

# S2

## User Manual & Assembly Instructions



# USCutter

# IMPORTANT SAFETY INSTRUCTIONS



Do not place any magnetic objects in the vicinity of the cutting head; otherwise uniform contact Force is not ensured.

Do not remove the connection cable to the computer while plotting is in progress.

Do not reach into the unit with your hands when the power is connected.

Never open the housing or attempt to modify the unit unless instructed to do so by a qualified technician.

Ensure that liquids and metal objects do not get into the cutter.

Ensure that the wall socket used is grounded and protected with a ground fault switch.

Ensure that the connected voltage (110V) does not deviate by more than  $\pm 10\%$ . Otherwise install a voltage stabilizer.

Never reach into the unit in the vicinity of the blade holder during the cutting operation!

Discontinue any printing jobs in progress before readjusting the blade holder!

Always ensure that the vinyl cutter is out of reach of children during operation and never leave the unit or individual parts of it switched on without supervision.

Do not touch the tip of the sliding blade to avoid injury.

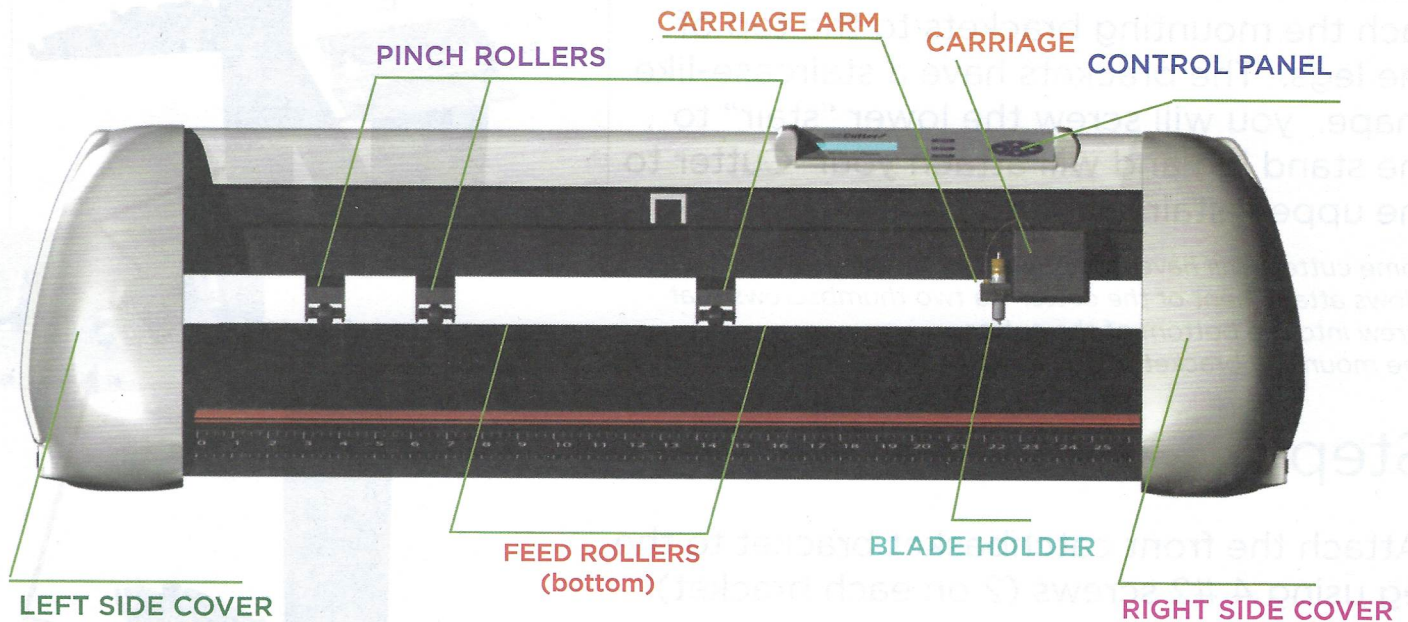
Always place the unit on a stable base to prevent it from falling down.

Do not operate the unit during thunderstorms; it can be damaged or destroyed by lightning.



## Getting to know your cutter

*Before you start cutting, you should familiarize yourself with the cutter along with its basic parts and functions.*



### CONTROL PANEL

Used to provide input directly to the cutter. Covered in detail in the “Control Panel” section of this manual.

### CARRIAGE ARM

Holds the blade (or pen) carriage.

### PINCH ROLLERS

Holds the media tightly to the feed roller below.

### FEED ROLLERS

Advance the cutting material (under pinch rollers)

### BLADE HOLDER

Holds the blade and allows changing blade depth

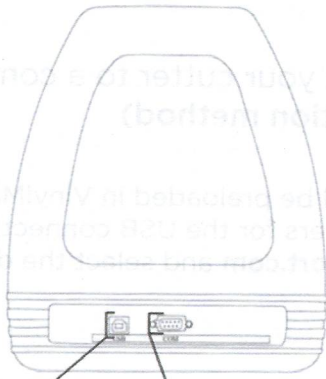
### LEFT SIDE COVER

Contains the power cable port, power switch, and fuse cartridge for the cutter.

### RIGHT SIDE COVER

Contains the USB and serial cable ports for the cutter.

## RIGHT SIDE VIEW



### USB CABLE PORT

Used to connect a USB cable from the cutter to a computer. (Best option)

### SERIAL (COM) CABLE PORT

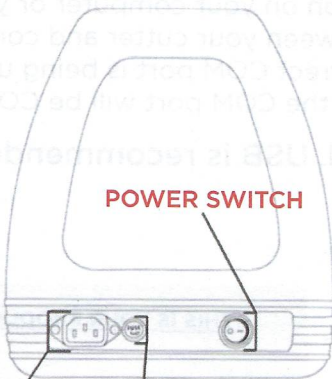
Used to connect a serial cable from the cutter to a computer.

**NOTE:** Only one connection to the PC is needed, either USB or serial. It is recommended that you use USB.

USB CABLE PORT

SERIAL (COM) CABLE PORT

## LEFT SIDE VIEW



### POWER CABLE PORT

Used to connect a power cable from the cutter to a wall outlet or surge protector.

### POWER SWITCH

Main power switch for turning the power of the cutter on (1) or off (0).

### FUSE HOLDER SLOT

Allows access to the fuse inside of the cutter.

POWER CABLE PORT

FUSE HOLDER SLOT

## CARRIAGE ARM

Holds the blade carriage in place.

## LOCKING KNOB

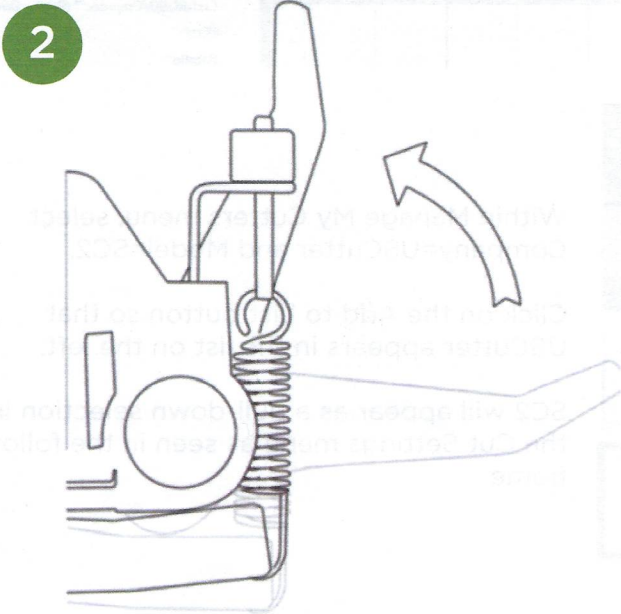
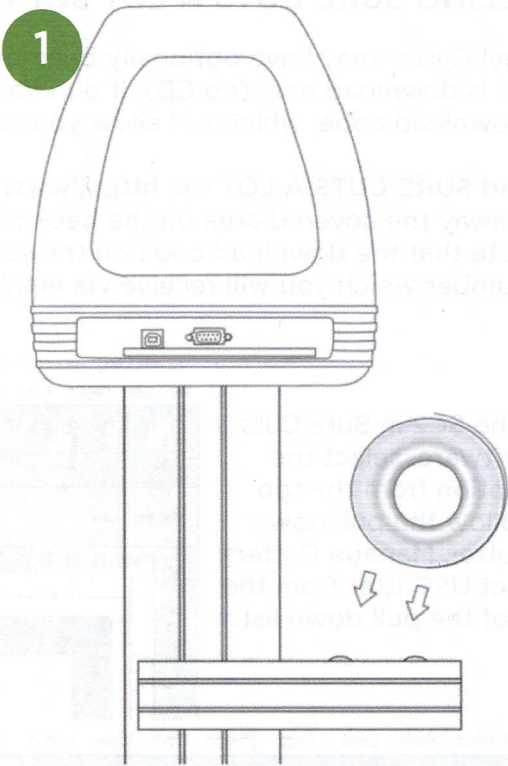
Allows access to the blade/pen carriage slots for exchanging/replacing carriages.

CARRIAGE ARM

LOCKING KNOB



Place the roll on top of the stand rollers.

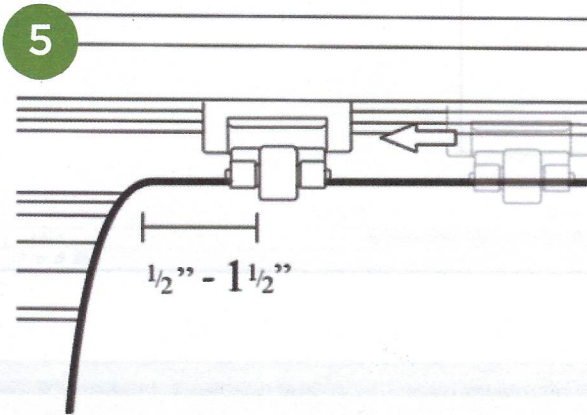
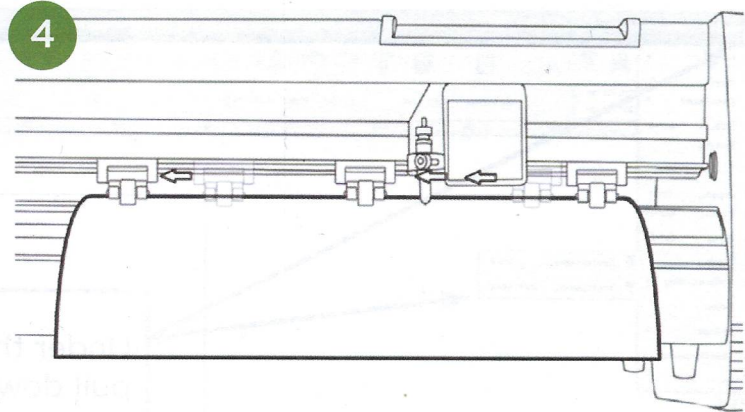


Release the pinch rollers release levers.

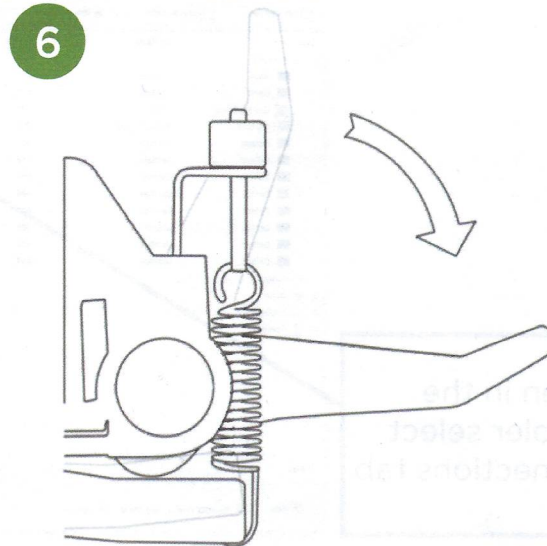
Feed the vinyl underneath the pinch rollers (if working from a single sheet instead of a roll, the vinyl can also be feed from the front).



Adjust the pinch rollers so there is one roller located on each side of the vinyl (and, on models with 3 or more rollers, one roller near the center). Avoid lowering a pinch roller to the gap between the two feed rollers.



Leave a gap of between  $\frac{1}{2}$ "- $1\frac{1}{2}$ " from the edge of the roller and the edge of the vinyl on both sides.

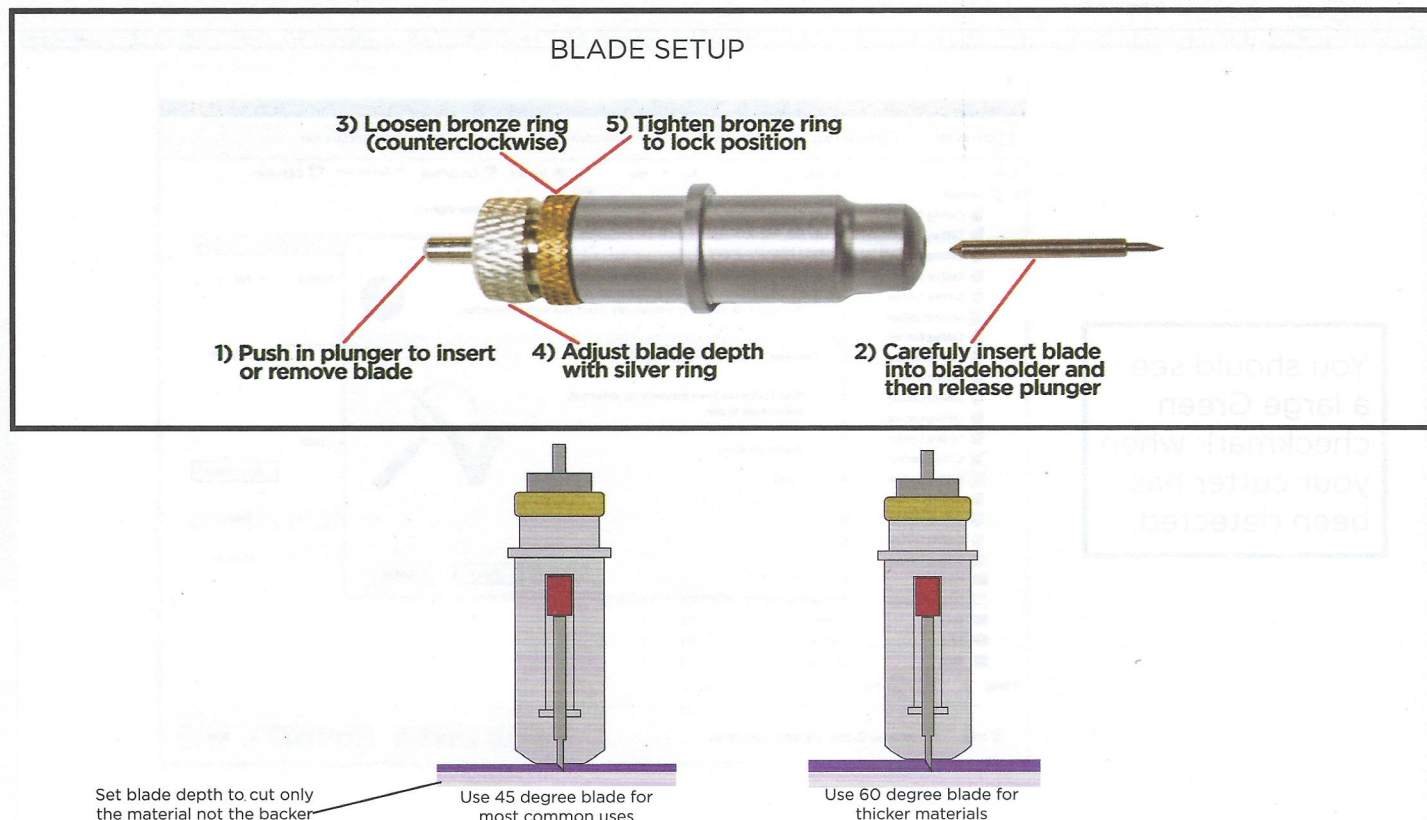


Engage the Pinch Rollers by pushing down on the Pinch Roller Release Levers.

If the cutter is not already on, turn it on now.



## Blade Set Up



### TIPS FOR GETTING OPTIMAL RESULTS

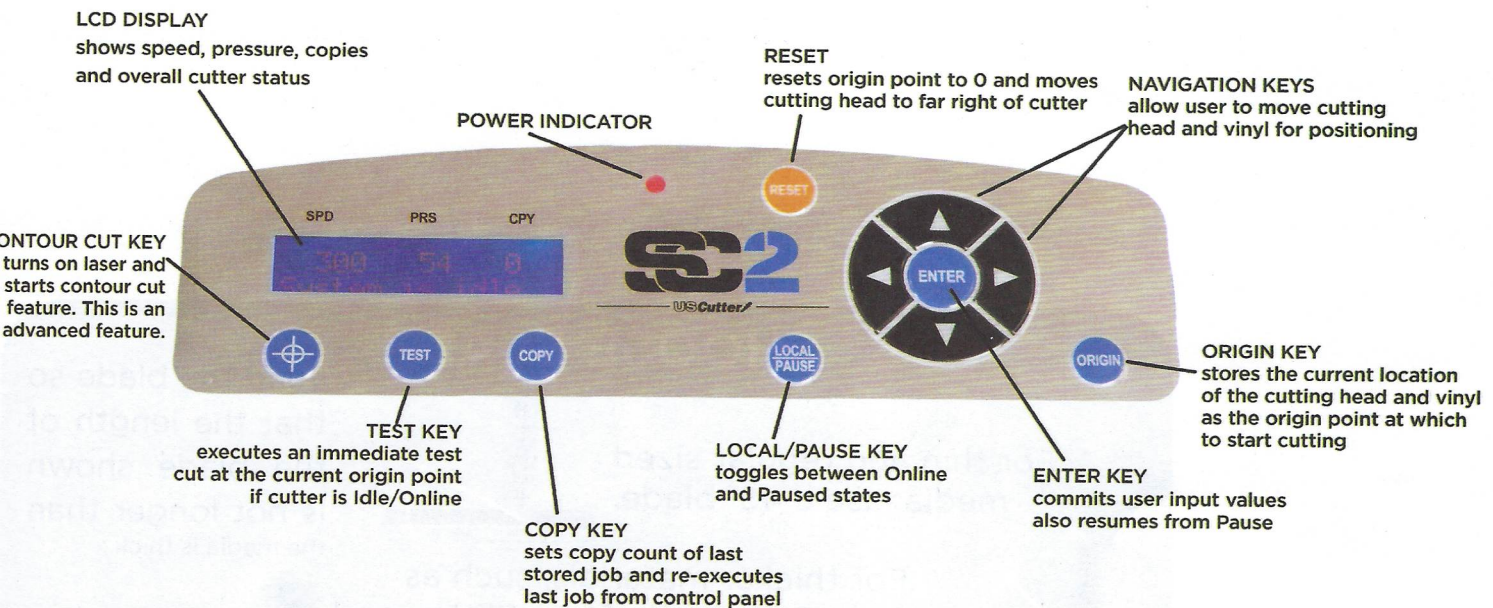
- Use a short blade depth. You only need to extend the blade 1/2 the thickness of a credit card. New users tend to expose too much blade. The idea is to cut through only the top layer of the vinyl and to leave the backing layer with only minimal scratches. This allows you to weed the top layer off the backing easily. If corners or small detail do not cut all the way through, consider increasing the force before extending the blade depth. If you can feel cut lines on the backer underneath the vinyl, blade depth should be reduced. You only need to extend the blade depth or use the 60 degree (blue tip) blade for thicker materials.
- Set a safe and reliable speed. **A good starting value for speed is 300.** Once you have accumulated experience with the material you are cutting and production time becomes a factor, you can look to increase the speed. Also, intricate jobs typically require lower speeds.
- Set the correct force. **A good starting value for force is 90,** then you can adjust force up or down depending on how thick/dense the material is to be cut. With test material in place, use the the Test Cut icon on the cutter's main screen to cut a small square in your test material to see that it cuts all the way through and can be weeded easily
- Align the pinch rollers so that they are under the guide arrows. The pinch rollers must align with the gritted sections on the bottom roller.
- A cutting mat (optional, purchased separately) can be used when cutting materials that do not have their own backing. Place your material on the cutting mat so that the pinch rollers roll on the mat, not the material. Move unused pinch rollers out of the way so they don't touch the parts of the material being cut. Use a brayer roller to flatten your material on the sticky part of the cutting mat or tape the edges of thicker materials to the cutting mat. For wider jobs, it sometimes cannot be avoided and the pinch rollers will need to roll over areas of the material being cut. Typically this is not a problem.
- When cutting long pieces of material it is important to carefully position the material so that it is completely straight and doesn't drift to one side when cutting.



## Control Panel

The control panel allows direct control of the cutter state (Local/Paused), change Speed/Pressure, perform an immediate test cut, make a copy by repeating the last cut job and turn on the laser to assist with accurate positioning of the blade for contour cutting. The various buttons and functions of each button are outlined below.

“System Is Idle” message on the screen means that the cutter is ready to go.



Some screens/buttons use different terms which all mean the same thing. This might help:  
 LOCAL = Idle = Online = Automatic = Waiting for commands from Computer or User at Control Panel  
 PAUSE = Paused = Offline = Manual = Waiting for co-ordinates from User at Control Panel

## Setting the Origin Point

The origin point of the cutter can be set whenever the cutter is in the PAUSE state by moving the cutting head with the navigation keys on the control panel and then pressing the ORIGIN key. The cutter will store a new origin point at the location of the cutter head and use this point to start cutting. Pressing RESET or power cycling the cutter will clear the current origin point, reposition the cutter head at the Home (0,0) location and store that as the new origin point. The origin point specifies the right and bottom order of where your cut will start.

## Setting Speed and Force

You can manually set the speed and force of the cutter when you are in the LOCAL state. Use the up and down arrows to adjust the speed and the left and right arrows to adjust the cutting Force.

A typical cutting speed setting is 300, and a typical cutting force setting is 90. Depending on the material you may have to adjust these values for thicker vinyl or intricate cuts.

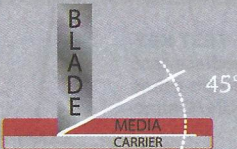


A Basic Guide To Vinyl Cutting

Now that you've got your system fully assembled let's take a moment to test it and also take moment to learn a bit about how to "fine tune" the machine so that it will do quality cuts on the different materials you'll be cutting. To do this we'll do a standard test cut, which when completed will a simple triangle inside of a square. Load the material roll and adjust the pinch rollers. Remember to make sure the top roller is placed so that there is a bottom roller (called the "grit roller") beneath it. Remember to line the material up so that it is moving straight through the feed area, and resist the temptation to run the material close to the edge of the cutter feed area or you increase the risk of a mis-feed that will wrinkle your vinyl. (See the graphic on pages 14 and 15 for an example.)

CHOOSE BLADE

For thin and regular sized media, use a 45° blade.



Load the blade so that the length of the blade shown is not longer than the media is thick.



For thicker materials, such as Siser StripFlock, Siser Glitter, and similar heavy stock materials, a 60° blade is needed.

1

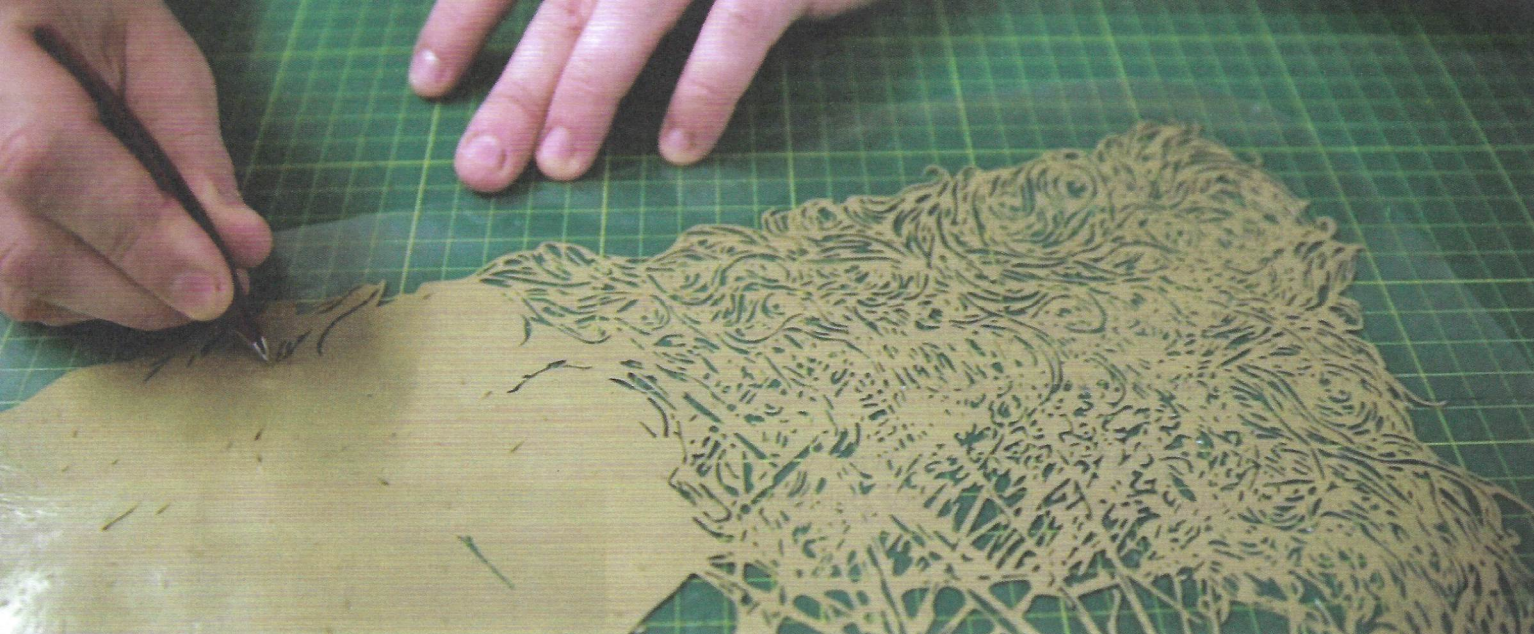
2

LOAD MATERIAL



Most vinyl products are loaded from over the top.





This Test Cut will help you to calibrate the machine for this material. Examine this cut and use a weeding tool or exacto knife to weed the square out while keeping the triangle on the paper. ("Weeding" is the word for removing the cut vinyl in the design.)

Use this simple diagram to make adjustments. There's a certain amount of trial and error to it at first, but you'll quickly get a feel for it.

## CUT SPEED

This setting determines how fast the design is cut out and is usually measured in millimeters per second.

small intricate  
designs



DECREASE  
CUT SPEED

large simpler  
designs

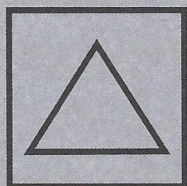


INCREASE  
CUT SPEED



## FORCE/Force

This setting determines how hard the blade comes down onto the material.



Test Cut

outer square  
won't weed



INCREASE  
FORCE

blade digging too  
far into carrier



DECREASE  
FORCE

weeds easily with a  
lightly scored carrier



**PERFECT!**



### 1

### Calibrating the cutter

For the SC2, you will need to perform Manual Calibration to perform Contour Cutting

What you need: The Pen Tool (came with your accessories for your cutter), a piece of printer style paper

- 1) Prepare the Pen Tool - Scribble until the ink flows and then put it into the blade holder.
- 2) Load your blank sheet of paper on the right side of the cutter as shown (figure A)
- 3) Hold down the Right Arrow Key and turn on the Power. Continue holding down the Right Arrow Key until the paper finishes rolling back and forth, then let go of the Right Arrow Key.

The welcome screen should now read "Verify Offset - Make a Mark..." If not, repeat this step. If successful, proceed to Step 4.

4) Press up and down on the Pen Tool, do not move it left and right, until there is an ink dot on the paper. Once you see an ink dot, press Enter to turn on the Laser.

5) Now, use the arrow keys to move the dot and the laser on top of each other. Get this as close to exact as possible. Then hit ENTER to complete the alignment. (figure B)

6) You have now successfully performed an on machine calibration of your SC2 cutter and are ready to perform the steps below for performing a contour cut in your software.

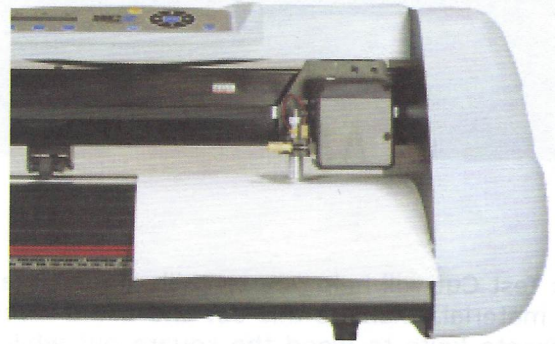


Figure A



Figure B



## 2 Aligning registration marks

**This section applies when manual contour cutting:**

Within the Contour Cutting Wizard of VinylMaster, make sure that Cutting Device is set to manual (fig 1.)

You should have already previously used Build to create a contour around your image (fig 2). Take the printed image and place the printed artwork with alignment marks in the cutter.

Note the correct orientation of the artwork for manual contour cutting (fig 3). The top of the image comes out of the cutter first and shows up side down when viewed from the front of the cutter. In this image the paper has been moved forward - normally the blade tip will be directly beside the alignment mark as seen in figure 4

Using the navigation keys on the cutter, position the blade tip so that it appears just outside the corner shaped alignment mark (fig 4). Press the Origin key on the cutter to set this as your origin point.

Press the Next key on your computer (fig 5). If you have correctly positioned the blade, the cutter will read all 4 alignment marks and start contour cutting.

Precision alignment matters a great deal when contour cutting. Take the time to get the printed artwork loaded into the cutter perfectly straight.

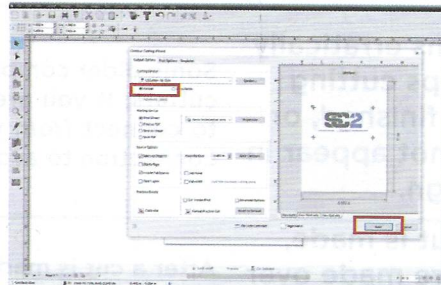


figure 1

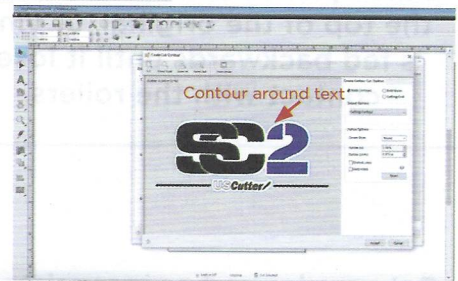


figure 2

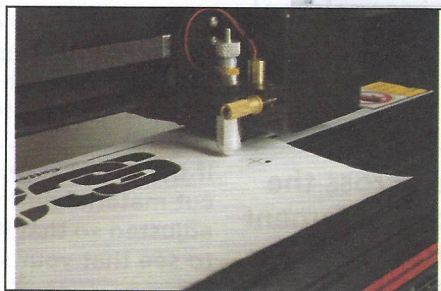


figure 3

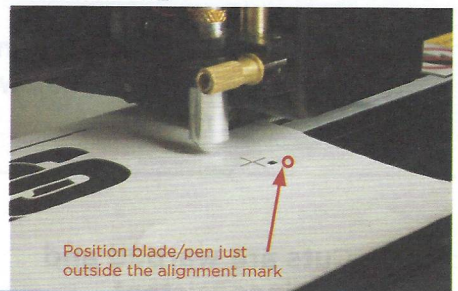


figure 4

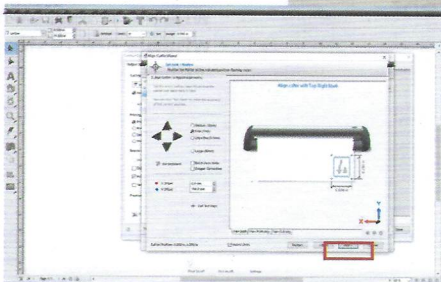


figure 5



## PROBLEM

## SOLUTION

**The cutter performs erratically during cuts, stops cutting before the cut is finished, or cuts lines that do not appear in the design.**

Some older computers do not work well when connected via the USB port of the cutters. If you are having problems while cutting and are using the USB cable to connect from your cutter to computer, you may wish to try the serial cable connection to avoid further problems.

**After the first cut is made, subsequent cuts are made over the top of the original, or vinyl is fed backwards until it loses contact with the rollers.**

After a cut is made, you will need to reset the origin of the cutter. If the origin is not set again, the first origin will remain in the cutter and the cutter will return to this position before making any further cuts. To reset the origin; from the main screen of the cutter, press the Local/Pause button, move the cutting head to desired location and then press the Origin button.

**Cuts are jagged or inconsistent.**

The Blade may be dulled or damaged. Replace with a new blade and try again. Make sure that the blade can turn freely (by attempting to turn it with your fingers while the release button of the Blade Carriage is pressed).

Adjust the blade depth of the Blade Carriage (page 17) and Force setting on the cutter (page 15) until you are getting solid, uniform cuts. Start with a blade depth of around 1/64th of an inch and a Force setting of 100g and try an increased Force setting before attempting to increase the blade depth.

**Slashes are made across the vinyl from the blade movement during cutting.**

If the blade is protruding too far from the Blade Carriage then it can score and cut material during normal operations. If this is occurring, the blade needs to be adjusted so that it is protruding a minimal distance from the carriage. Also, check to see that your software is registered correctly.

**Vinyl not feeding straight and the rightmost Pinch Roller will not move.**

Sometimes, during shipping or movement of the machine, the right pinch roller will become stuck on a screw located on the back of the machine. If this occurs and is affecting your cutting, press forcefully against the pinch roller until it becomes dislodged from its position. If needed, remove the screw to reposition the pinch roller in the desired position.

**Cuts are warped and inconsistent.**

Sometimes, during shipping or movement of the machine, the Carriage Arm can be dislodged from its track. Make sure that the 2 white wheels behind the carriage arm are both resting securely on top of (not in front) of the track. If the wheels are not on the track, gently lift the carriage arm and press back until both wheels are resting on the track.



## ISSUE

Cut has dashes or looks perforated.

### EXAMPLE



## CAUSE

Damaged cutting strip (groove in strip) or too much blade is exposed (friction build up).

## SOLUTION

Replace the cutting strip or decrease the blade depth.

## ISSUE

Cut line tapers and not cutting towards the end.

### EXAMPLE



## CAUSE

Dull blade or blade holder isn't secured properly in slot.

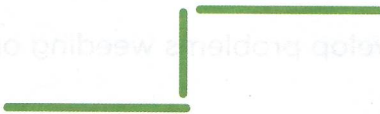
## SOLUTION

Replace blade, check the blade force, and secure the blade holder.

## ISSUE

Blade is skipping turns and corners.

### EXAMPLE



## CAUSE

Part of the blade is dragging on its side during turns.

## SOLUTION

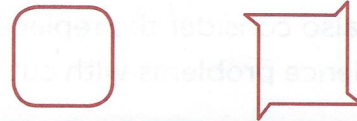
Clean the inside of the blade holder by coating the blade with WD40 and moving it in and out of the blade holder. Clean off any debris that comes out. Replacement blade holder may be needed.

## ISSUE

Corners are not cutting correctly.

### EXAMPLE

ROUNDED CORNERS      CORNERS WITH FLAGS

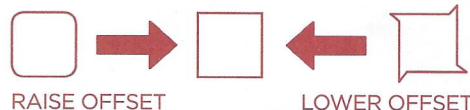


## CAUSE

Offset setting is incorrect.

## SOLUTION

Change the offset setting.





## Maintenance For Your Cutter

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**Cutting Strips** for your vinyl cutter sit directly under the cutting blade as it moves back and forth across the width of the cutter. Cutting strips will need to be replaced periodically - we recommend it be done every six months if you use your vinyl cutter continuously.

You might need to change out your Cutting Strips sooner if you start experiencing an uneven depth of cut, or your material is peeling up even on slow speeds.

To replace your Cutting Strip:

- USCutter stocks replacement cutting strips. Go to [USCUTTER.com](http://USCUTTER.com) and search using the keyword: Cutting Strip.
- Use a weeding tool or other pointed tool to pry up the existing strip. (For best results, start at either end of the strip.)
- Lay replacement into the channel and use a heat gun or hair dryer to heat the strip up as you squeegee it into place.
- Use a knife to trim the ends of the strip so that it fits in the channel.

**Cutting Blades** wear out with use and the tips of the blades can snap just like the point of a sharp pencil. (This is particularly true of the 60 degree blade.) You should also periodically visibly inspect your blades and if you see visible chips in the edge it's best to replace the blade with a new one. (This is also a good time to wipe away any vinyl debris that has built up inside the blade holder.)

You might also consider the replacement of your blade if you develop problems weeding or otherwise experience problems with cut quality.

**Refer to the manual section on Blade Set-up** for instructions on how to install replacement blades and remember to dispose of your old blade safely by putting it in an aluminum can or other closed hard container.