HIPO
JET PLOTTER MANUAL

Words to Customers

Thank you for purchasing the Hipo plotter. It is our great honor to have you as our customer. Upon your using of this product, please be sure to read this manual carefully.

This manual is compiled to provide you with the system configuration, installation steps, method of operation, and other information to ensure the correct use of this product.

To timely receive our comprehensive after-sale services, please contact:

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Declare

HipoJET plotter has registered in the Chinese Patent Office and Trademark Office.

The trademark and trade name used in this manual belong to Beijing Hipo Technology Co., Ltd and are protected by Chinese laws and international treaties.

Contents

Chapter 1   Introduction

Welcome to our HH JET series plotter. This plotter incorporates world fist-class technology, generating stable performance, with elegant printing graphics and comparatively high accuracy. It is very cost-effective and enjoys simplicity of operation, with advanced automatic paper collecting and discharging functions. HH JET is favored by the industry, especially for plotting large-breadth Engineering Line Graphs, Garment Layout Maps, Oil Logging Maps, Geological Survey Maps, Land Capability Map, and so on.

Our goal is to generate efficient output, save the cost of labor and production, ultimately enhancing your competitiveness in the industry.

HHJET **plotter Front View**

Chapter 2　　Preparation before installation

（**1**）**computer system requirements**

1、　　Microsoft Windows 2000/xp
2、　　Processor: Pentium 166M or above
3、　　Memory: 512M or above
4、　　Hard disk: 1G or above
5、　　Driver: 4x or above
6、　　USB2.0

（**2**）**Software output formats**

The Printout Administrative Center of HHJET only recognizes documents of the following formats: *.plt、*. hpg、*.hpgl、*.dmpl、*.dxf, thus require application software capable of generating the above formats, for instance, AutoCAD and Apparel CAD. Or, you can also transfer documents of these formats to the plotter.

（**3**）**power requirements**

1. Provide AC Power of 220V/50Hz（in some areas 110V/60Hz）in accordance with the requirements of the plotter，with voltage fluctuation under 10%.
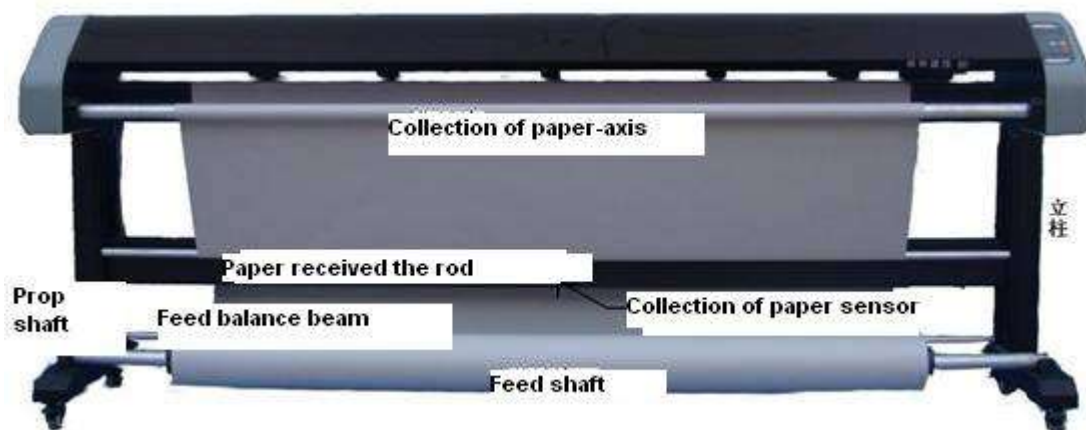
2. Reliable ground wire is a must。

3. Power line should be three-core or above cables (one of them is groundwire) whether in American or European Plug Boxes.

Chapter 3   Quick installation

（1） Installation Diagram

（2） Installation Steps

（a）Dismantle the packing box
　　1）Check the parts according to the packing list
　　2）Read the manual carefully

（b） Assemble the foot bars and upright posts according to the Installation Diagram. The left and right upright posts and foot bars should be paralleled. Do not screw down the two screws at the top of the left and right upright posts yet; Screw them a little, not so tight, to assist the installation of the handpiece.

（c） Add the draw rod according to the diagram. Remember not to screw so tight of the screws on both ends of the draw rod temporarily, so as to adjust the parallelism between the posts if needed and assist the installation of the handpiece.

（d）Add the handpiece. It takes two people to put the handpiece horizontally on the outer convex bolt of the upright posts, and tighten the screws. Make sure to tighten the other screws with the precondition that the left and right upright posts are paralleled.

（e） Add paper-collecting axle.

（f） Add paper-feeding axle and paper scroll.

（g） Add the paper-collecting balance pole and put it on its frame.

（h）Add the Nozzle. Be careful not to damage the touch spot of the nozzle. Do not crash the nozzle against hard wall of the ink car to avoid damage on the nozzle. Make sure that the nozzle is properly installed. See:
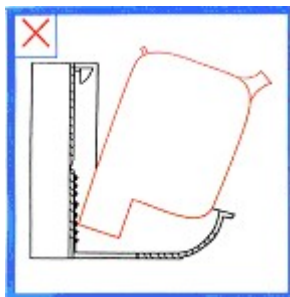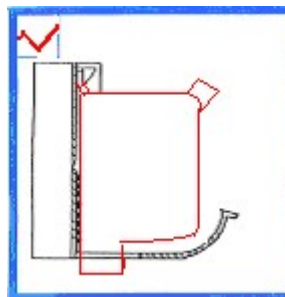
Wrong plugging   Correct plugging

（i） Connect the Three-core cable between the handpiece and the draw rod. Make sure that the plug matches the socket, and screw down the plug body.

（g） Connect the USB Interface cable.

The computer should be turned off when connecting USB cable. One end of the cable is connected to the USB port of the computer and the other to the USB port of the plotter. Make sure to fix it in the clip.

（k） Connect the power cord.

When the power is switched to "O", connect one end of the power cord with the plotter, and the other end to the power patch board which has reliable **protective groundwire**.

Attention: please make sure that the line voltage is consistent to the Voltage parameter labeled on the plotter.
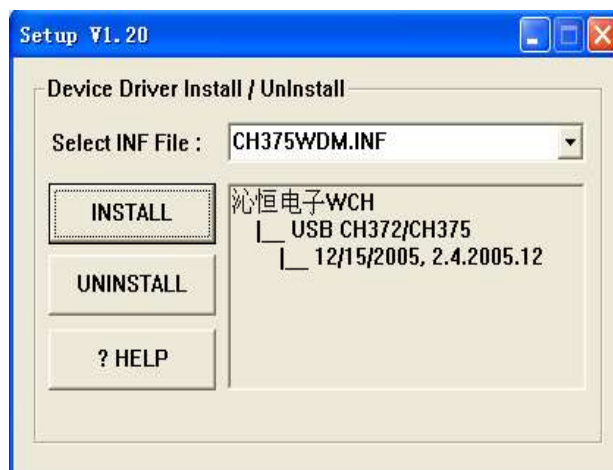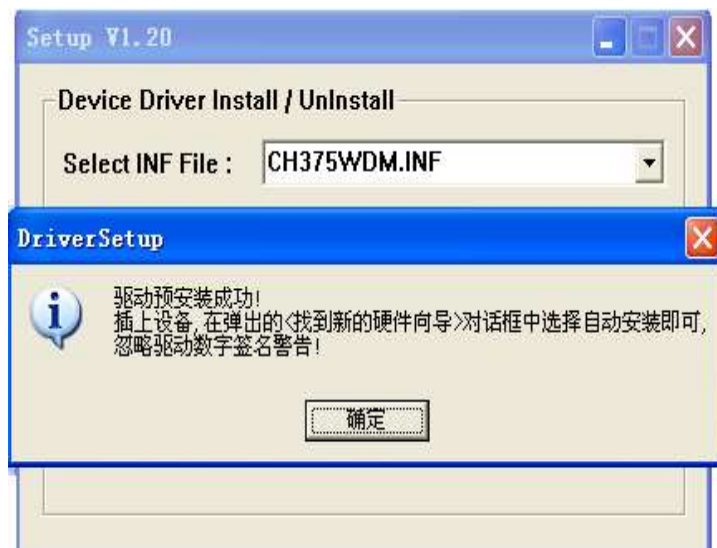
Chapter 4   Installation of USB driver

1. copy to your computer，better under C drive.

2. double click , Interface appears as follows:

3. click 'INSTALL' and wait until the end of installation with the following interface, and click 'OK' to finish installation.

4. plug the USB port cable of the plotter，and turn on the power of it,there will

be prompt of finding new hardware,（CH372/CH375） with the following

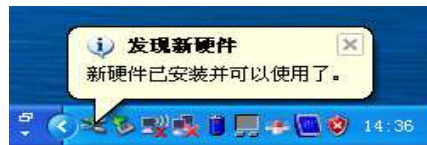interface, and the installation automatically starts.
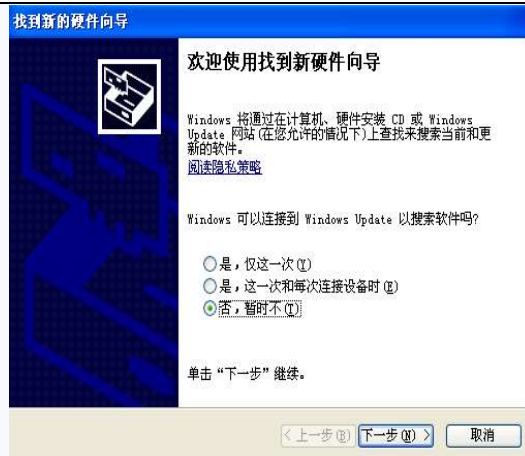
5. click "next"
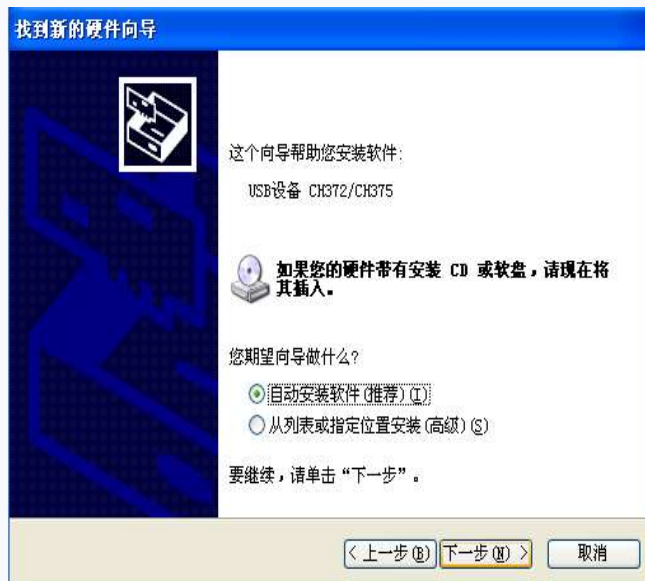
6.click'next, there will be the following installation process:
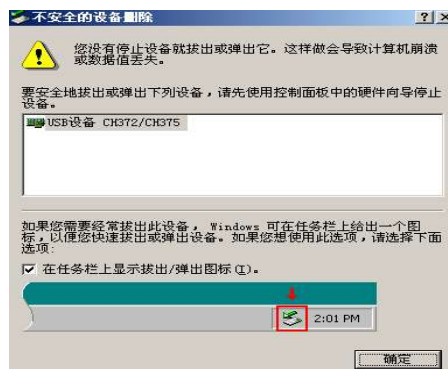

7. Automatic installation is done, with the following interface:

8. Finally, there will be a prompt in the desktop tray:

9. If the operating system is Windows2000，there will the following interface when pressing "reset" on the plotter panel or plucking the USB plug, which is quite normal. Just click "ok".

10. Better equip the computer with USB2.0 protocol to ensure fast data transmission bauds.
11. If the CH372/CH375 drive is successfully installed, plug in the USB port cable of the plotter, and switch it on. With the following steps you will find the device, click the right mouse button on "My Computer".

Select "properties"

9

Select 'device manager'

'USB CH372/CH375' is shown under 'peripheral interface', indicating that the drive is connected normally.

Chapter 5   Plotting Center

（1）software installation

Hpgl2 program is the PC terminal software exclusively used in the ink-jet plotter produced by HH. Its function includes graphic browsing and plotting, parameter settings and correction of the plotter. It works under Windows 2000/XP.

Hpgl2 program is a "green" software, and needs no installation. Just copy it under C drive and set up the appropriate directory, and change the property of this directory and all the documents within it to "Archive".

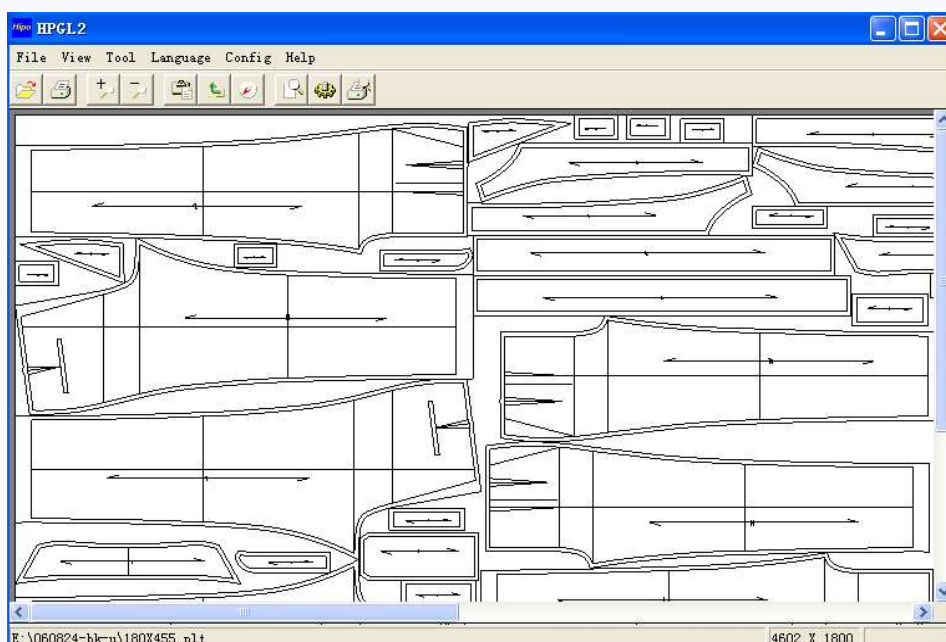Double click Hpgl2.exe to start the program. See its main interface:

Figure 5-1 The main interface of output center

（2）menu introduction

This section simply goes through the menus of Hpgl2.exe，More detailed introduction is in "using procedure".

Files ---

    Open: Read and display graphics

    Merge: combine several independent documents into one file for printing

    Close: close the currently displayed graph

    Plot: plot the currently displayed graph

    Designated starting point plot: similar to "plot", but allows plotting from a designated starting point

    Recent Documents: Show recently opened file name and path

    Exit: end the program

View---
    Zoom in: to enlarge the graphs zoom by one time at a time
    Zoom out: to decrease the graphs zoom by one time at a time
    Moderate: to display the panorama of the graphic
    Zoom: to set the percentage of the graph display
Tools---
    Automatic plotting: to automatically print documents (including newly added ones) one by one from a Specified directory. A document's number of times of printing can be determined in "listed files".
    Automatic plotting directory: to specify the path of automatic plotting files just once, and it will automatically memorize it.
    History: to view the files having been plotted.
Language---
    English: to switch the language of the software to English
    Simplified Chinese：to switch the language of the software to Simplified Chinese
    Traditional Chinese: to switch the language of the software to Traditional Chinese
Configuration---
    Graphics configuration: to set the parameters of graphics file
    Software Configuration: Including the "nozzle-preheating", "ink-saving model", etc
    Plotter Configuration: to set the precision, dislocation, docking and other parameters of the plotter
Help---
    Manual: to display this manual
    About: Software version, and other information

（3）Shortcut Key Description
The function of the shortcut keys is in accordance with the function of the menu (including sub-menus). See Figure 5-1 of the main interface of the output center for more details: if you move the cursor to the shortcut keys, there will be corresponding text.

（4）using procedure
This section introduces every function of hpgl2, which falls into seven parts: language settings, Graphics settings, graphic displays, Plotter settings, graphic plotting, automatic plotting, and plotter correction.
    (a), language settings
Click "Language" in the menu, and select the needed language among the three.
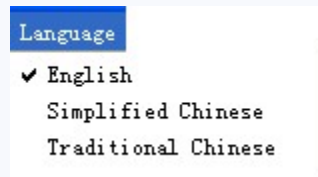
Figure 5-2 Language Settings

(b), Graphics settings

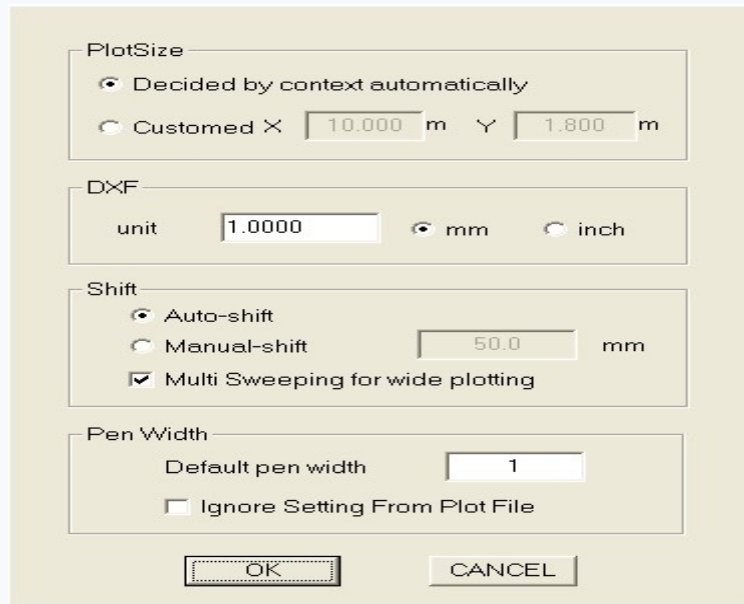Click "settings"-"graphics settings", and the following dialog box will pop out:

Figure 5-3 Graphics Settings

① Determine the size of graphics

The first method is to automatically determine the size of graphics according to the file content. In this way, it will automatically find the plotting scope according to plotting instruction.

The second method is to follow the specific size needed by the customer. Generally, this method is not recommended, because it may result in loss of effective graphics.

② DXF

If DXF-formatted files are selected, you will have to determine the system of units based on the actual situation.

③ Parallel movement settings

i、automatic parallel move

To automatically overlap the graph origin with the plotter origin

ii、designated parallel move

To designate the graph to parallel-move a certain distance along the width direction. The numerical value of the designated parallel move is the absolute distance between the graph origin and the plotter origin (see Figure

5-5). With this function, it is convenient to choose different plotting origins on the plotting paper when printing it.

　　　If you close the current graph, the numerical value of the designated parallel movement will be reserved. So when there's no need of specifying starting point of plotting, please choose "automatic parallel move". If the parallel move amount is too large, the graph may exceed the printing area, resulting in incomplete printing. Then the software will give a prompt (see Figure 5-8); press "ok" to refill the parallel move data.
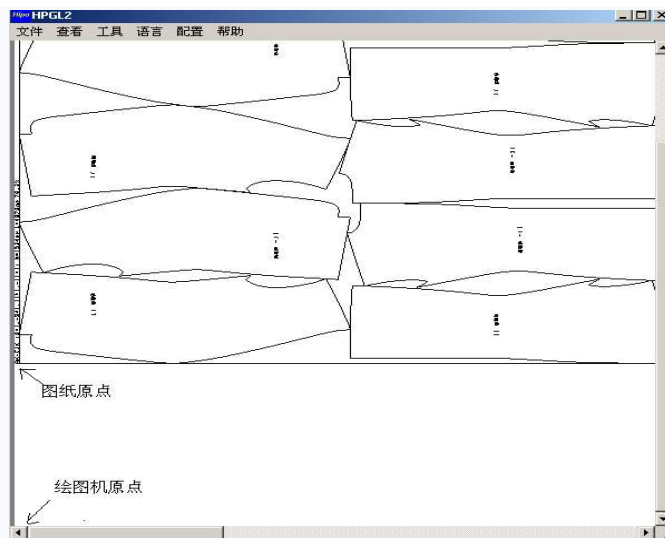
Figure 5-5 Parallel Move

Figure 5-8 over parallel move prompt

④ Line width settings

　　The greater the line width value is, the wider the line is and therefore the clearer graph. But at the same time, it consumes ink faster. Generally, select the default line width "1" or "2" is fine. If "Ignore the line width setting of the graph file" is selected, the line width will comply with the "Default Line Width" when printing. If not, the line width will comply with hpgl2 file formed by CAD when printing, and has nothing to do with the "Default Line Width".　But if the hpgl2 file does not specify line width, it will still comply with the "Default Line Width".

(5) Graphic displays

Click "file"-"open", there will be a dialog box to select a graphic file, and a mini-marker will be displayed at the bottom. As soon as the path and type of the file is selected, the next time you click "open" will directly point to this path.

Figure 5-9 Open file lists

(6) Merging of files

It's a waste of time and paper to print single files. Thus this function helps to combine several single files into one for printing.

Click "file"-"merge", and there will be a dialog box of file path, press "ctrl" to select files that needs to merge, and then click "open".

(7) Plotter configurations

Click "configuration"-"plotter configurations", (see Figure 5-10), including basic configurations, correction settings, and nozzles settings.
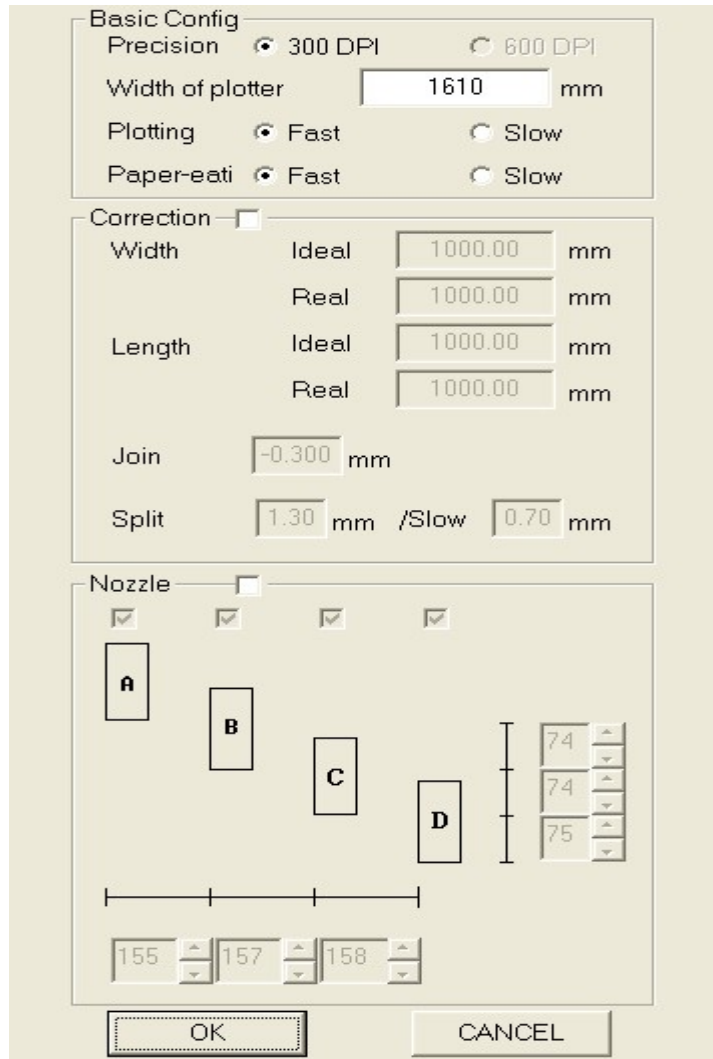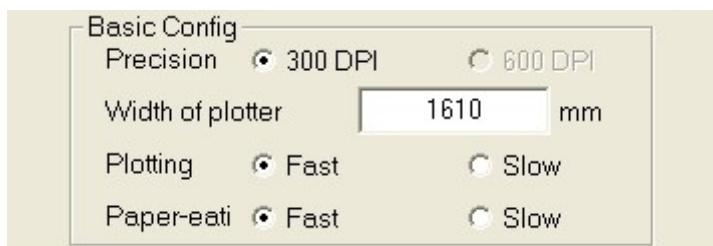
Figure 5-10 Plotter Configurations

① 、basic configurations

(1) select the Graphics Resolution of 300dpi or 600dpi

(2) the plotter width is the biggest efficient output width of the plotter, varying with different types of plotter, generally between 1600-2200mm.

(3) the plotting speed means the speed of the nozzle group to move from left to right, or right to left. Options are "slow" or "fast".

(4) the paper rolling speed means the speed the plotter moves forward every time it finishes a line. Options are "slow" or "fast".

② nozzle settings

Click '√' of "nozzle settings" (see figure 7-6), and you can change corresponding parameters.

For two cartridges plotter, you need click '√' for only A and B as following:
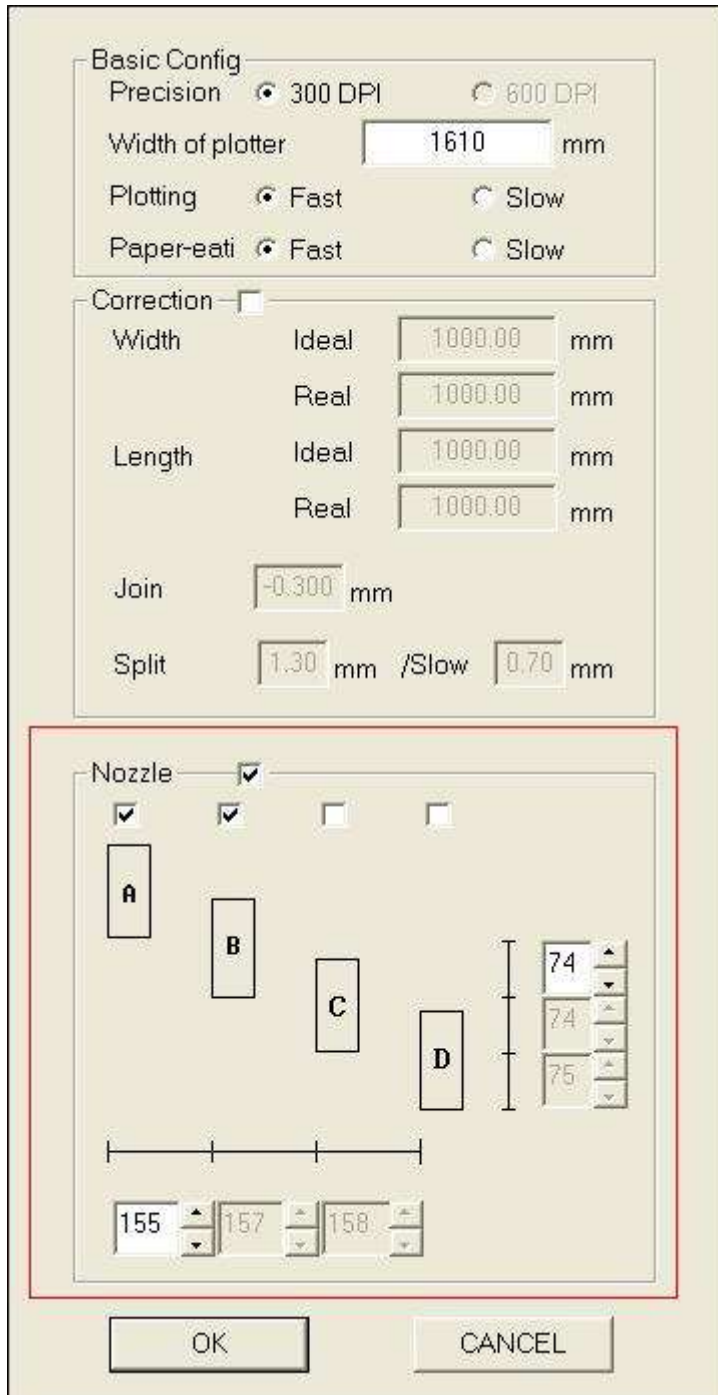
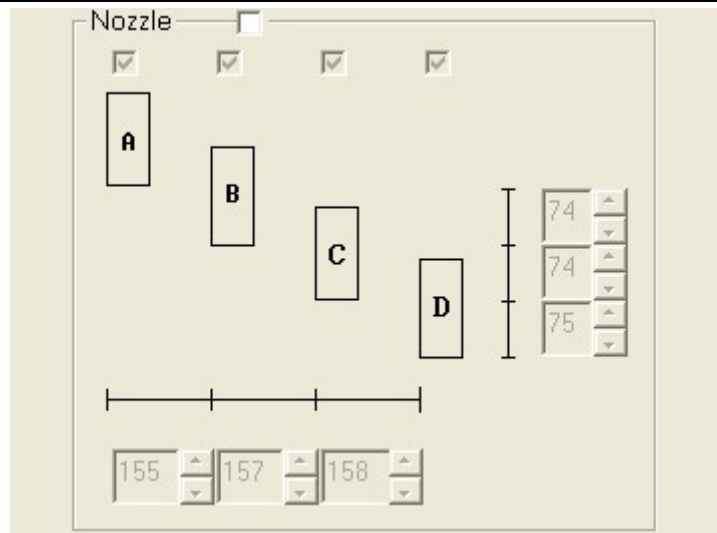For four cartridges plotter, you need Click '√' for A, B, C and D.

Figure 7-6 nozzle settings

A, B, C, D represents the actual location of the corresponding nozzles, options are A, B, C, D (Single-nozzle mode); A+B、B+C、C+D (Double nozzle mode); A+B+C、B+C+D (Three-nozzle mode); A+B+C+D (Four-nozzle mode); altogether ten modes.

Output testing patterns employs Nozzle D as the standard. Through adjusting the figures in the corresponding column in the boxes below, you can make the lines plotted by Nozzle A, B, C to align with that by Nozzle D. If the lines of the certain nozzle need to be moved left, you need to diminish the figure in the corresponding column, vise versa. (See Figure 7-7, the figures of nozzle A, B need to be diminished, while the figure of nozzle C needs to be increased. The figure varies between 150 and 165)
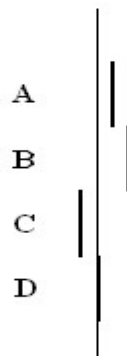

Figure 7-7 nozzle displacement

In a similar way, nozzle D is the standard. You can adjust the figures in the corresponding column below nozzle A, B, C to make the lines plotted by nozzle A, B, C. D not to overlap or separate. Diminish the figure if you want the lines to overlap, or increase the figure to separate the lines. (See Figure 7-9, the figures of nozzle A, C should be diminished while the figure of nozzle B needs to be increased. The figure varies between 71 and 76.)
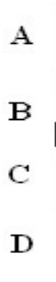
A

B

C

D

Figure 7-9 the overlapping or separation of nozzles

③ Correction of displacement

If in the process of plotting, there's the situation of Figure 7-12, you need to fill in a positive number in the column of correction (See Figure 7-10); The unit of the figure is mm, accurate to 0.01mm. The figure is normally below 2.5mm. Repeatedly adjust the number will generate the best effect.

Join   -0.300 mm

Split   1.30 mm /Slow   0.70 mm

Figure 7-10 correction of displacement

A B C D   Nozzle moving direction

Nozzle moving direction

A B C D

Figure 7-12 fill in a positive number in the column

If in the process of plotting, there's the situation of Figure 7-13, you need to fill in a negative number in the column of correction (See Figure 7-10). The unit of the figure is mm, accurate to 0.01mm. The figure is normally below 2.5mm. Repeatedly adjust the number will generate the best effect.

Figure 7-13 Fill in a negative number in the column

④Docking correction

If in the process of plotting, there's the situation of Figure 7-15, you need to fill in a positive number in the column of correction (See Figure 7-10). The unit of the figure is mm, accurate to 0.01mm. The figure is normally below 1.50mm. Repeatedly adjust the number will generate the best effect.
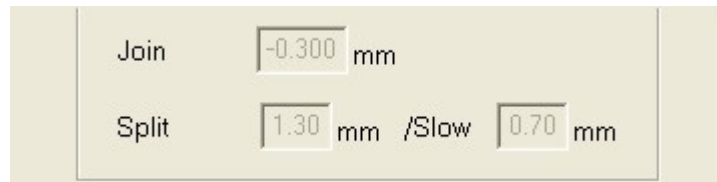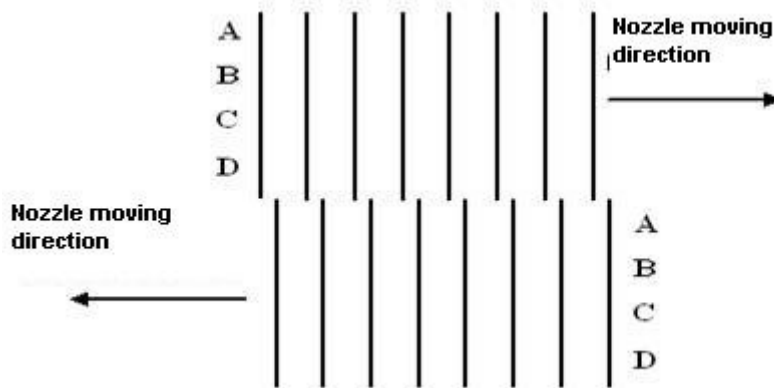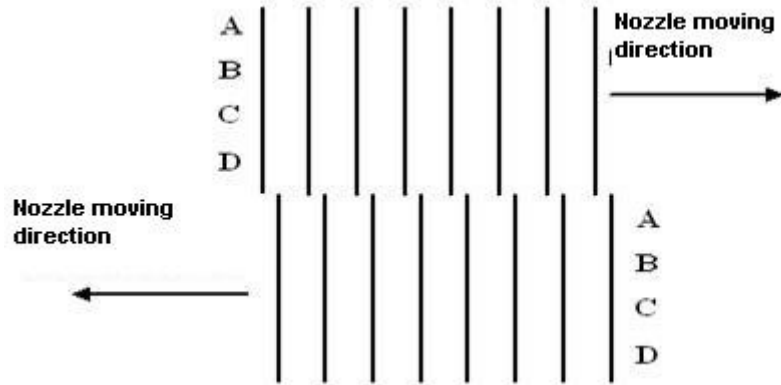

Figure 7-15 fill in a positive number to correct overlapping

If in the process of plotting, there's the situation of Figure 7-16, you need to fill in a negative number in the column of correction (See Figure 7-10). The unit of the figure is mm, accurate to 0.01mm. The figure is normally below 1.50mm. Repeatedly adjust the number will generate the best effect.
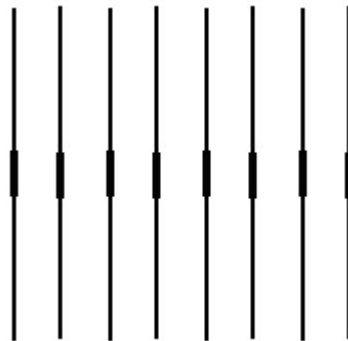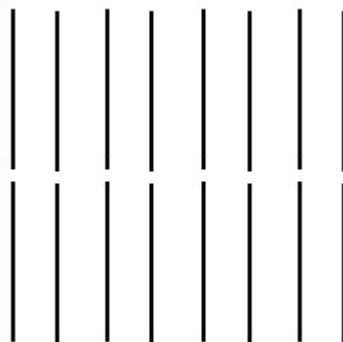

Figure 7-16 correction of separation

⑤ Correction setting

The plotter has been through accuracy tests with paper weighs 45g, for you reference. Using different types of paper may need to change some of these parameters. You need to tick '√' of the Correction setting to change these parameters. See Figure 7-17.

⑴ width and length correction (i.e. The Nozzle moving direction and paper-feeding direction)

Fill in the 'ideal' and 'actual' figures according to Figure 7-17, and print a grid map of 1 meter square, and then fill in the measured data in the 'actual' column. (with mm as the unit, accurate to 0.05mm)

Figure 7-17 width and length correction parameters

In a similar way, if you use a grid map of 1500mm, then you should fill 1500mm in the 'ideal' and 'actual' columns. Then fill in the measured data in the 'actual' column.

If the measured data is bigger than the standard value, and the length of the printed graph is still larger than the standard value, then you should fill in a larger figure in 'actual' column, vise versa.

When the Length, width correction parameter is settled, there's no need to frequently adjust it. Adjustment is needed when you change the type of paper.

⑥ Software configuration

Click "configuration"—"software configuration", you will see the following interface.

(1) preheat the nozzles

If you click it, every graph will start with the following short vertical lines, especially under conditions of low temperature to avoid blurring at the beginning of printing.

(2) Ink-saving mode

This mode generates thinner lines, while the otherwise non-ink-saving mode generates thicker lines.

(3) delete files

With this option, the file will be automatically deleted when the plotting is done, and the plotting times is non-optional, implied for only '1 'time. If this function is not selected, the files will be saved after plotting.

(4) autostart

With this function, the plotter will go straight into automatic plotting once turned on.

(5) automatically shut down after plotting

With this function the plotter will automatically shut down when all the files have been finished.

(6) plotting times

Every time a file is select, the printing times can be changed accordingly. Close the output centers and the 'plotting times' will automatically restore to '1', and will not affect the subsequent plotting.

⑦ Graphic plotting

There are two modes of plotting a file, "plot" and "plot with a designated starting point".

(1) plot

Click 'file'—'plot', there will be the following interface, showing the progress of the plotting. See Figure 5-14:

Figure 5-14 data sending process

Press 'cancel' to cancel the process of data sending, and get back to the main interface. Press 'stop' to stop the process. When the plotter stops, click 'continue' to continue sending.

If the file opened has been printed partly before, the output center will give a prompt to relocate the starting point. See Figure 5-15:
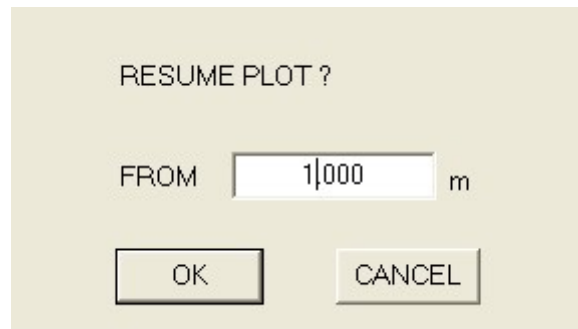

Figure 5-15 starting point prompt

The figure shown in the column is the printed length, click 'yes' to start printing from this point, and click 'cancel' to start printing from the very beginning.

⑵ plot with a designated starting point

Click 'file'—'plot with a designated starting point'. The only difference with 'plot' is that there will be dialog box for you to choose a starting point.

This function is employed under these two situations: either the plotting has been interrupted or you do not need to print the previous section.

⑧Histories

Hpgl2 will save the plotted files, including the file name, plotting time, and its completion. Click 'tool'—'histories', and see Figure 5-16:
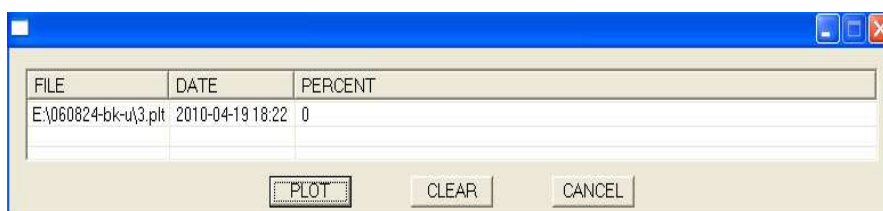

Figure 5-16 Histories

You can select a file in the histories, and click 'plot' to re-plot it with the precondition that the file still exists (not including automatically printed files). Click 'empty' to clear all the histories. Click 'cancel' to exit 'Histories' and get back to the main interface.

（7）Autodraft

(a) choose the autodraft directory

Click 'tool'—'autodraft', to see Figure 5-17. You can set up or select the autodraft directory, with file formats of *.hpg、*.hpgl2、*.plt、*.dmpl, etc.

Figure 5-17 autodraft directories

(b)　autodraft

Click 'tool'—'autodraft', and see Figure 5-18. Click 'plot' with the data sending process interface. You can plot the files in the list automatically one by one or add new files to the list.

Figure 5-18 autodraft lists

Notes:　1. once the file holder is selected, it will be 'memorized' and needs not to be selected every time you run the output center, unless new autodraft directory is set up and the property of this directory is changed to 'archive'.

　　　　2. User CAD can select this auto-directory as the path of printing files. When the output center is in autodraft state, select 'print' in CAD and the graph will be send to the output center directly, then the plotter will automatically start printing.

(c) autodraft interrupt

Press 'cancel' in the autodraft process interface and the autodraft will stop and go back to the task list interface.

(d) advance the file lists

If a certain file in the list needs to be printed in advance, then select this file and click 'advance' at the lower left of the interface, lifting this file to the top of the list, and then click 'print'. For several files to be advanced, press 'shift' or 'ctrl', when selecting the files, then click 'advance' – 'plot'.

(e) to delete files in the list

If some file needs not to be printed, just select the file ant click 'delete'

(f)   Insert Files

Click 'insert', there will be the file path, just select it.

(g)   change the plotting times of files

Select the file, and click the left mouse button once in the corresponding plotting times column, and then fill in the needed number.

(h)   exit autodraft

Click 'cancel' to thoroughly withdraw autodraft

(i) icons

When autodraft is selected, there will be an icon of Hipo at the Lower right corner of the screen, see Figure 5-20. For background job, click this icon, and the plotting window will hide; click it again to restore the plotting queue.

Figure 5-20 autodraft icon

Notes: autodraft saves manual intervention as much as possible. All the graphs are printed from the beginning. The files will be moved out and saved in the Backup folder once the plotting is finished. This folder is under the same path of Hpgl 2.exe, named 'save'.

Chapter 6　　Plotter Operation Panel

1. Operating panel

The operating panel is the Human-Computer Interaction Platform of the plotter, with functions as follows: the forward and backward of the paper-collecting axle, pause and stop in the plotting process, reset of the plotter, nozzle cleaning, control, etc. See Figure 6-1
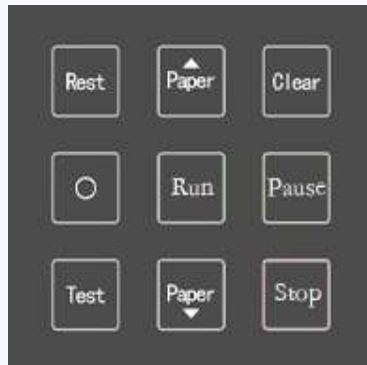

Figure 6-1 Operating Panel

2. Description of controlling keys

→ Pause (press it in the process of plotting, and the plotter will pause for you to see the plotting effects, press 'run' to continue)

→ Stop (press it and the plotter will stop working under whatever circumstances. Press RESET to restore normal working condition)

→ nozzle cleaning (press it to let the cartridges jet out ink so as to clear the dried nozzle. Please put a piece of paper under the cartridge before pressing this key. The paper should not touch the ink head. You will see clean vertical lines)

→ reset (press it to initialize the plotter, the cartridges will move to the right side of the plotter)

→ paper-backward (manually control the paper to move backward)

→ paper-forward (manually control the paper to move forward)

→ blank

→ test (press it and the plotter will print a group of vertical lines that are not aligned to help decide whether the nozzle will work normally)
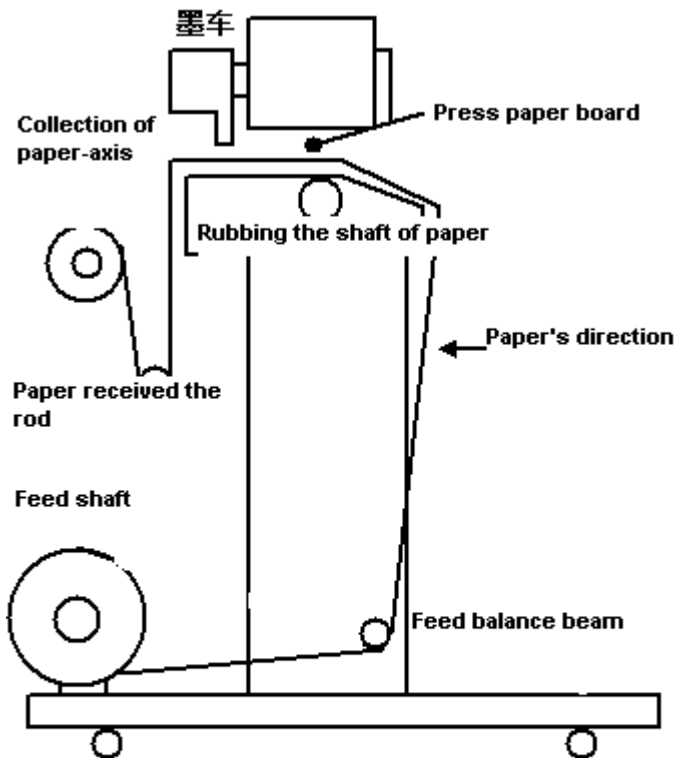
→ Run (Used in conjunction with the PAUSE)

Chapter 7   Application

(1) Paper loading steps

(1) remove the paper feeding and collecting Balance beam

(2) load the paper scroll to the middle of the paper feeding axle, fix the lathedogs to both ends of the scroll and tighten the set screw(not too tight).

Paper feed direction to go paper-installed

Figure 7-1

(3) it takes two people to uplift the loaded paper feeding axle, and fix the bearing at both ends into the U-shaped bracket. You can put it either on the front or at the back.

(4) target the ⊙-shaped end of the paper-collecting axle with the Cone top within the right side of U-shaped bracket, and the ⬛-shaped end with square wheel within the right side of U-shaped bracket. See Figure 7-2.

(5) unfold the scroll, and lift the Pressure roller (with the handle in the rear). Charge the plotter, and install the paper according to Figure 7-1, and then lay down the pressure roller. For comparatively longer graphs, it's better to glue the paper to the axle, except Kraft of 120g.

(6) install the paper feeding balance beam

(7) press ⬛ or ⬛ to adjust the paper to move forward or backward, and install the paper feeding balance beam into the chase. There are magnetic cores at both end of the balance beam, please do not bump them into anything.

(8) press the plastic paperweight sheet on both sides of the paper to avoid imbalance.

(2) Printing steps

Run Hpgl2, there will be an interface of Figure 5-1, open the file (if it is the first time you use it, you should set related parameters. There is a corresponding setting table when it goes out of the factory), and click "plot".

(3) Paper cutting steps

(1) remove the paper collecting balance beam

(2) cut down the plotted graph.

(4) Paper collecting steps

(1) grasp the left end of the paper-collecting axle and push it to the right, lift it，and remove the axle.

(2) roll the cut-down printing paper over the scroll (better with two people); grab the paper scroll, and rotate it in a opposite direction of collecting paper to get off the tape. Rotate and pull out the axle. And then tear the extra tape and paper.

The above steps show the procedure from paper loading, printing, trimming, and to collecting.

(5) Factors affecting the print accuracy

① the type of the paper. This plotter employs paper that weighs between 30g to 120g. but when you change a different type of paper, please readjust Length correction parameter.

② when loading paper to the paper-collecting axle, please make sure that the tenseness of the paper is consistent; both ends of the paper scroll are smooth on the surface.

③ the quality of the paper scroll. Including the planeness of the paper.

Chapter 8　　Notes

(1) About printing paper

　　　1, do not use paper that is damp, curled, crinkled, or that has a raised edge

　　　2, do not use paper that has a hole or is damaged

　　　3, please use flat plotting paper that weighs between 35g to 120g

　　　4, with the inner diameter of the paper roll ≤Φ40 cm

　　　5, with the rolling paper weight ≤40kg

(2) About nozzles

　　1 Cartridge models

　　　The cartridge models Hpgl2 plotter employs are HP51645a or HP51645b, which can be purchased in Hewlett-Packard (hp) Supplies specialty stores. Please use cartridges of quality to ensure printing quality.

　　2 signs of 'out of ink'

　　　The ink in the cartridge is consumed in the process of printing and the signs of 'out of ink' will gradually turn from green to black. When the sigh is black, that means this cartridge is used up, and need replacing. (See figure 9-1)
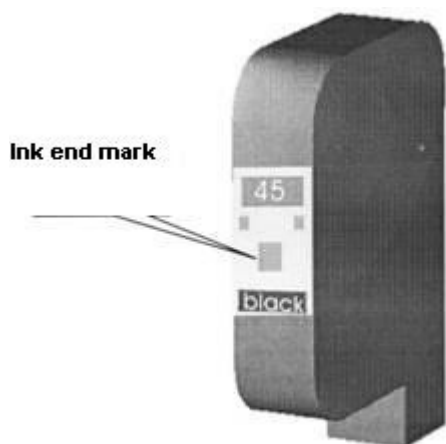

Ink end mark

45

black

Figure 9- 1 Nozzle

　　3 Replacement of cartridges

　　　The power should be cut off when replacing cartridges. Extra care should be paid when plugging cartridges. When printing long graphs, it's better to check the ink level of the cartridges beforehand. Try to avoid replacing cartridges in the process of printing. Loading or replacing cartridges should follow the sequential operation as shown in Figure 9-2.
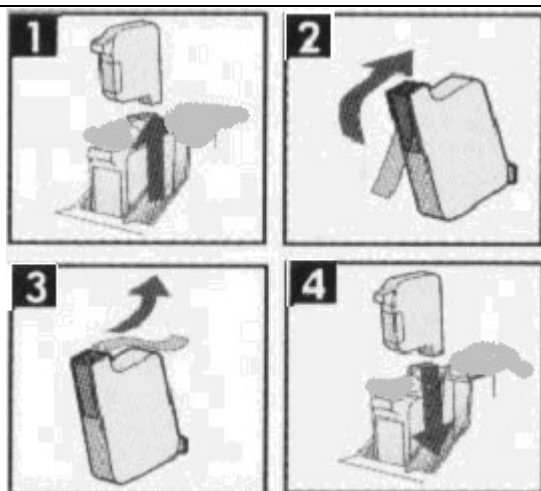
Figure 9-2 Replacing nozzles

4 Cleaning cartridge

If some dots or lines are missing in the output graph, you need to clean the cartridges.

① pick out the cartridge out of the cartridge box, use a piece of cloth or delicate paper to mop the nozzle clean, and put it in the cartridge box. Then print a short graph to compare.

② press 'clear' when the plotter is on, the nozzle will clean itself automatically.

(3) About environment

1, the power source should have a reliable grounding system. Do not share the power source with other high-power electrical equipment. The Fluctuating voltage should not exceed 10%.

2, make sure that the metal wheels is reliable and touches the ground.

3, the plotter is a delicate optoelectronic device, thus DO NOT press the casing too hard. Do not pull out the raster at pleasure.

4, when the plotter is off, do not play with the cartridges or move it with haste to avoid generating electric current in the process which would damage the mainboard.

5, Power-off measures should be taken if the plotter is not to be used for a long time to avoid damages caused by other reasons.

6, stop using the plotter when abnormal situation occurs, eg: when there's burned taste, smoke, abnormal noise. Please get in touch with the supplier and ask for maintenance staff to fix the problem.

7, keep the surface of the plotter clean and avoid fluids or other things to get trapped inside the plotter.

8, when the plotter is in motion, please do not put your hand your other objects near the cartridge, in case of personal injury or bad influence on the quality of printing.

9, when you want to move the plotter, please firstly loose the Casters lock brakes one by one, and then gently move it. When it is in the right location, please lock the brakes back.

10, do not put the plotter in the following locations:

① slope

② areas that are Prone to shake or rock,

③ areas that are prone to have dramatic changes in temperature and humidity

④ areas that are exposed to the sun, glare, or heat

⑤ areas that are dusty

(4) Maintenance

1, after a certain period of using the plotter, you can add a small amount of lubricating oil to the guide way if the noise of the cartridges movements augments.

2, raster is a fine measuring instrument, you should not touch or pull the metal strip. If the surface is covered by too much dust, you can blow it off or flip it sway.

3, if the environment is comparatively quite dry, you should try to keep moderate humidity around the nozzle.

4, If the plotter is not to be used for a long time, please remove the nozzle and put it in a sealed case to avoid stoppage in the jet hole.