

BLUEPRINT Digital Ink Jet Printer KONICMINILTA 512

OPERATION MANUAL

Shanghai BLUEWIN Digital Technology Co., Ltd.

Preface

Thanks for purchasing the digital ink jet printers of BLUEPRINT Konica minolta 512 serial products.

★ In order to ensure the correct and safe operation based on the complete mastery of the product performance, you are required to read and master the operation guide very carefully.

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★ It will not be informed if there is any modification in the operation guide and the product parameter.

★ We will be much appreciated to receive you good suggestion and hop you to point out our mistake .

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Part I Summary

I . Safety Instructions

1. Important Safety Instructions

- ◆ Warning and instruction please read carefully before operating machine: marks of on printer. These instructions must be followed strictly;
- ◆ Do not put anything on the printer nor spill any liquid on the printer
- ◆ Use the indicated power supply specifications only; AC 110v and AC 220v are available according to standards from different countries or regions;
- ◆ Connect the cable plug of the cable to a grounded socket; it should be avoided to use the same loop for duplicating machine or air conditioner ;
- ◆ Avoid installing the power socket on the wall or power socket controlled by automatic timer;
- ◆ Keep your computer system far away from potential electromagnetism, like, radio or wireless telephone seat;
- ◆ Damaged or worn power line is forbidden;
- ◆ The total amperage of the equipment must not exceed rated amperage of main power.

2. Attention while operating printer

- ◆ Do not move carriage while turn on printer otherwise printer may be damaged;
- ◆ Always shut off printer by using power switch button, power will be cut off when this button be pressed down; printer's plug or data cable must not be pulled out before cutting off power;
- ◆ Make sure that carriage keep at the home position and fixed before moving printer.

3. Notice for ink cartridge

- ◆ Store ink cartridge in a place that is out of reach of children;
- ◆ Prevent the ink from getting into your eyes. Be sure to wear safety goggles gloves when cleaning the printhead or replacing the ink pump assembly;
- ◆ If ink spatter on the skin or clothes, immediately wash it off with soap or water; if you get ink in your eyes, immediately clean your eyes with a lot of clean water;
- ◆ Do not shake the ink cartridge violently; which maybe cause ink leakage .
- ◆ Ink tank must be taken off to clean and dry thoroughly after three months employ .Please clean the new ink tank when start to use it.

4. Warning、caution and note

- ◆ Warning
 - Must strictly do according warning marks to avoid to damage to;
- ◆ Caution
 - Must obey the indication to avoid the damage to printer and relative equipment;

◆ Note

Indicates helpful operation notice and in instruction.

II. Machine description

1. Brief introduction to products

1.1. Main features

◆ Machine features

☞ Japanese long working life piezo Konica minolta 512 printhead, which is famous for its high resolution with elaborate ink droplet and very good corrosion resistance. Therefore it can precisely adjust color contrast, which can provide high quality outdoor pictures with vivid and coincident colors.

☞ Automatic printhead cleaning function can always keep printhead in the best working status, and automatic flash function can effectively prevent printhead from drying.

☞ Printhead can properly get cleaned and maintain in time only need to click "clean" function in tool bar, which can prolong the printhead's life and avoid the inconvenience to take off and clean printhead. Therefore, high efficiency, safety, convenience, and nobody operating on duty can achieve.

☞ Media supply system with suck function ensures media transmit steadily and evenly which guarantee high output and high resolution.

☞ The imported linear guide rail effectively eliminates the impact of the vibration caused by running carriage which can affect the printing resolution. So, printing quality is greatly guaranteed.

☞ Liquid level sensor in primary and secondary ink tank and automatic alarm system can sense any changes of ink, which can avoid the lack of ink.

☞ Powerful print-bed platform rear heating system will fast the ink in filtration to media, which prolong the outdoor life of printing also extend the range of media like banner, PP, adhesive vinyl, PVC, mesh fabric.

◆ Electronical system

☞ Fibre data transmission system, guarantee the transmit speed and interference resistance;

☞ Servo board controlled motor running mechanical system guarantee the accuracy of carriage and media supply.

◆ Software

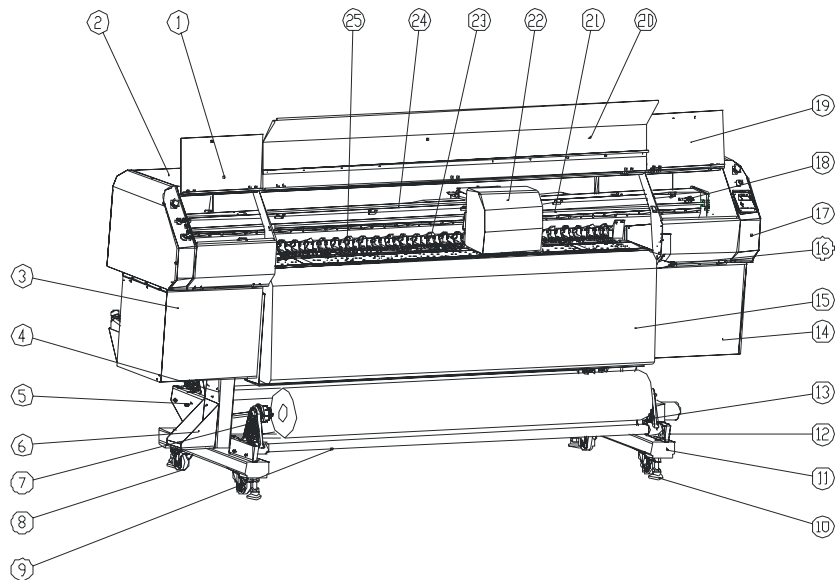
☞ Support all regular windows image formats such as PDF, TIFF, PSD, EPS, PS

☞ Strong RIP software provides resolution ranges of (360X360DPI、360X720DPI、720X720DPI、540X1080DPI、720X1440DPI). RIP process and printing can be done simultaneously.

☞ Excellent ICC color revision and reversion function can exactly present picture color, vivid and bright.

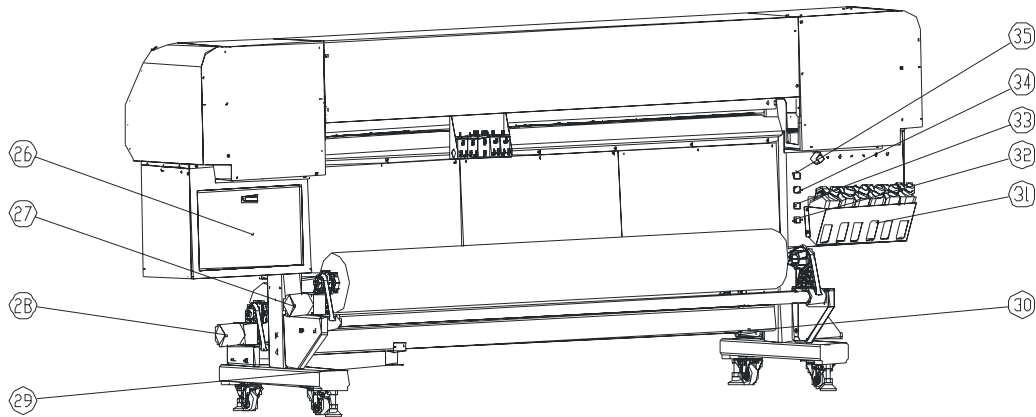
2. Main components introduction

The Front



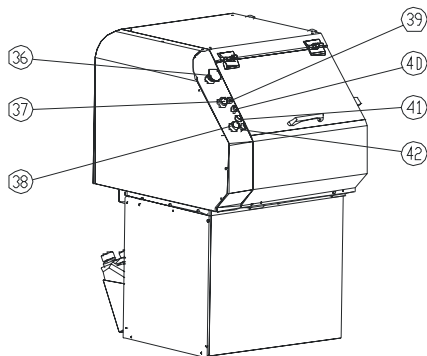
1.left front cover	2.the topcover of left upper box	3.Left-down box	4.Left Pole
5.bracket feeding system	6.Waste ink tray	7.Left bracket of Media loading and taking up	8.Printer wheel
9.Media feeding and taking up roller	10.Support foot	11.Right pole	12.Support rack media taking up system
13.Right bracket of media loading and taking up	14.Right-down case	15.front heater(front cover)	16.Handle Assembly
17.Right-upper box	18.Buffer device	19.Right front cover	20.Middle front cover
21.Liner guide rail	22.Carriage assembly	23.Hold wheel subassembly	24.Main girder
25.Printing bed plat			

The back

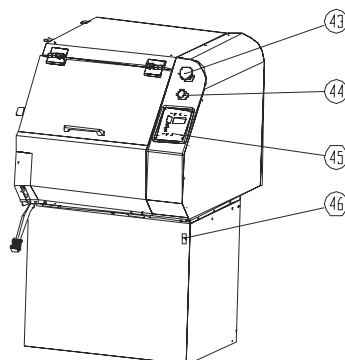


26.Left rear cover	27.Motor for feeding media	28.Moter for taking up media	29.Photoelectric media Sensor
30.Nether girder	31.Ink bottle box	32.Heating button	33.Power supply button
34.Heating switch	35.Power supplyswitch		

Upside of Left box



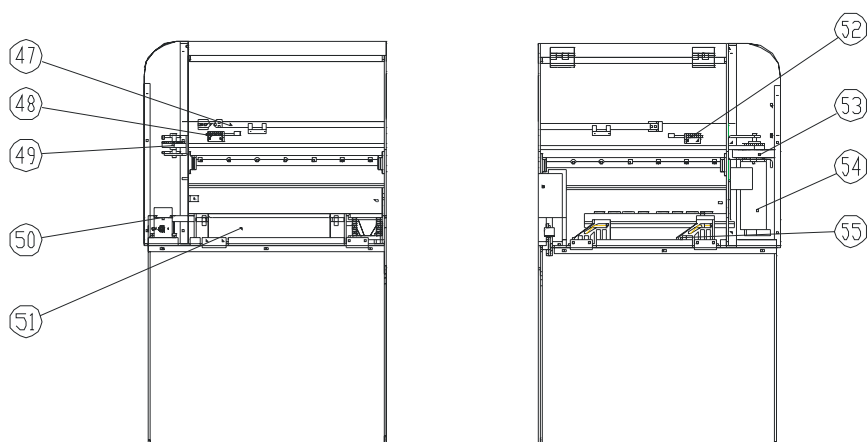
Upside of right box



36.Emergency switch	37.Printhead voltage switch	38.Auto feeding and take up switch	39.Yellow (ink positive pressure)switch
40.Mageuta (ink positive pressure) switch	41.Cyan (ink positive pressure) switch	42.Black (ink positive pressure) switch	43.Emergency switch
44.Flat suck fan button	45.Temperature controlle switch	46.Media taking up switch	

Left front-over box

Right front-over box



47.Raster bar	48.Left buffer device	49.Tighten pulley	50.Worm wheel worm lever
51.Flash case	52.Right buffer device	53.Drive pulley	54.Transmission motor
55.printhead protection base			

Printhead protection base

Carriage

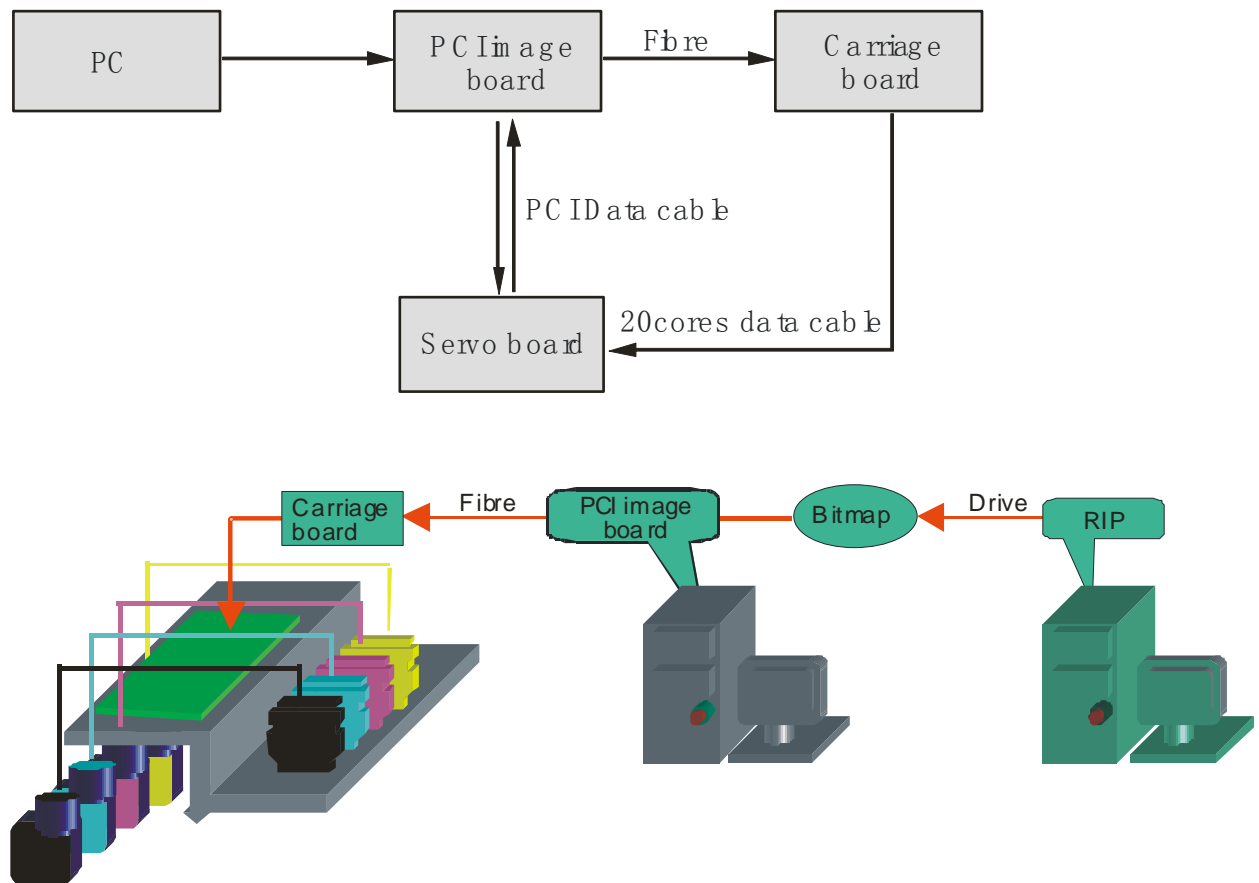
56.Konica printhead protecting sokeplate	57.Fixing board of station	58.Station elevator	59.Sation elevation locator
60.Station buffle	61.Station protecting box	62.Printhead interface board	63.Right bracket of konica soleplate
64. Printhead heating sole plate	65.Konica printhead	66.Hanging frame	67.Carriage board bracket
68.Pressing assmbly for screw adjustment	69.Carriage height adjusting device	70.Guiding pole of carriage elevator	71.Suppor board of boards
72.Carriage board			

3. Electrical components

Konica minolta 512 printhead digital inkjet printer's electrical parts consist of computer image processing system, servo control mechanical running system, ink supply control system and heating system. Brief introduction to the working principle of each system as follows:

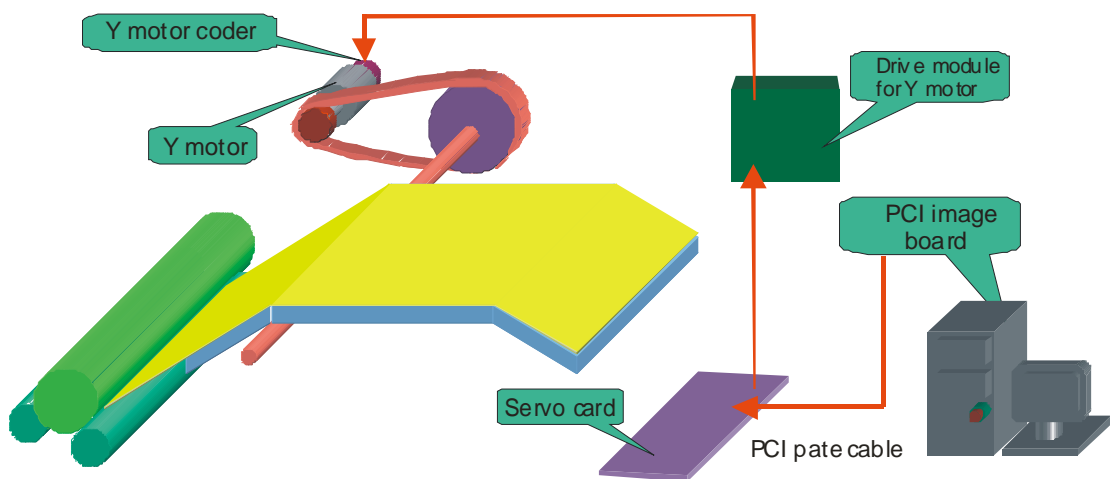
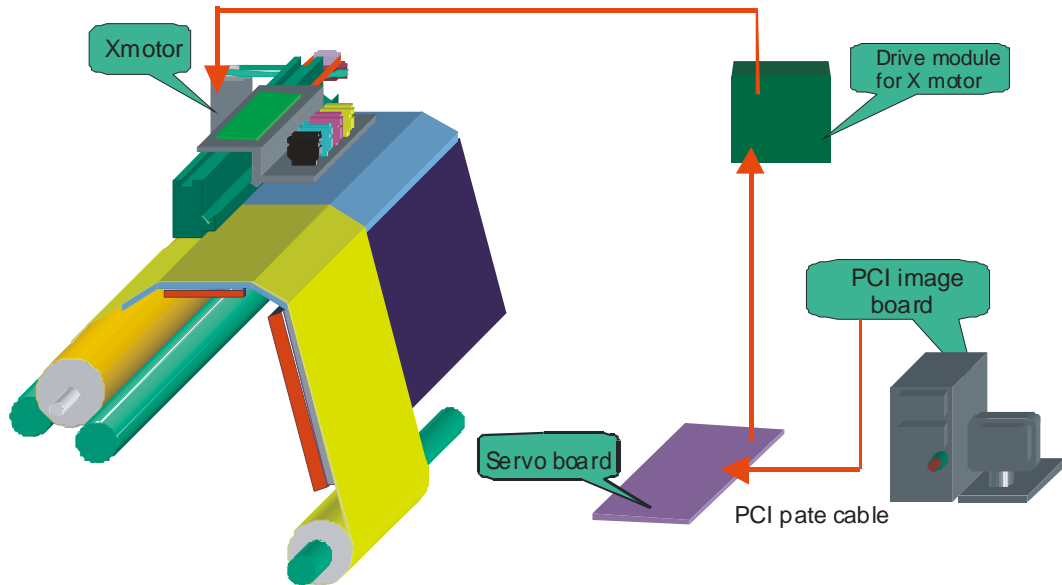
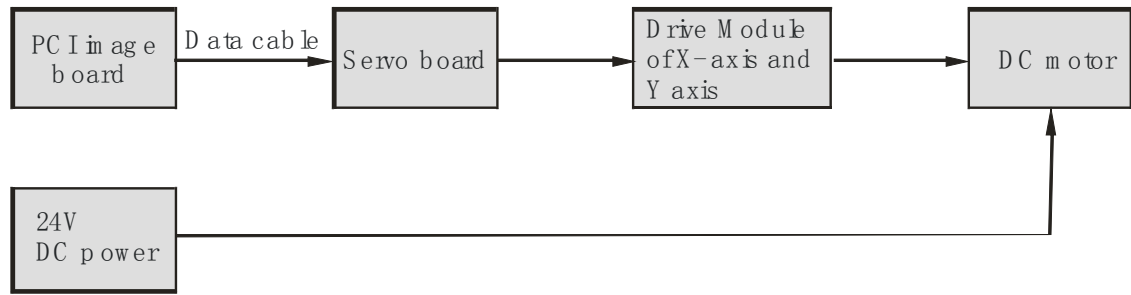
3.1. Computer image processing system

Konica minolta 512 inkjet printer image processing is finished by computer image processing system which mainly consist of computer、 image transmission medium, printhead control components. Its working principle is: Firstly, image format is processed by computer. Secondly, the processed image is transmitted to image transmission components. Then, the image is sent to printhead control system to carry out the image printing.



3.2. Servo control system for mechanism running

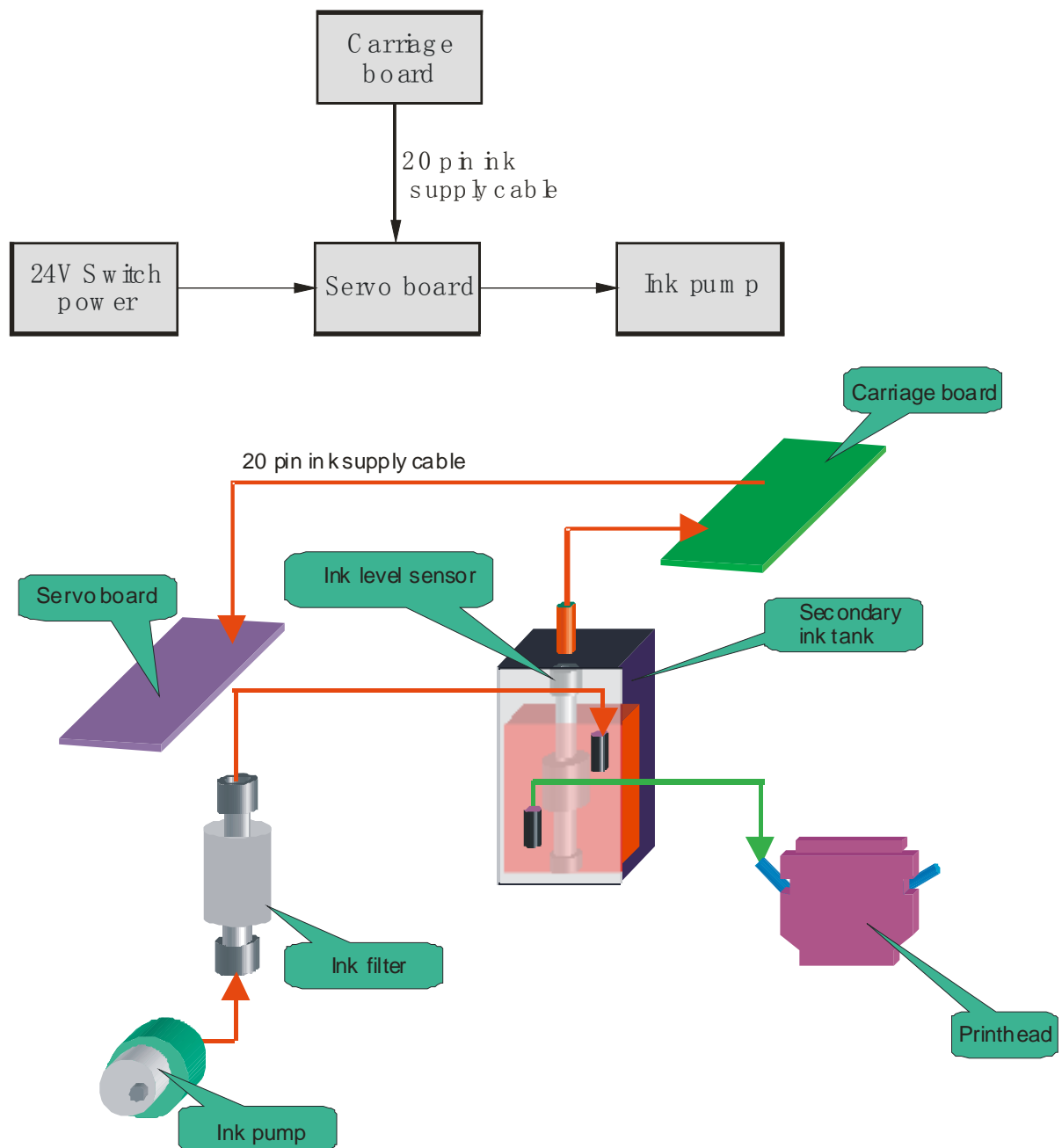
Konica minolta 512 inkjet printer's servo control mechanical running system consists of computer、 servo board、 X axis servo control system、 Y axis servo control system. This system mainly control the printhead movement of X direction and Y direction of media movement.



3.3. Ink supply control system

Konica minolta 512 inkjet printer's ink supply control system consists of servo board, primary ink tank, secondary ink tank, ink pump and ink level sensor, etc. Its main task is to supply ink for printing . The ink level sensor senses the ink level and sends the level information to servo card to control the ink pump, when can supply or stop ink

automatically.



3.4. Heating control system

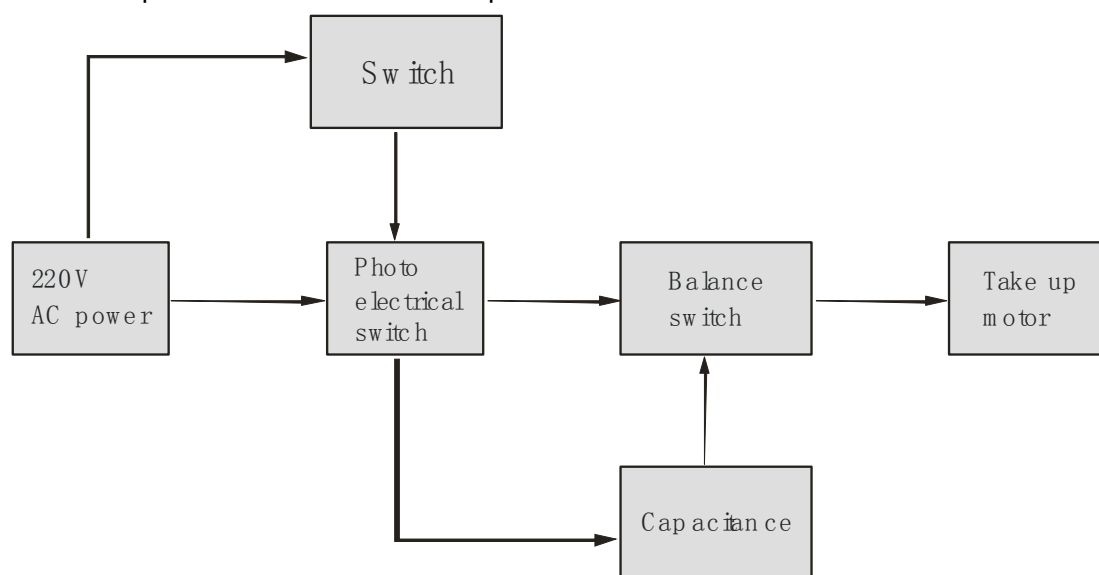
Konica minolta 512 inkjet printer's heating system is mainly to meet the technical demand to ensure the high quality of printing.

3.5. Electricals control and function instructions

Servo card	Control printer mechanism running
Main switch	Turn on or turn off printer power
Heating switch	Turn on or turn off preheating and drying circuit power
Control switch	Turn on or turn off HV DC power
Emergency stop switch	Stop X direction running when press down
Fan switch	Fasten solidifying of ink on which print pictures
Sucking switch	A fan motor is installed inside of printing flat which makes media more tidily adhere to flat surface
HV switch	The switch for carriage board power (35V)

4. Introduction to the Structure and Function of Feed and Take up System

4.1. Components of Feed and Take up Structure



The structure of feed and take up system consists of 5 components. They are: ① feed roller assembly, ② main roller assembly, ③ extension and tightening roller assembly, ④ transmitting-turning roller assembly, ⑤ take up roller assembly. It shows in the following pictures:

- ◆ The function of feed roller assembly: supporting the media and ensure the media running without resistance nor flee away.
- ◆ The function of main roller subassembly: providing drive for material loading and feeding media into the printing flat roof.
- ◆ The function of extension roller subassembly: extends media, ensure the media 's input and output media keeping level and parallel.
- ◆ The function of transfer roller: The transition of cloth material is easy for even material receiving.
- ◆ The function of material receiving roller: Supporting and furling the printed cloth material and supply the drive to receive material.

4.2. Principles of Feed and Take up performance

The functions of feed and take up system are achieved by the running of motor. And it is controlled by photoelectric switch. Its principles are:

- ◆ While feeding, the photoelectric switch sends a signal if it senses no media, then, the motor runs to feed till the photoelectric switch senses the media. Then, the motor stops.
- ◆ While taking up, the photoelectric switch sends another signal if it senses media, then, the motor runs to take up till photoelectric switch senses no media. Then, the motor stops
- ◆ The step of media on the printing flat is achieved by the running of the wheels, which is controlled by software.

III. Installation Requirements

1. Preparation before Installation

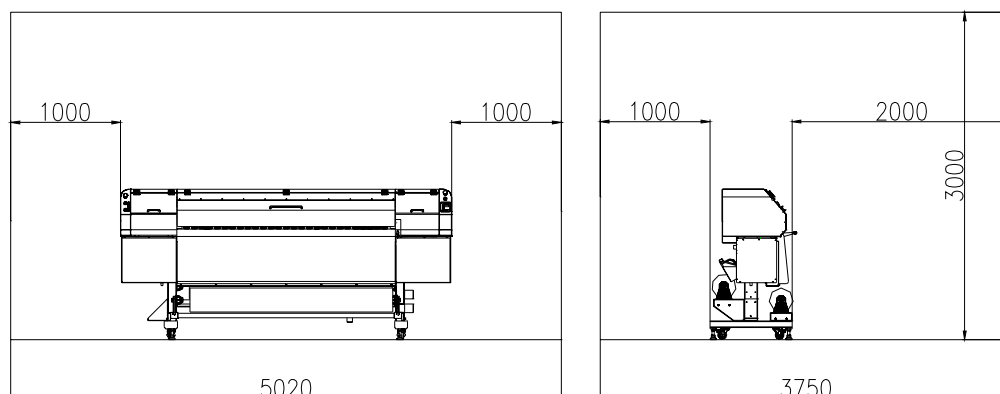
1.1. Preparation of the site

Customers have the responsibility to follow all the instructions of installation and put them into implementation when printer working.

1.2. The working area

The working area means the area close to ink jet plotter Konica minolta 512 (hereafter referred to as equipment), which is shown as follows. What should be especially pointed out the operator's safety must be ensured.

The working area measures 7.54 m in length, 4 m in width and 3 m in the height of the floor.



The schematic plan of the working region around konica monilta ink jet plotter(unit: mm)

1.3. Requirements for Environment

The printer should be away from the seaming equipment like cloth seaming machine or other radio frequency source. The floor is easy to clean and free of dust and static electricity. In order to operator to distinguish the color accurately .We should adopt the gray color and pure white such as daylight lamp to docorute the operation room.

The ink jet plotter should be installed in a clean and dust free environment of which the temperature and relative humidity are controlled in the following range:

Altitude: under the altitude of 1000 meters.

Temperature: 18 to 28 degrees centigrade.

Relative humidity: 40% to 60%

1.4. Requirements for the Floor

The floor should guarantee the safe and even weight dispersion of the system. During the installation, the printer should maintain accuracy and precision in order to ensure that printing head moves horizontally in a correct way and avoid gliding and bending.

The materials of the floor in the working region should be free of static electricity and dust. If necessary, clean ceramic tiles, polished cement or anti-electricity carpet could be paved in the working region before the ink jet plotter is installed.

1.5. Requirements for Load-bearing

The net weight of X3216A ink jet plotter is 540 kgs and the biggest media roll usually adds up 50 kgs.

It is suggested to install BLUEPRINT printer on four steel plates of 20 centimeters in diameter each or on four steel plates with an area of over 200*200mm and a thickness of over 8 mm each.

1.6. Requirements for Space Reservation

The front of ink jet plotter is the input side. BLUEPRINT ink jet plotter is required to reserve 2.0 meters in the front, 1.0 meter at the back and 1.0 meter on both left and right sides. Besides, the space reservation area also includes a height of 3 meters above the ground. Moreover, space should be spared at the front and back of the machine for loading and unloading media.

1.7. Safety Requirements

◆ Fireproofing

The ink and solution should be installed in the special store cabinet for inflammable liquid

or in the independent storeroom. They should be clearly labeled in accordance with the requirements of the professional safety regulations.

The storage of ink should strictly comply with the local fireproofing regulations of using and storing inflammable matters.

Carbon dioxide or dry powder fire extinguisher should be placed in all the passageways where it's easy to see and obtain. They should put near the X3216A ink-jet printer and the store cabinet for inflammable liquid or according to the local fireproofing regulations.

◆ Aeration

In order to prevent the potential danger of volatile gas storage, enough aeration should be guaranteed to insure 6 to 8 times of air change in the working region every hour. Air outlet should be positioned as lowly as possible so that the volatile gas could not accumulate around the floor.

The solvent in the ink volatilizes when the cloth is going through the drying apparatus. So an exhaust fine gas outlet system is need discharging the solvent.

Notes: the solvent gas is heavier than the air and will accumulate around the floor.

The electrical apparatus installed near the working region should comply with GB/T standard and the regulations concerning Class I Category II in the National Electricity regulations, and they should be installed by the professional electricity contractors with related qualified specialty.

The regulation of handling the dangerous waste should be in accordance with special storing and disposing requirement set by related sections.

1.8. Electric Requirements

BLUEPRINT ink-jet printer uses single phase power supply and is required of good grounding. Its electric resistance is less than 4 ohm.

The range of power supply voltage is 220V ($\pm 10\%$), alternating current is 50Hz or 60Hz. Users should ask professional electrical specialists or contractors to install the output terminal of the power circuits.

All the electronic components of BLUEPRINT ink-jet printer share an only one power outlet which has the function of overload protection. The rated values of circuit breaker are as follows:

Power supply/voltage	Alternating current 220V	Alternating current 110V
Single phase	15A/phase	30A/phase

The largest power consumption is less than 3.5 kilowatt with an average of 2 kilowatt. UPS could use 2KV A and cut in other power utilizations except heating.

The distance between the outlet of primary power supply and cut in terminal of the power supply of ink-jet printer should not exceed 2 meters.

BLUEPRINT ink-jet printer is equipped with a standard 5-meter cable.

1.9. Requirements for Operators

◆ Requirements and responsibilities are suggested as follows for the operators of printing system:

- ☞ They are in charge of the operation and maintenance of the ink-jet printer.
- ☞ They keep in touch with the department of aftersales service and technology supports from BLUEWIN Company.
- ☞ They know how to solve problems and undertake the maintenance work with the help of phone communication.
- ☞ They have the experience with Windows XP and PC.
- ☞ They have the technological background concerning electron and mechanicals.
- ☞ They have the ability and know the theory about color and the knowledge of preparation before printing and postproduction.

1.10. Installation Regulations

- ◆ The printers should be installed on a horizontal ground. Use a leveler to adjust even the ink-jet printer from front to back after the machine is moved into the designated position.
- ◆ Operators are advised to install a telephone near the console for maintenance and communication during daily operation.

2. Examination before Installation

As for other information about site preparation, please check and fill in the “Inspection Form of The Site Preparation of Ink jet plotter”. (See attached list 1)

- ◆ Report the voltage of the site to BLUEWIN Company in advance.
- ◆ The power supply input socket of the machine is on the left side at the back of the machine.
- ◆ The air-conditioning in the room should warrantee the temperatures stated above (18 to 28℃)
- ◆ Customers should prepare proper machine installation tools in advance: a forklift truck or a crane of over three tons. They should inform BLUEWIN Company all the tools used in advance or else they have to be charged for the consequent delay.
- ◆ Customers should not open the case without the presence of engineers from BLUEWIN Company. All damages of the packing case should be photographed and reported to BLUEWIN Company immediately before the arrival of engineers.
- ◆ There should be a wash cistern in the room where X3216A ink-jet printer is installed.
- ◆ Customers should finish all the preparation and cleaning before the arrival of the engineers because dust may probably bring damages to the machine.
- ◆ Customers should get other required equipment ready such as an Apple Computer and application software used on an Apple Computer such as Photoshop, Freehand、

Illustrator, and computer network of 100M, etc.

- ◆ During the installation, at least two operators who have good command of computer skills should be at the side of the machine. It would be better if they have the experience with ink-jet printer.
- ◆ Customers should not operate independently before their operators have enough experiences. A training program should be taken in advance.
- ◆ From ink ordering to delivery, it lasts for a long time. Customers should order the ink in advance so as not to affect the producing.
- ◆ In order to reduce the downtime utmostly, factory party should provide some spare part selectively and advise the customers to buy some spare components. If these components have already been used, please order from BLUEWIN Company as soon as possible to ensure the sufficient supply of the spare components.
- ◆ There are labels “left and right” and “front and back” on the transport box. Please take notice of it when unloading.
- ◆ The examination form is an essential point of site examination before installation. Please refer the complete file of site preparation at any time. Every item in the form should be filled “yes” and the form should be sent back to the maintenance center of client service section of BLUEWIN Company after site be ready and before installation.
- ◆ If when the engineers arrive on spot but the site preparation has not been finished, they could charge the customers for the waiting time.

3. Delivery, unpacking and examination

3.1. Delivery

- ◆ Pay attention to the signs on the surface of the wooden case during loading and unloading. Handle with care. Don't put heavy objects on it; make it rainproof..
- ◆ Vehicles should be driven steadily during the delivery without sudden brake or sharp turns which would cause the wooden case to bump or turn over result in damage.

3.2. Unpacking

- ◆ The wooden case should be taken photos in time if it is found to be damaged before unpacking with an immediate processing scheme submitted to BLUEWIN Company.
- ◆ Remove the top lid of the wooden case.
- ◆ Remove the surrounding wooden boards after removing the large screw bolts around the wooden case.
- ◆ Move out the machine and tally the articles that come with the machine.

3.3. Examination

- ◆ Engineers from BLUEWIN Company tally the articles that come with the machine one by one.
- ◆ After the tally, customers sign on the inventory list which is brought back by the

engineers.

- ◆ If there is anything missing, please give a clear indication on the inventory list. BLUEWIN Company will add it on immediately.

Part II User's Guide

Chapter 1 Installation Guide

1. Installation processes

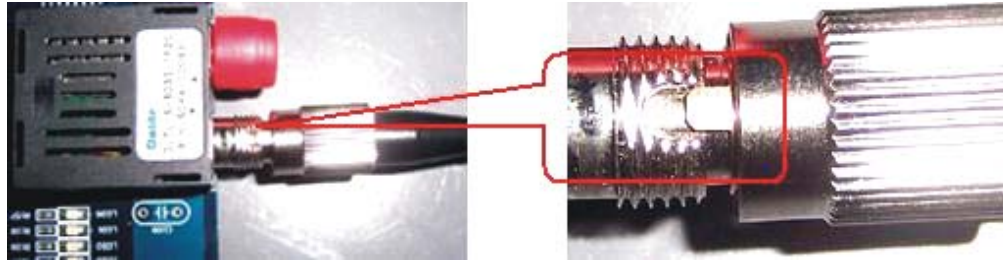
1.1. Getting the machine ready for installation

- ◆ Open the spare part case and take out the PCI card and printhead card., but do not touch the CMOS chips on the board directly with your hand in case of damaging the board.
- ◆ Insert the board to its corresponding position. Connect the cable from the PCI card and the server card.
- ◆ Note: In installation of PCI, use a bracket to fix the PCI card into the computer slot so that PCI will not loose during printing.

1.1.1. Fiber installation

- ◆ The correct way of fiber installation

The signal between PCI card and carriage board is transmitted by fiber line. Each end of a fiber line has a sign A or B . There is a gap on the tie-in of the fiber line. The gap of the tie-in and the nick on PCI card should be inserted correspondingly. After inserting correctly, you can hear the low sound of connection, which shows that the fiber line is inserted correctly. Then, tighten the screw. Without too much force so as not to break the fiber line. Something wrong may occur on the printing data if the fiber line isn't inserted correctly.



Note: Place the socket of the optic fiber line accurately into the slot, otherwise signal delivery may cease.

◆ Notice when use fiber

1. Fiber is an important media to transmit signal between PCI card and carriage board, and it is the most important transmitting media for the machine, directly affecting accurate of printing ink droplet. So it must ensure fiber in a good condition.
2. The above instruction must be strictly complied while installing fiber. It will make the signal interrupt if something wrong occurs.
3. The fiber cannot be curved or folded and don't overexert to fix the screw.
4. Please put on the special fiber protecting cover immediately when fiber is not in use. to avoid the fiber damaged by the pollution of dust, ink and other sundries .
5. Don't step on the fiber carefully.

1.2. Power on and test the Machine

Turn on the power and test the machine to recheck whether the electric part is normal or not.

1.3. Printhead Installation

1.3.1. Printhead Installation

Printhead is the most expensive and fragile part on the printer, meanwhile it play the most important role to execut printing task and affect the printing quality. So, it has strict request and process to touch, install, clean and protect printhead.

◆ The correct way to take the printheads

1. Please touch the metal to release the static before taking the printheads.
2. Please hold two latered sides of the printheads and don't touch the surface of the printhead nozzle nor outlets.
3. There is a protection membrane on the surface of the nozzle. Don't touch it with anything. Use special cleaning paper or cleaning stick to clean the printhead.

◆ The specimen of the correct way to take the printhead

◆ The correct installation of printhead

1、Clean out solvent in printhead

When the printheads production finished lots of solvent is injected into printhead to keep wet protect the printheads. So when in stall the printhead ink-match use the solvent to clean the printheads. Please see the video of cleaning printheads to get more detailed instruction.

2. Printheads installation and fixation

☞ Install the cleaned printheads on the printhead bracket and fix them on the soleplate. Adjust the position with the back taper screw.

☞ insert 4*0.75 hard tube into the outside hole of the printhead.

☞ while installing the printhead interface board, please take care of connecting the bevel of the interface board correctly to avoid damaging to the printheads. And press down mterface board when inserting.

☞ Insert the data cable of interface board and take care of the direction. Don't insert inversely otherwise it is easy to curve or break the pins in the socket.

3. The physical location adjustment of printhead

Loosen the M3 screw of the printhead, and adjust the taper screw up or down to let printhead be in the proper position. Then, tight the M screw of the printhead.

4. Notice while installing the printheads

☞ The surface of the printheads cannot be touched by other objects.

☞ Turn off the power before installing the printheads. Please don't insert or draw the printheads while the machine is power on.

☞ While installing the printheads, please make sure that the ink supply system is clean and the injected solvent ink is normally used.

☞ While installing, please open a package till the last printhead is installed in order not to let the dust come into the printheads.

☞ Don't overexert while installing and inserting the printhead interface board in order not to let the pins broken.

☞ After the printheads are installed, please wash printheads before printing. Please use special solvent to wash. Sometimes it needs washing by smany several times.

☞ After the printheads are installed, please get rid of the air in the printheads in time. In addition, air remains between the ink tank and printheads are not allowed.

☞ While installing the printhead, please try one's best to keep lengthways uprightness of printhead. And the mechanical location and the uprightness of the printheads must be adjusted.

1.5. The connection between printheads and the primary ink tank

- ◆ There are four tubes connectors connected with 3/5 tube on each ink bottle, and the lengths of four tubes are not the same. Connect the longest tube to the outmost connector and connect the others in turn.
- ◆ The float of the ink bottle should be black, blue, red and yellow from left to right respectively.

2. Software Installation

- ◆ Turn off the power of the computer and Insert PCI card into the slot of the main board, and then fix it.
- ◆ Start the PC, and the windows will search the PCI card automatically. Then, the driver can be installed. Unzip the control software “BLUEPRINTprint” into the hard disk, then, click “setup” to install the software. After the installation is finished, the PCI card driver has been installed automatically.
- ◆ If the system cannot find the PCI card after the PC is started, please insert PCI card into another slot, or try again after cleaning the PCI card with “golden finger” .
- ◆ After installation, please restart the PC, then, open “my computer/system properties/hardware/Device manager/multi-function card” to check whether the driver has been installed or not.

Notes: If there are some identifiers in front of the driver programs, such as “!” , “?” and so on, please reinstall the driver.

Chapter 2 Operation Guide

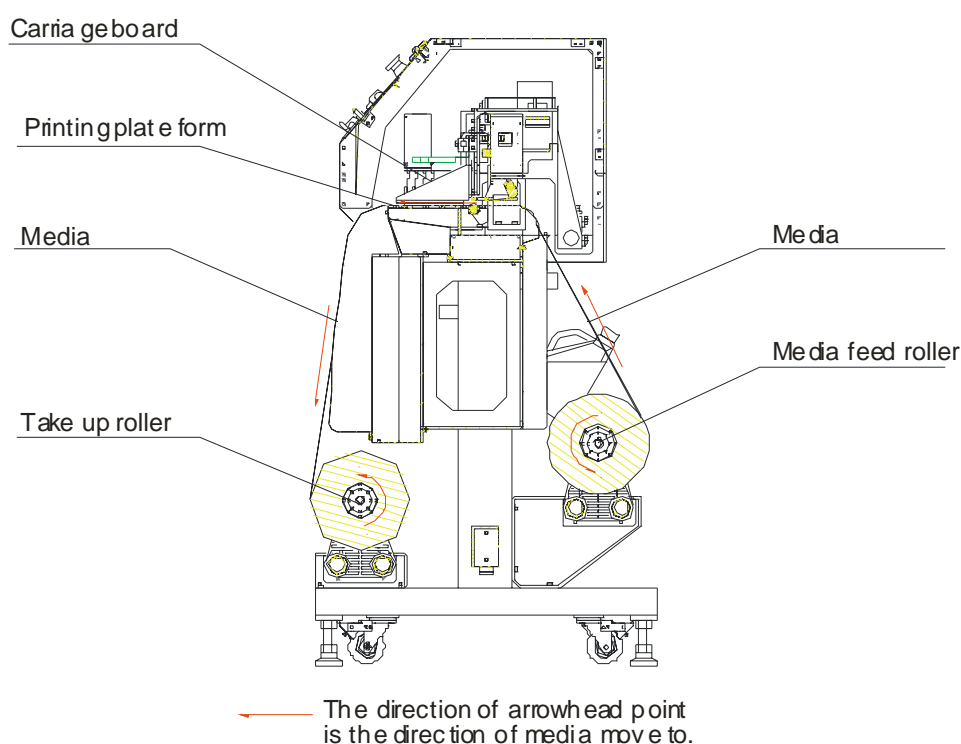
1. Machine Operation

1.1. The order and method to load and unload the printing media

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- ◆ Put a roll of media on the feed roller, fix the media stay middle position and the head of the media towards the printer.
- ◆ Before the material reach onto the printing platform, loose the extension assembly and let the media spread onto the printing platform. Then, draw the material gently to make the media exceed platform for 3 meters (while drawing, operator should do it slowly and not draw the extension roller out of the rack). Then, press and tighten the extension assembly.
- ◆ Adjust the loaded media , and make sure the extension surface of the media no wrinkle extension, smooth flat plain, and the left and right edges of the material are on the horizontal level. And try to make sure the media at the center of the printing platform.

- ◆ Demount the take-up roller, and take out the baffle with its end have no gear. Then, put on the media roller from the end without gear, then, install the demounted baffle. At last install the take up roller on the printer and cover the media roller on the left and right baffle tightly.
- ◆ Adjust the whole media and make sure the extension surface of the material is flat and the left and right edges of the media are on the same horizontal level. At last, let the four fixing circles for feeding roller lean against the edge of the cylindric material and tighten it. Then, lock the baffle of the take up roller. Till now, the material installing is finished.
- ◆ Choose heating or not according to different media. Preheating and heating are recommended for PVC. Concerning banner, you can deal with according to its texture and the request for printing quality. But heating will improve 50% durability of pictures.



1.2. Power on

1.2.1. Preparation before Power-on

- ◆ Check whether the tray for protecting printheads is taken down or not.
- ◆ Check if there are some other things on the printing platform, such as screw, tool or oddment. Clean the guide rail and lubricate it. In addition, lubricate the guide rail to keep the rail smooth while the machine is working.
- ◆ Check all the rollers for holding media is clean or not. If they are not clean, please use special solvent to clean it. While doing this, please set the media feeding value on the software so the roller can run automatically. Then please dry the solvent on the rollers by

air gun.

- ◆ Check if all the switches are turned off.
- ◆ Check whether the ink in the main ink tank is good enough or not and the waste ink is discharged on time or not in vacuum.
- ◆ Check the temperature (20-28℃) and humidity (40%-60%) in the room

1.2.2. Add Ink

- ◆ Locate ink bottle sequentially from left to right in the ink container black, cyan, red magenta, and yellow.
- ◆ Insert the four tubes into their corresponding bottles to supply ink.

If the printer has stalled air pressure system You can use this system to supply ink automatically. please turn off the printhead voltage by several times so as not to let the air leak into the tube because the ink cannot transmit into the subsidiary ink tank.

1.2.3. Correct steps for Power on

- ◆ Demount the printhead soleplate for keeping wet.
- ◆ First, turn on the computer, then the main power of the printer. Pull up the emergency button, then, turn on the printhead voltage switch, platform fan switch, feed motor switch, cold wind switch and heating switch one by one.
- ◆ At last, open the software.

1.4. Preparations after power on and before printing

1. Open the printing software, and click 'back home' button to make the carriage board back to the initial position.

After reposion, the printhead will flash automatically, which show that the normal connection between the machine and the software is well done.

Notes: flash or non-flash is alternative and transferable? The operator can put a piece of paper under the printhead to check whether printer is flashing or not.

Click cleaning button on the software to clean the printhead.

If the printer has the air-pressure system, with which to clean the printhead. Then, if vacuum is adopted better effect can be achieved.

2. Set necessary parameter in the printing software

- ◆ Set up the frequency, times and mode of automatic cleaning, and the frequency of flash printing;
- ◆ Set up the 4-color-bar or 6-color-bar at the margin of the media;
- ◆ Set up the distance of space margins;
- ◆ After the parameter is set up, print out the state picture of the printhead, the deflection, and the ascensive excursion. Adjust the print head and the deflection value to be the best state;
- ◆ Before the formal printing, print out a small picture with multi-passes. The advantage

is that sometimes the print head can be warmed up, consequently adding the fluency of the ink.

- ◆ If the heating up system is open, print 1 meter image to test its difference from the actual one in order to avoid the wrong dimension. The flexibility of different materials in different temperatures is a little different.

1.5. The Printing control Process

- ◆ If the effect is poor to absorb the ink by using the software. please increase the absorbing board to a reasonable height or (download the head and directly absorb);

If the printer has an air pressure system, the operator can use it to clean the printhead, And then with vacuum to clean it. The effect will be the media board.

- ◆ Click the button of media test in the function table; the carriage sensor will test the media board automatically;

- ◆ Setup the location of the carriage and material. I.e., the spare margin;

- ◆ According to the test bar, please physical position of each print head with a screwdriver(each printhead in alignment and accurate);

- ◆ Further adjust each print head until they are in the best condition by using the software test chart, and meanwhile observe the test chart to make sure no abnormal phenomenon such as ink break and ink trail line in the printing process. finally it is allowed to start printing.

1.5.1. Notices during the printing process

- ◆ After one picture is finished printing, the print head should be cleaned in time; walk around the machine to check the work condition in the normal heating temperature is normal and there is no sundries on the printing plate form of the machine; Listen carefully to confirm whether there is any abnormal sound in the printing process. If there is, the machine must be paused to check out the reason; Smell to make sure if there is any strange smell like burn. Stop printing and to check out the reason;

- ◆ Other user from the LAN is prohibited to visit or share with the resource during the printing process to avoid the interfere in the printing unnecessarily;

1.6. Unload material

When printing finishing, there are two ways to load the media:

- ◆ Unload the media with the roller together

- ☞ Take down the take-up roller and loosen the lock knob of the take-up roller baffle. Then, draw off the Baffle and take-up roller which have no gear.

- ☞ Install the baffle

- ☞ Install the take-up roller on the printer

- ◆ Load the material only

- ☞ Loosen the baffle of the take-up roller to finish loading the material. Lock the knob and

pull the material to load directly.

1.6.1. Notice while feeding and loading the material

1. The material should be flat. One should adjust it timely if the movement deflection occurs while printing;
2. Please pay attention to the material feeding to check whether it is normal or not and the photo electricity switch is ok or not;
3. While installing the material, it should be put at the centre of the paper holding stick. And the roller of the material shouldn't be too big in case that the material is too heavy and the feeding is not smooth. In addition, too big material roller may make motor overloaded and affect the normal printing;
4. Please don't lift the handle bar while printing;
5. Before loading, please make sure the ink has been dry. Then, cut the media on the printer. But please be careful, don't injure the machine and your finger;
6. After printing, you'd better cover it with membrane before rolling in order not to damage the picture by the wet ink. Besides, don't fold the pictures.

1.7. Switch off

1. Press the emergency switch, meanwhile switch off the flash printing in the software.
2. Switch off the voltage of the printhead, HV switch.
3. Then, switch off the heating switch, wind absorbing switch and air-dry switch
4. At last, switch off the main power and then switch off the computer.

1.7.1. The task after turning off the machine

◆ Cleaning

- ☞ WClean the printhead soleplate, printheads and the ink stain on the suck flate with solvent.
- ☞ Discharge the rubbish ink in the vacuun and wipe the ink stain on the machine.
- ☞ Check the secondary ink tank to make it airtight.

◆ Maintenance

- ☞ The printheads should be protected after well printing every day. Put the three-layers non-woven and proper quantity of solvent into the cleaning tray. Then, buckle the cleaning tray on the printhead soleplate. Tighten the screw of cleaning tray, then, inject a certain quantity of solvent (about 2-3 mm depth)
- ☞ Brush protection oil on the linear guide rail and some other main movement parts.

◆ The clearance and back up of hard disk

- ☞ Before turning off the computer, the required documents should be back up and the

temporary and useless documents should be deleted in time.

First level	Second level menu	Function introduction
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☞ Clean up the disk signs, search and eliminate the virus.

2. Software Instruction and Operation

2.1. Main Interface

Double click MPCS.exe to start software, then enter main interface, shown as image:

File	Open up	Open the file that will be printed
	The file opened latest	Show the file opened latest
	Exit	Exit software
Printing	Printing	Printing the present list file currently
	Pause /Continue	Pause /continue the current task
	Stop	Stop the current print task and stop the print list
	Print revise	Can choose print "print head status", "step adjust", "revise color excursion" and "printing trip difference" revise image from the sub-level menu, you can revise the print head parameter according to the image.
	Latest printing	Show the latest printing machine in the sub-level menu
	Parameter setup	Enter into system setup dialog window, and setup printing parameter
	Parameter load	Load the opened prepared parameter into the current printing task.
	Parameter backup	Keep the current parameter scheme into the selected standby file
View	Tool bar	Show / hide tool bar
	Status bar	Show / hide status bar
Operation	Wash head	Perform the operation of cleaning print head, set the cleaning operation parameter in the dialogue bar of system fixing
	Measure	Test the bridge and width by automatically
	Back home	Carriage head return back to the cleaning position
	Flash print	Open/shut the print head flash jet
	Orientation	Renew set the "0" position, and the carriage head turn back to the cleaning position
	Carriage left	According to the moving set the parameter scheme make the carriage head moving left of dialogue bar
	Carriage right	According to the moving set the parameter scheme make the carriage head moving right of dialogue bar
	Stop move	Stop the moving of feeding and taking up material
	Material back	According to the moving set the parameter scheme make

		the carriage head moving right of dialogue bar
First level menu	Material advance	According to the moving set the parameter scheme make the carriage head moving right of dialogue bar

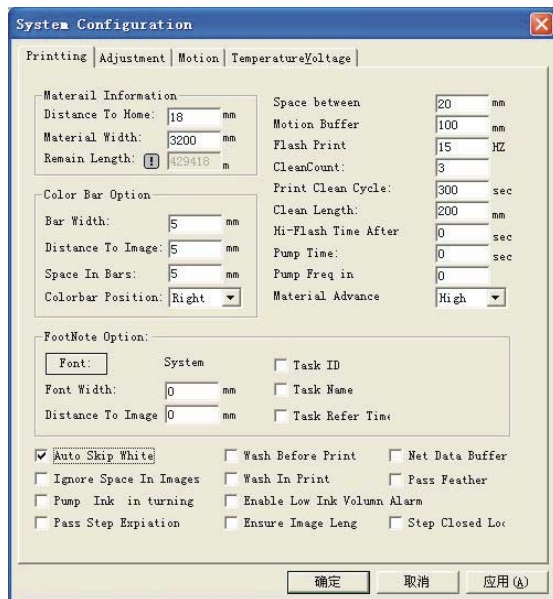
2.2. Main menu

Maintenance	Input password	Engineer adjust the parameter by entering into maintain mode after inputting the code and general operator no need to enter into the mode, and the original code is 000000.
	Usage information	Keep down all the printing and error information.
	Clear task index	Reset task No of the machine (maintenance mode are effective)
Help	About the software	Show the No. and information of the software edition
	RIP info	Show the dialogue of RIP support information
	Online service	Connect the net of skill support
Material info	Be apart from original position	Setup the distance of material between left point and original position
Setup the color Strip printing	Width	Setup the width of material
	The width of color strip	Setup the width of print color strip
	The distance color strip from image	Setup the distance between color strip and image
	The interval of color strip	Setup the distance between color strip
Footnote setup	Typeface	Setup choosing the type face of printing footnote
	The width of typeface	Setup the width of footnote typeface (the length of typeface are same as the width)
	The distance from image	Setup the distance between print footnote and image
	Task ID	Select include the print task or hot in footnote
	Task name	Select include the taskname or hot in footnote
	Print refer time	Select include the print task ID or hot in footnote
	Image space between	Setup the space between each image
	Feeding speed	Setup the feeding speed when printing(high, middle, low speed)
	The length of moving cushion	Setup the cushion distance of carriage moving when printing

	Back and forth times for cleaning	Setup the cleaning time for each time
	Print cleaning interval	Setup the space of cleaning print head
	Flash jet frequency	Setup flash jet frequency
	Cleaning length	Setup cleaning print head is the width of carriage moving
	Jump margin automatically	Select if auto-jump margin landscape orientation or portrait when printing
	Cleaning before printing	Select if cleaning print head before printing
	Net print digital deposit abately in local place	if need to deposit delay into the machine firstly, and then perform printing task when choose net printing
	Ignore the control for image interval	Select if ignore the setup of image space
	Cleaning while printing	Select if cleaning print head while printing
	Edge eclosion	Select if need eclosion disposal for the edge digital of each PASS to improve the quantity of printing

2.3.Parameter setup

2.3.1. Printing setup



2.3.2 Warp-revising

In order to improve the printing quality, we need to adjust the following items during the working time of the printer. State of printhead, step adjustment, printhead deflection need to be adjusted and color revising and printing trip dispatch. There are related operation content in the control software. Open the parameter scheme interface and choose the page layout of dispatch revise while printing. Click the standard button, and the standard item menu will pop-up.

2.3.3. Printhead State

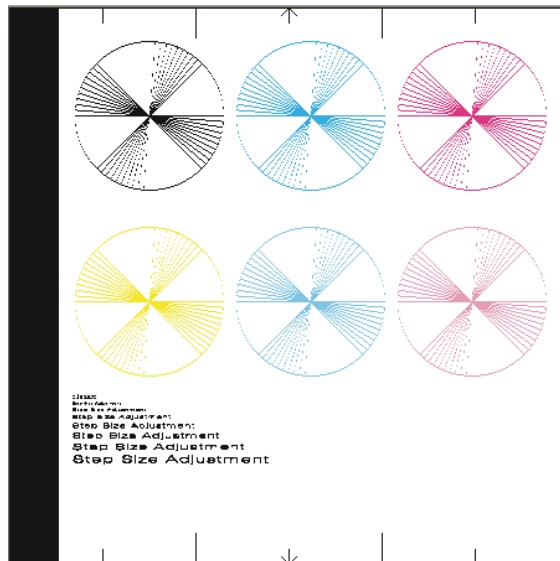
Click “printhead state” bar, the machine will print out the test image as following.



The image can test working states of each nozzle and the adjusted effect of printhead physical space, the partial amplificatory image of the above test print out there in after.

2.3.4. Step adjustment

Different printing mode may have different step advance, which depends on the error between Y axis movement parameter and definite positive value of the system and the mechanical differences. Therefore, step value in each mode normally should be adjusted separately. Click “step adjustment” in test menu to show the submenu in each printing mode. Then, select the printing mode, which needs to be adjusted, to adjust the picture-printing.

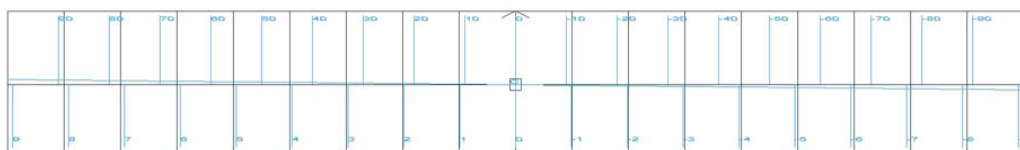


Test printing length of step image in practical printing, and fill the length figure into the following sheet of corresponding printing mode.

Step Adjustment	1PASS	2PASS	3PASS	4PASS	6PASS	8PASS
Measure(mm)	508.00	508.00	508.00	508.00	508.00	508.00

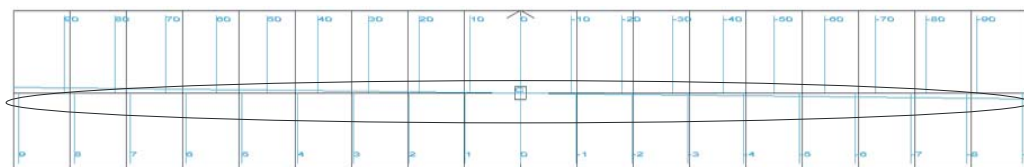
2.3.5. Revise color excursion

Printers need to knot all the printing content tighter when printing, which need to adjust the revise color deflection value of each print head. The deflection value are often different in different printing direction, so can be revised according to direction. Click the menu item of printing revise color deflection, and print corresponded revised image, printing image will compose more revised unit. Each unit can correspond to the revise parameter of each print head according to the color and the direction that mark the printing direction and the print head group Number



We can see the deflection of print head correspond direction when adjusting, the method of reading is as follows, there are tens digit and entries digit reading area. There are correspond digital marked, black line is datum line, find the best superposition line that the color line and basic line that tens digit and entries digit corresponded, and add the figure that the two line show and get the excursion value. In order to facilitate reading, when the deflection value is more than 10 in the image, firstly, correct the deflection of tens digit, then print again to correct the entries digit, but in general condition, as system exist standard excursion parameter of corresponded machine. As deflection parameter is less than 10, so once correct can make all the revise color excursion value, make the value add the original excursion parameter and fill into the correspond print excursion parameter table which shows in the following.

The print image also can reflect the deflection of print head in Y direction, as the grades line circled in the image.



When the current printing form is print head combination, Y direction warp revise can be performed, and other scheme form can be adjusted only by mechanical method .The method of reading warp value is choose the level line sect that superpose datum line well, and get a warp value by making the entries digit that this line corresponding multiply constant 48, then fill the wrap value in the correspond Y direction warp figure frame. Of course ,users can make a slight adjust within 48 figure.

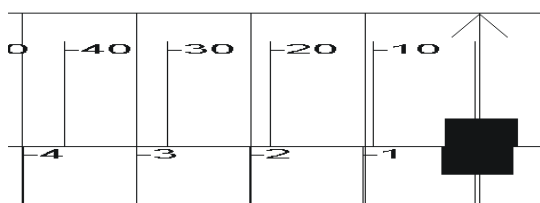
2.3.6. Back-and-Forth Difference

The different speed back-and forth difference need to be corrected as the different printing speed will brought definite position difference. Select the trip dispatch of correspond speed from printing test menu, and then the printer will output the revise image as following .



The method of reading trip dispatch is same as the revise color deflection , that is, firstly read the warp of tens digit ,and then the entries . Make the warp value add the figure in the original software trip dispatch frame and fill the result in the figure frame of correspond speed.

In order to explain the method of reading, we make a local explain about the printing image of trip warp shown in the below image.



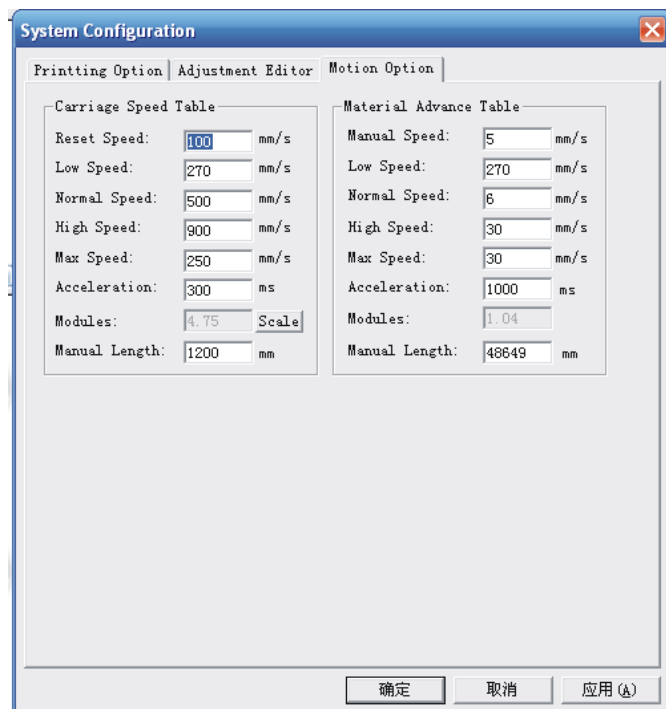
The black block in the picture is not neat with the uprightness border while printing. The black block means the exist of trip dispatch .Compare with the superposition state of each reading line and datum line, we can found line three sect are in good match with datum line, so the new trip dispatch will get by add the trip dispatch of current printing speed to

line-3.

2.4. Other operations and explanations

There is a resume standard value button on software revise page ,as shown in image 10, the operation resume all the current step advance parameter and revise excursion parameter to the original parameters which are set in the factory, so we should be careful to avoid wrong operation.

2.4.1. Motion setting



X speed (carriage direction)	Home speed	Setup the home speed of carriage (moving speed by hand)
	Low speed printing	Setup the speed value in low speed printing model
	Middle speed printing in	Setup the speed value in middle speed model
	High speed printing	Setup the speed value in high speed model
	Maximal speed printing	Setup the maximal speed value of the carriage
	Acceleration	Setup the acceleration value of carriage
	Equal mete modulus	Test the equal mete modulus of motor pulse and step

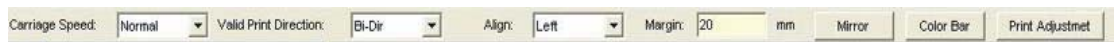
		advance by testing button automatically .
	Displace unit by hand	Setup the distance of carriage moving each time by hand
Y speed (media movement direction)	Advance and withdraw low speed	Setup the speed for advance and withdraw low speed by hand
	Low speed	Setup the speed for low speed feeding
	Middle speed	Setup the speed for middle speed feeding
	High speed	Setup the speed for far speed feeding
	Maximal speed	Setup the maximal speed of feeding
	Acceleration	Setup the acceleration of feeding
	Equal mete modulus	The equal mete modulus of Y axes motor pulse and step advance
	Displace unit by hand	Setup the distance of feeding media each time by hand
Other	Measuring coefficient of encoder	The value is limited which ensures the step accuracy
	Responding compensation	The compensating amount will be counted automatically
	The longest movement	The longest movement distance of carriage
	The distance between media sensor and printhead	The distance between media sensor and the outermost printhead
	Zero position	The distance between carriage and media
	The cleaning position far From zero position	The distance between zero position and carriage while cleaning
	Carriage staying position	The distance between carriage and left position limited switch
	Pulse width of printhead printing	The time of printhead printing frequency interval
	Reversing moving in X direction	Carriage moving to left or to right
	Reversing moving in Y direction	Reversing movement while stepping
	Left and right processing switch reversed	Reversing direction of left and right position limited switch
	The pulse phases of printing reversed	It makes the ink dot smaller and printing precision higher

2.4.2. Tool bar



Open up	Choose the file that should be printed
Setup/option	Open up the parameter scheme dialog window
Net print	Automatic net print scheme, press down the button means that auto net printing startup, printing requirements will be startup without operator's confirm, which is auto startup, button in the pop-up state means net printing need users to confirm.
Print	Startup printing queue
Stop	Cease current printing task
Pause	Pause or continue the current printing task
Measure	Test the original position and width of current material automatically
Clean	Startup print head cleaning function
Flash	Open or close the flash jet function, and show current flash state. (press down the button will be the flash state.)
Back home	Make carriage came back to home position in the left side
Left	Carriage board more to left
right	Carriage board move to right
Stop move	Stop carriage board and material moving
Back	Take up material manually
Advance	Feeding material manually
About	Show the edition info. of software

2.4.3 Parameter bar in common use





Carriage speed	Setup the print speed of carriage movement (high / middle / low speed)
Valid print direction	Set up valid printing direction (Bi-Dir,single right, single left)
Align	Set up align of printing image (left, right ,center)
Margin	Set blank width at both sides of material
Mirror	Choose whether mirror image printing or not
Color bar	Choose if print color bar
Print adjustment	Choose printing test image (print head status 、 step size color offset Bi-Dir offset)

Carriage speed and valid print direction can switch to another printing , other sets should be setted before printing

▲ Status bar

As image 1 shows, status bar of the software on the right below corner , customer can realize the current status by the information that shown in the status bar .



 Net Ready	Show net printing and digital receive status
X:150003	The current position of X axis
Y:00000000	The current position of Y axis
	Current ink supply status ,any color flash will show the status is ink supply status
Right Limit Left limited position	Carriage move toward left limited position
Left Limit Right limited position	Carriage move toward right limited position
Measure Seeking margin	Signal status of seeking margin machine
Immediate Urgent stop	Status that urgent stop switch is pressed

When status bar appear left / right limited position, seeking margin and urgent stop character, it shows that the corresponding signal is the effective status

3. Basic operation

3.1. Carriage Back Home

3.1.1 carriage back home automatically

Open software or finish printing or close the software ,carriage will be back home automatically without manual work.

3.1.2. Carriage back home

After moving the carriage by manual work, if you hope carriage back home, you can click the “carriage back home” button in meny or click the button in the tool bar .



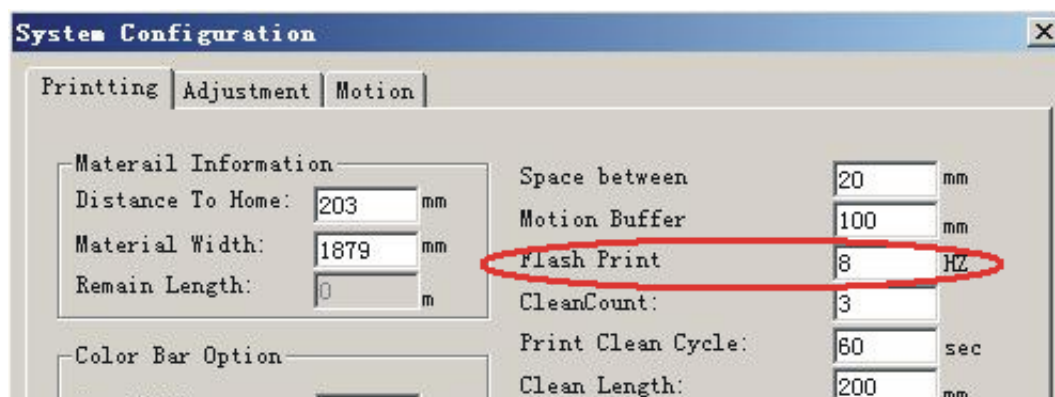
3.2. Orientation

When error appeared in software and can not return home , you can use the “orientation” in the menu bar to make the carriage orientation again, and the carriage be back home automatically

3.3. Flash jet function

In order to prevent the printhead from clog during state of no printing for long time , printer will flash when carriage automatically is back home. Users also can choose the “flash print” in menu

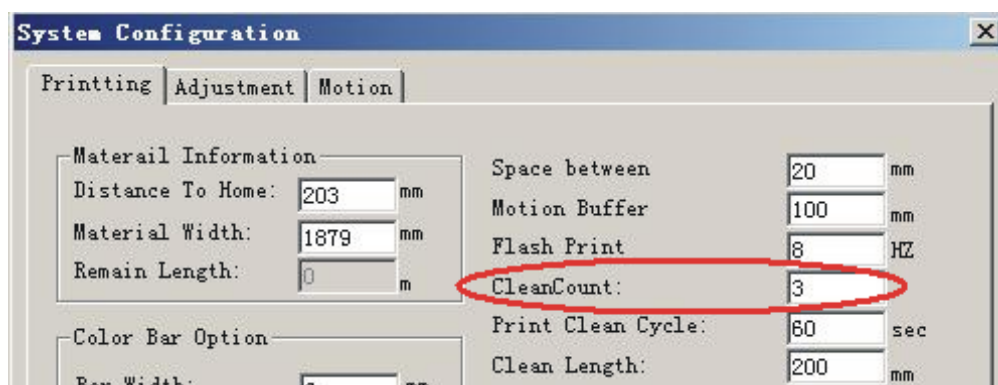
bar or “flash” in tool bar to open or close flash function , and set up the frequency of flash in printing parameter dialog box.



3.4. Printhead cleaning

3.4.1. Manual cleaning

Users can clean the printhead according to current printhead status, User can choose the “printhead” in the menu bar or “cleaning” button in tool bar to clean printhead , and set up the clean times in printing setup.

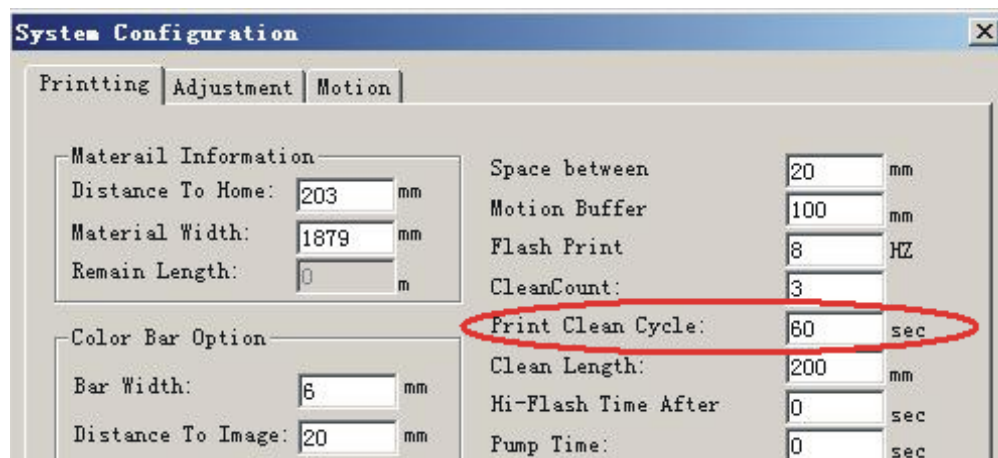


3.4.2. Auto clean

During printing, in order to assure excellent printing effect, the print head need . Users can setup if need the flash and its time and frequency a period of time in printing parameter setup dialog window .

3.5. Margin test function

After the material loaded on the printer, users can choose “measure” in menu bar or “measure” in tool bar to do auto-test material function . Whenr the operation is finished, system will record the data of original position and width of the material, Users also can set the original position and width of material manually in printing parameter setup dialog window.



3.6. carriage movement manual

Users can choose “carriage left/right” button in menu bar or “left /right” button in tool bar to do carriage movement, The speed and distance can set in parameter setup dialog window.



3.7. Material back and advance

Users can choose “material back /advance” option in menu bar or “back ,advance” button in tool bar to adjust material position .The speed and length can set in option parameter dialog window..



3.8. Print

User have two methods to choose what picture to be printed: open" file" in menu. Or choose in " image list"

3.8.1. Open the file directly

Click -“open”functionin menu bar or “open”function in tool bar, to the file-picture course window .

Choose the file to print and click “open” button will display automatically.

3.8.2. Choose file to print from image list

Choose list from skip bar firstly, and the picture that is supported by control software will appear automatically in image bar choose the picture and click right button on the mouse, the menu will pop-up, and can do following operation.

Print	Print the selective file
Add into the print list	Add the selective file to print list (wait for print command)
Delete Over loading indicate	Delete selective file from picture box
Over loading indicate	Load selective file over again
File attributes	Show selective file attributes

Click “print” or add print list to show print parameter setup dialog window

System can store the picture which is more than 2G in several files. The file name is consist of file name of RIP file and its serial number ,and the system offer consistent operation for users .Preview picture and print operation are the same.

3.8.3. Print Setup

File attributes	File path	Show the path of the file of current picture
	Task name	Set the name of the print picture
	Pass mode	Select print mode (from 1 PASS to 8 PASS)
	Task index	Show series No. of current task
	Ink Volume	Show rest ink percentage in ink tank
Region option		Select printing area in the picture by Mouse. The four parameters below can be obtained automatically and no need to set.
	X	The jumping-off at X-direction
	Y	The jumping-off at Y-direction
	Width	Width of current printing picture
	Length	Length of current printing picture
Multi-piece print setup	X cnt	Set number of printing pictures in X direction
	X space	Set distance between two printing pictures in X direction
	Y cnt	Set number of printing pictures amount in Y direction
	Y space	Set distance between two printing pictures in Y direction
Foot note	Distance to Image	Set distance between footnote and image
	Font Width	Set font size
	Preview	show the printing font in the footnote
Others	Regionl Print	Choose Regional Print or not
	Multi print	Choose Multi picture Print or not
	Speed for carriage	Select printing speed (high, normal and low)

	printing move	to print, which is used to select proper printing speed according to different horizontal DPI of pictures.
	Print Footnote	Choose to print footnote or not

After setting printing parameter, click “print” button and add printing task into printing alignment. If no printing task in the printing alignment, print the current picture. If print task exists in alignment, the task will be added at the foot of the alignment .

3.8.4. Printing Task List

Click the right button of Mouse in the print task list to show the Menu and the operations below can do following operations:.

Start to print	Startup alignment picture to print
Reprint	Reprint the selected picture
Stop current task	Stop current print task
Stop printing alignment	Stop all print tasks in alignment
Delete task	Delete current selected print task
Improve printing priority	Improve a class of selected print task in alignment
Lower printing priority	Lower a class of selected print task in alignment
The highest Priority	Improve print task to the top of printing alignment
The lowest priority	Lower print task at the foot of the alignment
Task properties	The selected print task can be set by opening the dialogue box of print setup

3.8.5. Region Print

If users just want to print a certain region of the picture only, they can choose "region print" function. After selecting the picture which you want to print , click Check “Regional Print” in dialog window, then, select the region in Preview Image by Mouse and the parameter of the print region(X: Y: width, length will be setted automatically. Users also can change these parameters to change the printing region. After finishing, click print button to print the selected region.

3.8.6. Multi Print

Sometimes users need to print lots of the same pictures. So they can use the function of Multi print to improve efficiency select the wanted pictures. Choose “Multi Print” in dialogue window, then, set the number of pictures in X and Y direction. Meanwhile, the distance(mm) the between pictures can be setted.

3.8.7. Footnote Printing

Using the function of footnote printing, users can indicate the ID name and print time of the printing picture so as to check and find the printed pictures easily. Select the Footnote Printing and set the font width on footnote (Font Width and Length) and the distance to the picture between characters on footnote and image. Meanwhile, the characters on footnote can be previewed and amended in Footnote Preview.

3.8.8 Pause or Continue to Print

While printing, users can pause according to current situation, which can be accomplished by “Pause/Continue” in “print” of Menu Bar or “Pause” in Tool Bar. The print head will go back to the starting point and into the flash print status after pause. If willing to continue to print, users can click “Pause/Continue” in “print” of Menu Bar or “continue” in Tool Bar (“Pause” button will become “Continue” button) to go back to the previous print status.

3.8.9. Stop Printing

If willing to cancel the printing task while printing, you can click “stop” in Menu Bar or in Tool Bar to stop printing. The print head will go back to the starting point and go into the flash print status after stop.

3.8.10. Print Test

Before printing, users can adjust the parameters of printer by printing pictures of test in order to get better print effects. And users can print test pictures, select “print head status” of printing, “step adjustment”, “color offset” or “Bi-Dir Offset” by print adjustment in “print” of Menu Bar or by print test in Common Parameter Bar. Parameters of print head can be adjusted according to pictures. Detail operations refer to 1.3.2. Adjustment Editor.

3.8.11. Backup and Read-in of Printing Parameter

Parameter backup and read-in makes users set parameters more conveniently.

After finishing parameter setup, save parameter setup into backup files by “parameter backup” of “print” in Menu Bar, as it is showing in above Picture.

If users want to resume the parameter setup saved before, they can take advantage of “parameter read-in” of “print” in Menu Bar to read parameter setup from backup files, as it is showing in the picture below.

4. Net-Print

4.1. Net-Print Setup

4.1.1. Local Buffer Memory for Net-Print

Users can choose from the dialogue box, in print setup of system setup, whether to start the function of local buffer memory for net-print.

When adopt such function is used, all printing data will be stored in buffer memory of the computer, followed by printing operation. Its characteristics is that it can send the data of next picture while printing, which supplies users with stable net data, and can use its function that RIP data processing and printing are being dealt with at the same time. Data size of image is only restricted to the capacity of the disk where software is installed. If the function isn't used, printing and data transmission will be clone at the same time.

4.1.2 Auto Net-Print Setup





Dialogue box of automatic print setup will come out when auto net-print is started, which needs users to choose printing type: fixed printing type or the type according to picture DPI, It is shown in blow Picture.

If “use fixed print mode for all DPI format” is chosen. Then the same printing mode will be used to all net-print tasks. If such function is not selected software will automatically set the printing mode according to picture’s DPI format.

Note: Net-Print clialog windown shows current net-print mode. While pressing the button down, printing task sent by net doesn't need confirmation by the printer. While the button is up, printing task needs confirmation.

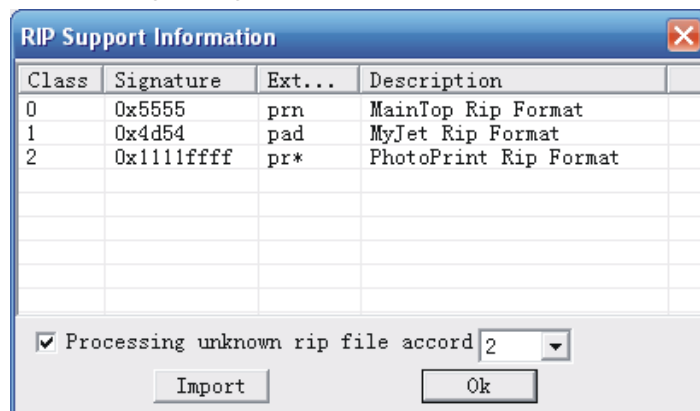
4.1.3. Continuous Printing function while Off-Line

While printing by net which could be cutted because it is unstable, users can resend the last printing data to reprint after the net is connected again.

 网络就绪	Net is ready for printing task
 1MB 12%	Sending data to start printing
 等待重传	Net is broken off and waiting for resending data
 恢复:12%	After net is connected again, it will continue to print the task.

5. RIP Support Information

Open RIP support information in “function in menu bar to get the details , as it is shown in the following dialog window:



The current RIP picture format is showed in the dialogue box, User can also click “import” button to input the RIP format file you want.

6. Software Edition

Click "help"- "about" in the Menu Bar or click the “about” in Tool Bar, the dialogue window will show the software like the above image.

Chapter 3 Maintenance Guide

1. Maintenance Rules

Proper maintenance is of vital importance to the sound operation. Here in after we list different maintenance degrees in details. We advise you to write down these rules and paste them to the printer or proceptible places near to printer.

2. Daily Maintenance

◆ While printer in idle

1. Clean the printheads by the air pressure system, and, clean the soleplate insuccessuon power off.
2. Lay several floors of the non-woven cloth and put them on the plate which the printhead dipped in. (If there is no too much non-woven , the sponge is recommended, which can save cost and the flexibility of the sponge is better than that of the non-woven.)
3. If non-woven is used, please flay more.
4. Put enough membrane on the non-woven or sponge, which let the membrane not damaged easily and prolongs the lifespan of the cushion.
5. pour the solvent on the membrane
6. Please don't pour too much
7. Install the printhead soleplate
8. Fix the printhead soleplate

9. Check if the soleplate and membrane are in proper position or not
10. Four solvent into the printhead tray at 3mm depth.
11. At last fix the membrane.

- ◆ Often examine the cleanness and lubricating conditions of the linear guide rail, and lubricate the guide rail with accepted lubricat.
- ◆ Inject oil on the bearing ball of the sliding set on the guide rail periodically with appointed injectar
- ◆ Check the ink store cabinet if the ink is enough or not.
- ◆ Replace the ink filter periodically
- ◆ Clean the printhead often and clean ink tank and ink level sensor periodically
- ◆ Check if the connection axis skiding or not and tighten the screws.
- ◆ Clean the dust on the computer, power supply and electronic board periodically

2.1. Preparations before starting the machine

- ◆ Demount the printhead protection plate
- ◆ Clean the printhead, roller and printing platform, Get rid of the sundries on the platform
- ◆ Check the ink level position of the start ink tank
- ◆ First turn on the main power, and, then start the computer, finally the machine.
- ◆ Pull up the emergency button on both sides.
- ◆ Check if the meehanical parts are run smooth and normally or not. Startup the software, and check the X axis, Y axis, cleaning system and emergency stop button
- ◆ Turn on the switch of the HV voltage and select “print flash ”
- ◆ Check the indoor temperature (20℃-28℃) and humidity (40-80%)

2.2. Maintenance While Printing

- ◆ Clean the print head before printing. To make ink print fluently. Clean print head immediately when finish one image (Refer to print head's cleaning methods)
- ◆ When in normal printing condition, walk around to check the equipment for following aspects:
 - ☞ There is no particle or dirt on the working platform.
 - ☞ Touch the cover of heater to make sure the heating temperature normal.(Note: when the print can rage board moving, the cover of heater is forbidden.)
 - ☞ Listen to printing condition carefully to cheak whether there are irregular sounds once something exceptional stop to check what problem.
 - ☞ Smell. If smoky, stop machine and check.

2.3. Maintenance when stopped.

- ◆ Press down the enmergeney button.
- ◆ Maintain the print head (refer to the chapter of print head maintenance)

- ◆ Discharge ink in the cleaner.
- ◆ Clean the equipment (only special PMA liquid can be used)

2.4. Interval 8 Hours maintenance

- ◆ After 8 hours printing, use petroleum based printing lubrication to brush lubricate the guide rail one time. Don't brush too much otherwise the excrescent may leak beneath.
- ◆ Use cleaning liquid to clean the surface and interface of the vacuum to guarantee flexible movements up and down.

2.5. Daily Maintenance

- ◆ Clean all the press wheel subassembly.
- ◆ Check the waste ink in the vacuum and discharge it in time.

2.6. Weekly Maintenance Content

- ◆ Remove supportive lid of the print head and clean its underside with solvent.
- ◆ Check if ink level sensor is fixed enough.
- ◆ Libricate to guide rail and add to or its bearing.
- ◆ Daily inspection for others mentioend content.

2.7. Monthly Maintenance

- ◆ Change ink filter; wash primary ink tank and ink supply system (refer to ink supply system cleaning method)
- ◆ Clean the secondary ink tank .
- ◆ Check and fasten the screws on the transmission coupling, electric engine coupling.
- ◆ Check the screws the carriage board and guide rail. Check sync belt. If it loosen, fasten it.
- ◆ Check all the cooling fans and connect motors.
- ◆ Clear computer's hard disk its check and clear the virus.
- ◆ Dedust the power supply case, electricity control board and other circuit board with air gun(must be dry air)

2.8. Quarterly maintenance

- ◆ Heater test: 15 minutes after the temperature is set, measure temperatures in the pront and rear heaters. With multimeter to check the left, middle and right temperature is not hotter than 10℃. Also to touch them to check whether there are obvious temperature difference. no obvious temperature difference should be felt when touching it.
- ◆ Dedust the equipment thoroughly including the interior of the left and right case.
- ◆ Inspect and change ink filter.
- ◆ Blow away all the dust on the power supply case and the driver with dry compressed

air.

2.9. Annual Maintenance

- ◆ Horizontal inspection on guide rail and printing platform (can contact our company)
- ◆ Check the equipment thoroughly to see whether the screws are loose.

3. Printhead Maintenance

3.1. Treatment before printhead is installed

- ◆ Cleaning of moisture locking liquid in the printhead.

All the printhead contains enough moisture locking liquid for the purpose of protection before the printhead sold. Before installation, it printhead must be cleaned with solvent which match the ink. Connect a filter between the injector and the inlet tube of the injection cup. Inject 30ml cleaning liquid into the injection cup at first, discharge the moisture locking liquid and then fulfill the injection cup with cleaning liquid. Leave the injection cup in the water for 5-10 minutes, and the remaining moisture locking liquid will be totally dissolved. Lastly, wash the injection cup with about 30ml cleaning liquid. If the line printed is not straight, wash it over with cleaning liquid. Don't stop until the line is straight. In this way the remained moisture locking liquid is cleared. Remember when doing this, please choose a considerably sound and clean platform.

- ◆ Notice:

- ☞ Keep the operation platform clean in order to operate.
- ☞ Don't touch the surface and the socket of the platform.
- ☞ Filtrate the injector with the filter.
- ☞ Surface of the injection cup is not touched.
- ☞ Distinguish outlet hole from inlet hole
- ☞ When cleaning liquid is pushed out of injection hole, pressure should not exceed 0.3kg (i.e. hold the injector with one hand and push the injector with the thumb of the same hand.)

3.2. Air pressure system introduction

3.2.1. Function Introduction

There will be clogging print head when printing for a long time, which could be solved by vacuum. But if can not clean out, we can adopt air pressure way to do. (When cleaner is no use and under the condition of having break line.)

3.2.2. System Introduction

Purging button

Air pump electromagnetism

vacuum ink tank

3.3. Operation Guide

First install the small cover on the vacuum ink tank, then, press down the red button of the pressure system to check if all the ink in the printheads flows out or not, which is held within 5 seconds.

3.4. Notice

Power of the printhead must be turned off before pressing the button.

3.5. Wetness of the Printhead Surface

Clean the surface of the printhead in single direction with depurating wet stick softly to form a thin bed of solvent on the surface of the printheads.

3.6. Discharge the Printhead

3.6.1. The step to discharge the printhead

- ◆ Turn off the HV power and the main power supply.
- ◆ Discharge the screws and take off the printheads from soloplate. Please be careful, don't make them collide or fall on the ground.
- ◆ Inject solvent into the printheads to clean and install the protection board of printheads or pack printhead with membrane.

3.6.2. Notice when discharge the print head

- ◆ Do not collide or fall the print head on ground during the process of installation or discharge.
- ◆ Before printhead is stored, clean it with cleaning solvent.
- ◆ The cleaned print head should be set the original protect board or wrapped sealed by the membrane immediately. If need to post, anti-shock packing should be offer.

3.7. Common knowledge about printhead maintenance

In normal working condition, turn on the print head flash function in the software. Set the value as 8;

- ◆ If clogging cannot be solved under normal cleaning process, it is better to dismount the printhead and dip it in the cleaning solvent.
- ◆ Before printhead is dismounted and stored, clean it with cleaning solvent; wrap it with wiping paper, and store it sealed. If the printhead will to be posted, use anti-shock packing.
- ◆ Carefully and regularly clean the base of the printhead where auto ink sucking locates.

3.8. Cleaning and maintenance of printhead

3. 8.1. Changing ink

In principle, only one kind of ink can be used on a printer. Except the necessary to change, it is not advised changed with other ink in case of the damage to the print head. While changing the ink, clean the printhead with the previous solvent first. Then clean it with the new solvent compatible with new ink to lessen the residue ink and liquid in it.

3. 8.2. Washing the print head

- ◆ If the surface of the print head is so dry that it is clogged, inject some ink into it and wash it with ink carefully.
- ◆ If the above mentioned methods still don't work, dismantle the connection tube; add cleaning liquid directly into the syringe. Then connect the tube and inject ink.

3.8.3. Keeping printhead wet

When the printer is out of use, printhead clean salver should be used to keep the printhead wet. Please also pay attention to the cleanness of the salver. Put non-woven cloth in the salver three to four layers to ensure the surface of the printhead is clean. Add a little solvent, and then screw the nut on both side of the salver to assure printhead is in the solvent. If the salver hasn't been cleaned, please use non-woven cloth to mix a little wetness-keeping liquid or solvent instead and wrap well with plastic foil.

3.9. Printhead protection while stopping the machine overnight

- ◆ Turn off the computer and all power supplies.
- ◆ Put three layers of non-woven cloth on the cleaning tray and add proper solvent.
- ◆ Carefully cap the tray on the pedestal. Fasten the screws on the cleaning tray.
- ◆ To prevent ink mix, fill the hole on the back of the ink bottle with a black cap and vacuum the space between the ink bottle and the print head. Pull out the black cap when use again.

4. Printhead protection when the printer stops for several days

- ◆ If the printer is out of use for more than 48 hours, the ink in the printhead must be cleared, otherwise, ink will dry as solvent volatilizes or even impair the nozzle permanently. Treatment is as follows:
 - ◆ Turn off printer's power supply
 - ◆ Move the printhead to the leftmost cleaning position and put an anti-erosion receptacle below the injection cup to contain waste liquid.
 - ◆ Aspirate with glass injector or directly pour out ink in the secondary ink tank. Then, wash it thoroughly with special solvent.

- ◆ Pull out the ink supply tube (from secondary ink tank) and aspirate 40ml special solvent with glass injector to clean the print head twice. Don't blow away residual solvent in print head because solvent inside the printhead can keep it wet.

- ◆ Discharge the print head bracket, wrap it with the plastic bag and or film.

5. Automatic printhead cleaning function

- ◆ The unauthorized wiping paper by BLUEWIN is forbidden to clean the printhead surface .

- ◆ The cleaning software must come from BLUEWIN with the BLUEPRINT printer together

- ◆ Manual and automatic cleaning is optional .When do automatic cleaning ,please switch on the suck fan function, the carriage will move automatically from right to left to clean the printheads one by one .

- ◆ The cleaning frequency can be set in the software and the operator can set one cleaning time

When the carriage board move several times .The extra times is depended on the extra situation .

- ◆ The surface of printheads must be kept moist by ink or solution and be packed by cellophane

and preservative wrap, or the other polythene package material to avoid drying up. In order to

reduce the damage of the printhead, we stipulate:

- ◆ The recommended ink must be used, and the same brand of solution and wiping paper as ink.

- ◆ The printhead must be cleaned and packed by dust-free paper when the machine is over half

Month.

6.Maintenance of the ink supply system

- ◆ If the filter is under good condition, seal the plastic connecting tube with adhesive tape to avoid dust entering.

- ◆ Filter cleaning: Dismount it and discharge ink. Dip it in the solvent and vibrate it in ultrasonic cleaning machine for more than half an hour. Then blow in compressed air from the ink hole so as to discharge wastes. Do it repeatedly until the filter is unobstructed.

7. Choice of ink

The printhead is the brain of the printer. The choice of ink is very important because it will directly affect the printhead. A bad choice may destroy the whole ink supply system. So choosing ink should be very serious.

Chapter IV Technology Guide

1. Improving printing quality

1.1. How to achieve your printing performance without any line break?

1.1.1. Choose suitable ink

Any ink factory or distributor relies on profits to do business continuously. We recommend our ink. Although the price may be a little higher than the cheapest ink available in the market, the cost is quite low if it is distributed to each square meter. Inferior ink will damage the printhead and lead to line break seriously within one month. So the bad image will be printed. Deservedly customers will purchase less and less ink with poor quality as time goes by.

1.1.2. Protection function design and daily maintenance during printing

◆ Four colours or six colours printing

Make sure that colour bar is printed at neither side of printing picture! Which can prevent clogging in one or two printheads for certain long time. What is more, colour bar enables us to discover which printhead breaks line apparently.

◆ Regular auto ink sucking termly

Only a few seconds are needed and we can guarantee that no line is broken in printing. "Under good printing condition, the main reason for line break is due to ink deposit on the nozzle of the printhead." Deposition is caused by ink feature, environment temperature, comparative humidity, ink level of sub-ink tank, thickness and airtightness of the tube flow, resistance to tube wall, horizontal of printhead board and etc.

Set PASS number of the auto cleaning intervals according to the practical situation, the pre-condition is no line break in long image printing!

◆ Remember that damage of printhead starts from a initial nozzle too many operators don't care about one or two broken lines and let the printer finish the whole image. What they have ignored that one will spread to the neighbour ones due to the delayed cleaning."what we must do is to nip a thing in the bud.

During intermission of printing, do not turn off the printer. Keep the printhead in the flash state.

◆ During the process of flash nozzle, ink consumption is very small (only 2‰ of that in normal printing). Which keeps the nozzle hole moisture. At the same time, keep the normal printhead temperature. Make sure when starts printing, printhead are in best working conditions.

When operating BLUEPRINT printer: first turn on the computer, then start up the printer and print head voltage. Choose reset when entering the system.

When you want to turn off the printing, you need to press the key RESET to restart the system. Only in this way can the printhead return to the left side for automatic flash injection. To ensure the proper function of flash, you may use a piece of paper under the printhead to check whether it works well or not.

◆ Examine nozzle before or during printing:

- ☞ Before printing, if find the nozzle can not print ink, firstly try to suck the ink out.
- ☞ The line break during printing is usually due to the clog of ink, which can easily be solved by setting automatic cleaning in software.
- ☞ stop printing immediately once find line break otherwise the clog will become worse
- ☞ If you fail to deal with some problems, please promptly consult the technicians from the supplier.

◆ Protection after turn off

After the turn off, immediately cover the printhead with the tray which is equipped with cleaning solution and non-woven to prevent the nozzle of printhead from direct exposure to the air. If which not well done, the ink will easily evaporate and the resin composition in the ink will deposit more and more. If printhead is found out of good condition add 2mm thickness solvent in the tray and make the printhead dip in the solvent to next day then the clog will be dissolved.

Notice: If flow back ward tray of using happen by block the air hole of vacuum ink tank. Then remove the wad when turn on the machine next time.

◆ Cautions regarding repairs

If you need to dismantle the components on the printhead. shelf and the direct exposure of printhead to the open air seems unavoidable, you must inject the cleaning liquid onto the surface of the printhead with the needle cylinder, which help slow down the rate of the ink's evaporation. (The cleaning liquid evaporates slowly and there are no solid particles left after the evaporation).

1.2 Adjust the relative positions between the printhead of one colour and the printhead of other colours.

For the first adjustment, mechanically adjust the screw and put the test bar under the very position, Second, run the software to further adjust the print head in a proper position. Then use the adhesive to fix the screw so that the screw won't be dislocated by vibration.

Prior to daily operation, first print the test bar, and then check whether each jet hole is in

good order and whether the relative position and parallelism of each printhead is within the permissible error range. Then can produce high quality images only when all the requires can reach.

Since the way to inspect and adjust varies from one factory to another, users should be familiar with this operation and carry out examination and adjustment before starting operation every morning.

2. Adjust the clearance

To achieve the satisfactory effect, it is necessary to adjust the headstock so that the clearance between it and the material to be printed, can be reduced to the minimum, 2.5 mm-3.5mm (Notice: material isn't allowed to be touched.)

Adjust the height of the rocker blotter and screw down and fix the screw in order to ensure the good cleaning effect.

Notice: the shorter the clearance between rocker blotter and injection cup is, the better the cleaning effect will be.

3. Techniques for using injection cups

◆ Environment

☞ Keep a tidy working environment and make main body free of any dust. Because under the dirty environment dust will make its way to major ink pots, minor ink pots, and then injection cups. If it is the case, the printing effect will be harmed and the service life of an injection cup will be shortened.

◆ Operation

☞ Operate in accordance with the procedures for the maintenance of injection cup and avoid the friction between the nozzle and any object because it may make the surface of the nozzle frosted and broken.

☞ When cleaning the surface of nozzle, we must use the special paper or non-woven fabrics instead of the tissue paper to clean the surface of injection cup. With untold tiny fibers on its surface, tissue paper can gain easy access to the nozzle. Additionally, the tiny hairs that remain on the surface of nozzle probably lead to the clogging and dripping of the ink and then affect the print quality.

◆ Accessory

☞ Every accessory serves certain purpose and shouldn't be detached at random.

☞ Keep intact the primary inkpot and the air filter of the secondary inkpot so that the particles of various kinds floating in the air can be denied access to the ink. If clogged or

even broken, they should be promptly replaced.

◆ Static

☞ Ink-jet printer should be connected with zero line to prevent the static's effect on the injection cup.

☞ Maintain a constant temperature in the working environment and ensure that the temperature ranges from 20℃ to 28℃ because the heat generated by the working injection cup is mainly carried by the ink and then discharged from the heat sink.

☞ The humidity under the working environment should be within the range of 40%-60%. If it is too dry, medium will be charged with static, thus affect the print quality.

☞ Generally, static that exists in the grounded line of the equipment, floating particles in the air and friction between media and equipment, electriferous spare part. All the above mentioned may wake the printer with electricity, which does harm to the major accessories including printhead , electricity board.

◆ Ink

☞ The quality of the ink directly effect on the printing image quality. And usage life of printhead the lower price doesn't amount to the decreasing cost. contrarily, the ink of inferior quality ink easing lead to the following problem such as clog , printing interrupt printing picture useless and reimbursement from customers because of the poor quality. Which are the wrest wast for manpower, capital.

☞ We strongly recommended to use our appointed ink as this ink has undergone strictly and longtime test to guarantee both the equipment and undergone.

◆ Maintenance

☞ Machine is closed down, be sure to put the cleaning solution on the surface of injection cup and cover the nozzle with the preservative film so tightly as to reduce the evaporation of both the solution and ink. It will, to a great extent, extend the service life of injection cups.

☞ If the machine is out of service for a long period (during the long holidays, for example, International Labor Day, National Day, Spring Festival), users must put the solution into the injection cup and then cover it with the bonnet. Besides, more solution should be added to the bonnet. Finally preservative film can be adopted to enclose the whole injection cup for the purpose of preventing the dust's penetration and reducing the evaporation of cleaning solution.

4. The solution to the clogging of the nozzle

4.1 The techniques for slight clogging of the nozzle

◆ If the nozzle is found slightly clogged in the process of printing, don't hesitate to

press the key PAUSE to stop printing. Then use a vacuum cleaner to suck the clogged ink out of the nozzle. By means of this method, we can clean the nozzle. Afterwards, cleaning solution should be taken to wash away the residue. (Notice: Vacuum cleaner should not be utilized to suck a given injection too many times, otherwise, it will likely to damage the injection cup.)

- ◆ The prompt, resolute and thorough treatment to the slight clogging is of paramount importance to maintain the optimum working state for the long printing.
- ◆ In addition, it is necessary to examine the injection cup carefully and eventually discover the reason for the clogging. (If it is due to the ink, change resolutely and make sure that the ink tract be cleaned as well.)

4.2 The techniques for frequent clogging of the nozzle

- ◆ Firstly press the key PAUSE to stop printing and then move the head to the leftist cleaning position
- ◆ Generally speaking, the problem can be solved through directly using the vacuum cleaner to suck the injection cups.
- ◆ If it still doesn't work, open the machine and pull out all the signal wires of a liquid level inductor connected to control panel. Then suck the injection cup, restart printing and observe the possible change. If there is a change for the better, it indicates that the problem originates from liquid level. At that moment you should try to restore the injection cup to the normal state by adjusting the position of ink box, the temperature of working environment and the working voltage of injection cup.
- ◆ If there is still no change, pull out the ink-supplying pipe on the injection cup and use a glass syringe to draw out the special solution for cleaning the injection cup. The procedure is as follows: inject 40ml solution each time and wait for 10 minutes. The process should be repeated 3-4 times.
- ◆ After cleaning, make ink-supplying pipe and the signal wire of liquid level inductor plugged into. Then resume the printing that stopped previously.

4.3 Measures taken after the methods mentioned above don't work.

- ◆ Avoid using non-woven fabrics and directly cover it with the injection cup bonnet. Then inject 3mm of solution into the bonnet and enclose the injection cup shelf with the protective membrane to guard against the evaporation.
- ◆ Notice: The signaling interface on the top of injection cup shouldn't be allowed to get in contact with solution, or it will be burned.
- ◆ After the injection cup is immersed in the solution, use the glass syringe to draw out the solution one or two times from the interface of the ink pipe, which is on the top of injection cup.
- ◆ Use the glass syringe to draw out 40ml of special cleaning solution and then inject the solution into the interface of ink-supplying pipe. Next pay attention to the waterline that comes out of the nozzle. If the waterline is straight, it proves that the cleaning is effective and the injection cup can be further used (The prerequisite is that the circuit and

piezoelectric crystal are intact). If it is distorted, then repeat step 2 and step 3 twice or three times.

5. Preventing clogging of the injection cup

5.1 Origin of the clogging

- ◆ The ink is of inferior quality.
- ◆ The rapid changes temperature or humidity effect on both printhead and ink.

The stability of the ink determines the usage condition of the printhead. On one hand, ink stability depends on the following factors: viscosity, surface tension, volatility, and fluidity. However, these indexes are not totally decided by manufacturing technique. Actually, storage, temperature and humidity also play the decisive role in the normal use of the ink. If the temperature is high, the viscosity will turn low. If it is low, the viscosity will become high. These two conditions can change the previous state of ink and the spotted line or spurious image will thus occur, which is referred to as false clogging.

On the other hand, if the humidity is low but the temperature is relatively high, the volatility of the ink will be raised. As a result, the ink is dried into a hard condensate and left on the printhead, which may affect the normal function of the printhead. However, if there is a high humidity, the ink will accumulate around the hole, dripping and even flowing, which makes the image difficult to be dry. Under such circumstances, it will also contribute to the improper function of the printhead

Therefore, pay attention to the various temperature and humidity at any moment. Even the tiny change in humidity may affect the working of printhead. On account of the limited ink within the ink cavity of the printhead, ink is supplied through syphonage. So the rapid change in the external temperature is easy enough to disturb the previous equilibrium state. The reason is as follows: the printhead will bring some heat while working, the ink is balanced and stable under this circumstance. But if the weather changes rapidly, a sudden decrease or temperature rising, and there is no device available for regulating temperature, the effect on the printhead is appearing. At this moment, the printhead fails to run well, so as the ink. The only way is controlling temperature which ensures the daily temperature range of 3-5 degrees in workshop.

- ◆ The effect of voltage on the printhead

Since the voltage of printhead can be determined by the degree of curvature of piezoceramics inside the printhead, the high voltage can also increase the amount of the ink jetted. For the printhead of diversified norms, manufacturers offer their respective voltage ratings within enable the machine can perform normally. Users should strictly follow the rule while operating the machine. For instance, the manufacturer of konica

minolta 512 printhead recommends that the voltage rating be less than 35 V. Under the prerequisite that it doesn't work at the cost of image quality, the lower the voltage is, the better it is. It proves that if the voltage surpassed 33V, stoppage of the ink supply will occur frequently and the usage life will be reduced. It has been mentioned that high voltage can increase the degree of curvature of piezoceramics. So if the printhead works in the state of high frequency oscillation, the piezocrystal is likely to fatigue, wear out and even break. On one hand, the low voltage can affect the saturation degree of the image. So for the konica minolta 512 printhead, the suitable working voltage ranges from 28V to 33V. Hence the usage life of the printhead can be greatly extended.

◆ The effect of the static electricity on equipment and ink

Usually, this problem is unnoticed. Konica minolta 512 is a piezoelectric oriented. The static is generated by the friction between the medial and the roller(In the process of printing). If the static electricity cannot be eliminated promptly, which will affect the proper working of the printhead. For example, if the static is strong enough to attract the ink droplets, the droplet may deviate from the normal trace and will be scattered in the unconventional way. On the other hand, the extremely powerful static will destroy the printhead and even burn the circuit board. Thus it is extremely important to eliminate the static by means of the correct and effective measures, the best one of which is to have the grounded wires installed.

Strictly speaking, grounded wires shouldn't be connected with the common grounded wires because there is the possibility that static may exist in the other equipment connected to the whole supply network. From the past experience, ground wires of every equipment should be installed separately. The correct way to overhead the ground wires is after the copper plate (no less than 0.5 square meters) is connected to the equipment with the copper conductor, bury the plate in the well-dug humid space under the ground (below 1.8 meter) and pour the brine in. When completed, run the equipment for more than 1 hour and then measure the amount of remaining static in the equipment. The method is as follows: use the multimeter to adjust alternating current to be 200 and connect the needle with both the zero line of input of the voltage rating 220 V and ground wires, and then read the number (whose absolute value is the amount of the remaining static). The suitable value is 1 ohm and the measurement should be often made. If the value is above 1 ohm or fluctuates sharply, the groundwires must be checked immediately. Many companies hold that once the grounded wires are installed, it will run well for good. Actually it is dangerous to ignore the routine examination.

◆ The effect of cleaning manners on printhead

The surface of konica minolta 512 printhead is usually covered with a layer of protective membrane, on which there are some laser drilling holes determine the precision of printhead. However, many users simply use the sponge and non-woven fabrics to make the printhead tidy. As a result, the surface of nozzle is scratched and even damaged, which leads to the occurrence of some tiny fabric that will shape the direction in which

the ink is getting and cause the accumulation of ink droplets on the surface of the nozzle(which is easily confused with the clog of printhead). Nowadays, non-woven fabrics prevail on the market of cleaning cloth. But owing to the relatively rough texture, it may pose a great danger to the printhead which can hardly bear the wear and tear. So it is strongly recommended that users employ the special paper for cleaning printhead or the special non-woven fabrics.

6. Cautions for using printing ink

- ◆ The storage temperature from 10℃ to 40℃
- ◆ Avoid the violent shake of printing ink pot in the process of storage and use
- ◆ Don't shake the ink bottle fiercely while transporting and using the ink.
- ◆ Read the related instructions carefully before using the printing ink
- ◆ Treat the printing ink in accordance with the local rules and regulations concerned
- ◆ The ink pot cannot be recycled
- ◆ Effective measures taken when spatter the printing ink.
 - ☞ When ink spatter to your eyes, use a great deal fresh water to clean.
 - ☞ When the skin is stained with ink, use the soap and fresh water to clean
 - ☞ When happening to eat ink, try to vomit.

Chapter 5 Introduction to Electric Structure

1. Structure illustration of electric Control Board and accessories layout

1.1. structure illustration of electric control board

Chapter 6 Attachments

1. software list along with the machine

- ◆ The CD
 - a) PCI card driver
 - b) control software
 - c) RIP software
- ✓ One CD: it includes user's manual and installation of software
- ✓ A dongle key

2. Frequent symptoms and their respective solution

2.1. printhead

Symptom	Analysis of causes	Examination method	Remedying method	Notes
Ink can't be normally jetted from the single printhead (which is caused by the damage of the printhead)	The protective membrane on the printhead is broken or fallen off	Examine the color on the surface of the printhead. If it appears red, then it indicates that the membrane has fallen off	Replace the printhead	Normally some narrow traces are printed on the image
	Printhead is clogged with the printing ink	We the syringe to inject the cleaning solution into the printhead. If the ink can't flow out of the hole, then hole has been clogged with the printing ink	Replace the printhead	
	The inside circuit of the printhead is damaged	Check whether or not make interface board plugged in when the injection cup is live.	Replace printhead	If dust and the printing ink are found on the circuitboard, use the absolute alcohol to clean and dry
		If the liquid is left on the signal socket which caused short circuit		
		Check if dust and printing ink exist on the circuit board. Because after a long period, dust and ink will accumulate on the circuit board and if met with the humid air, they will lead to short circuit.		
	The injection cup is out of service due to the wear and	Check the service period	Replace printhead	

	tear			
Ink can't be normally jetted from the single printhead (which isn't caused by the damage of the printhead)	The power source breakdown	Examine the voltage on the carriage board :12V and 35V (direct current)	Adjust the voltage	12V: 11.75V-12.25V 35V: 29V-33V
	The breakdown Of the printhead	swap the printhead cable with others (notice: keep the cable on the inter face board of the printhead unchanged) If the ink is still not jetting, then it means the printhead goes wrong	Replace printhead	
	Thebreakdown of printhead cableor the interface board of the printhead	Swap the printhead cable of the printhead with others (notice: makethe cable on the interface board also changed) If the ink is still not jetting, then thatmeans the printhead cable or the interface board of the printhead goes wrong. Please reconfirm the breakdown furthermore.	Replace the printhead cable or printhead interface cable.	
	The printhead cable isn't well connected	Check whether the printhead cable is well plugged or not	Get the data line well plugged.	
	The breakdown of ink-supplying system	Examine the ink pipe and the whole ink-supply system and check whether there is lack of ink or leakage of air.	Restore the ink-supply system	
	The breakdown of the PCI card	If the reasons mentioned above are excluded, the probable reasonis the damage of the PCI card.	Replace the PCI card	
All the printheads can't jet ink	Power supply problems	Examine the voltage 12V, 35V(DC) of the carriage board	Restore the power supply	12V: 11.75V-12.25V 24V: 23.2V-25V

	The carriage board is broken		Replace the carriage board	
	The breakdown of PCI card		Replace the PCI card	
	The encoder is broken or not well connected	Check whether the encoder is well installed or not.	Reinstall or replace the encoder	
	The fabric cable is broken or not well connected	Check whether the fabric cable is well connected or not	Reconnect or replace the fabric cable	
	The breakdown of the servo card makes ink unable to reach the secondary inkpot tank	Check whether the signal is transmitted to servo card or not	Replace the servo card	
Line break	The environment Temperature is too low	Check whether the temperature is too low	Increase the temperature	The temperature should be kept within the range of 18°C-28°C
	The voltage of the printhead is abnormal	use the multimeter to examine the voltage of printhead	Adjust the voltage of the printhead	
	Printhead problems	Check whether printhead is clogged or not.	Use the cleaning solvent to clean the printhead	
	The ink is of poor quality	If the reasons above mentioned are excluded, the possible reason is the poor quality of the ink	Change the ink	Users are suggested using the ink recommended by the manufacturer.

2.2. Material—loading system

Symptom	Analysis of reason	Examination method	Resolution	Notes
The	Photoelectric switch		Replace the	

material can't be released	cannot sense the material		photoelectric switch	
	Material-feeding motor with problem or not well connected		Replace the material-feeding motor or reconnect	
Material crinkles during the transferring	Material is not well loaded	Check whether the rim is parallel to the board on the left side	Re-load the material	
	Material-compressing roller doesn't parallel the material-feeding roller		Adjust the parallelism between compressing and feeding roller	
	The uneven compressive force exerted by compressing roller	Pull a small material placed under the compressing roller to check whether the pull of each roller is equal	Adjust compressive force of the material-compressing roller	

2.2. Parallel running system

Symptom	Analysis of reason	Examination method	Resolution	Notes
Carriage board refuses to move or the software functions partially unavailable	PCI card has problem		Replace the PCI card	
	The wire of servo card isn't well connected	Check the connection of wire of the servo card	Reconnect the wire	
	Servo card with problem		Replace the servo card	

	Driver is broken or not well connected	Fix the connection exchange X with Y	Reconnect or replace the driver	
	motor is broken or wire are not well connected		Replace motor or reconnect the wire.	
Printing cease	Encode raster and raster bar are broken		Replace the decoder and optical grating	
	Encode raster doesn't match raster bar		Readjust the position of encode raster to make it locate in the middle of raster bar.	
	Motor is broken or overloaded		Replace the motor or replace with a new material of lighter	

2.3. Ink supply system

Symptom	Analysis of reason	Examination method	Resolution	Notes
The ink cannot be supplied	Ink box inductor is broken		Replace the ink box inductor	
	The 20 cores cable isn't well connected	Carefully check whether the cable angle is pursed or the line is disconnected.	Replace or reconnect the cable	
	Servo card is broken		Replace the servo card	
	Ink pump is broken	Check whether ink pump works normally	Replace the ink pump	
	The clogging of filter		Replace the filter	
Endless ink supply	Servo card is broken		Replace the servo card	
	Short circuit of signal		Reconnect	

2.4. Image processing system

Symptom	Analysis of reason	Examination method	Resolution	Notes
Test bar and image are printed abnormally	There is something wrong with raster bar or encode raster		Replace raster bar or encode raster	
	The fabric cable is not connected well		Connect optical fiber again	
	The driver is broken		Replace the driver	
	The PCI card is broken		Replace the PCI card	

3. Software Errors warns explanation List

Error Code	Error Information	Solutions
001	Be Printing	1. Last printing task hasn't finished. Retry after a moment. 2. Stop process and restart program..
002	The start pass index is bigger than task pass total.	The restore print parameter is error, change the printing set.
010	The process of last printing task hasn't finished	1. Last printing task hasn't been finished. Retry after a moment. 2. Stop process and restart program..
011	The appointed Rip source doesn't exist.	1.The appointed rip file doesn't exist yet. 2.The net rip data is interrupted
012	The color parameter can't be supported by system.	The color parameter of course appointed rip source exceeded system capacity.
014	The DPI of rip source can't be supported by system.	The DPI of rip source exceeded system capacity.
015	The parameter of printhead data channel is wrong.	Error is found in the system configuration. The file maybe be damaged. Backup present printing parameter and reinstall software please!
019	The EMS lack of space can't finish picture process.	Close some present task which occupy much memory space to meet the requirement of the software.
021	The print pass can't be supported by system.	Attempt to change print pass, and restart print.
022	The required printing length of current picture is more wider than print media.	1. Check the width of the media correct or not. 2. Replace the wider media . 3. Use region printing.
023	The system refuse to print because the length of print will	1. Change printing motion buffer parameter.

	exceed printing flate length	<p>2. System configuration has some errors. Please reinstall software.</p> <p>3. Set the max motion length into 4000.</p>
050	Carriage can't go to zero position.	<p>1. The motor system doesn't work, and please check whether the electric apparatus work normally or not.</p> <p>2. The carriage position encoder doesn't work, please check the connects damaged or not.</p> <p>3. Drive module adjustment error!</p> <p>4. Check whether PCI card works well or not.</p> <p>5. Restart the printer and computer.</p>
062	Cannot find printing media	<p>1. Check whether the media sensor works normally or not.</p> <p>2. Change the color of the vacuum baffle into black</p>
063	Error Occurs during Measuring medial.	<p>1. Only found portion border , check sensor's sensitive.</p> <p>2. Change the color of the vacuum baffle into black</p>
080	Task initializing failed	File sharing conflicted
100	RIP supported table doesn't exist. The system will not identify all RIP files	The file under installation directory is damaged or doesn't exist, please load RIP supported file or backup the printing parameters to reinstall the software.
101	System parameter reading error.	The file under installation directory is damaged or doesn't exist, please load RIP supported file or backup the printing parameters to reinstall the software.
102	Printing parameter reading failed, system will work with default value.	Printing parameter error.
111	System control board has not driven	<p>1. Reinstall PCI card</p> <p>2. Replace PCI card slot and insert the PCI card</p> <p>3. The control card is damaged. Please install new one.</p> <p>4. Stop the printer and restart the computer.</p>
112	The system hardware program of the control card cannot be loaded	<p>1. Control card may be damaged, please install a new card.</p> <p>2. Emergency stop switch may not be pressed down.</p> <p>3 "BLUEPRINT.rbf" file didn't be copied</p>

		under the system directory in the WINDOWS.
113	DPS program of the system control card cannot be loaded.	Control card maybe be damaged, please install a new one
120	The reposition action is canceled by user, the carriage orientation doesn't work. Please don't carry out the carriage movement.	Don't press ESC on the Keyboard while the system is performing reposition motion if the software is used normally.
121	System can't sense the signal of position limited switch. Orientation system doesn't work normally. Please don't perform carriage motion.	<ol style="list-style-type: none"> 1. Please check position limited switch and its circuit connection. 2. The printer hasn't been turned on, or the carriage is too near from the side so that it pressed the position limited switch. 3. PCI card slot doesn't work or PCI card is damaged.
122	No coding signal of carriage position after reposition is performed. Reposition function doesn't work normally.	<ol style="list-style-type: none"> 1. Check whether the motor for carriage movement can work normally or not. 2. please check the encoder on the carriage and its connection. 3. 20cores cable hasn't been connected. 4. X-motor hasn't been connected. 5. check the home position circuit hasn't been connected. 6.emergency stop circuit hasn't been connected. 7. X and Y were wrongly connected
123	Reversed phase of encoding signal sensed when reposition is performed. Reposition function can't work normally	connect the AB phase of encoder on the carriage in reverse.
124	Left and right mission are in effective state.	<ol style="list-style-type: none"> 1. Check whether the servo card can work normally or not. 2. Check the circuit from left and right mission to servo card. 3. Check the connection of PCI cable. 4. Servo card has no 5V24A power. 5. emergency stop and position limited circuits conneced wrongly. 6. Servo card is damaged. 7. Re-install the control software.
305	Printing data is cut off.	<ol style="list-style-type: none"> 1. computer has no enough EMS memory space, please delete some pictures. 2. Check the printing data. Recover the

		printing to continue current printing task after solving the problems.
310	The printing length motion instruction length is longer than machine printing plat, or carriage can't move to appointed position. Printing is stopped by system.	<ol style="list-style-type: none"> 1. Check the motor for the carriage movement work well or not.. 2. Check the encoder on the carriage whether in normal condition. 3. There are some dirty or trail on the raster bar. 4. There is no 5V35A power on the carriage board. 5. Perform after errors.
400	Auto adjusting carriage movement system failed.	<ol style="list-style-type: none"> 1. Check the motor for carriage movement. 2. Check the encoder on the carriage.
401	Parameter backup failed.	The file which the user is willing to backup cannot be read.
403	The loaded format of the parameter file is not permitted. Operation canceled.	The loaded format of the parameter file is not permitted. Operation canceled.
500	Authorized password input error	Please make sure you are the normally authorized user, and contact the supplier to get the right password.
501	Encrypted hardware initializing failed	<ol style="list-style-type: none"> 1. Encrypted hardware hasn't been installed. 2. Correct driver for the encrypted hardware hasn't been installed.
502	Read hardware encrypted failed	The PCI board isn't matched with the encrypted hardware, please contact the printer supplier for help.
503	The data of the encrypted hardware unavailable	Please contact the equipment supplier for help.
504	The data of the encrypted hardware invalidated	Please contact the equipment supplier for help.
505	The authorized terms of the software is out of date. The software is invalidated	Please contact the equipment supplier for help.
506	The authorized usage times of the software is used up. Software is invalidated.	Please contact the equipment supplier for help.
507	The usufruct of the software is out of date	Please contact the equipment supplier for help.
508	The PCI card is not matched with the encrypted hardware.	Please contact the equipment supplier for help.
509	Software is under illegal	Please contact the equipment supplier for

	usage state.	help.
510	The language on the software interface is not matched with the configuration.	Please contact the equipment supplier for help.