USER'S GUIDE
for
SIGNPAL LYNX

(BRIEF VERSION)

FCC   ID : LO4LYNX S-60

April,1999

Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-- Reorient or relocate the receiving antenna.

-- Increase the separation between the equipment and receiver.

-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-- Consult the dealer or an experienced radio/TV technician for help.

Warning: A shielded-type power cord is required in order to meet FCC emission limits and also to prevent interference to the nearby radio and television reception. It is essential that only the supplied power cord be used.

Use only shielded cables to connect I/O devices to this equipment.

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

★ IMPORTANT INFORMATION ★

Thanks for your purchasing of our SignPal Series – Lynx cutting plotters.
To optimize the performance of your Lynx, please take the time to read through
the user manual completely and follow up the correct operation procedure.
Hope you will enjoy using your cutting plotter.

PRECAUTIONS IN USE

- For safety's sake, be sure to hold the plotter body's bottom when moves your cutting plotter.
- Do not shake or drop the blade holder, blade tip can fly out.
- During operation, do not touch any of the moving parts of this machine (such as the carriage). Also be careful that clothing and hair do not become caught.
- Always connect the power cable to a grounded outlet.
- Always use the accessory power cable that is provided. Do not wire the power cable so that it becomes bent or caught between objects.
- Do not connect the power cable to branching outlet to which other machines are also connected, or use an extension cable. There is danger of overheating and of mis-operation of the machine.
- Keep the tools away from children where they can reach.
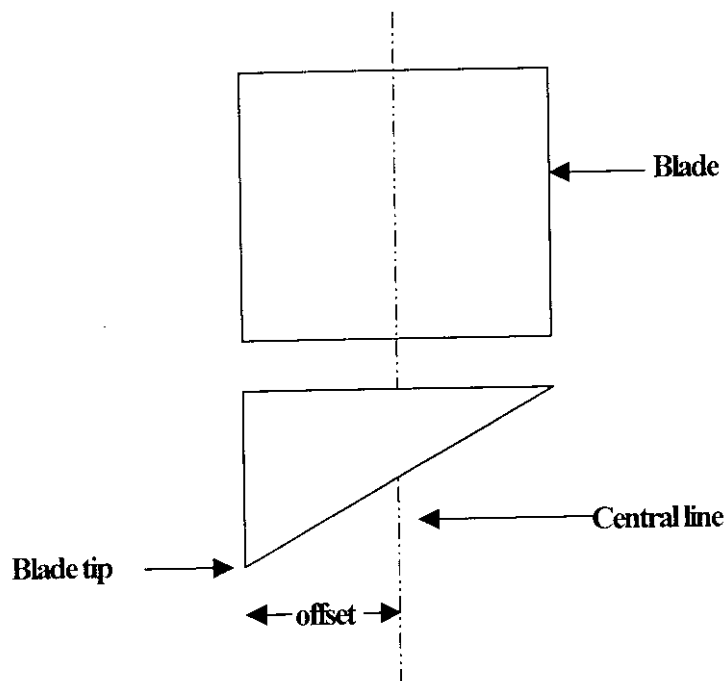- Always put the pinch rollers within the white marks.

QUICK MENU

1. Power $\boxed{\text{ON}}$. (the POWER LED lights on)

2. Place the media and lower down the pinch rollers (make sure the pinch rollers are position above the grid drums).

3. The cutting plotter will size the media size automatically according to setting of the dip switch (usually the presetting is ROLL media type).

4. **Off-line condition** - Plotter is not ready to receive data from computer. Press $\boxed{\text{ON/OFF LINE}}$, the LED above off.

5. **On-line condition** - Plotter is ready to receive data from computer. Press $\boxed{\text{ON/OFF LINE}}$, the LED above lights.

6. Change the setting value during cutting - press $\boxed{\text{PAUSE}}$ key, the LED above blink. To continue cutting press $\boxed{\text{ON/OFF LINE}}$

7. Terminate the cutting and clear the data in the buffer. Press $\boxed{\text{ON/OFF LINE}}$ or $\boxed{\text{PAUSE}}$ and then press $\boxed{\text{DATA CLEAR}}$.
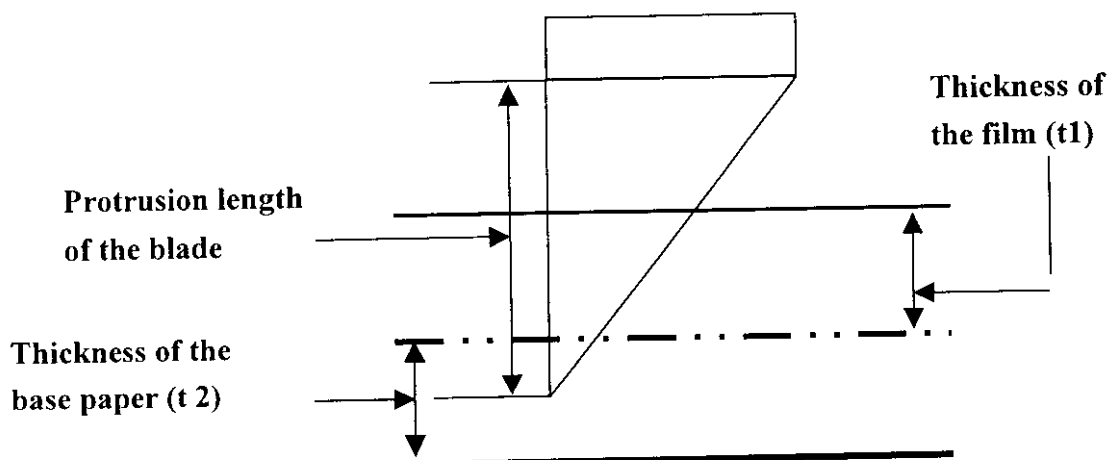
ABOUT THE TOOL

A generic term referring to the blade that cuts the sheet, the pen that does plotting, and the LED bombsight (option) used for pointing to the reference point.

OFFSET is the distance that the blade tip is displaced from the centerline of the blade.

Blade

Central line

Blade tip

← offset →

Protrusion Length of the Blade

Thickness of
the film (t1)

Protrusion length
of the blade

Thickness of the
base paper (t 2)

Length of protrusion = t1 + t 2/ 2, but for your convenience you may just make it about 0.3~ 0.5 mm beyond the blade holder tip.

The Specification for GCC Blade

ZZ 00219A **GCB-145S**	For cutting general signage vinyl. Standard blade with largest angle. The blade is 45° with yellow cap, 0.25 mm blade offset and 5 miles life.

ZZ 00222A **GCB-460SO**	For cutting thin sandblast mask and stencil with friction feed machine. The blade is 60° with green cap, 0.5mm blade offset and 5 miles life.

ZZ 00233A **GCB-500**	For cutting small text and fine detail. Sharp blade with smallest offset – 0.175 mm.

ZZ 00220A **GCB-245R**	For cutting thick fluorescent and reflective vinyl. Also, for cutting detailed work in standard vinyl. The blade is 45° with red cap, 0.25 mm offset and 5 miles life.

ZZ 00221A **GCB-360SB**	Blades with sharp edge and high offset ideally suited for cutting thick material. The blade is 60° with blue cap, 0.3 mm blade offset and 5 miles life.

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Chapter 1 – Learning About Your Sign Cutting Plotter

1.1 Initial Inspection

Before setting up your cutting plotter, please carefully unpack and inspect what you have received from the shipped carton by comparing them with the following listed items. If you discover any item missing in the process of delivery, please inform your dealer.

Item	Quantity
Cutting Plotter Body	1
Accessory Bag includes:	
Roller Base	1
RS-232C / Serial Cable	1
Cutter Tool	1
Cutting Pad	1
Tweezers	1
User's Guide	1
AC Power Cord	1
Blade Holder	1
Blade	1
Water-Based Fiber-Tip Pen : 0.3 mm tip width	1
Spacer for blade holder	4

Optional Item	Quantity
Printer Cable	1
Stand & Flexible Media Support System includes:	1
● Stand set and accessory box.	
● Roll Media Flange	
● Roll Holder	
● Roll Holder Guide bushes	
● Roll Holder Support	

1.2   Front View of Lynx (Figure 1-1)

Tool Carriage

Grid Drum

Control Panel

Cutting Pad

Pinch Roller

Platen
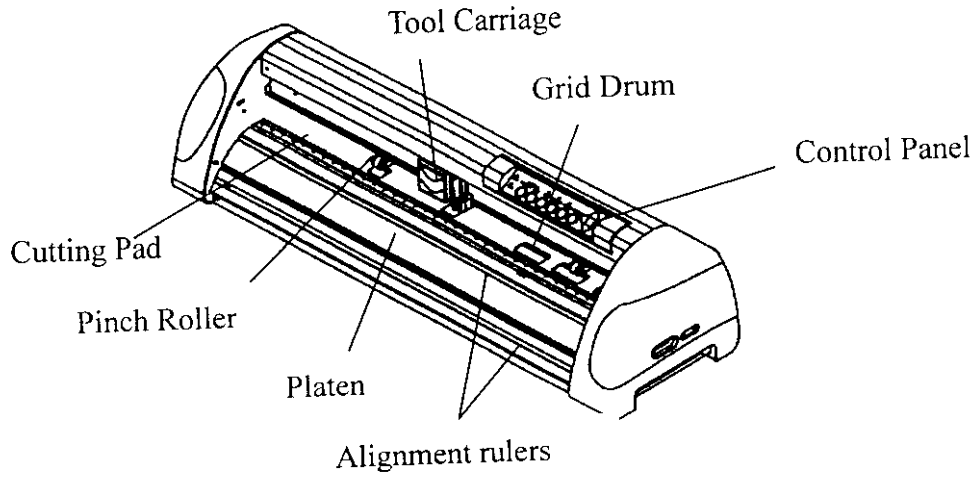
Alignment rulers

Figure 1-1

1.3   Back View of Lynx (Figure 1-2)

Figure 1-2

Roll Holder Guide Bushes

Roll Holder

Roll Holder Support

Stand

Media Basket
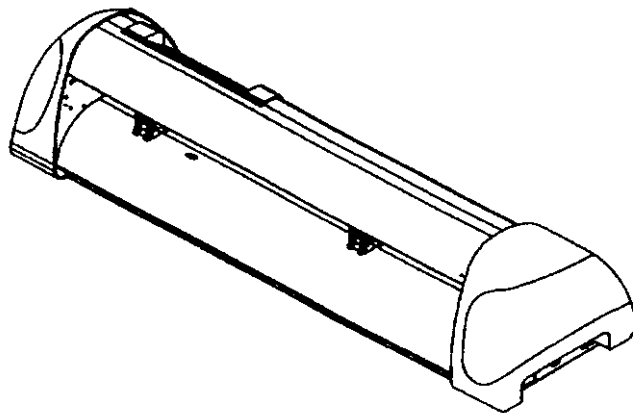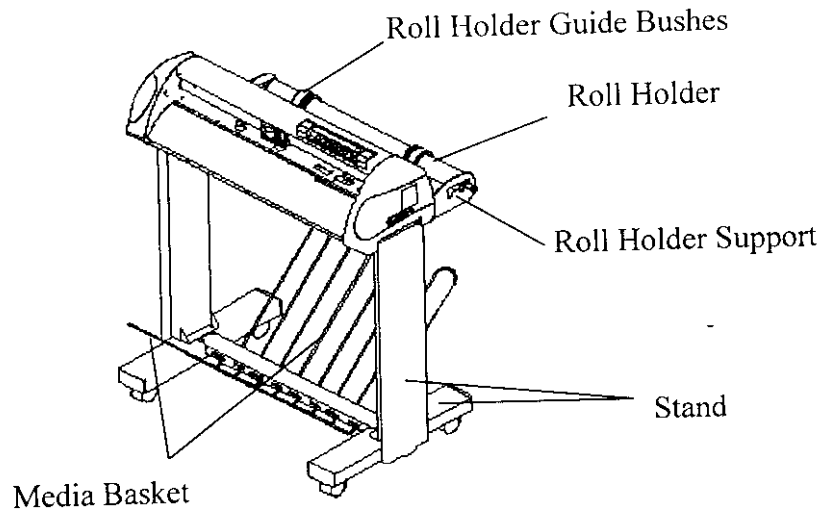
Figure 1-3

1. **Platen** - Provides the surface for holding and supporting media during cutting.
2. **Cutting Pad** - Provide the protection of blade when the blade is cutting.
3. **Alignment Ruler** – Media can be aligned with the clear guide line marks.
4. **Tool Carriage** – This unit performs the cutting with the installed blade and pen
5. **Grid Drum** - Moves the media back and forth during operation.
6. **Control Panel** - Consists of 10 control keys and 6 LEDs.
7. **Pinch Rollers** – Press the media against grid drum during cutting.
8. **Lever** - Raises or lowers the pinch rollers.

Optional Items (see Figure 1-3)

1. **Roll Holder** – Consist of two rollers to hold and supplies the roll media for cutting.
2. **Roll Holder Guide Bushes** - Serve to keep the roll media in place when media is pulled from the roll.
3. **Roll Holder Support** - Supports roll holders.
4. **Stand** - Supports the cutting plotter body.
5. **Media Basket** – Used for long plot cutting, the extra media can be put here.
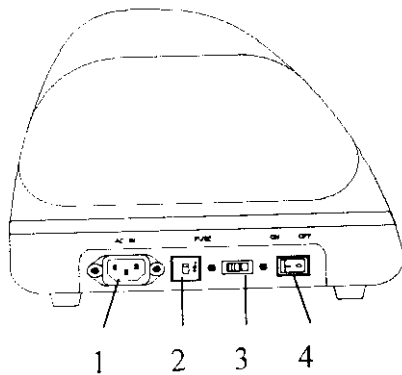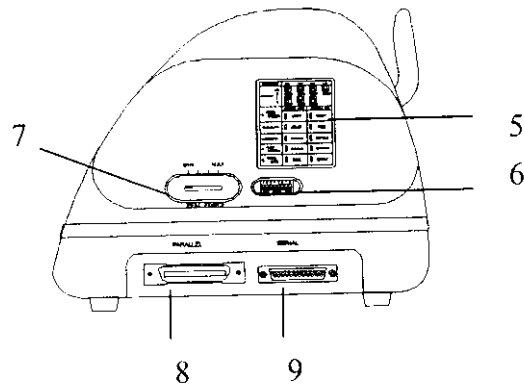
1.4   Side Views of Lynx

Figure 1-4

Figure 1-5

Left Hand Side (Figure 1-4)

1. **AC Power Connector** – Used to insert the AC power cord.
2. **Fuse** – Up to 3 Amp.
3. **Voltage Switch** – The preset value is 230 voltage. Please adjust to comply with the local standard.
4. **Power Switch** – On when switches to [I]; Off when switches to [O]

Right Hand Side (Figure 1-5)

5. **Dip Switch label** – Indicate the function of the dip switch.
6. **Dip Switch** - Used for various parameter setting.
7. **Pen Force Control Slider** – Set the blade force here.
8. **Parallel Interface Connector (Centronics)** –Used to connect the cutting plotter to a computer through a parallel interface cable.
9. **Serial Interface Connector (RS-232C)** – Used to connect the cutting plotter to a computer through a serial interface cable.
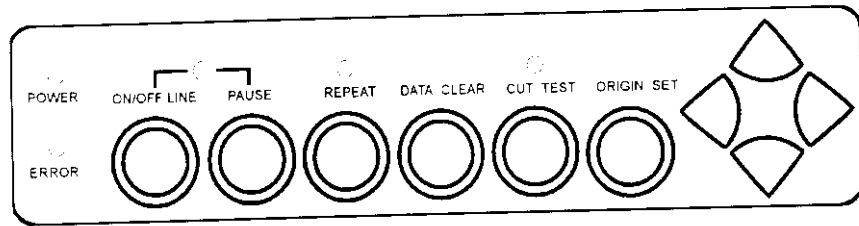
1.5   Control Panel

Figure 1-6

1. **ON/OFF LINE Key** – Used for communication between the cutting plotter and the host computer. When ON LINE condition, the LED above on. Press again, the **ON/OFF LINE LED** off.

2. **PAUSE Key** – Press this key once can temporarily terminate the motion of the cutter, and the **ON/OFF LINE LED** flashes. Press **ON/OFF LINE Key** can release the paused state.

3. **REPEAT Key**- Press this button for you to repeat the last cutting job at the same position, and the **REPEAT LED** on.

4. **DATA CLEAR Key** - Press this key to clear the data in the buffer memory. At this moment, the **DATA CLEAR LED** on.

5. **CUT TEST Key** - To test the cutting quality before starting your cutting job. While doing the cut test, the **CUT TEST LED** on.

6. **ORIGIN SET Key** – This key sets a new origin point for cutting to the current tool position.

7. **ARROW Key** – Used to move the media or the cutting carriage.

8. **POWER LED** – Turn on the power, the power LED on.

9. **ERROR LED** – This LED on or flashes indicate various problems or error. To find the cause of the problem, see Chapter 3 "Troubleshooting".

Chapter 2 — Basic Operation

2.1   Dip Switch Setting

The cutting plotter will read values of the dip switch every time when press **ON/OFF LINE Key**. Therefore, any change during on-line condition will not work. Function for each dip switch please refer to the sticker on the plotter (Figure 2-1).

The presetting of dip switch is as below :

Off Set Value	: 0.275 mm
Media Weight	: Light Media
Quality	: Smooth
Smooth	: Enable
Auto Unroll	: Enable
Media Type	: Enable
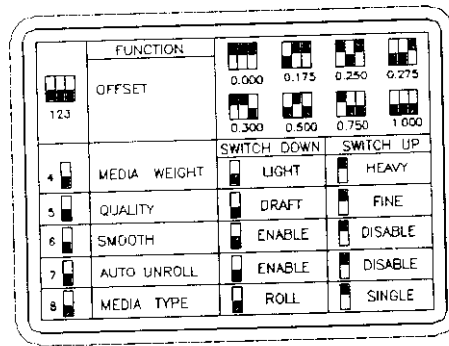
Figure 2-1

SW 1-3   :   OFFSET setting

The first three dip switch represent 8 different value of offset as below

0.000 0.175 0.250 0.275 0.300 0.500 0.750 1.000
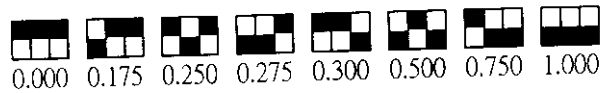
SW-4   :   MEDIA WEIGHT (SPEED)

The forth dip switch from the left sets the upper limit for cutting speed. Heavy media has a smaller upper limit. The value of the cutting speed can be changed from the driver

Heavy media is used so the upper limit for cutting speed is 300mm/sec default is 30mm/sec

Light media is used so the upper limit for cutting speed is 600mm/sec default is 330mm/sec

SW-5   :   QUALITY

There is a trade-off between Quality and Speed, the finer the cutting quality, the slower the cutting speed.

Fine quality

Draft quality

SW-6 : SMOOTH

Make the curves smoother during cutting. When cut the small letter, it is recommend to disabled the smoothing cut.

■ Disable the smoothing cut.
□ Enable the smoothing cut.

SW-7 : AUTO UNROLL

Unroll the heavy media at least 50 cm when the next point of movement is located beyond the unrolled position. As the media type is Single, this function will be disabled.

■ Disable the auto unroll
□ Enable the auto unroll

SW-8 : MEDIA TYPE

Set the type of the media you use. When using a piece media, set it to "ON"; and set it to "OFF" when using a roll media.

■ Single sheet of media is using.
□ A roll of media is using.

2.2   Power On

◇ *Be sure not to put anything or hands on the platen of the plotter when turning on the power. It may cause injury.*

◇ *Keep long hair away from the grid drum when power is on.*

Turn the power switch on the left-hand side of the cutting plotter and the **POWER LED** on; the cutting plotter is ready to receive data from computer. Below is control panel lights when uses different functions key in normal conditions.

Function	POWER	ERROR	ON/OFF LINE	REPEAT	DATA CLEAR	CUT TEST
on-line state	●	○	●	○	○	○
pause state	●	○	☼	○	○	○
off-line state	●	○	○	○	○	○
repeat	●	○	○	●	○	○
data clear	●	○	○	○	●	○
cut test	●	○	○	○	○	●
origin set	●	○	○	●	●	●

☼ = flash   ● = on   ○ = off

2.3   ON/OFF LINE Key

● **On - line**

When the machine is "**ON LINE**" condition, the **ON/OFF LINE LED** on, the cutting plotter is ready to receive data from the host computer. At this moment, only "**PAUSE**" and "**ON/OFF LINE**" keys are valid.

Change the setting value

1. Press the **PAUSE** key to change the setting value during cutting.
2. Press the **ON/OFF LINE** key to continue cutting.

Terminate the cutting & clear the data in the buffer

1. Press the **ON/OFF LINE** key or press the **PAUSE** key
2. Then press the **DATA CLEAR** key

● **Off- line**

When the machine is "**OFF Line**" condition, the **ON/OFF LED** turn off. At this moment, you can change the dip switch setting and do cutting test and set new origin as well. Press the key again will let the cutting plotter switch to "ON LINE" condition, and resume the suspended operation. But there might be some data loss during this interruption.

2.4   PAUSE key

The purpose of the "PAUSE" key is to temporarily terminate the motion of the cutter after it started cutting. At this moment, the ON/OFF LINE LED flash; you can change the dip switch setting on the right-hand side of the plotter. It will resume cutting after pressing the ON/OFF LINE key to make the machine in the online status.

> **Note :**
> The parameters of dip switch in effect can not be changed while the cutting has started unless pressing the "PAUSE" key. When press the "PAUSE" key, you can change the setting.

2.5   Repeat key

Lynx can repeat your last cut at the same position by pressing REPEAT key without setting new origin. If you're using a thicker media, it is better to use this function to avoid damaging your blade.

Procedures :

1. After cutting finishes, use the ARROW keys to move the center of the blade holder. Move to your desired position for repeating the cutting job, then press the ORIGIN SET key. The ORIGIN SET LED lights, and new origin point is set.

2. Press the REPEAT key to start re-cutting job, and the REPEAT LED lights.

2.6   DATA CLEAR key

The purpose of the DATA CLEAR key is to clear the data in the buffer memory. The DATA CLEAR key can only works under pause or off-line condition. When use this function, the DATA CLEAR LED will light.

2.7   Cutting Test

In order to achieve the best cutting performance, it is necessary to set cutting conditions that match the cutting media, giving considerations to the thickness of the sheet and type of material. Lynx can performs a cutting test is to determine the appropriate cutting force and offset value for your media and this can only work under the off-line condition.
Once you finish the cut test, the new origin is also set to the current tool carriage position.

Procedures :

1. After sizing the media, press the **ON/OFF LINE** key to change the plotter status to off-line condition.
2. Then use arrow keys to move the tool carriage to the position where you like your test to proceed.
3. Press the **CUT TEST** key to do the cutting test. The **CUT TEST LED** turns on.

> **Note:**
> The new origin is also set at the cutting test position.

2.7.1   Adjust Tool Force

When the cutting test is completed, a square cut out appears. Peel off the square to see if it can be easily separated from the media base. If yes, the setup tool force is appropriate. If not, use **"Pen Force Control Slider"** on the right-hand side of the plotter to adjust the tool force. First, move the control slider to the left-most indicator mark (min. blade force), then increase the blade force gradually by moving the slider, until an optimum force is obtained.

If you're still unsatisfied with the cutting results after adjusting the blade force, then you should adjust the offset value according to next paragraphy. After changing the offset value, perform the cutting test again and adjust the blade force.

2.7.2   Adjust Offset Value

The square cut out should appear as one of the follow figure:
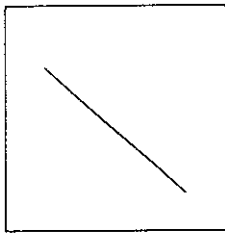
AA	BB	CC
Appropriate offset value	Lower offset value	Higher offset
value		Or over-speed
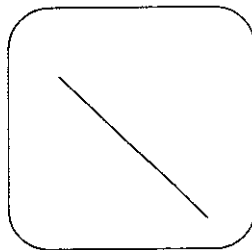
If the square appears BB or CC layout, Change the OFFSET by referring the dip switch part to adjust the value to the optimum result. Please also refer to the paragraph **"About the tool "** at the beginning to learn the definition of offset.

2.8   Origin Setting

Use the **ORIGIN SET** key to set a new origin at any position in the cutting area. From where the tool carriage starts to work. Please note new origin setting must be made under the off-line condition.

Procedures :

1. After loading the media and lowering down the level, use **ARROW** keys to move the carriage to the desired location for a new origin.

2. Press **ORIGIN SET** key and the origin point is set. The ORIGIN LED lights.
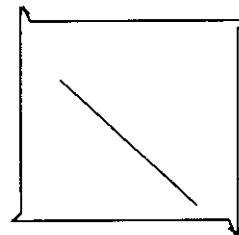
2.9   When Completing the cutting job

After completing the cutting, raise the sheet loading lever, then remove the material. You can also cut off the extra media with the cutter tool along the knife guide
(see Figure 2-2).
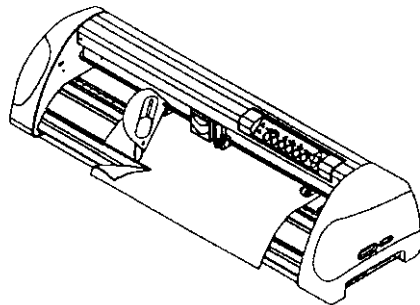
Figure   2-2

Chapter 3 - Troubleshooting

This chapter helps you to correct some common problem you may come across. Prior to getting into the details of this chapter, please be sure that your application environment is compatible with the cutting plotter.

> **Note:**
> Before having your cutting plotter serviced, please make certain that the malfunction is in your cutting plotter, not the result of an interface problem or a malfunction in your computer or a software problem.

Why the cutting plotter does not operate ?

3.1   If the cutting plotter cannot operate ?

If your Lynx doesn't run, please check the following items firstly:

> Does the AC power cord plug in properly?
> Does the AC power cord connected to the power connector properly?
> Do you turn on the power ?

Solutions:

If the POWER LED lights on, the cutting plotter should be in a normal condition. Switch off the cutting plotter and turn it on again to see is the problem still existing.

If the POWER LED doesn't light, contact the technician from your dealer.

3.2　　Lights Indicators

Certain problems are identified by the control panel lights. When your cutting plotter stop operating or the lights are on or flashing unexpectedly, see the following descriptions of panel light patterns and the corrective actions you should take.

3.2.1　　Warming Indicators

When the ERROR LED flashes (as Warming 1-6), take the necessary action according to respective instruction below. If the problems are solved, the ERROR LED will turn off automatically. Press ON/OFF LINE key once can also turn off the ERROR LED .

Warming Indicators		ERROR	ON/OFF LINE	REPEAT	DATA CLEAR	CUT TEST
1	graph was clipped	☼	●	●	○	○
2	HPGL/2 comm. Error	☼	●	○	●	○
3	Lever up or no media	☼	●	○	○	○
4	Cannot repeat	☼	○	●	○	○
5	Communication error	☼	○	○	●	○
6	Width sensor error	☼	○	○	○	●

☼ = flash　　　● = on　　　○ = off

Warming 1.　　The graph was clipped.

This condition indicates that the cutting graph exceeds the cutting limit. You can　reload larger media or re-scale the plot to a smaller size, then do the cutting job again from your computer.

Warming 2.　　HPGL/2 command error

If your cutting plotter can not recognize the commands from your computer, please check the commands applied to your cutting plotter are used properly. Be sure it is HP-GL/2 or HPGL command. Then send the same cutting job to plotter, if it shows the same result, please contact your dealer.

Warming 3.   Lever up or no media.

Check if you lower down the lever and be sure to put the media before cutting.

Warming 4.   Cannot repeat cutting

This conditions happen for two reasons: the buffer holds no data or the buffer is full. For the formal condition, please send a new graph from computer; for the latter condition, please repeat the same cutting job from the computer. In both conditions, press ON/OFF LINE key to clear the warming message.

Warming 5.   Communication error

Check if the connection cable has been connected to the cutting plotter and computer properly. If yes, then check if the interface setting is correct, make sure your PC has the same communication protocol as the cutter – 9600bps, no parity, 8 bits. If you have done the above well, try the communication between your cutting plotter and computer again. Press ON/OFF line key to force the cutter to ON line condition.

Warming 6.   Width sensor error

Check if the pinch rollers are positioned above the grid drum and reload the media again.

3.2.2   Error Indicators

If some mechanical problems or failure during operations happen, the ERROR LED will turn on. Please follow the instruction below to solve the problem. If the plotter still cannot work, please inform your dealers type of error indicators or have your plotter serviced.

	Error Indicators	ERROR	ON/OFF LINE	REPEAT	DATA CLEAR	CUT TEST
1	Sram error	●	●	○	○	○
2	Dram error	●	○	●	○	○
3	Check media, drum, or X motor	●	○	○	●	○
4	Check media or Y motor	●	○	○	○	●

☼ = flash   ● = on   ○ = off

Error 1 and 2.

At this moment, please contact your dealer.

Error 3.   Check media, drum or X motor

This message indicates that there might be a problem on the **X axis**. Check if the drum is working well and if the media is well loaded.   Correct the problem and re-power on to reboot system.

Error 4.   Check media, or Y motor

This message indicates that there might be an obstruction to carriage relating to a problem on the **Y axis**. Correct the problem and re-power on to reboot system.

3.3 Cutting Quality Problems

```
┌─────────────────────────────────────────────────┐
│ Is the blade installed correctly and the blade   │
│ holder fastened securely?                         │
└─────────────────────────────────────────────────┘
        │ Yes                          │ No
        ▼                              ▼
┌──────────────────────┐    ┌──────────────────────────┐
│ Is the blade dull or │    │ Refer to the "Installation│
│ chipped?             │    │ the blade of Chapter 2".  │
└──────────────────────┘    └──────────────────────────┘
   │ Yes            │ No
   ▼                ▼
┌──────────┐   ┌──────────────────────┐
│ Replace  │   │ Is tool force set up │
│ with a   │   │ properly?            │
│ new      │   └──────────────────────┘
│ blade    │        │ Yes            │ No
└──────────┘        ▼                ▼
        ┌──────────────────────┐  ┌──────────────────────────┐
        │ Is the tool offset   │  │ Adjust the tool force to  │
        │ set up properly?     │  │ obtain an optimum blade   │
        └──────────────────────┘  │ force. Refer to 2.11      │
            │ Yes          │ No    │ "CUTTING TEST"            │
            ▼              ▼       └──────────────────────────┘
┌──────────────────────────┐  ┌──────────────────────────┐
│ Is there any dirt adhered │  │ Adjust the tool offset to │
│ to the blade?            │  │ obtain an optimum value.  │
└──────────────────────────┘  └──────────────────────────┘
   │ Yes            │ No
   ▼                ▼
┌──────────────────┐  ┌──────────────────────────────────┐
│ Remove the blade │  │ Please contact your dealer for   │
│ and clean it.    │  │ technician support.              │
└──────────────────┘  └──────────────────────────────────┘
```

Appendix

Specification: LYNX S-60 , S-30

Model Name/No.	LYNX S-60	LYNX S-30
Operational Method	Roller-Type	
Max. Cutting Width	590mm(23.23in)	280mm(11.02in)
Max. Media Loading Width	719mm(28.3in)	459mm(18.07in)
Min. Media Loading Width	50mm	
Acceptable Material Thickness	0.8mm (0.03 in)	
Number of Pinch Rollers	2	
Drive	DC Servo Control	
Cutting Force	0~300 g	
Max. Cutting Speed	Up to 600 mm /sec (23.62 ips)	
Offset	0~1.0 mm	
Mechanical Resolution	0.009 mm	
Software Resolution	0.025 mm	
Distance Accuracy	0.254 mm or 0.1% of move, whichever is greater	
Repeatability	±0.1mm up to 3 meters	
Buffer Size	1 or 4 MB (optional)	
Interfaces	Parallel (Centronics) & Serial (RS-232C)	
Commands	HP-GL, HP-GL/2	
Configurable Origin	Yes	
Vector Look Ahead	Yes	
Curve & Arc Smoothing	Yes	
Test Cut Possibility	Yes	
Repeat Function	Yes	
Control Panel	10 Control Keys , 6 LED	
Dimension (HxWxD) mm	220 x 879 x 258 8.67 x 34.61 x 10.16 in	220 x 619 x 258 8.67 x 24.37 x 10.16 in
Net Weight	13 kg/ 28.6 lb	10.2 kg/ 22.4 lb
Power Supply	115V/230V (manual switch)	
Environment Temperature	0°C~55°C/32°F~131°F (operating) -40°C~75°C/-40°F~167°F (storage)	
Environment Humidity	30%~ 70% relative humidity (operating)	

*This specification is subject to change without prior notice.

1999/04