



Flatbed Cutter Operators Manual

Advanced Plotting Devices

NOTICE OF PROPRIETARY INFORMATION

This document contains proprietary information owned by *APD*. This document is provided to the owner of the Flatbed Cutter for the purpose of setup and operation of the *APD* Flatbed Cutter. Information contained in this document is not to be duplicated or given to a third party without the expressed written permission of *APD*.

NOTICE OF FCC CLASSIFICATION

Warning: This equipment has been tested and found to comply with the limits for Class A digital device pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction's manual, may cause interference to radio communications. Operation of this equipment in a residential area is likely to cause interference in which case the user will be required to correct the interference at his/her own expense.

The user is cautioned that changes and modifications made to the equipment without approval of the manufacturer could void the user's authority to operate this equipment.

It is suggested that the user use only shielded and grounded cables to ensure compliance with FCC rules.

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INTRODUCTION

APD Flatbed Cutter was developed for the main purpose of reliability, cutting quality and performance at an affordable price for our customers.

This series is the pinnacle of HPGL open architecture and is compatible for many of your design-making software's. Capable of cutting through many substrates such as your high performance and intermediate vinyl films, reflective films, fluorescent film, silk screen films, Rubylith, Amberlith, Sandblast stencil, fabric, heat-transfer flock and film.

The *Flatbed Cutter* is also versatile in plotting, drawing and pouncing by just easily swapping your tool to satisfy your desired feature.

This manual contains all pertinent information for your *APD Flatbed Cutter*.

SURVEYING YOUR CUTTER

When finished unpacking your *APD Flatbed Cutter*, survey your cutter for any shipping damage or any discrepancies. Contact your dealer or *APD's* Customer Service dept. at (714)-641-6658. Below is a check list of misc. items that will be shipped with your plotter.

- | | | |
|-----|-------------------------|----------|
| (1) | Flatbed Monument Cutter | |
| (1) | 45 degree blade | PD-1222 |
| (1) | 5pk. 60 degree blade | PD-1224 |
| (1) | AC Power Cord | PD-602 |
| (1) | USB Cable | PD-603 |
| (1) | Blade Holder Assy. | PD-604 |
| (1) | CD-ROM Operators Manual | PD-CDROM |
| (1) | Warranty Card | PD-W1050 |

CONNECTING YOUR CUTTER

CONNECTING TO POWER

CAUTION: Your *APD Flatbed Cutter* is shipped as a 120 or 220-volt unit. If the voltage indicated is incorrect for your area or country, please contact APD Technical Support at (714) 641-6658 for instructions.

1. Make sure the switch of power entry module is in the off position
2. Plug female end of the supplied power cord into the receptacle of the power entry module located on the Right side enclosure.
3. Plug male end of the power cord into a **GROUND**ED AC power source.
4. Plug the male end (25 pins) of the serial cable or the USB cable into connector found on right side end cap. Plotter will automatically detect for data from either port
5. Plug the female end (9 pins) of the data cable supplied with your plotter into the serial communication port (RS232) of your computer or the USB cable into any of the USB port of your computer.

WARNING: Your *APD Flatbed Cutter* is supported by a Serial Communication Protocol and is supplied; 9 pin Female to 25 pin Male data cable or a USB Cable. Make certain that you do not connect the plotter to the parallel port of your computer. Permanent damage to the serial port of your plotter may occur if connection to the serial port is not properly made. Use only the serial cable or USB Cable provided for connecting your *APD Flatbed Cutter* to your computer. Do not use a female to female or a male to male adapter to connect the cable provided to your plotter and computer.

LOADING MATERIALS

Following the 3 listed steps will produce good tracking.

Step #1

Set stencil on roller assembly provided on opposite end of keypad.

Step #2

Load the material by pulling material towards the keypad side of cutter passing under gantry and pinch wheels. Material should rest at or near cut-off blade.

Step #3

Set each pinch wheel on material at least ¼" inside of edge on each side. Engage pinch wheel bar by pressing on lever located on back of pinch wheel shaft.

BLADE INSTALLATION & ADJUSTMENT

Loading Blades

Take the blade supplied with the plotter and push the conical end into the blade holder until a small click indicates that it is all the way in the blade holder. The blade is now being held in place by a magnet.

Unloading Blades

To remove the blade, twist black cap counter clock-wise and remove cap completely. Pinch the blade and remove from blade holder, do this with caution to avoid injury.

Blade Installation & Adjustment (Continued)...

ADJUSTING BLADE DEPTH

Important: Your blade holder comes with an adjustment knob so that you can fine adjust depth of blade

- 1) To use adjustment knob loosen tightening nut and turn adjustment knob clockwise $\frac{1}{4}$ turn at a time. When you have reached desired blade depth use the tightening nut to secure in place.
- 2) Test the blade depth by laying down a piece of the material to be cut onto a flat surface and cutting the material with the blade holder by hand. Blade should cut through material but not the Mylar backing.
- 3) If the material is cut too deep, turn the adjustment knob of the blade holder a small amount counter clock-wise and lock tightening nut.
- 4) If the material is cut too shallow, turn the adjustment knob of the blade holder a small amount clockwise and lock tightening nut.
- 5) Re-adjust the blade depth until the material is cut slightly deeper than needed. Further depth adjustments can be done on the plotter's keypad after tool pressure adjustments are made.

INSTALLING THE BLADE HOLDER INTO MOUNT

- 1) Unscrew the small black thumbscrew on the blade holder mount a few turns counter clock-wise.
- 2) Push the blade holder through the blade holder mount assembly, blade end first until the collar on the blade holder is firmly in contact with the top of the blade holder mount.
- 3) Tighten the thumbscrew to about $\frac{1}{4}$ to $\frac{1}{2}$ turn after screw starts tightened. Do not over tighten the thumbscrew as over tightening may cause damage to the blade holder mount.

I. CONTROL PANEL FUNCTIONS

From the keypad there are a number menu functions available for you to use. With these menu functions you can adjust the performance of the plotter for cutting, drawing, pouncing, contour cut, tangential cut, and cut through on different types of materials.

The following functions are available:

- Moving the cutting head position
- Toggling the Tool
- Plotting Area
- Re-Plotting
- Homing the Cutter
- Clearing the Buffer
- Running Test Patterns
- External Command Toggle
- Unit Changing
- Saving Defaults
- Loading Defaults
- Advancing the Material
- Normal/Contour cutting
- Data Format Tool
- Offset
- Selecting cut mode
 - Pen drawing
 - Vinyl cutting (30, 45, 60 degree blades)

Pouncing

Paper cutting

Sandblast stencil cutting (tangential cutting)

Fabric cutting

Changing Cutting Pressure

Changing the Speed

Changing Serial Communications

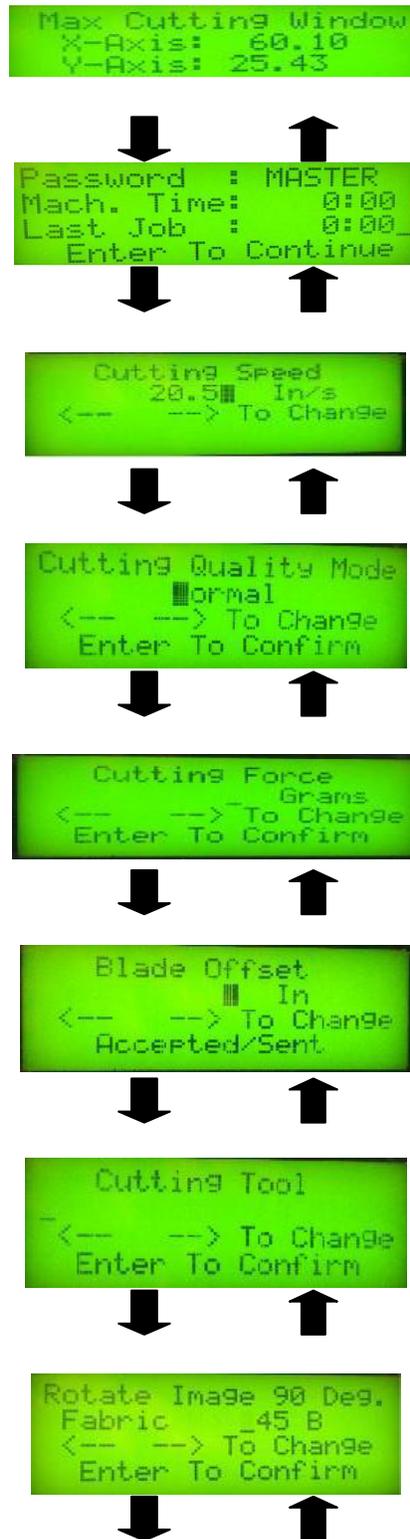
Cutting on a Sheet or Roll Material

Cutting time

The following pages contain a flow chart (menu tree) that shows the menu functions available. While all menu functions are available while not cutting, only some menu functions are available while cutting.

FUNCTIONS MENU TREE

Get to this screen by pressing **MENU** key



Load Machine Setting
CURRENT
←-- --> To Change
Enter To Confirm



Save Machine Setting
←-- --> To Change
Enter To Confirm



Machine Unit Setting
Metric
←-- --> To Change
Enter To Confirm



Software Control
No
←-- --> To Change
Enter To Confirm



Serial Port Setting
No
←-- --> To Change
Enter To Confirm



Built In Self Test

←-- --> To Change
Enter To Confirm



Homing Machine
←-- --> To Change
Enter To Confirm



Replot Last Job
Number Of Times:
←-- --> To Change
Enter To Confirm



Software Data Format
PGL
←-- --> To Change
Enter To Confirm



Cutting Method
<-- --> To Change
Enter To Confirm



Load Machine Setting
CURRENT
- <-- --> To Change
Enter To Confirm

1. MOVING TOOL POSITION



```
Arrow Key: Axis Move
Enter Key: Vac On/Of
X-Axis: + .00
Y-Axis: + .000 In
```

This menu allows you to jog the pen/knife and material to a new starting position. Also, to “JOG” and view any portion of the job while the cutter is in pause mode. When the cutter resumes plotting it will return to where it left off and finish the plot. Jogging can only be done while the cutter is not running. As soon as you release the arrow key, plotter will display the X and Y current positions compared to the homing positions. If you'd like to measure the material, you can re-home cutter and perform jogging.

Press the **UP** arrow key to move the cutting head forward

Press the **DOWN** arrow key to move the cutting head backward

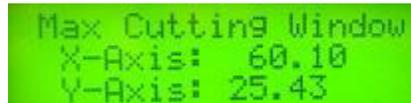
Press the **RIGHT** arrow key to move the cutting head to the right

Press the **LEFT** arrow key to move the cutting head to the left

Press the **DOWN** arrow key to move the cutting head backward

Press the **MENU** key on the keypad to return to the jogging menu.

2. MAX CUTTING WINDOW (PLOT AREA)



```
Max Cutting Window
X-Axis: 60.10
Y-Axis: 25.43
```

This menu allows you to view the current cutting area in current unit either centimeter or inches. Whenever your plotter is homed the menu will display the current plotting area. It is also the first menu displayed after pressing the key while in the jogging menu. This menu will also allow you to access the settings of cutter such as; tool, force, quality, etc....

Press the **UP** arrow key on the keypad to go to the previous menu function.

Press the **DOWN** arrow key on the keypad to go to the following menu function.

Press the **MENU** key on the keypad to return to the jogging menu.

3. CUTTING SPEED



This menu allows you to change the cutting speed of the cutting head between **4-101** centimeters per second (1.6-40 inches per second) for 1062A; and between 4-115 centimeters per second (1.6-45 inches per second). You can change the cutting speed while the cutter is cutting as well as while it is not cutting. Speed settings sent by your computer software may override settings made at the keypad.

Press the **LEFT** arrow key on the keypad to decrease the speed

Press the **RIGHT** arrow the key on the keypad to increase the speed

Press the **UP** arrow key on the keypad to go to the previous menu function

Press the **DOWN** arrow key on the keypad to go to the following menu function

Press the **MENU** key on the keypad to return to the jogging menu

4. CUTTING QUALITY MODE



This menu allows you to change the cutting quality of Pen/knife to *Normal* or *High*. It's mainly control the curve and cutting edge. The greater number of quality will help on the jobs that have most of small vector and curve.

Press the **LEFT** arrow key on the keypad to decrease the quality

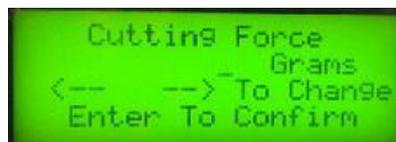
Press the **RIGHT** arrow key on the keypad to increase the quality

Press the **UP** arrow key on the keypad to go to the previous menu function

Press the **DOWN** arrow key on the keypad to go to the following menu function

Press the **MENU** key on the keypad to return to the jogging menu

5. CUTTING FORCE:



This menu allows you to change the cutting pressure of the cutting head between **30-500 grams** (1-14 ounces). You can change the tool pressure while the cutter is cutting as well as while it is not cutting. Tool pressure setting sent by your computer software may override setting made at the keypad.

Press the **LEFT** arrow key on the keypad to decrease the tool pressure

Press the **RIGHT** arrow key on the keypad to increase the tool pressure

Press the **ENTER** key on the keypad to confirm the tool pressure you have selected

Press the **UP** arrow key on the keypad to go to the previous menu function

Press the **DOWN** arrow key on the keypad to go to the following menu function

Press the **MENU** key on the keypad to return to the jogging menu

6. BLADE OFFSET



This menu allows you to change the tool offset which is automatically set when you select the tool. You should only change this setting only to improve the corner cutting quality with a dull blade. Note: if you select the tool after changing the offset, the preset offset will take placed.

Press the **LEFT** arrow key on the keypad to decrease the tool offset

Press the **RIGHT** arrow key on the keypad to increase the tool offset

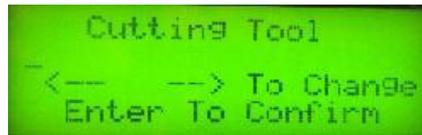
Press the **ENTER** key on the keypad to confirm the tool offset you have selected

Press the **UP** arrow key on the keypad to go to the previous menu function

Press the **DOWN** arrow key on the keypad to go to the following menu function

Press the **MENU** key on the keypad to return to the jogging menu

7. CUTTING TOOL:



This menu allows you to select the different tool 30 degree, 45 degree, 60 degree, Pen, Pounce, Tangent (for sandblast material), Half Cut (to cut through paper), or Fabric. You can select the tool while the cutter is plotting as well as while it is not cutting. Note: if you change the tool while cutting, unexpected result may happen.

Press the **LEFT arrow** key on the keypad to decrease the tool select value

Press the **RIGHT arrow** key on the keypad to increase the tool select value

Press the **ENTER** key on the keypad to confirm the tool select value you have selected

Press the **UP** arrow key on the keypad to go to the previous menu function

Press the **DOWN** arrow key on the keypad to go to the following menu function

Press the **MENU** key on the keypad to return to the jogging menu

8. ROTATE IMAGE 90 DEG



This menu allows you to rotate the job 90 degree. By changing the rotation, cutter will move to the new origin which is upper right corner for 0 degree selection or lower left corner for 90 degree selection.

Press the **LEFT** arrow key on the keypad to select 90 degree

Press the **RIGHT** arrow key on the keypad to select 0 degree

Press the **ENTER** key on the keypad to confirm setting you have selected

Press the **UP** arrow key on the keypad to go to the previous menu function

Press the **DOWN** arrow key on the keypad to go to the following menu function

Press the **MENU** key on the keypad to return to the jogging menu

9. LOAD MACHINE SETTING



```
Load Machine Setting
CURRENT
<-- --> To Change
Enter To Confirm
```

This menu will allow you to "LOAD" a speed, pressure and tool select from a default setting. You can choose options: **CURRENT/CUT/DRAW/VINYL/ WITH MYLAR/NO VINYL**. Default **CURRENT** is automatically loaded at power up.

Press the **RIGHT** arrow key on the keypad to choose options

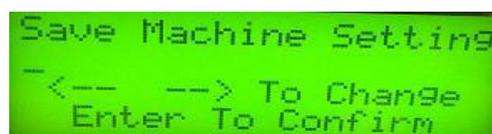
Press the **ENTER** key on the keypad to confirm setting you have selected

Press the **UP** arrow key on the keypad to go to the previous menu function

Press the **DOWN** key on the keypad to go to the following menu function

Press the **MENU** key on the keypad to return to the jogging menu

10. SAVE MACHINE SETTINGS



```
Save Machine Setting
<-- --> To Change
Enter To Confirm
```

This menu will allow you to "SAVE" the current speed, pressure and offset to a default setting. You can choose options: **CURRENT/CUT/DRAW/VINYL/ WITH MYLAR/NO VINYL**. Saving any default option will change the values for vinyl advance, units, and external commands in all default settings.

11. MACHINE UNIT SETTING



```
Machine Unit Setting
Metric
<-- --> To Change
Enter To Confirm
```

This menu will allow you to change the cutter display to either metric or inch units.

Press the **RIGHT** arrow key on the keypad to toggle to inch/centimeters units

Press the **ENTER** key on the keypad to confirm unit you have selected

Press the **UP** arrow key on the keypad to go to the previous menu function

Press the **DOWN** arrow key on the keypad to go to the following menu function

Press the **MENU** key on the keypad to return to the jogging menu

12. SOFTWARE CONTROL



```
Software Control
No
<-- --> To Change
Enter To Confirm
```

This menu will allow you to control the speed, pressure, tool select locally from the cutter. Any of the commands sent from the host computer that would modify these settings will be ignored.

Press the **RIGHT** arrow key on the keypad to choose external commands off

Press the **LEFT** arrow key on the keypad to choose external commands on

Press the **ENTER** key on the keypad to confirm setting you have selected

Press the **UP** arrow key on the keypad to go to the previous menu function

Press the **DOWN** arrow key on the keypad to go to the following menu function

Press the **MENU** key on the keypad to return to the jogging menu

13. SERIAL PORT SETTING



This menu will allow you to change the SERIAL COMMUNICATION (RS 2320) protocol.

Press the **LEFT** arrow key on the keypad to select NO

Press the **RIGHT** arrow key on the keypad to select YES

Press the **ENTER** key on the keypad to confirm your selection

Press the **UP** arrow key on the keypad to go to the previous menu function

Press the **DOWN** arrow key on the keypad to go to the following menu function

Press the **MENU** key on the keypad to return to the jogging menu

14. BUILT IN SELF-TEST



This menu will allow you to plot six different test patterns. If you wish to draw the test patterns with a pen, select pen in the tool selection menu before drawing. Be sure to select the tool back before cutting. Use test pattern **CUTTING PRESSURE** to cut a square, triangle, and circle to help you with pressure and tool select adjustments.

Press the **LEFT** arrow key or **RIGHT** arrow key on the keypad to choose pattern

Press the **ENTER** key on the keypad to run the test pattern you have selected

Press the **UP** arrow key on the keypad to go to the previous menu function

Press the **DOWN** arrow key on the keypad to go to the following menu function

Press the **MENU** key on the keypad to return to the jogging menu

15. HOMING MACHINE



This menu allows you to home the cutter. Homing should be redone anytime the pinch wheel positions have been changed.

Press the **LEFT** arrow key or **RIGHT** arrow key on the keypad to confirm your selection

Press the **UP** arrow key on the keypad to go to the previous menu function

Press the **DOWN** arrow key on the keypad to go to the following menu function

Press the **MENU** key on the keypad to return to the jogging menu

16. RE-PLOT LAST JOB



This menu allows you to re-plot the last job up to 999 copies. If the last job plotted was larger than the buffer then a re-plot will not be possible.

Press the **LEFT** arrow key on the keypad to decrease number of re-plot

Press the **RIGHT** arrow key on the keypad to increase number of re-plot

Press the **ENTER** key on the keypad to confirm your selection

Press the **UP** arrow key on the keypad to go to the previous menu function

Press the **DOWN** arrow key on the keypad to go to the following menu function

Press the **MENU** key on the keypad to return to the jogging menu

17. SOFTWARE DATA FORMAT



This menu allows you to switch between HPGL (Hewlett Packard Graphic Language) or APDGL (Advanced Plotting Devices Graphic Language). Select HPGL for communication with most of the Sign Software and APDGL for communication with Corel Draw, Microsoft Word, and Adobe Illustrator.

Press the **LEFT** arrow key on the keypad to select APDGL

Press the **ENTER** key on the keypad to confirm your selection

Press the **UP** arrow key on the keypad to go to the previous menu function

Press the **DOWN** arrow key on the keypad to go to the following menu function

Press the **MENU** key on the keypad to return to the jogging menu

II. POUNCING FUNCTIONS:

With the optional APD pounce kit you can make perforated paper patterns that used with a charcoal or chalk pounce bag will allow you to transfer an image to a surface for hand painting or cutting. Typical applications for using a pounce pattern include wall or rough surface lettering, bulletin lettering, large sandblast stencil cutting, etc... on large plastic faces before spraying painting, etc...

A pounce pattern is a paper pattern with perforated holes through the surface. These are located along the outline of the image to be transferred. The pattern is then aligned and taped temporarily to the surface where the pattern is to be transferred, then a small cloth bag filled with chalk or charcoal is “pounced” and rubbed over the holes to transfer the image through to the surface. After the pattern is removed there will be many small dots of powder on the surface of the patterned area indicating the shape of the image. After the surface is cut or painted (and it has dried), the charcoal or chalk can be easily wiped away.

1. CUTTER SETUP:

In the control panel press **PRESSURE** key to enter the **PRESSURE** functions and then press down arrow key to go to **CUTTING TOOL** screen and press right arrow key until the following menu appears:



```
Cutting Tool
Pouncing
<-- --> To Change
Enter To Confirm
```

Then press **ENTER** key to confirm. After that, the following menu appears:



```
Pouncing Mode
Medium Spacing
<-- --> To Change
Enter To Confirm
```

Press the **LEFT** and **RIGHT** arrow key to change **Medium Spacing** and **Coarse Spacing**. Use **Fine Spacing** for small letters and **Coarse Spacing** for large letters.

2. FINAL SETUP AND POUNCING OPERATION:

- Replace the cutting blade or pen with pounce tool and tighten the thumbscrew to secure the tool.
- Load the paper to be pounced just like loading vinyl for cutting.
- Adjust the pressure between 250 – 3350 grams and start pouncing
- Remove pattern from cutter, turn over and sand the back side lightly with 100 – 120 grit sand paper. This will open up the holes for better transfer of the image.
- Position and tape the pattern to the surface to be created and pat lightly with the charcoal or chalk pounce bag along the outline of the pounced image. Rub the loose charcoal or chalk on the surface of the pattern over the surface of the pattern to distribute through the holes.
- Remove the pattern from the face of the applied surface.

III.PAPER CUTTING FUNCTION:

The half cut function of your APD Flatbed Cutter will allow you to cut paper or card. Some uses for this function includes cutting out vinyl decals, individual vinyl letters, paper patterns for clothing prototype and head transfer papers for cloth banner manufacturing.

CUTTING PAPER USING HALF CUT:

- Use APD part #xxxx-xx (roll foam protective strip) and cut a strip the length of the platen. Install the foam strip by pressing the adhesive back along the platen surface. This strip will protect the platen from any blade damage while cutting through paper.
- Adjust the blade holder turn screw until the tip of the cutting blade is just protruding through enough to cut through the paper.
- Load the paper to be cut and put the cutting tool in the tool holder
- Cut self-test pattern 1 to test the depth of the blade. Adjust the blade holder setscrew until the blade just cuts through the surface of the paper.
- On the key pad, go to select **Half Cut** function by pressing the **PRESSURE** key to enter the **PRESSURE** functions and hit the down arrow key until the following menu appears:



```
Cutting Tool
Pouncing
<-- --> To Change
Enter To Confirm
```

Press **RIGHT** arrow key until the following menu appear.



```
Cutting Tool
_Perforate/Half Cut
<-- --> To Change
Enter To Confirm
```

Press **ENTER** key to confirm and the following menu will appear. This menu allows you to enter the cut length in inches.



```
Half-Cut Mode
Cut Dist: 1.969 In
<-- --> To Change
Accepted/Sent
```

Press the **DOWN** arrow key will bring up the following menu. This menu allows you to enter the uncut length in inches.

```
Half-Cut Mode
Uncut Dist: 0.394_In
<-- --> To Change
Enter To Confirm
```

Press the **DOWN** arrow key will bring the following menu. This menu allows you to specify the corner length (both directions) in inches.

```
Half-Cut Mode
Corner Dist:0.472_In
<-- --> To Change
Enter To Confirm
```

You can change these value and test result until the cutting quality is satisfactory. Normally thinner paper requires higher settings for the uncut and corners value and lower setting for the cut value. Thicker paper requires lower settings for the uncut and corner values and higher setting for the cut value.

IV. ENGRAVING FUNCTIONS:

With the optional *APD* engraving tool you can scribe on the surface of thin metals and plastics. By using fill patterns and decorated lines in your software you can create very professional looking engravings.

As the *APD* engraving tool is a scriber, only materials designed for scriber engraving may be used. The best materials to use are the kinds that are designed for trophy engraving. Trophy engraving materials are thinner than the heavier materials designed for milling engravers and they have thinner coating on the top surface that is designed to be “scribed” off to expose a different colored surface below (usually the metal itself).

There are several different types of trophy engraving materials that are compatible with the *APD* engraving tool. Generally these are made of aluminum or brass and they have either a painted or anodized top surface.

They are also very thin (usually 0.020” – 0.030” or 0.5 – 0.75 mm) although thicker materials may be evaluated and tested for use.

Materials Preparation and Plotter Setup for Engraving

- Apply polyester shipping tape to the back of the engraving material in several strips along the axis that the engraving material will be moving across the platen of the plotter. Make sure that you have a strip under each pinch wheel as well as additional strips to protect the platen from damage as the metal passes back and forth over the platen. This also improves the tracking with soft metals such as aluminum.
- Load the engraving material on the plotter so that the front edge of the engraving material is located even with the front edge of the Teflon cutting strip and lower the pinch wheels of the engraving to secure. You may move the pinch wheels very close to the left and right edges of the engraving material if the material is square on the plotter. Be sure to allow about 1.25” or 32mm extra engraving material in the rear so the engraving material will not come out from underneath the pinch rollers before the job is completed. To get best usage out of your material you can try homing the cutter with the pinch wheels at a wider setting than the material and then moving them in and on to the engraving material before scribing. Caution must be used when doing this to avoid sending a job larger than the engraving material as the plot window will allow the tool to scribe right off the edge.
- **Turn off the vinyl advance function** both on the cutter and software.
- **Select the PEN in the tool selection menu.**
- The normal offset that produces square corners when cutting vinyl will produce small arcs at the corners when engraving. With some software you may also need to set the External Command to No, so that the software will not override the pen selection setting.
- Set the plotter speed to 5 – 10 cm per second and the tool pressure between 180 – 400 grams. You should test the speed and pressure on any new material you use.
- Insert the *APD* engraving tool into the tool holder and tighten the thumbscrew.
- Create an engraving jog using line and hatching fills. The scriber will need hatching spacing set to about 0.005” or 0.125 mm for a solid fill. Use wider hatching fills for gray scale type effects.
- Send the job to the plotter to engrave.

V. FABRIC CUTTING:

1. PLOTTER SETUP:

In the key pad, go to the tool function by pressing the **PRESSURE** key to enter the **PRESSURE** functions and then pressing the **DOWN** arrow key until the following menu appears:



```
Cutting Tool
45 Degree Blade
<-- --> To Change
Enter To Confirm
```

Press the **RIGHT** arrow key until the following menu appears and press the **ENTER** key to confirm:



```
Cutting Tool
Fabric Use 60 Blade
<-- --> To Change
Enter To Confirm
```

Press the **PRESSURE** key to go to following menu:



```
Cutting Force
200 Grams
<-- --> To Change
Enter To Confirm
```

Press **LEFT** arrow key to change pressure to 200 grams and press the **ENTER** key to confirm.

2. FINAL SETUP AND FABRIC CUTTING OPERATION:

- Loading the fabric onto plotter.
- Install the APD fabric cutting blade holder and blade.
- Adjust the blade holder black cap in such a way that the length of the blade extruded out of the cap will be equal or a little bit more than the thickness of fabric. Doing this to avoid cutting into the cutting Teflon strip.
- Run the **CUTTING PRESSURE** :

Press **MENU** key and go to **BUILT IN SELFTEST** then use **RIGHT** arrow key to choose **CUTTING PRESSURE**.

- Adjust cutting pressure until you can easily peel off the pattern and there is a lightly cutting mark on the backing.
- Now you can start cutting your pattern by sending data from host computer.

VI. MATERIAL APPLICATIONS

The following pages give recommendations on the proper settings for the cutting of various materials on your *APD Flatbed Cutter*.

High Performance Vinyl

These are high quality cast films available in a wide variety of colors. They are about 2 mils thick with either a paper or polyester backing. Light pressure is used to ensure the vinyl is cut through without cutting through the backing.

Blade= 45 degree APD Part # PD-1222

Speed= 101cm or lower

Pressure= 60-100 grams

Depth=Expose blade fully

Intermediate Vinyl

These are medium quality calendared films available in a wide variety of colors. They are about 3-4 mils thick with either a paper or polyester backing. Medium pressure is used to ensure the vinyl is cut through without cutting through the backing.

Blade= 45 degree APD Part # PD-1222

Speed= 101cm or lower

Pressure= 90-180 grams

Depth=Expose blade fully

Reflective Vinyl

These are medium duty films with a high rate of light reflectivity. They are a little heavier than normal vinyl films and they have a paper or polyester backing. Medium pressure is all that is needed to ensure a good cut.

Blade= 45 degree APD Part # PD-1222

Speed= 91cm or lower

Pressure= 120-180 grams

Depth=Expose blade fully

High Intensity Reflective Film

These are heavy-duty films with extremely high rate of light reflectivity. They are much heavier than normal vinyl films and they have a thin backing that is softer than the film itself. Heavy pressure is needed to ensure a good cut. Precise depth adjustment is necessary to ensure that the backing is not cut through while the film is being cut.

Blade= 60 degree APD Part # PD-1224

Speed= 50cm or lower

Pressure= 250-350 grams

Depth=Adjust blade depth so that the exposed blade will only cut the reflective film, but not the backing material.

Sandblast Stencil

These are thick materials used as stencils on the surface of a material that is being sandblasted. They come with either paper or polyester backings. The paper backed types require depth adjustment so that the backing is not cut through while the film is being cut. The polyester backed materials can be cut without depth adjustment but depth adjustment increases blade life.

Blade= 60 degree APD Part # PD-1224

Speed= 50cm or lower

Pressure= 250-350 grams

Tool = Tangent

Depth=Adjust blade depth so that the exposed blade will only cut the reflective film, but not the backing material.

Ruby lithe & Amber lithe

These materials are used for making film positives for the silk-screen process. They are thin translucent materials with a polyester backing. Light pressure is used to prevent cutting through the backing. If the pressure is too light then the blade will not swivel properly in the material while cutting.

Blade= 45 degree APD Part # PD-1222

Speed= 101cm or lower

Pressure=50-90grams

Depth=Expose blade fully

Silk Screen Stencil Films

These water or lacquer based materials are used for making stencils for the silk-screen process. They are thin translucent materials with a polyester backing. Light pressure is used to prevent cutting through the backing. If the pressure is too light then the blade will not swivel properly in the material while cutting.

Blade= 30 degree APD Part # PD-1223

Speed= 101cm or lower

Pressure=50-100 grams

Depth=Expose blade fully

Heat Transfer Films

These materials are heat transferred to fabrics. The recommended type for cutting by the **APD Flatbed Cutter** is similar to vinyl in nature. Ink based heat transfer films are not recommended because the bond of the film to the backing is not strong enough to allow good cutting and weeding.

Blade= 45 degree APD Part # PD-1222

Speed= 91 cm or lower

Pressure=100-150 grams

Depth=Expose Blade Fully

Heat Transfer Flocks

These materials are heat transferred to fabrics. The recommended type for cutting by the **APD Flatbed Cutter** has the flock side toward the backing while the transfer side is exposed towards the top of the film. The blade need only cut through the top glue or transfer layer and not the whole thickness of the film in order get a good quality cut. Depth adjustment is necessary in order to only cut through the glue or transfer surface.

Blade= 60 degree APD Part # PD-1224

Speed= 91cm or lower

Pressure=100-150 grams

Depth=Adjust Blade Depth

Paper

You can draw patterns on your **APD Flatbed Cutter**. In order to get a good quality drawing you will need to set the tool offset to 0.

*Pen= APD Part # PD-20BU-A (blue) & PD-20RD-A (red)
& PD-20BK-A (black)*

Speed= 101cm or lower

Pressure=80-100grams

Tool = Pen

Depth=Not Applicable

Pounce Pattern

You can pounce paper patterns on your **APD Extreme Flatbed Cutter**. Refer to the pounce instructions and the pounce function in the control panel section of the manual.

APD Pounce Kit Part # PD-7000

Speed= 101cm or lower

Pressure=250-350grams

Tool = Pen

Depth=Not Applicable

Paper Cutting

You can cut paper on your **APD Flatbed Cutter**. Refer to the paper cutting instructions and the half cut function in the control panel section of the manual

Blade=45 degree APD Part # PD-1222

Foam Strip=Cut from APD Part # PD-7001

Speed= 50cm or lower

Pressure=70-100grams

Depth=Adjust blade depth so that the exposed blade will just cut through the paper

Engraving

You can scribe engraving sheet of material on you **APD Flatbed Cutter**. In order to get a good quality engraving you will need to select PEN in the tool selection menu.

APD Tool Part # PD-7002

Speed= 10cm or lower

Pressure=200-400grams

Tool = Pen

Depth=Not Applicable

VII. MAINTENANCE:

IMPORTANT:

Keep your *APD Flatbed Cutter* in a clean environment. Do not allow metallic filings to come in contact with the plotter. Do not let any conductive material get into Electronics through vacuum holes.

Maintenance

Your *APD Flatbed Cutter* is designed to operate reliably with only minor attention to the following details:

- Keep the cutter clean and dry. You can clean the cutter with a soft cloth dampened with a mild detergent diluted with water (rubbing alcohol is OK). Never spray liquid directly on the plotter.
- Regularly clean the rail supporting the head (Y Axis Rail). Clean the top and bottom surfaces that the head bearings run on with rubbing alcohol. Do not oil the rail.
- Do not attempt to oil any bearings or surfaces on the cutter. All bearings are sealed with internal grease. All friction surfaces have been designed with low friction materials for long life.

VIII. TESTING YOUR CUTTER

After loading material and adjusting the pressure, you are ready to test cut. Refer to the Control Panel section for test patterns.

IX. TROUBLE SHOOTINGS

CUTTER WILL NOT BOOT UP

- 1) Power switch not on. (See Connecting Plotter)
- 2) Power cord not connected properly. (See Appendix B)
- 3) Faulty power source (Check with Electrician)

CUTTER WILL NOT CUT

- 1) Data cable not connected properly. (See Connecting Plotter)
- 2) Software communication protocol not set properly. (See Plotting from Soft.)
- 3) Communications board faulty. (Check with Vendor)

MATERIAL CUTTING TOO SHALLOW

- 1) Blade dull.
- 2) Cutting pressure too low. (See Material Apps.)
- 3) Blade depth adjusted too low. (See Blade Adjust.)
- 4) Material too thick or too tough to cut with plotter. (See Material Apps.)

MATERIAL CUTTING TOO DEEP

- 1) Cutting pressure too high. (See Material Apps.)
- 2) Blade depth adjusted to high. (See Blade Adjust.)

MATERIAL NOT WEEDING PROPERLY

- 1) Blade offset wrong. (See Material Apps.)
- 2) Material cut too shallow or too deep. (See Material Apps.)
- 3) Wrong blade angle. (See Material Apps.)
- 4) Cutting speed too fast for material. (See Material Apps.)

APPENDIX A

Error messages on LCD and Computer screen

	Error message	Possible Cause	Corrective Action
1	Y-Axis Left limit	Out of cutting area	Check cutting window
2	USB-error	Disconnection between PC & machine	Check USB cable