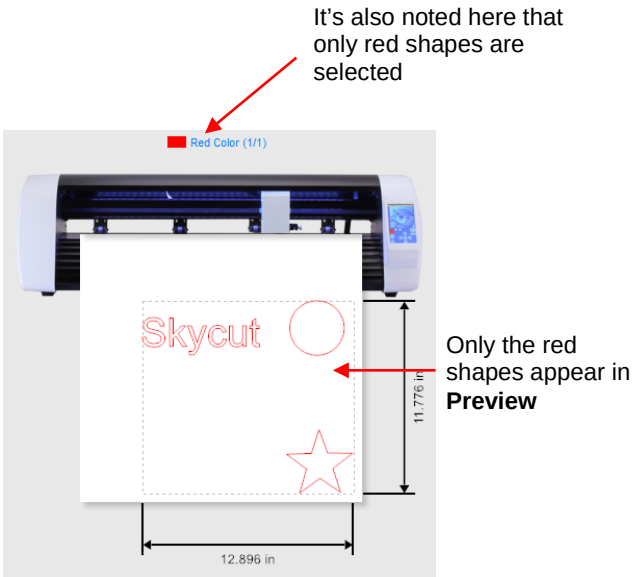




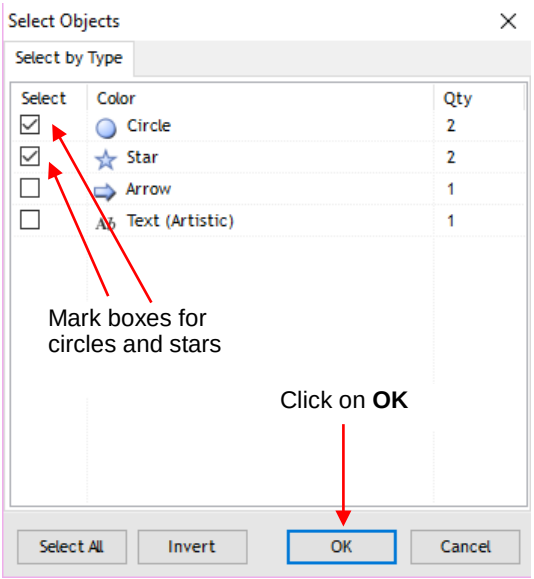
Only those two shapes appear in **Preview**

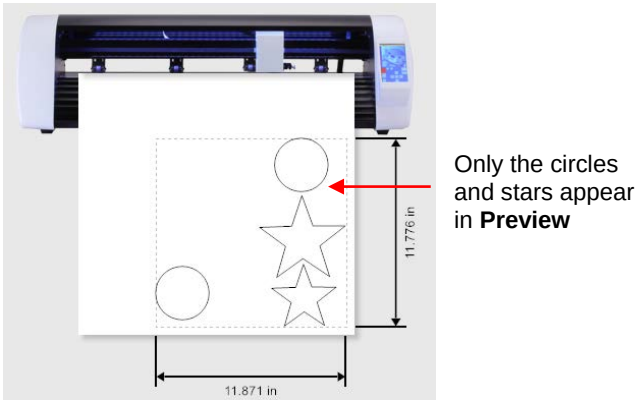
    - o A more common practice is to select all objects of one color and only have those shapes sent to cut. To do this, go to **Edit>Select by>Color** (or use the shortcut key "**S**") and the following window will open where you can, for example, mark **Red** to be selected. Then the **Preview** will only have "Skycut", the red circle and the red star present:



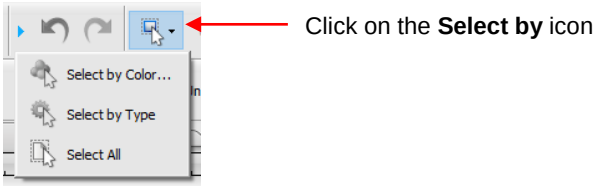


- Along the same lines, you can select all objects of type and only have those shapes sent to cut. To do this, go to **Edit>Select by>Object Type** (or use the shortcut key "**O**") and the following window will open where you can, for example, mark **Circle** and **Star**. Then the **Preview** will only have circles and the stars present:



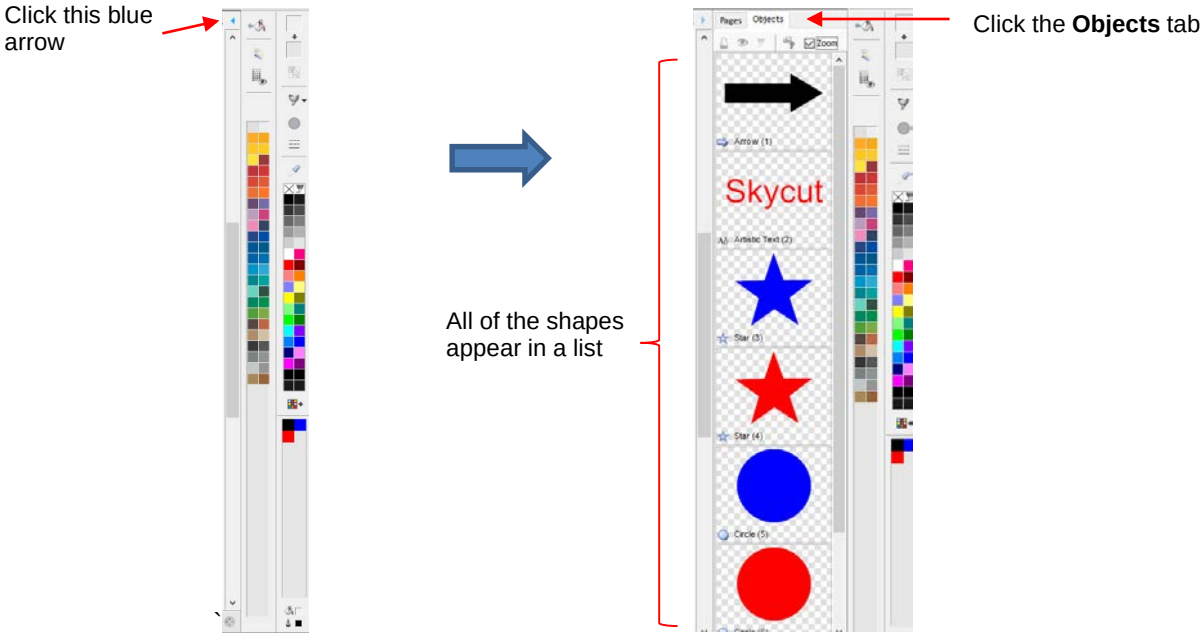


- Note that the icon at the top of the screen: will open a menu where you can then access the same **Select by Color** or **Select by Type** options:

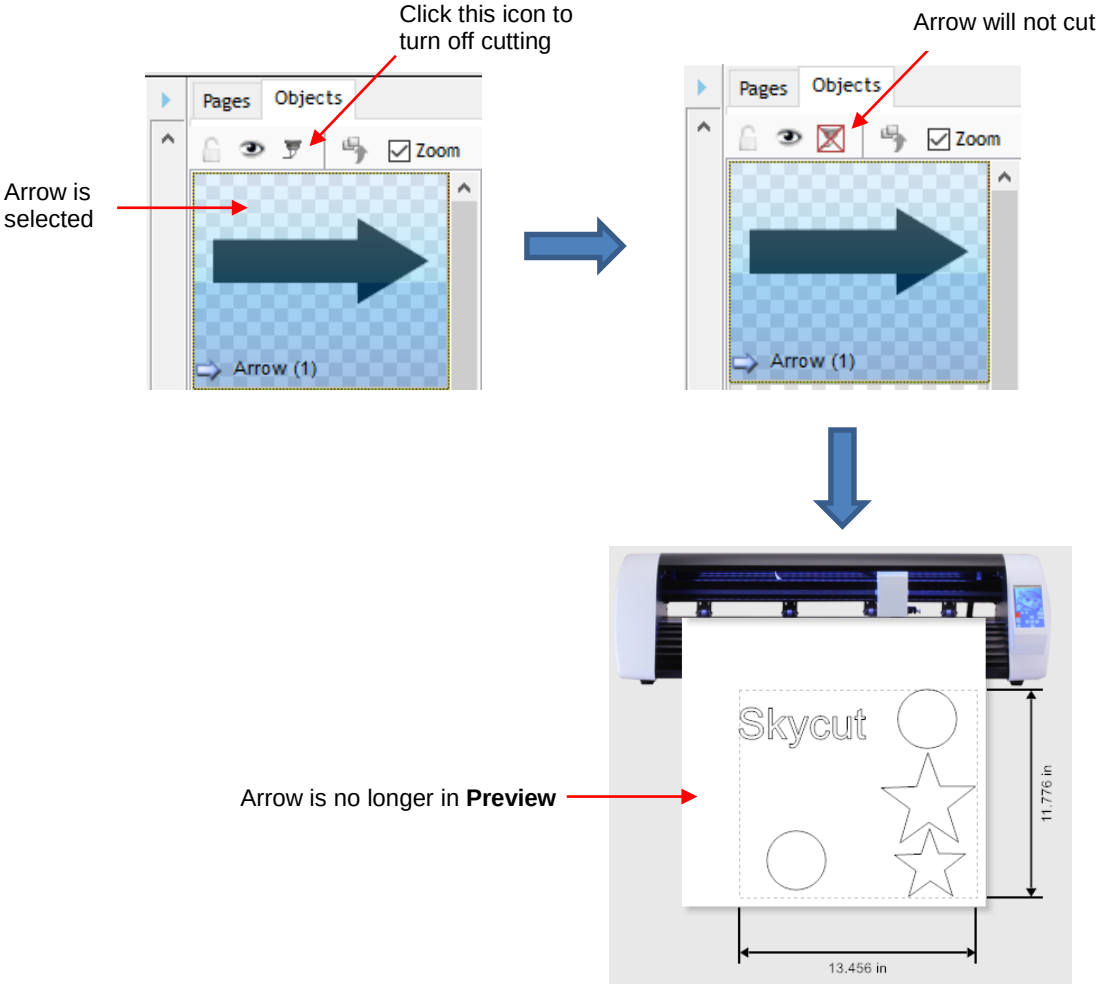


◊ <u>Option 2:</u> Mark shapes not to be cut on the **Objects** tab of the **Page Thumbnail Viewer**:

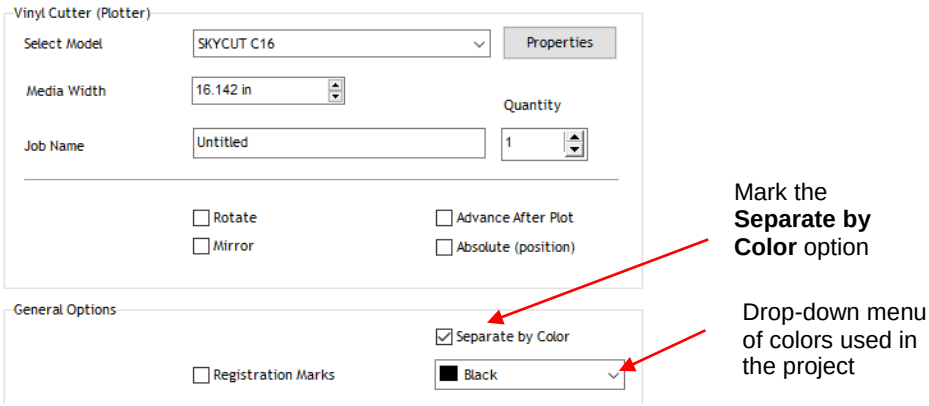
- To access the **Objects** tab, click on the small icon to the left of the **Palette**:



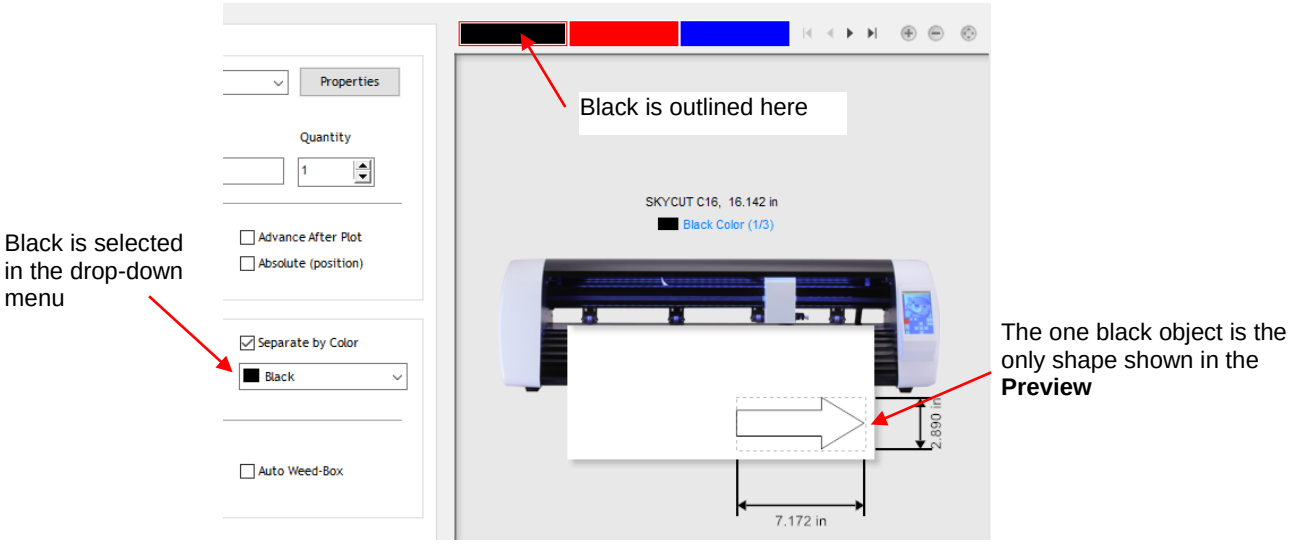
- Select a shape, such as the arrow. On the **Object** tab, it can then be set not to cut:



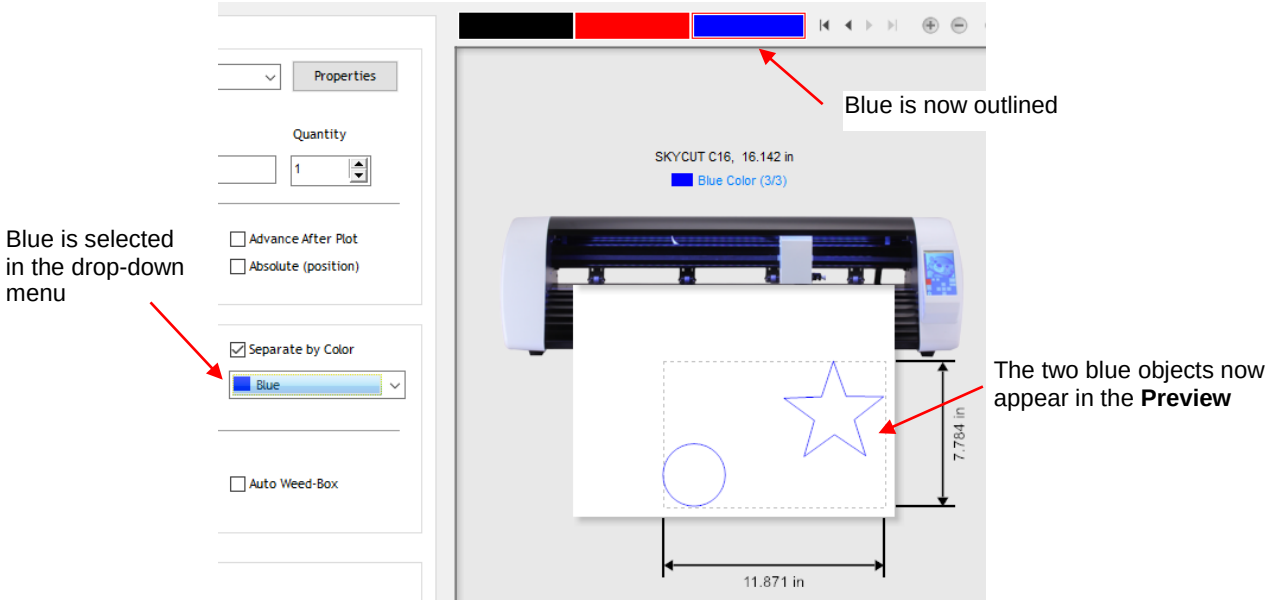
◊ <u>Option 3:</u> Cutting can be controlled by color from within the **Send to be Cut** window. Click on the **Separate by Color** option and a drop-down menu will appear:



o In the **Preview** window, shapes with the current color from the menu appear. Also, the color is selected at the top:



o Switching to blue changes the window accordingly:



o Note that you can also change colors by clicking on those colored rectangles above the preview.

2.02.2 Controlling Where Shapes Will Cut

- This was briefly covered in *Section 1.13* where the **Rotate** and the **Absolute (position**) options were introduced.

  ◊ **Default:** Moves the shapes to align with the origin you have set based on the blade tip.

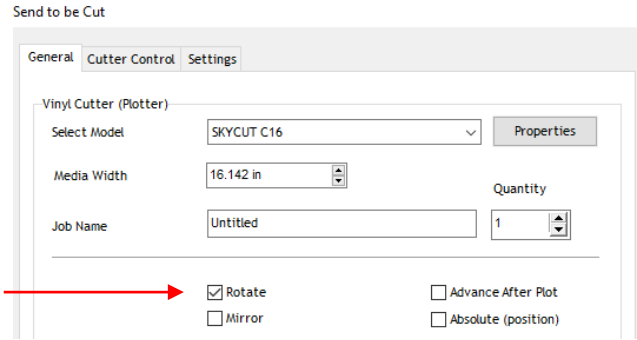
  ◊ **Absolute (position):** Cuts the shapes where they are positioned on the **Drawing Area.**

  ◊ **Print and Cut (**aka **Contour Cutting):** Cuts the shapes relative to where registration marks are scanned:

    - This is the mode used when you want to print images on your printer and then have the Skycut cut them out.
    - Registration marks are printed, along with your images. The printout is placed into the Skycut and a built-in camera automatically locates and aligns with each printed mark. The Skycut will then cut out your shapes based on triangulation. This is far more precise than **Absolute (position)** because it takes into account not only any misalignment of your printout in the cutter, but also any errors in the printing. Most printers do not print images precisely in the location on the paper as they are located on the screen.
    - Note that raster images (.JPG, .BMP, .PNG etc.) will need to be traced first so that cut lines are created. Section 3.04 will present an example.
    - Refer to *Chapter 3* for complete instructions on calibrating the camera and examples of PNC applications.

- You can also rotate a design for cutting, relative to how it appears on the **Drawing Area**:

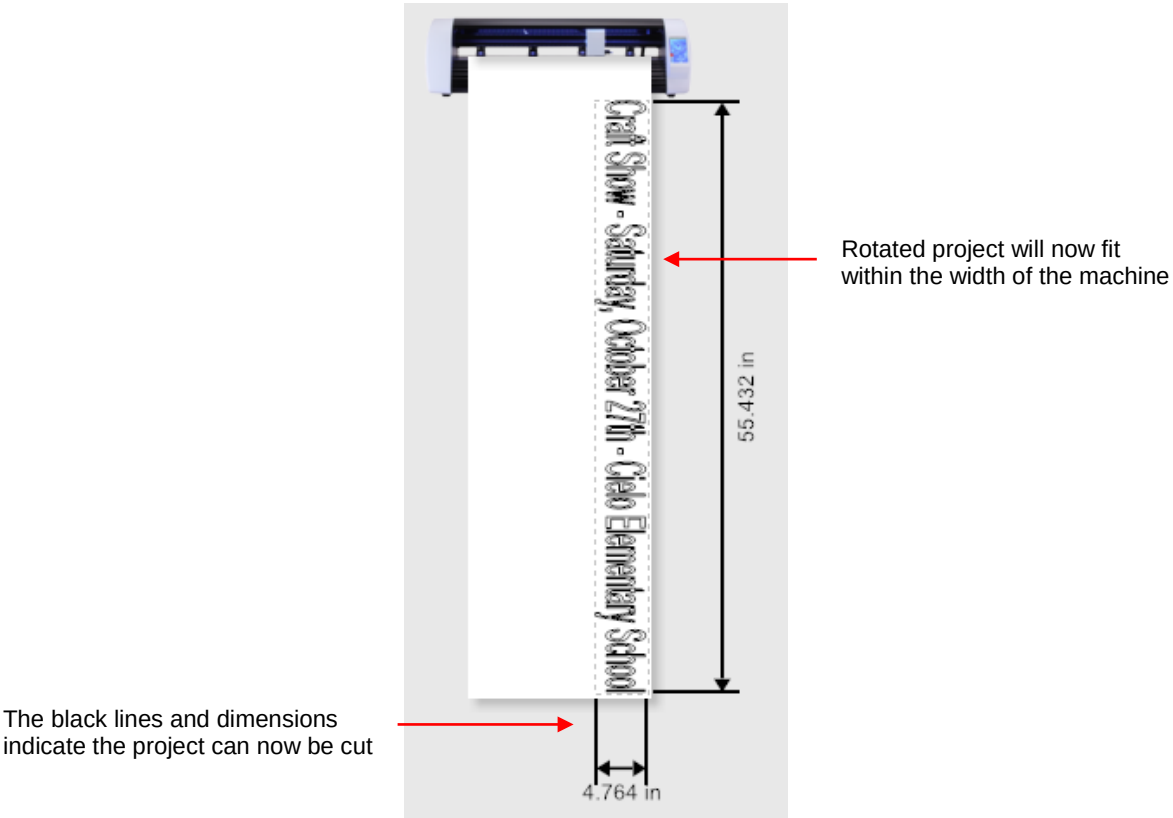
  ◊ To rotate the project, go to **Send to be Cut** and mark the **Rotate** option:



  ◊ For example, in a project with long text, it is more convenient to view and edit the text in a left-to-right orientation:

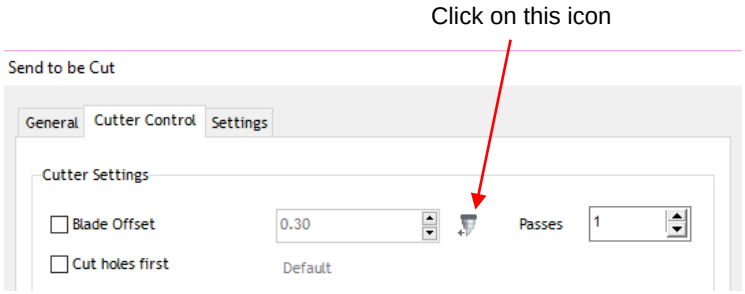
  ◊ However, when you then send this project to the **Preview** window, you will observe that it is too wide to cut from left to right on your Skycut:

◊ Marking the option for **Rotate** will then rotate the design and allow the project to cut:

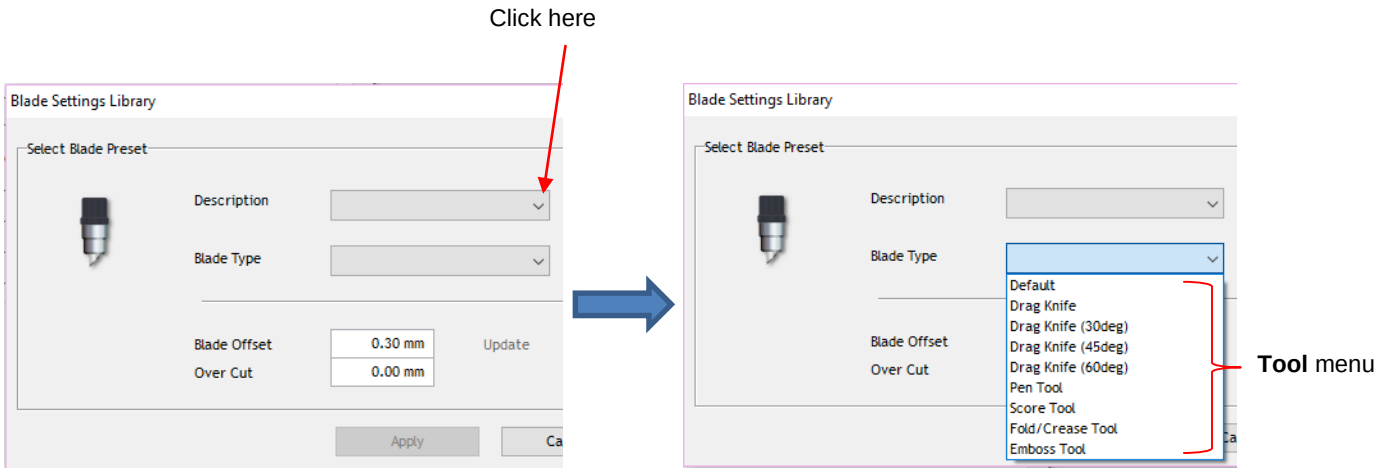


2.02.3 Selecting the Tool to be Used for Cutting

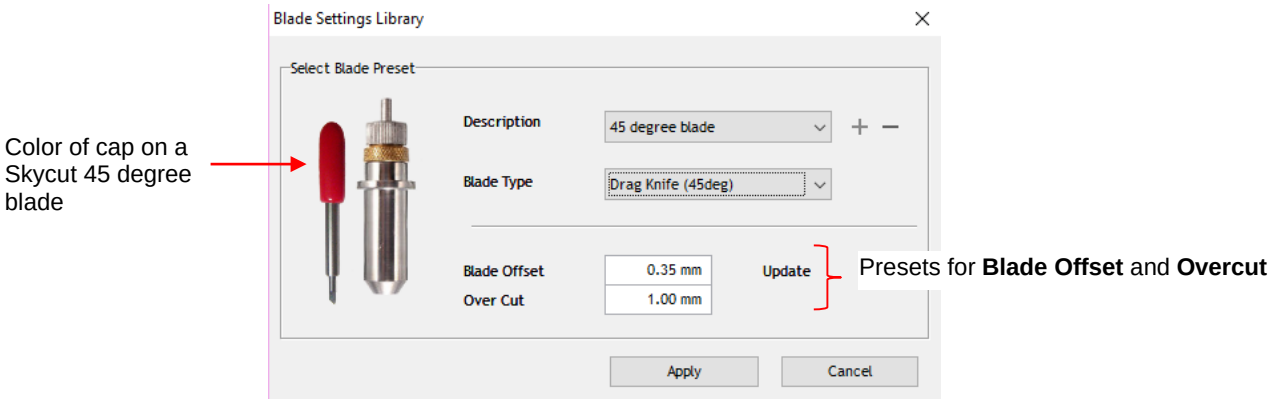
- To select the tool you'll be using, open the **Send to be Cut** window and click on the **Open Blade Settings Library** icon:



- The **Blade Settings Library** window will open. Click on the down arrow to the right of **Description** where you can access a drop-down menu for the **Blade Type**:



- Selecting one of the options, such as **45 degree blade** will display an image of the blade, the **Blade Offset** and **Overcut** assigned as a **Preset**:



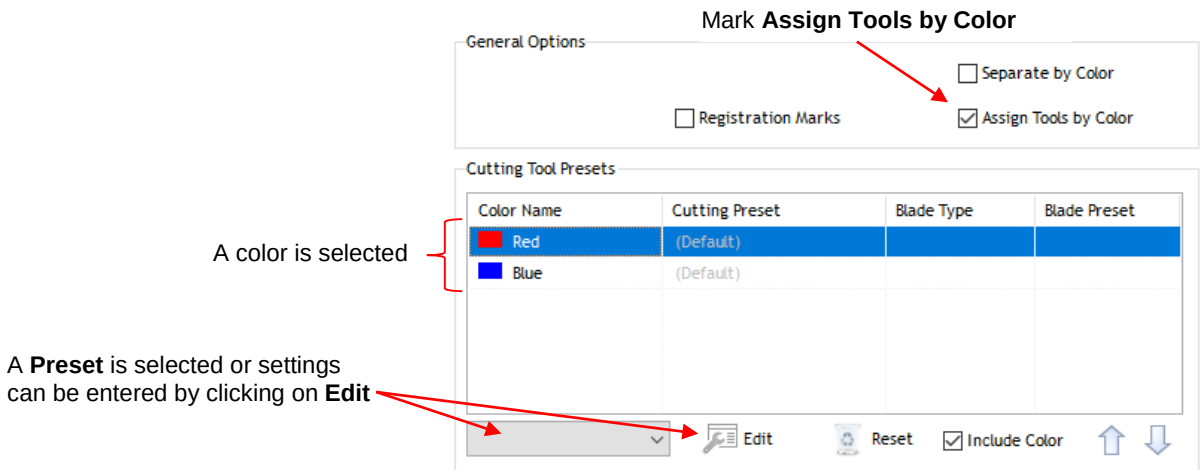
- *Sections 2.03.3* and *2.03.4* will explain **Blade Offset** and **Overcut** settings. *Section 2.04* will explain how to modify these settings, if needed and save as a **Preset.**

2.02.4 Determining the Cut Settings

- There are three locations where **Cut Settings** can be entered:
  - ◊ **Send to be Cut**>**Cutter Control** tab (which was covered in *Section 1.13)*
  - ◊ **Send to be Cut>General** tab
  - ◊ **Vinyl Spooler>Cut Options** tab

- **Send to be Cut>General**

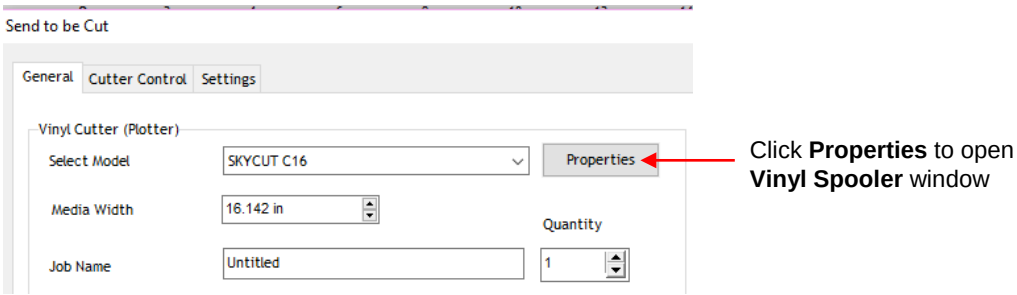
  ◊ Use this location when you need to assign different settings to different layers of your project. For example, let's say you wanted to use the embossing tool to score lines in a popup card, followed by cutting out the card itself. Or, another example would be using the test pen to draw a design and then cutting a contour around it. Under **General Options, Assign Tools by Color** is marked and then, below that in the **Cutting Tool Presets** section, individual colors can be highlighted and cut settings assigned by selecting a **Preset** or by clicking on **Edit**:



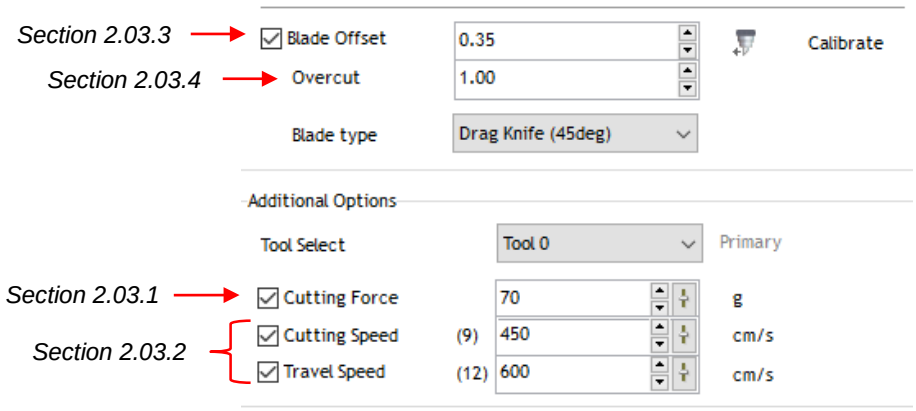
◊ More details for using this feature are covered in *Sections 4.01.1* and *4.02.2.*

- **<u>Vinyl Spooler>Cut Options</u>**

◊ Use this option as an alternative to entering settings via the **Cutter Control** tab. It can be accessed from the **Properties** button in the **Send to be Cut** window. You will also use it in print and cut (contour cut) applications to check and adjust cut settings as well.



◊ In the **Vinyl Spooler** window, click on the **Cut Options** tab and the cut settings are located in the lower section of that window:



- These settings should be understood thoroughly, as you will be adjusting them often as you change materials or as your blade dulls over time. Note the prior screen shot shows the section number to go to for more information.

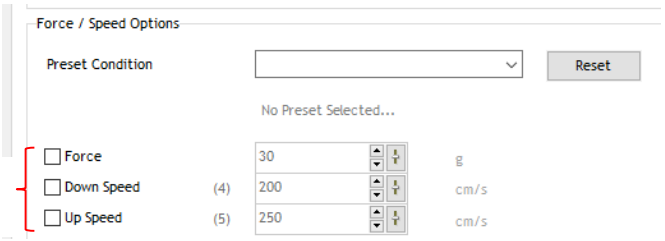
- The table at the end of this chapter contains recommended settings for your initial test cut. If you cannot find your material in the table, use the flow chart in *Section 2.09* while test cutting your material to determine optimum settings.

2.03 Cut Settings

- Before presenting the various settings, note that the **Force** and **Speed** settings can be set on the control panel itself. In order to cut from SignMaster and use the settings on the Skycut, uncheck these boxes in either of the two places where the settings can be made:

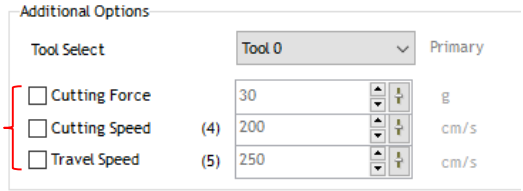
  ◊ **Send to be Cut**>**Cutter Control** window:

Uncheck these boxes if **Speed** and **Force** settings on Skycut are to be used



  ◊ **Vinyl Spooler>Cut Options** window:

Uncheck these boxes if **Speed** and **Force** settings on Skycut are to be used



2.03.1 Cutting Force

- **Cutting Force** (also called **Pressure**) ranges from 1 to 160 where the maximum of 160 represents ~850g of cutting force. If it is set too low, the material cannot be cut. If it is set too high, you will get bad cutting (even incomplete cutting at times) and tearing of the material. Use suggested settings for the material you are cutting and perform small test cuts before cutting your actual project. Make adjustments in order to get a clean test cut before proceeding with your larger cut.
- Dull blades will need more force than new blades, thus anticipate increasing the force over the life of the blade.
- When cutting materials that can use either blade, the 45º blade (red cap) will need a little more force than the 60º blade (blue cap), because of the extra contact with the material being cut and because the 60º blade is cut much thinner, making it a “sliver blade.”
- As noted earlier, this setting can be made on the Skycut control panel instead. Press the **Force/Speed** icon and then set the **FORCE** to the desired level.

2.03.2 Cutting Speed and Travel Speed

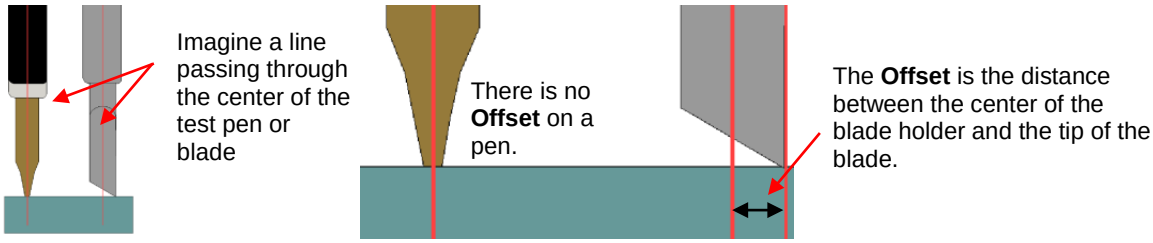
- **Cutting Speed** (also called **Down Speed**) is how fast the blade travels while it is in the “down” or cutting position. **Travel Speed** (also called **Up Speed**) is how fast the blade travels while in the “up” position, such as when it is moving from the origin to the location of the first shape to cut or when moving from one cut shape to begin cutting another.
- The Skycut has 13 speed settings ranging from “snail’s pace slow” to “insanely fast.”

- ◊ The settings from 1 through 4 are the slow speeds and should be used when cutting dense difficult materials, such as chipboard, craft plastic, styrene, and balsa.
- ◊ The settings from 5 through 8 are medium speeds and should be used for easy-to-cut materials, such as cardstock, vinyl, iron-on transfer, and rhinestone template material.
- ◊ The settings from 9 through 12 are the fast speeds and are useful for engraving, embossing, and drawing. You may, however, find that some materials will cut well at the faster speeds.

- **Cutting Speed** is usually more important to control since the blade may need more contact time with a particular material. **Travel Speed** can usually be left quite high although, for print and cut accuracy, it may need to be lowered if there are many shapes to be cut from a printout.
- ***IMPORTANT:*** At the current time, the **Travel Speed** does not function from SignMaster. Thus, if you need a separate **Cut Speed** and **Up Speed**, please use the control panel for this setting.
- On the Skycut control panel, the default setting is to have the **Up Speed** and **Cut Speed** the same and referred to as **SPEED.** This can be adjusted by pressing the **Force/Speed** icon and then setting the **SPEED** to the desired level. In order to enter a separate **Up Speed** on the control panel, refer to *Section 1.14.1.*

2.03.3 Blade Offset

- **Blade Offset** is the horizontal distance from the center of the blade shaft to the tip of the blade. A pen or engraving tool has an offset of 0 because the tip is centered with the center of the pen/engraving tool shaft. But a blade is different:



- If you set the **Blade Offset** to 0 when cutting with a blade, corners will be rounded. On the other hand, if it is set too high, bubbles will be cut on sharp corners:

Offset is too low: corners are rounded

Offset is too high: bubbles appear at the corners

- Below are the approximate **Blade Offset** settings to use for each of the three types of Skycut blades:
  - ◊ Red capped blade: 0.3 mm
  - ◊ Blue capped blade: 0.4 mm
  - ◊ Yellow capped blade: 0.75 mm

- Any time you order new blades, check for the recommended **Blade Offset** on the packaging. However, it's not unusual for blades to be slightly off-spec.

- SignMaster has two built-in **Blade Offset** calibration routines which can be used to determine the best **Blade Offset** setting for the current blade in use. Here are the steps to access either one:

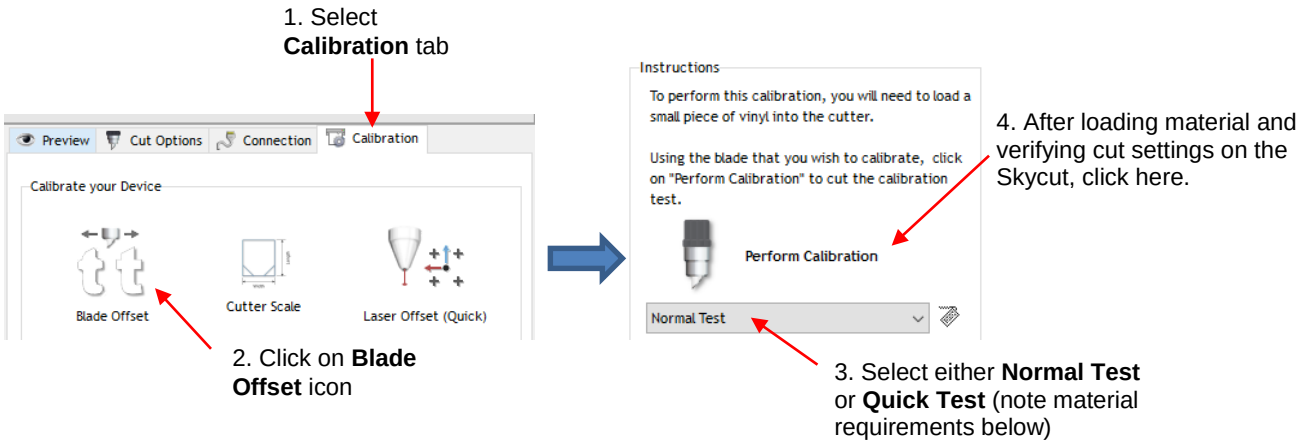
◊ Select the material you want to use for testing, such as vinyl, paper, or cardstock. Note how much material will be needed for the test you select and add a few inches to these dimensions:

- **Normal Test**: Width: ~9” (354 mm) Height: ~3.5” (89 mm)
- **Quick Test**: Width: ~4.5” (114 mm) Height: ~1” (25 mm)

◊ Install the blade you wish to calibrate into the blade holder and mount the blade holder in the Skycut. Enter appropriate settings in SignMaster or on the Skycut control panel. Test cut a small shape to make sure the settings are correct.

◊ Go to the **Vinyl Spooler** window and select the **Calibrations** tab.

◊ Click on the **Blade Offset** icon and a new window opens:



◊ In both tests, the instructions on the screen will guide you on how to enter the best result and then will display the recommended **Blade Offset** to use. This new **Blade Offset** value will then be updated in the cut settings. Instructions on how to add this setting as a **Preset** are covered in *Section 2.04.*

2.03.4 Overcut

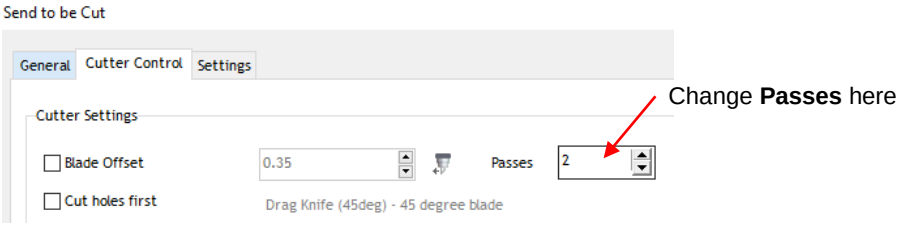
- **Overcut** is related to **Blade Offset** in that it isn’t needed when using a pen, embosser, engraver, and so forth, because the tips of those tools are aligned with the center of the tools themselves. However, leaving **Overcut** at 0 when using the blade holder will result in large shapes not quite closing:

Overcut is too low: paths do not close

- In some cutting programs, **Overcut** is not a separate setting but rather automatically calculated and applied based on the **Blade Offset** entered. However, in SignMaster, you can enter an actual **Overcut** setting and should do so any time a blade is used.
- In general, the blade type doesn’t greatly affect the **Overcut** required. Try using 1.00 mm. In the event you cut a large closed shape, like an 8” circle, you may find that you’ll need to increase **Overcut** to 2.00 mm.

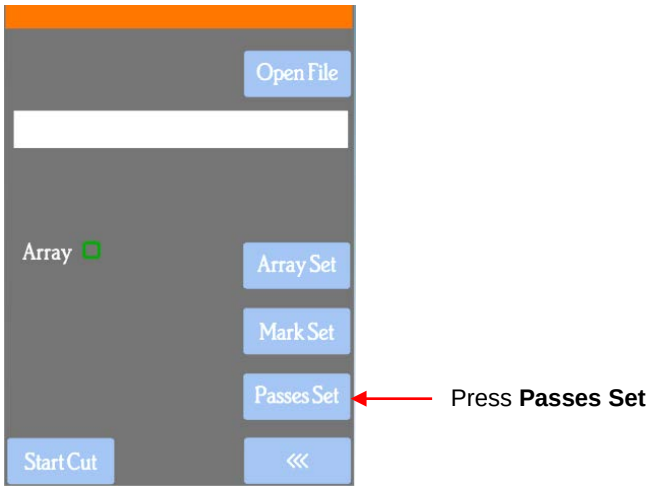
2.03.5 Passes

- The **Passes** setting causes each individual path to be cut the set number of passes before the blade moves to the next path to cut. This is better than just repeating the entire cut as each repeated pass is cut with the blade held down throughout the repeated passes, resulting in cleaner cutting.
- The **Passes** setting is not present in the **Vinyl Spooler>Cut Options** window. Thus, you’ll need to make changes in the **Send to be Cut>Cutter Control** window:

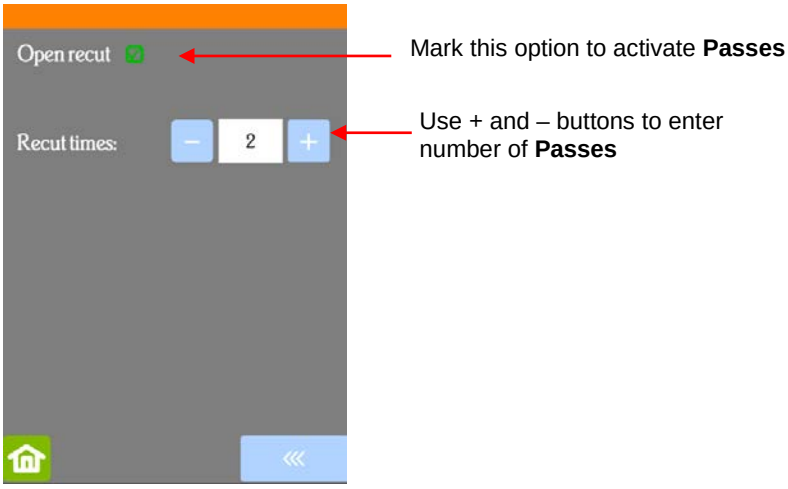


- In general, when increasing **Passes**, the **Cutting Force** setting can be decreased. For example, you may find a cardstock that requires a **Cutting Force** of 55 to cut in a single pass will only need a **Cutting Force** of 45 if cutting in two passes.
- **Passes** is recommended in the following situations:
  - ◊ Cutting thicker denser materials, such as chipboard, where multiple passes allow the blade to progressively "carve" through the material
  - ◊ Cutting certain fibrous materials, such as fabric, where a second pass will ensure that all of the fibers have been cleanly cut
  - ◊ Cutting intricate or detailed shapes (such as script titles) from certain materials, such as heavy or textured cardstock, where a single pass may leave certain spots not cleanly cut
  - ◊ Cutting rhinestone template material where a second pass results in much cleaner weeding of the cut circles
- ***IMPORTANT:*** In the current version of SignMaster Pro, **Passes** does not work if **Assign Tools by Color** is activated. Therefore, if you have a project requiring separate settings for layers, such as a score and cut project, the two processes should be performed as separate jobs.
- Alternatively, passes can be set on the control panel by pressing the **USB** button on the main screen and you will see a **Passes Set** button in the window which opens:

NOTE: If your screen does not have **Passes Set** displayed, please go to *Appendix B* for activation instructions.



- Press the **Passes Set** button to open the following screen where you can turn on the **Passes** function and enter the desired number of repeats:



- ***IMPORTANT***: Currently the **Activate Passes** option will default to unmarked (off) whenever the Skycut is first powered on. Thus, make a mental note (or, even better, put a Post-It note on your cutter) to turn this option on when needed. Also, note that when this setting is activated, it will take precedence over the **Passes** setting in SignMaster.

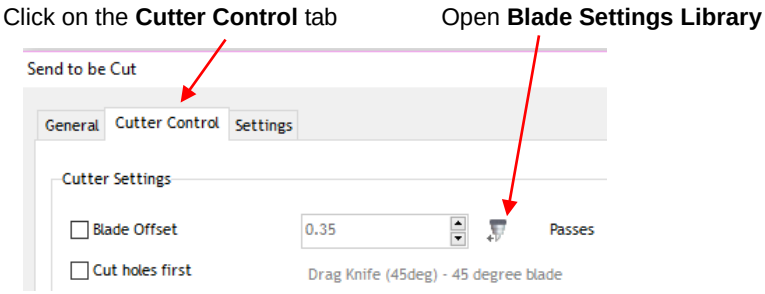
2.04 Presets

- Presets allow you to save your settings for a particular blade type or material.

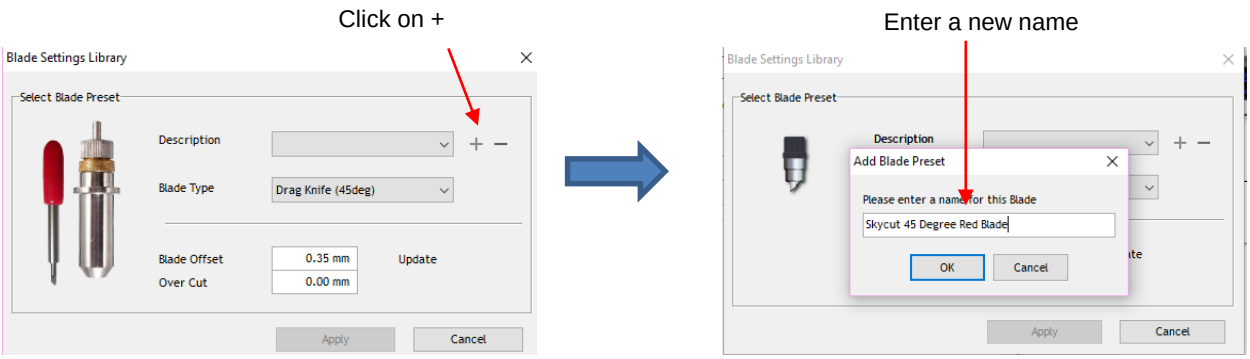
2.04.1 Saving a Preset for a Blade Type

- Let's say you conducted the calibration for **Blade Offset** in *Section 2.03.3* and determined it to be 0.40 for your red capped blade. To save this setting as a preset, use the following steps:

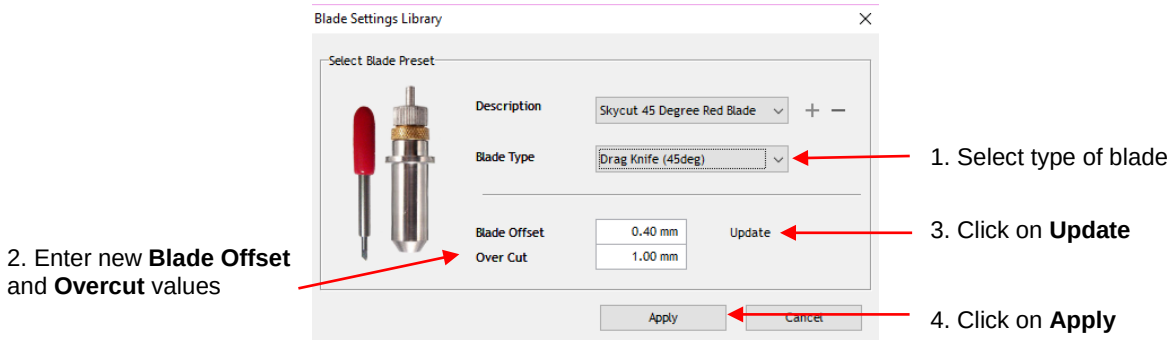
- Go to the **Send to be Cut>Cutter Control** window and click on the icon to the right of **Blade Offset** to open the **Blade Settings Library:**



- In the **Blade Settings Library**, click on the **+** icon to the right of **Description** and a window will open where you can enter the name for your new preset**:**



- Click on OK and then select which blade type you are using for this new preset Enter the new **Blade Offset** and **Overcut** values. Then click **Update**:



- Click on **Apply** to close the **Blade Settings Library**. The new preset will now be available for selection in the **Description** menu.

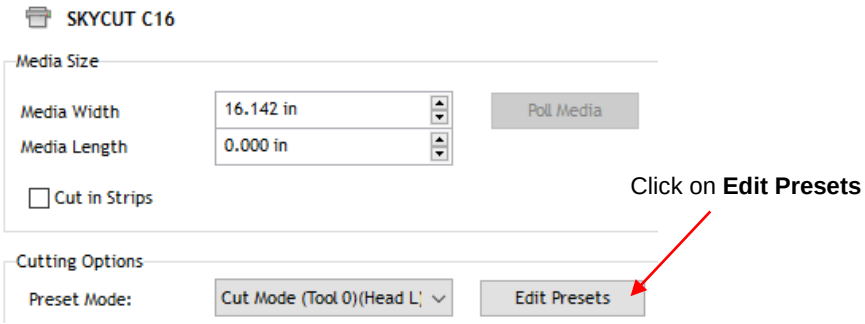
- If you need to delete a preset, select it from the **Description** menu and click on the "**-**" icon to the right.

2.04.2 Saving a Preset for a Material

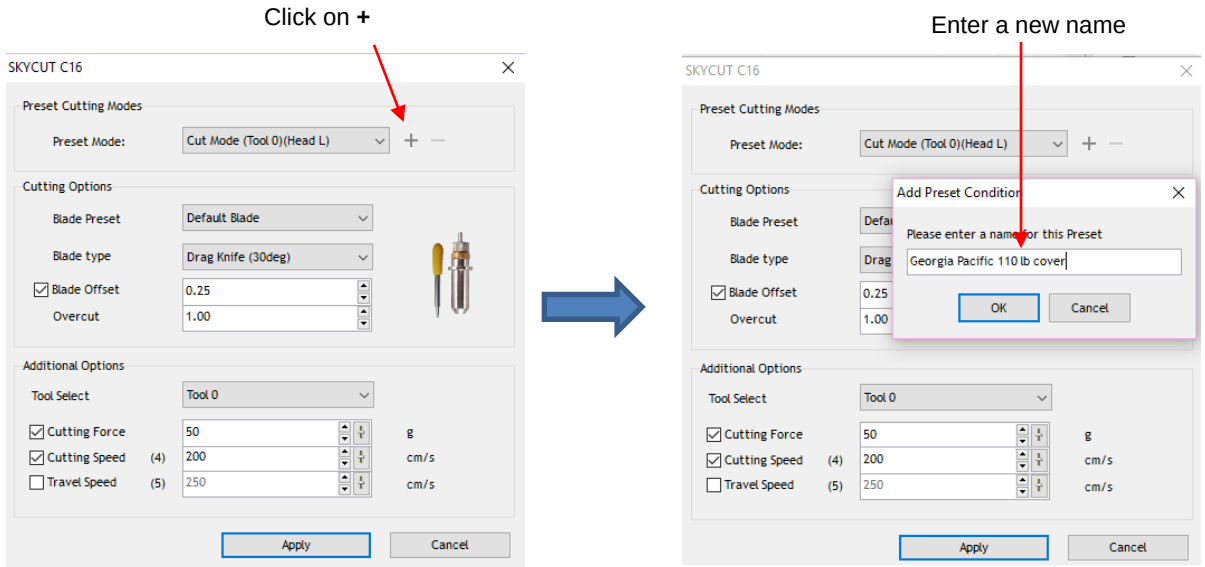
- ***IMPORTANT:*** As was noted in *Section 2.02.4*, **Up Speed** (aka **Travel Speed**) is not functional in SignMaster. Thus, if you need a separate **Cut Speed** and **Up Speed** for a particular material's preset, it is recommended that the preset be made on the control panel.

- Similar to the blade holder preset, you can enter settings for a particular material. For example, let's say you cut Georgia Pacific 110 lb cardstock at a **Force** of 55 and a **Speed** of 8. Use the following steps to create a new preset in SignMaster:

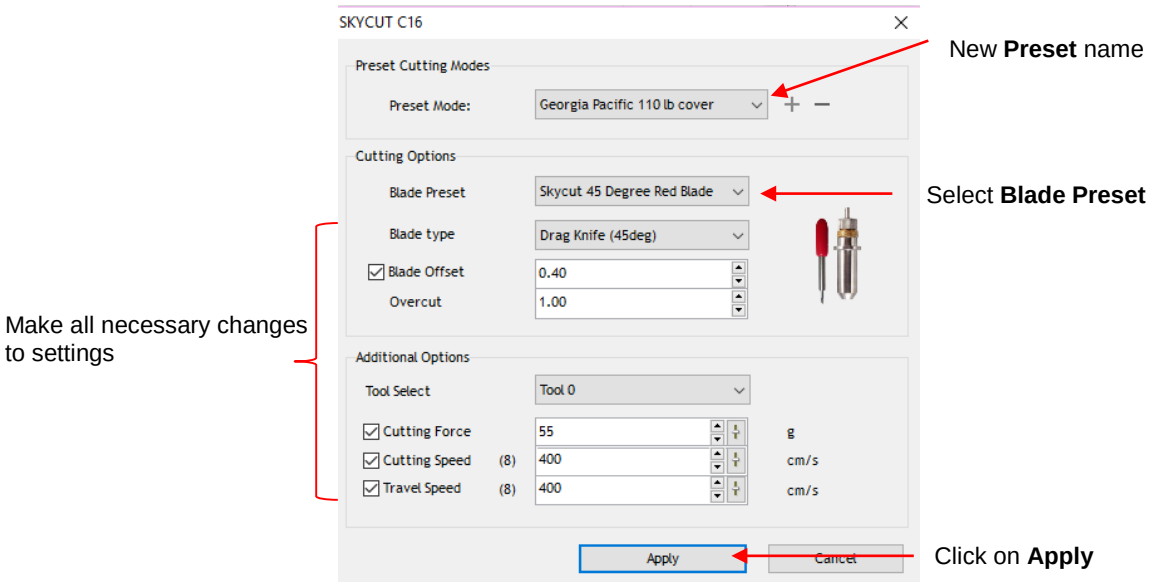
- Go to the **Vinyl Spooler>Cut Options** window and click on **Edit Presets**:



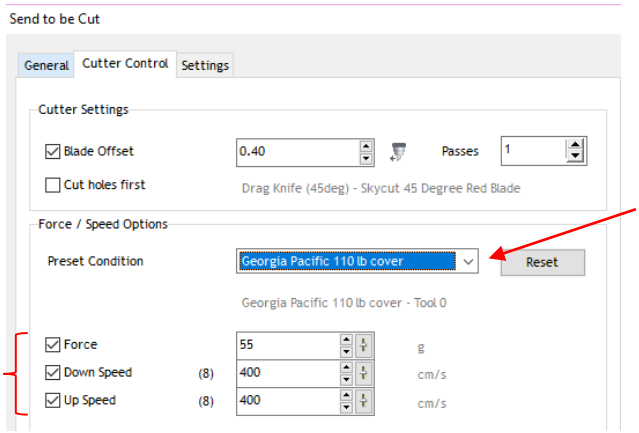
- The **SKYCUT C16** window opens. Click on the **+** icon to the right of the current **Preset Mode** name and a window will open where you can enter the name for your new preset**:**



- Click on **OK** and then complete the rest of the window with the settings for that material:



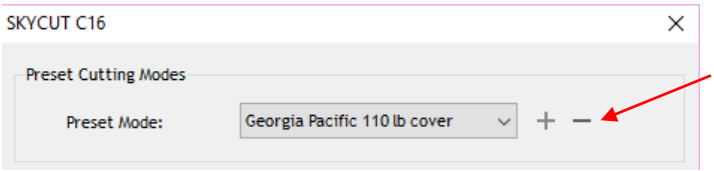
- Click on **Apply** to update the **Preset Mode** menu with this new listing. Click on **Done** to close the **Vinyl Spooler** window. The new preset will also now be available in the **Send to be Cut>Cutter Control** window, in the **Preset Condition** menu:



Select new preset here

Settings are updated based on **Preset** selected

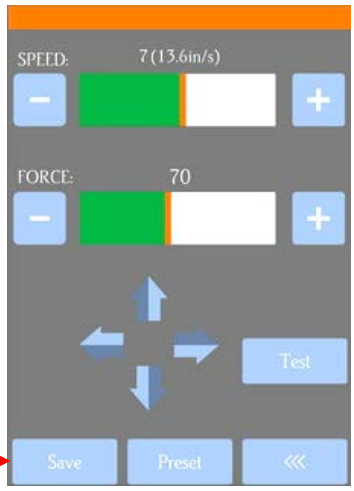
- If you need to delete a preset, return to **Vinyl Spooler>Cut Options>Edit Presets** window, select the preset from the **Preset Mode** window click on the "**-**" icon to the right:



Click on "-" icon to delete preset

- Presets can also be saved on the Skycut control panel. To create a preset:

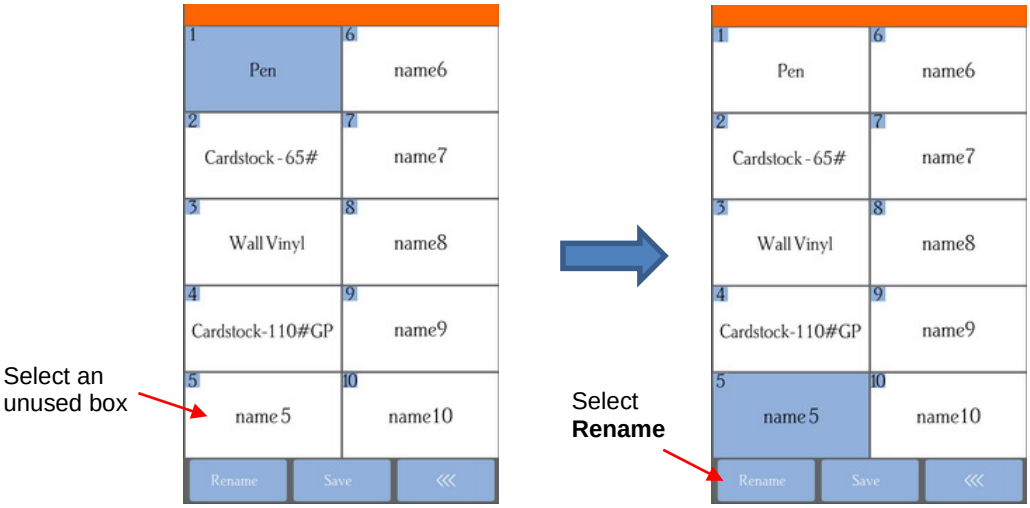
◊ Press the **Force/Speed** icon to open the **Force/Speed** screen:



Adjust settings by sliding bar or using **+** and **-** buttons

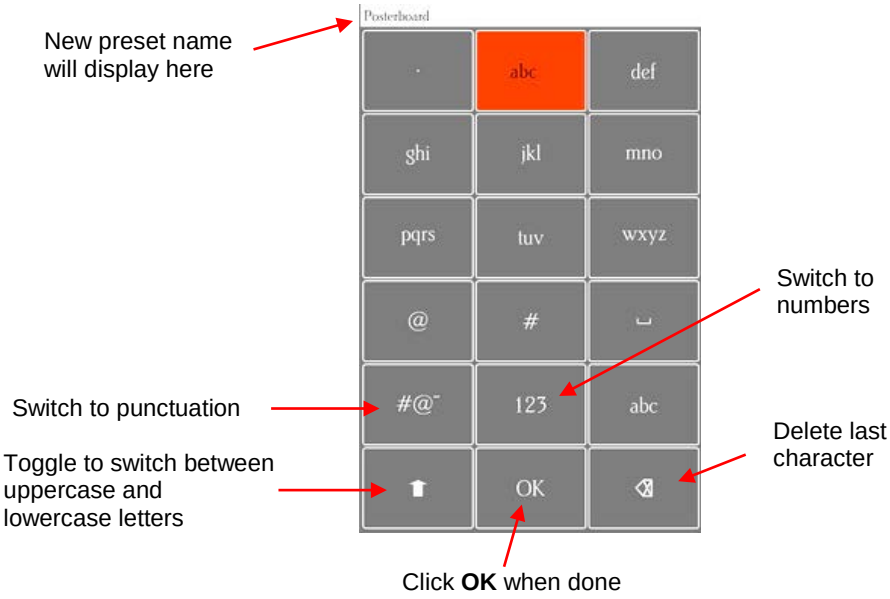
Click on **Save**

◊ Make the necessary changes to the **SPEED** and **FORCE** settings. Select **Save** and the following screen opens:

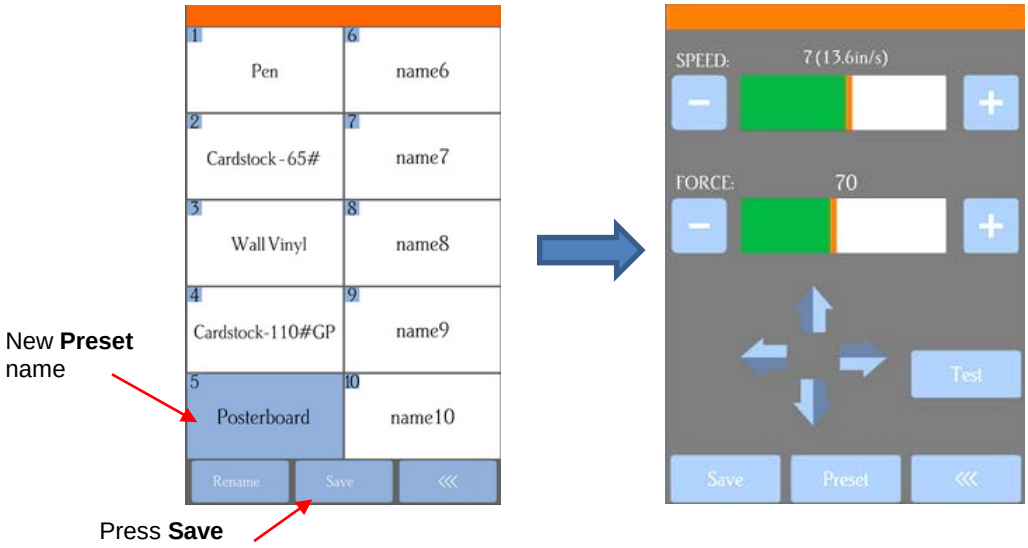


◊ Press one of the unused preset boxes, e.g. *name5*, and it will turn blue indicating it is highlighted. Select **Rename**.

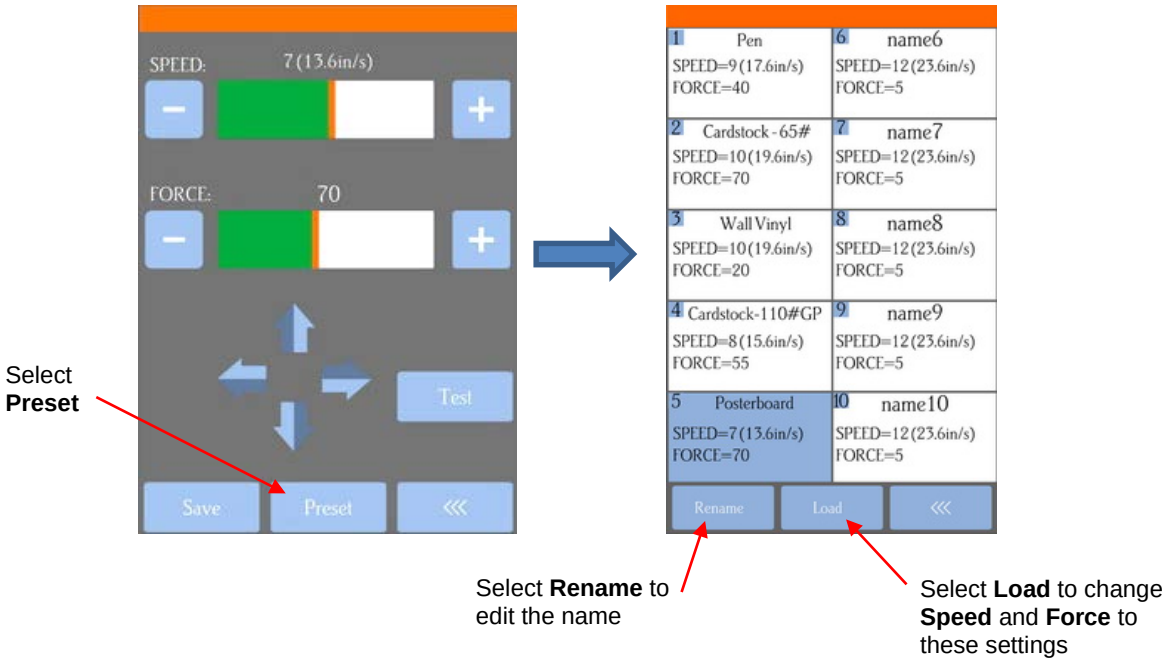
◊ A window opens where you can enter the name for the new **Preset**. The characters are entered in the same manner as the **Password** entry window in *Section 1.12.2.* Note that there is a 15 character limit. Click on **OK** when done.



◊ You will now see the name of your new preset and you can press **Save** to add it to the saved presets with the **FORCE** and **SPEED** you set. You will be returned to the **Force/Speed** screen.

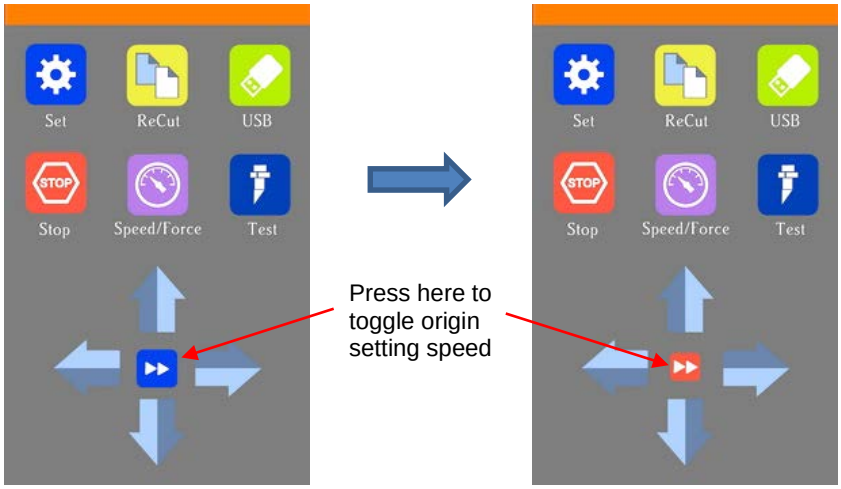


◊ To verify the preset or to select a different preset, press **Preset**. The **Preset** window opens where you can see all of the **Presets**, along with the settings for those presets. In that window you can also select a different preset. Then you can select **Rename** to edit its name or select **Load** to select that preset's **Force** and **Speed** into the **Force/Speed** screen.



2.05 Setting the Origin before Cutting

- Before you cut, you should check to see where the blade tip is located in relation to the material so that the shapes will cut in the appropriate location.
- ***IMPORTANT!*** The C16 Skycut has a maximum cutting width of 16 inches. If you move the head too far to the left to begin the cut and your project is wide, you may exceed the left side limit and cutting will stop at that point with no option but to abort.
- To set the origin, press the arrow buttons on the main screen of the control panel. Remember that the middle button can be toggled between regular speed and a slow speed for more control:

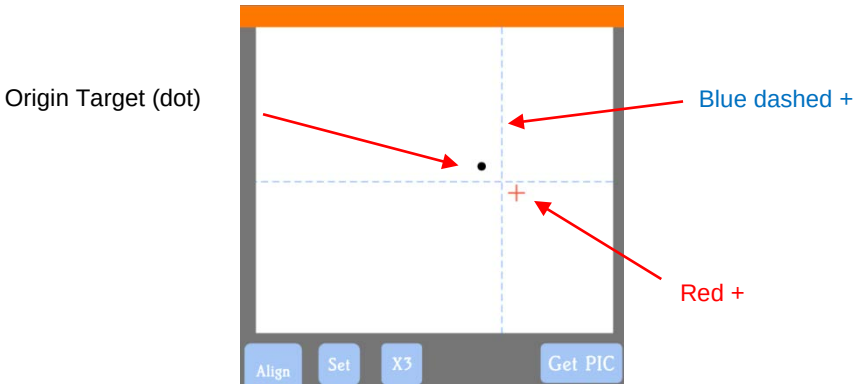


- In general, you set the origin near the lower right corner of the material, as you did during your initial test drawing in *Section 1.13.*

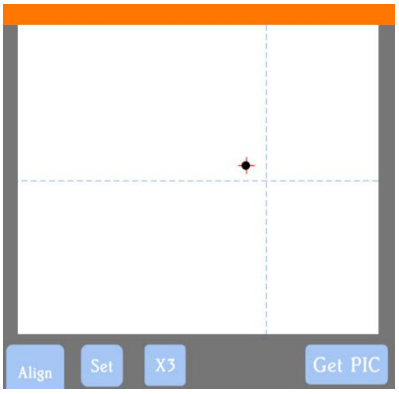
2.05.1 Setting an Origin Using the Camera

Video

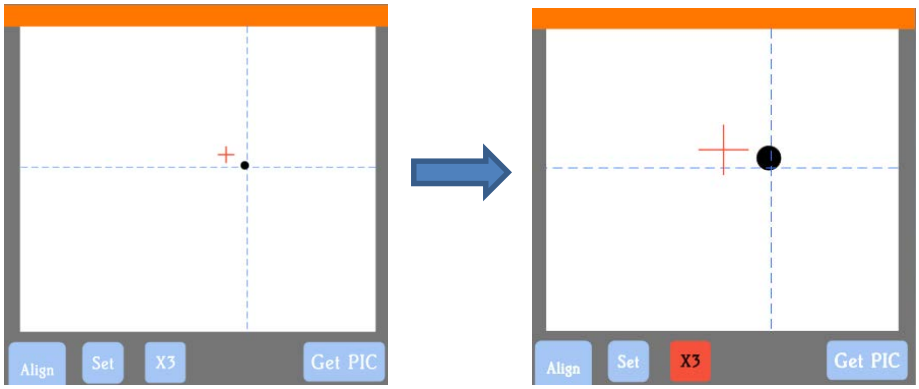
- In the event you need to set an extremely precise origin, the Skycut's built-in camera can be used:
  (1) Go to *Section 3.03* and perform the camera calibration.
  (2) Choose where you want the origin to be set. You'll need an "origin target" to use when the camera takes a photo. It can be a dot on your material, the corner of your material, the intersection of grid lines on the mat, etc. If you do choose the latter, make sure there's a way to clearly distinguish which intersection you want to use.
  (3) On the Skycut's **Main Screen**, use the arrows to move the center of the blade holder roughly over the origin target. In this example, a dot will be used.
  (4) Select **Set** and **Camera**. In the **Camera Screen**, press **OK**. A photo will be taken and displayed. If needed, press **X3** so that you are zoomed out and able to see the origin target (dot) in the photo:



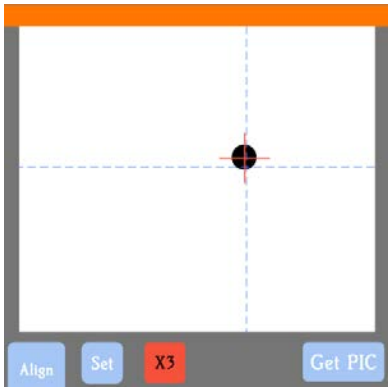
  (5) Press the center of the origin target in the photo so that the red + will be moved approximately over it:



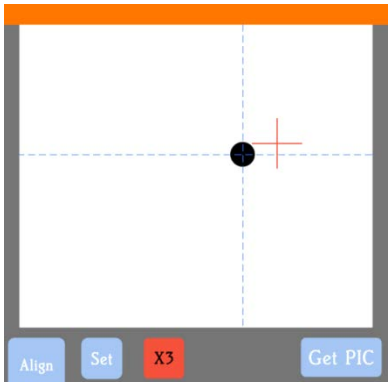
(6) Press **OK**. In the new photo, the blue dashed + should be close to the origin target. Press **X3** to zoom in:



(7) Use the arrow buttons to move the red + as close as possible to the center of the origin target:



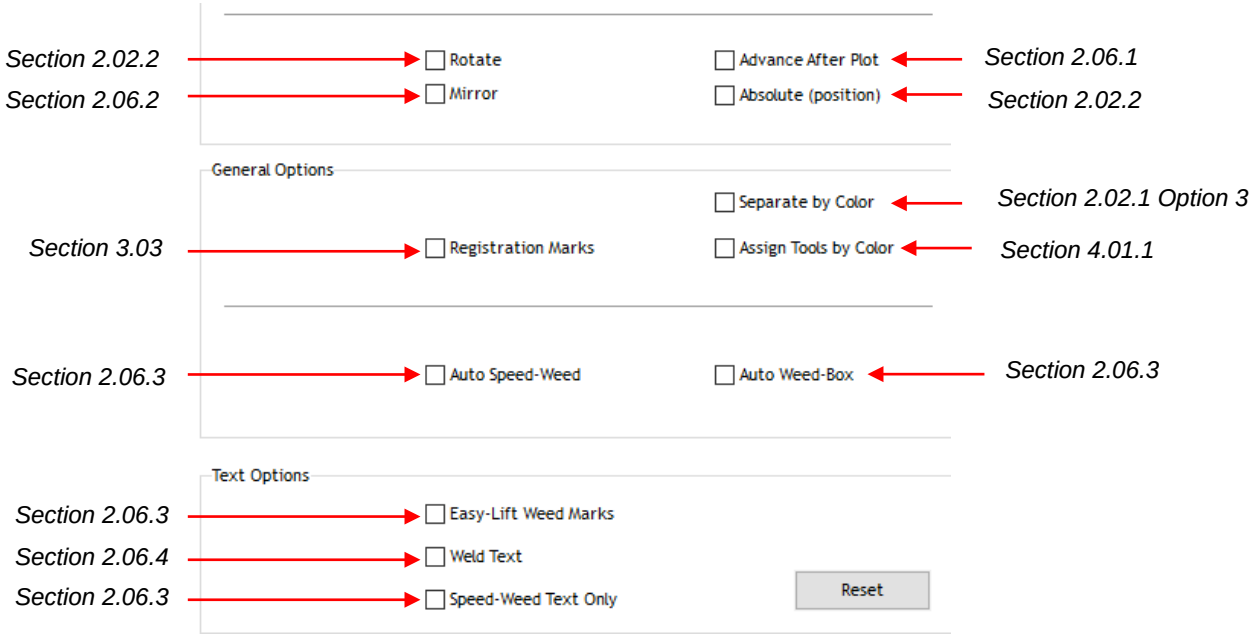
(8) Press **OK**. At this point the blue dashed + should be centered with the origin target:



(9) Press the **Home** icon to return to the **Main Screen.** The head should move so that the blade holder is now located over the origin target and you can proceed with the cutting process.

2.06 Other Cut Setting Functions

- There are other functions and features available in the **Send to be Cut** window that may be useful depending on your application. Some have already been covered. Some will be covered in this section. Others will be covered in later parts of this manual. Note the section numbers for reference:



2.06.1 Advance Mode

- The **Advance After Plot** option in SignMaster Pro is actually controlled on the Skycut itself. The function can be opened by going to **Set>Advance Mode** on the control panel.

◊ **to start** will cause the blade holder to return to the origin after cutting.

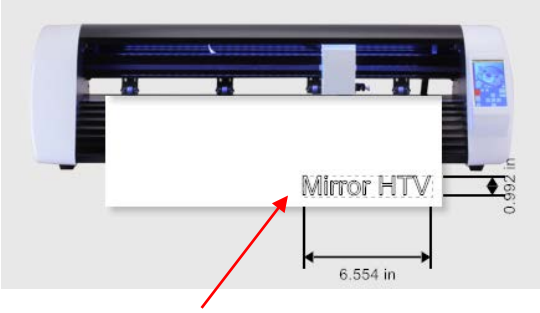
◊ **to end** will cause the blade holder to advance forward to the end of the cut project.

◊ **to left** will cause the blade holder to move to the left of the cut project.

◊ The settings below the option are activated when choosing either **to end** or **to left**. You can enter a specific distance for the blade holder to advance. This is useful when cutting repeats of the same project because it allows for the origin to be set automatically for the next repeated cut.

2.06.2 Mirror

- Checking the **Mirror** option will apply a horizontal mirror to the shape (s) before cutting. This is useful in applications such as:
  - ◊ Cutting HTV in which the material is placed faced down so that the heat protection layer is not penetrated by the blade
  - ◊ Cutting vinyl to be applied to the inside of a car or home window but primarily viewed from outside of the window
  - ◊ When cutting certain non-homogenous paper materials in which cutting upside down yields cleaner results



Before applying **Mirror**

After applying **Mirror**

2.06.3 Weeding Options

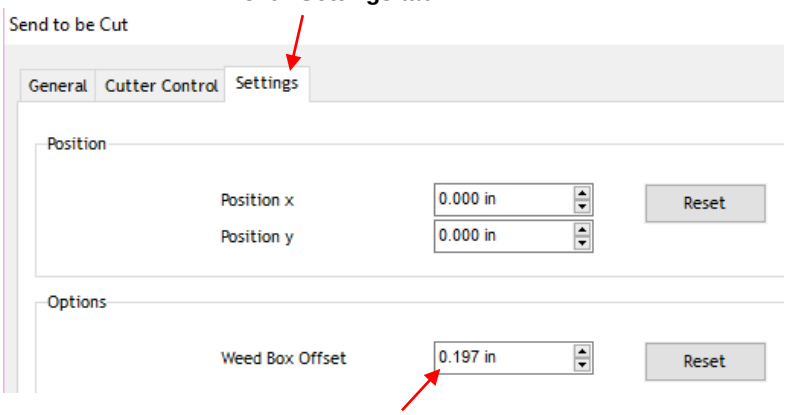
- For those cutting vinyl and HTV, the weeding options in SignMaster are worth noting.
  - ◊ **Auto Weed-Box:** Marking this option places a single weed box around the entire project:

Before applying **Auto Weed-Box**

After applying **Auto Weed-Box** – blue border around design indicates weed cut

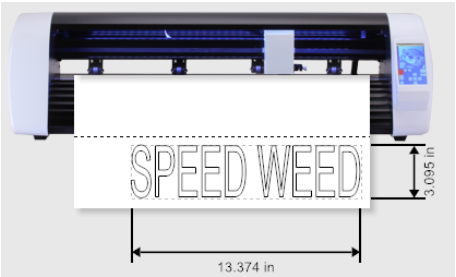
    - o Note: to change the size/offset of the weed box around the design, click on the **Settings** tab and adjust, as desired:

Click **Settings** tab

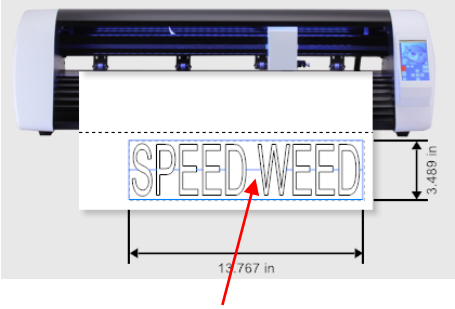


Change offset here

◊ **Auto Speed-Weed:** Marking this option places a single weed box around the entire project with an additional horizontal weed line through the middle:

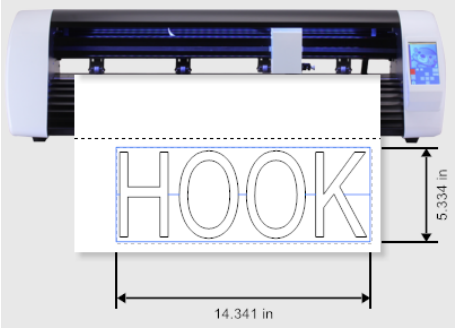


Before applying **Auto Speed-Weed**

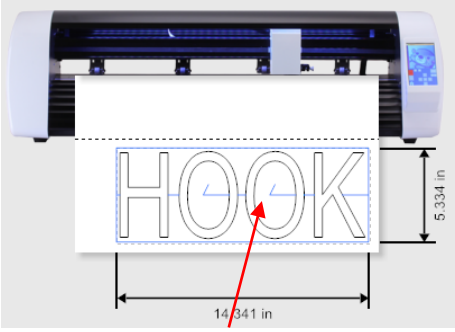


After applying **Auto Speed-Weed** – blue weed box plus horizonal weed cut in the middle

◊ **Easy-Lift Weed Marks:** Marking this option adds hooked lines to shapes with internal paths to make it easier to lift with a weeding tool:

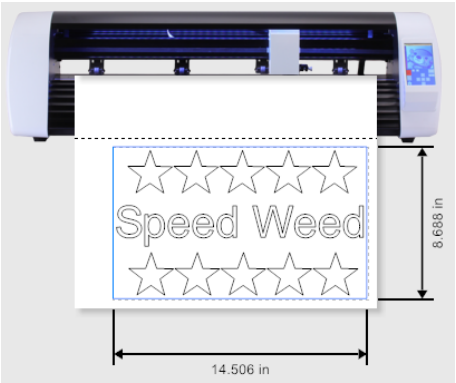


Before applying **Easy-Lift Weed Marks**

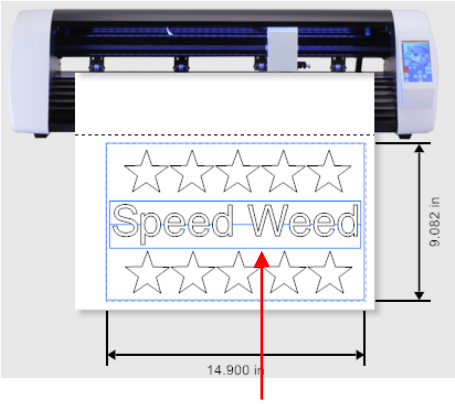


After applying **Easy-Lift Weed Marks** – hooked cuts are added to internal shapes for easy lifting during the weeding process

◊ **Speed-Weed Text Only:** Mark this option when your design has a combination of both text and other shapes so that only the text will have **Speed Weed** applied:



Before applying **Speed-Weed Text Only**



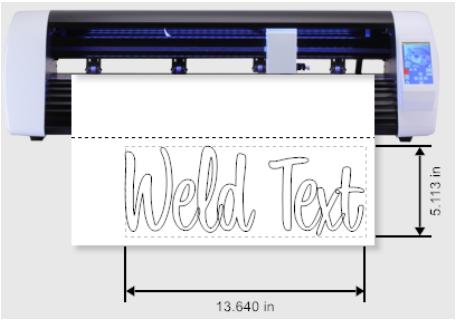
After applying **Speed-Weed Text Only** – text object has additional weed box plus horizontal cut through the middle

2.06.4 Weld Text

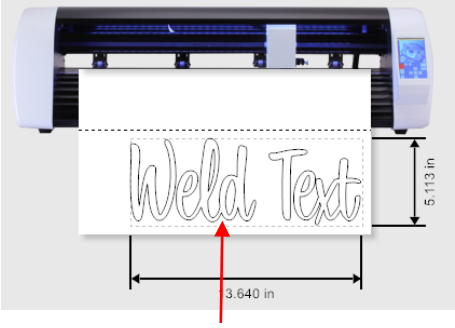
- For script fonts, the **Weld Text** option will remove overlap between letters so that a word will cut as one object. For example, if you go to **View>Wireframe**, you can see the overlap that will be cut when a script font is used:

- You have the option to select the letters and apply the **Weld** function under the **Shaping and Welding Tools** , thus removing overlap between letters:

- This, however, means you cannot change the font used or alter the spacing of the letters, etc., without applying **Undo**. Therefore, the **Weld Text** option allows you to cut the text as if the **Weld** function has been applied:



Before applying **Weld Text**



After applying **Weld Text** – overlap between letters is removed

2.07 Important Checklist Before You Cut!

- Do you have your material on the mat and the mat inserted into the Skycut? (Note: materials with a backing sheet, such as vinyl and iron-on transfer do not require a mat for cutting)

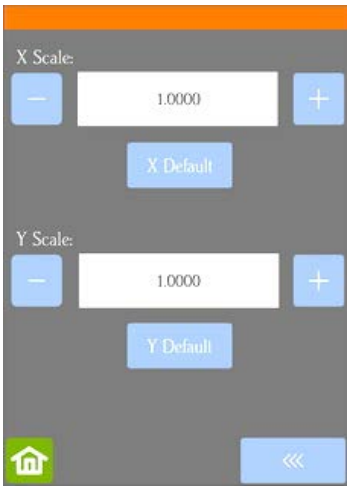
- Do you have the pinch wheel lever raised (so that the pinch wheels are down)?
- Have you set the blade length based on the thickness of the material you are cutting?
- Do you have the blade holder firmly mounted in the blade holder seat and the blade tip at the correct height above the material?
- Have you set the **Origin** (location of the blade tip) at the bottom right corner of your material (or wherever you need the origin to be)?
- Have you set the **Force**? And the **Speed**?
- Have you selected the correct **Blade Offset** for the blade you are using?
- Do you need to turn on **Passes** for this material?
- Do you see the correct shapes in the preview window?
- Do you need to select **Rotate**, **Mirror** or **Absolute (Position)** options? Do you know, with confidence, where your shapes are going to cut?
- Do you need to apply any weeding options?

2.08 Scale Calibration

- If you were to cut out any particular shape, for example, a 10” x 10” square, you might find that it actually measures 9-15/16” x 10-1/32”. It will be very close to 10” x 10” but perhaps just slightly smaller or larger in either or both dimensions. Now this might be perfectly acceptable for the type of cutting you do. Therefore, it may not even be necessary to do this particular calibration. However, if you do want to make sure your shapes are cut precisely to scale, the following procedure will allow you to calibrate your Skycut.
- The calibration process can be conducted in inches, cm, or mm. Both mm and inches will be presented here. In general, it is recommended that mm be used, however, if you do not have a metric ruler, then you can use inches instead.
- Before beginning this calibration, make sure the **Scale** setting on the Skycut itself is still set to 1.0 and 1.0. On your Skycut control panel, go to **Set**>**Advanced Settings> Scale**. The following window opens where you can check the current **X Scale** and **Y Scale** values:

Verify **X Scale** and **Y Scale** are both set to 1.0000

Use the **+** and **–** buttons to adjust the numbers, if needed



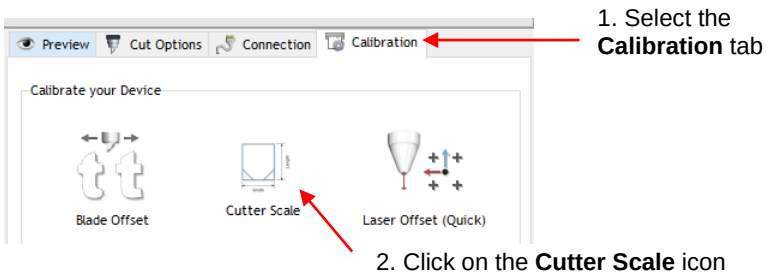
- Return to the main screen. Then pick one of the two following sections and follow the instructions.

2.08.1 Scale Calibration Using Millimeters for Measurement

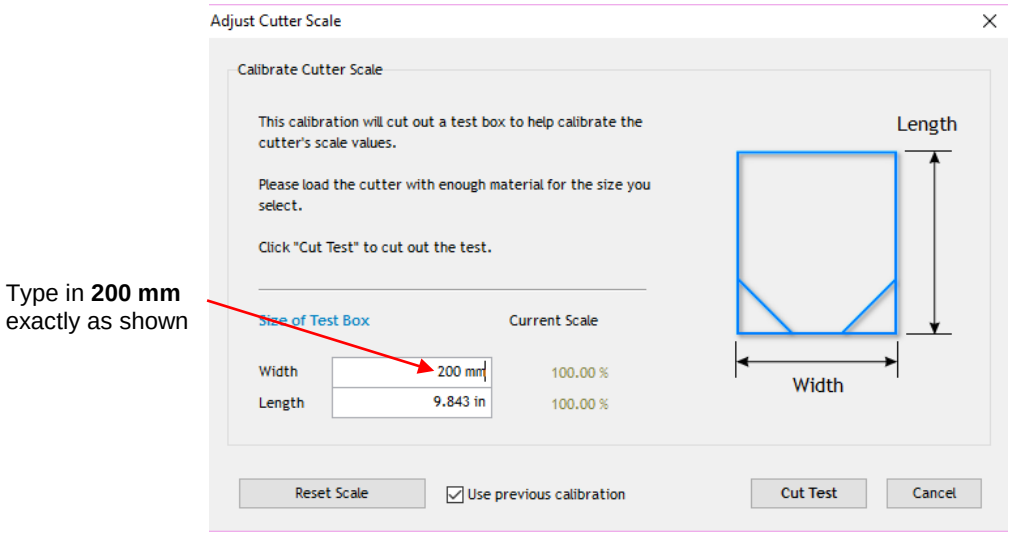
- SignMaster has a built-in resolution routine which can be used to easily perform this calibration:

◊ Go to the **Vinyl Spooler** window and select the **Calibration** tab.

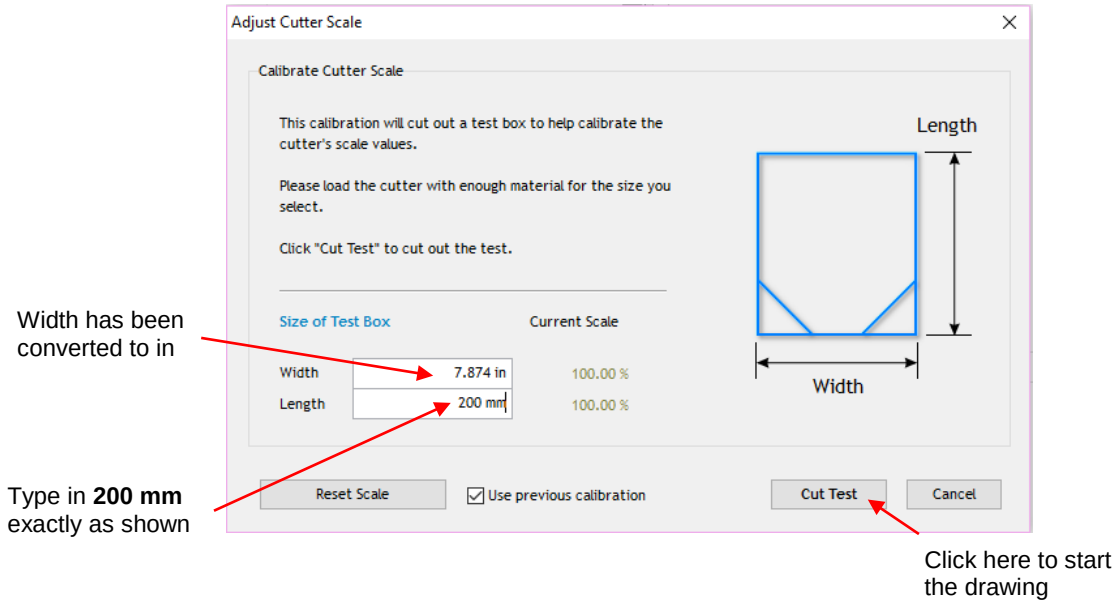
◊ Click on the **Cutter Scale** icon:



◊ A new window opens where you can enter the dimensions of a square or rectangle to draw with the test pen. It is highly recommended that the dimensions be at least 200 mm. Note that in the current version of SignMaster, the display in this window is always in inches. However, you can enter values in mm by typing in “mm” after the number as shown:

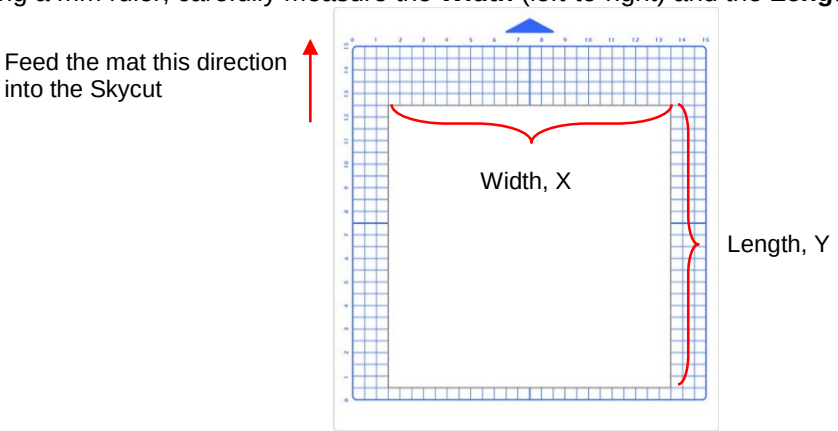


◊ Press the tab key and the 200 mm will be automatically converted into inches. Repeat with **Length**:

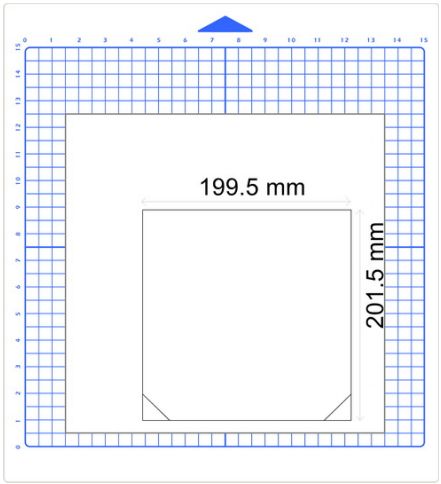
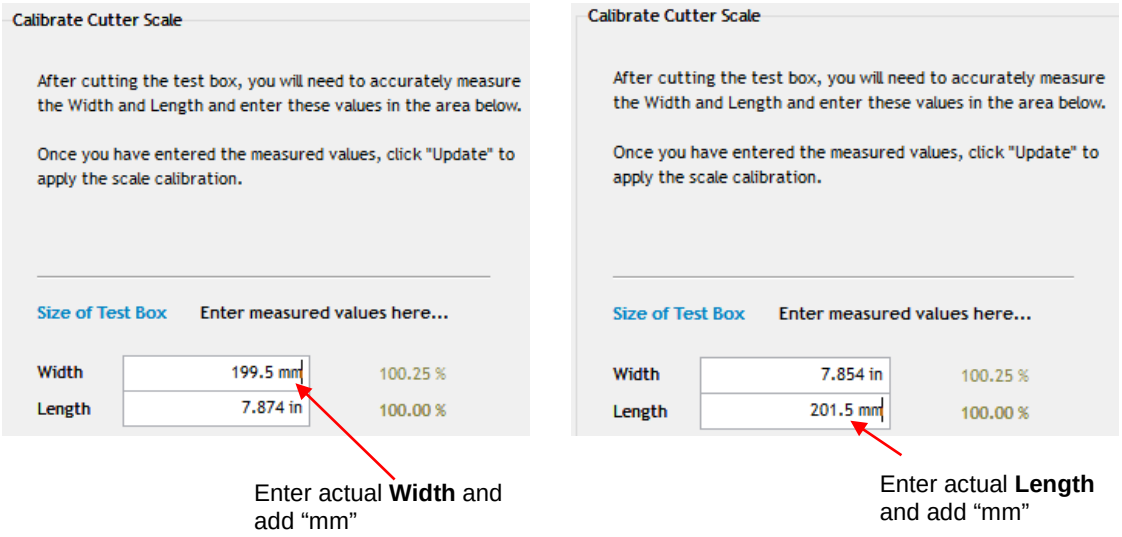


◊ On the Skycut, load a sheet of paper and insert the test pen. Move the test pen to the lower right corner of the paper. Make sure you have proper settings for drawing and click on **Cut Test** to have the shape drawn.

◊ Using a mm ruler, carefully measure the **Width** (left-to-right) and the **Length** (top-to-bottom) that drew:



◊ Write these measurements onto your sheet:



◊ These values can now be entered into the same **Width** and **Length** fields, again adding “mm” after each number as shown: