FASTJET

Inkjet Printer

A470 Series

Operation Manual

Content

1. Safety Guidelines

1.1. Safety warning

- Maintenance of this equipment must be performed by a maintenance professional.

- When the printer is connected to the power supply and related circuits, a lethal voltage is generated. Non-professionals cannot open the circuit compartment, and cannot check and repair the circuit system.

- The consumables used in the printer may be flammable liquids. The use of consumables must not only follow the Material Safety Data Sheet (MSDS) instructions, but also the printer must be regularly inspected and maintained to minimize safety hazards. (Note: The printer has an alarm function that has been sent for maintenance time. Please pay attention to whether this function is normal. If there is an alarm when the printer maintenance time has expired, please notify the service engineer in time.)

1.2. Safety prevention

- The installation of the printer should be stable and well grounded.

- The printer must be installed in a ventilated place, away from heat, fire and static electricity. No smoking near the printer.

- The container lid of the ink, solvent and cleaning agent used in the printer should be tightly closed and stored in a ventilated environment away from the printer.

- The printer should be kept clean, because the consumables used may be flammable liquids, and the ink can burn after drying.

- Place a carbon dioxide dry powder fire extinguisher near the printer.

1.3. Use

- The printer is a non-contact inkjet device and is not suitable for all occasions (such as explosive atmospheres). It should be used in accordance with safety guidelines and provide a suitable working environment. Otherwise, the consequences will be borne by the user.

- It is recommended to use the original consumables (including inks, solvents, cleaning agents, maintenance products, etc.) of the printer. You must obtain the Material Safety Data Sheet (MSDS) from the dealer and read and follow them carefully. Otherwise the consequences will be borne by the user.
- In operation, wear anti-ink gloves and safety glasses for those who may touch the consumables.

1.4. Handling

- For machines with ink and solvent in the machine, non-vertical handling is prohibited. If the printer cannot be kept in a vertical state, the ink and solvent should be completely drain out before handling.

1.5. Responsibility

- Our company is not responsible for any consequences resulting from violations of safety instructions, safety requirements and violations of basic safety practices when using and maintaining the printer.

2. Instructions

2.1. Specifications

ELECTRICAL SPECIFICATIONS

Voltage	110V-240VAC
Frequency	50Hz-60Hz
Energy consumption	120（W）maximum value

WEIGHT

Net weight	22kg

DIMENSIONS

Cabinet	390L*295W*540H
Printhead diameter	41mm
Printhead length	260mm
Nozzle size	60um
Umbilical length	2700mm

ENVIRONMENT SPECIFICATIONS

Operating temperature	5°C to 45°C
Ambient temp replacing rate	10°C per hours at most
Relative humidity	0-90% non-frosting
Storage temperature	5°C-45°C Original package

2.2. Appearance overview

Right View   Front View   Left View
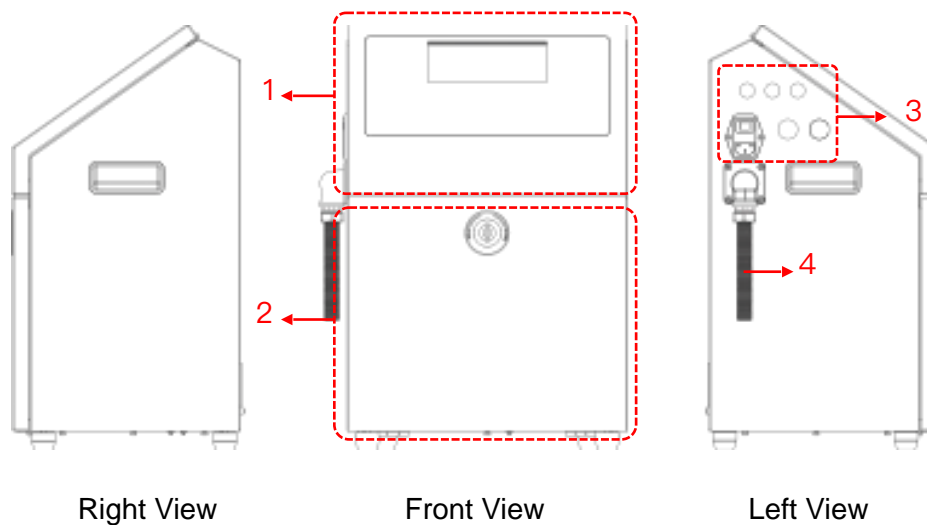
Introduction：

1. Upper: Electronics Compartment 、Control Panel

2. Lower: Ink Compartment

3. Connector Panel

4. Umbilical

2.3. Control Panel

Shortcut keys

Diagnosis Screen

Input Method Switch

Indication LED

Cursor control

Confirm button

Delete button

2.4. Hydraulic diagram

1. When the valve is energized, I-O will open and I-N will close.

2. When the valve is de-energized, I-N will open and I-0 will close.

Main ink cycle	——
Consumable adding system	——
Viscosity detection system	——
Automatic cleaning system	——

2.5.Printhead

Last Chance Filter

Nozzle connector

Nozzle

Charge Electrode

Phase Detector

Deflection Plate

Gutter Pipe

2.6. Ink Core

Condenser Cover

* Exhaust Air Switch

Suction pipe

Gear Pump

Drain Pipe

* Exhaust Vent Plug

Ink Core（Left View）

Ink Core（Right View）
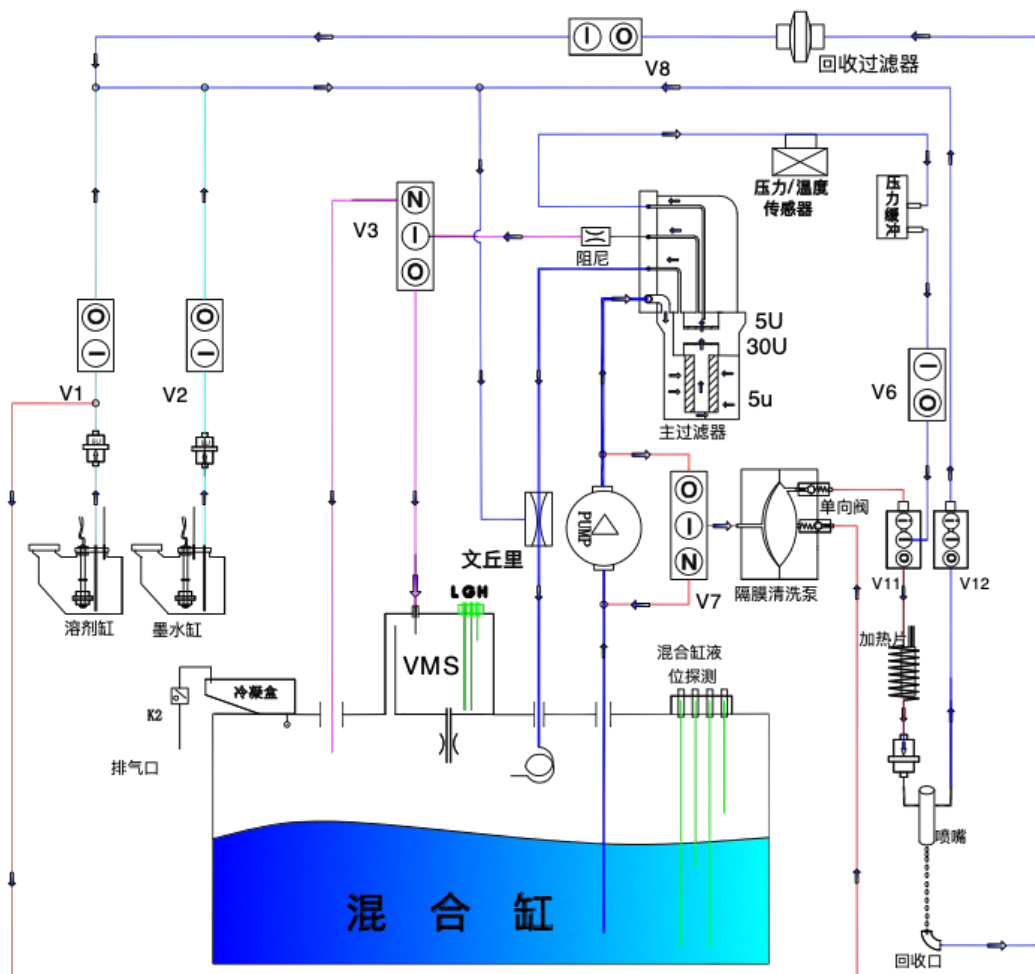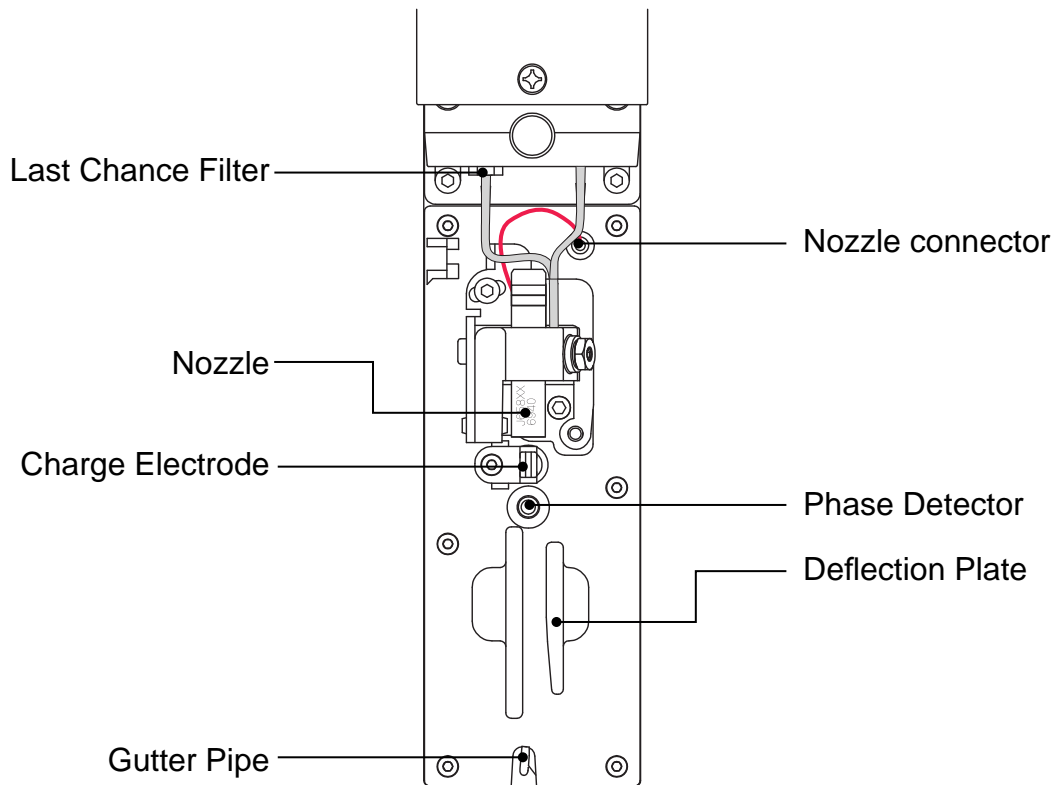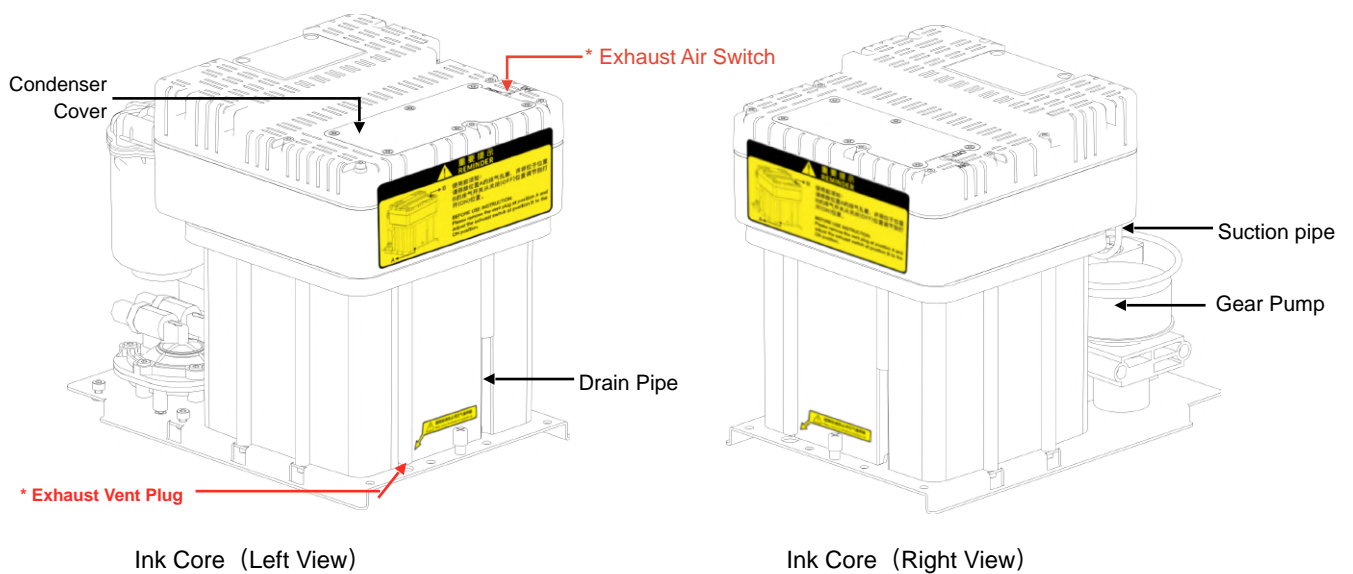
* Please remove the exhaust vent plug and turn on exhaust air switch before use.

2.7.Main Screen

The main screen is the default screen after the printer powered on:

Instructions:

(1)   Main Menus.

(2)   Shortcut function keypad.

(3)   The name and content of the current message, it's a WYSIWYG message viewer, the content of which is consistent with the content printed by the printer.

(4)   The current status description area of the printer.

(5)   The printer icon display area contains icons such as consumables, equipment status, warnings and faults.

(6)   The counter of the cumulative number of prints can be reset;

Instructions of Shortcut function keypad:

- **F1 Start Jet**   It is used to start the jet.
- **F2 Select Message** It is used to select and recall the stored messages.
- **F3 Message Parameters** It is used to set the message parameters.
- **F4 Edit Message**   It is used to edit the current message.

2.8. Menu Analysis

2.8.1. Messages

```
              Messages
    1→  New Message
    2→  Edit Message
    3→  Select Message
    4→  Message Parameters
    5→  Delete Message
    6→  Copy Message
    7→  Delete All Message
```
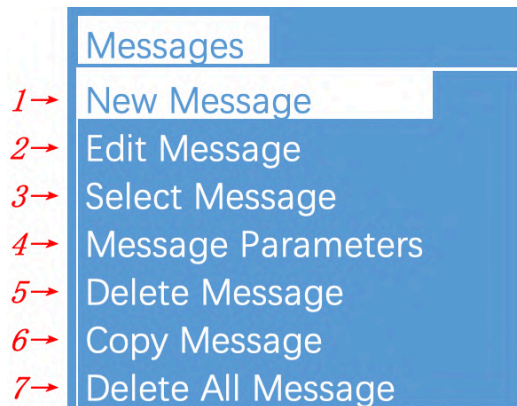
(1)   Used to create new messages.

(2)   Used to edit saved messages.

(3)   Used to select and recall the stored messages , which is equivalent to the **"F2 Select Message"** on the main screen.

(4)   Used to set the parameters of current message, which is equivalent to the "F3 Message Parameters" on the main screen.

(5)   It is used to delete the messages saved in the printer.

(6)   It is used to copy the messages saved in the printer and rename.

(7)   It is used to delete all the messages saved in the printer except the current message.
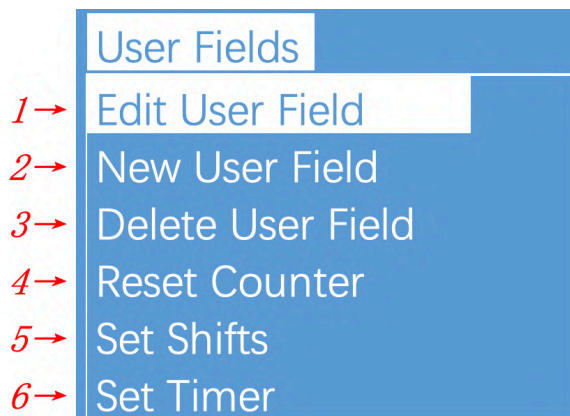

2.8.2. Editor

Press "F4 Edit Message" on the main screen, after entering the message editing screen, press "ESC" to call up this menu (Press the left and right arrow keys on the main menu bar to select it)
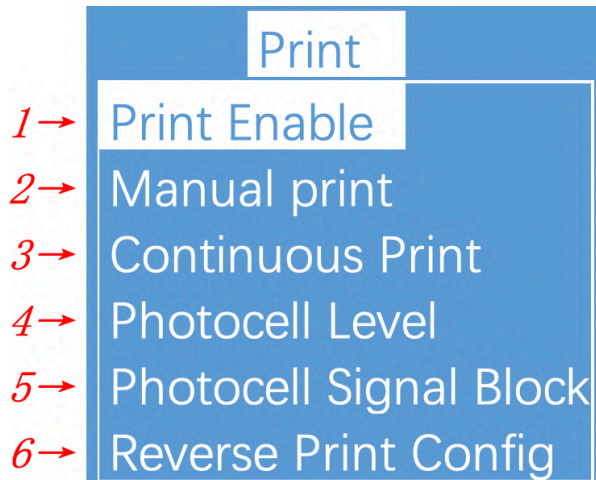
```
                    Editor
    1→  Select Font
    2→  Insert User Field
    3→  Save Message
    4→  Save and Exit
    5→  Clear Message
    6→  Abandon
```

(1) Used to select fonts , which is equivalent to the shortcut **"F1"** in message editor.

(2) Used to insert user fields into current message, which is equivalent to the **"F2"** in message editor.

(3) Used to save messages, which is equivalent to the **"Shift + F1 "** in message editor.

(4) Used to save current message and exit the editor.

(5) Used to clean all the contents in the current editor.

(6) Abandon all the changes and exit the editor.

2.8.3. User Fields

User Fields

1→ Edit User Field
2→ New User Field
3→ Delete User Field
4→ Reset Counter
5→ Set Shifts
6→ Set Timer

(1) Used to edit the saved user fields.

(2) Used to create new user fields.

(3) Used to delete saved user fields.

(4) Used to reset the counter valve in the current message.

(5) Used to set shifts.

(6) It is used to set the date and time code. For example, if January is printed as Jan, etc., in the time user field, the date and time code can be referenced by referring to a specific letter, RR can refer to the year code, and SSS can refer to the month code, TT can reference the day code, UU can reference the hour code, VV can reference the minute code, some models do not include this function.

2.8.4. Print

```
                  Print
1→  Print Enable
2→  Manual print
3→  Continuous Print
4→  Photocell Level
5→  Photocell Signal Block
6→  Reverse Print Config
```

(1)   Used to control the printing

(2)   Used to trigger printing manually

(3)   Used to set the print modes.

(4)   Used to set the photocell mode.

(5)   Used to set the photocell signal blocking time and mode.

(6)   It is used to set the reverse print mode.

2.8.5. Password

```
    Passowrd
1→  Enter User Password
2→  Change User Password
3→  Set Password level
4→  Enter Maintain Password
5→  Change Maintain Password
6→  Clear Password
```
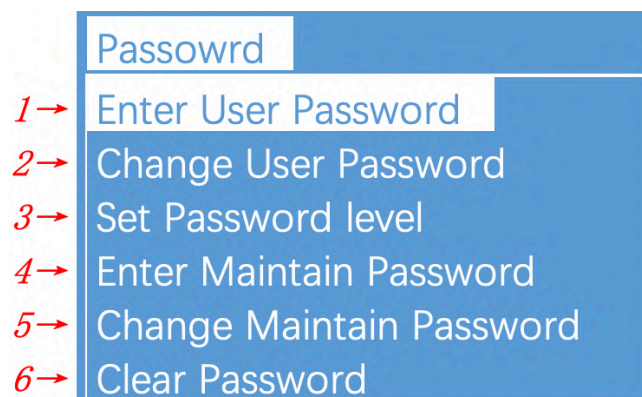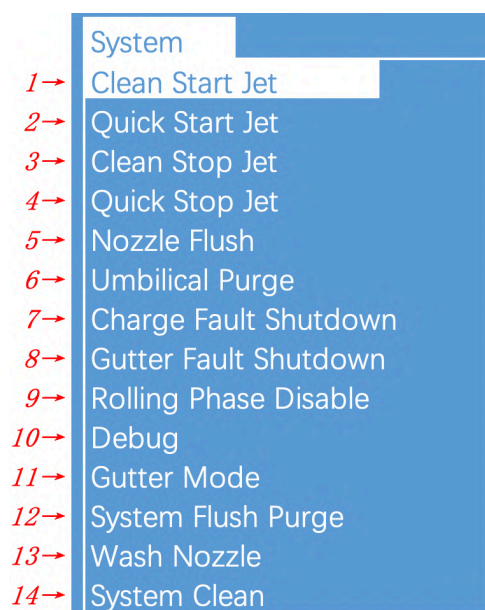
(1)   Enter user password for advanced operating authority.

(2)   Enter a new user password to change user password.

(3)　Open the Set Password Level menu. This has options for the Main Screen and each of the menus. You can set "On" or "Off" for each option available in the menu. "Off" doesn't have password protection.

(4)　Enter maintain password for maintenance authority.

(5)　Enter a new maintain password to change maintain password.

(6)　Clear password to the lowest authority.

2.8.6. System

System
1→   Clean Start Jet
2→   Quick Start Jet
3→   Clean Stop Jet
4→   Quick Stop Jet
5→   Nozzle Flush
6→   Umbilical Purge
7→   Charge Fault Shutdown
8→   Gutter Fault Shutdown
9→   Rolling Phase Disable
10→ Debug
11→ Gutter Mode
12→ System Flush Purge
13→ Wash Nozzle
14→ System Clean

(1)　Start the ink jet

(2)　Quick start the ink jet without a flushing sequence.

(3)　Stop the ink jet. Clean the nozzle and related tubes.

(4)　Quick stop the ink jet without a flushing sequence.

(5)　Clean nozzle with solvent manually

(6)　Clean the umbilical. It can be used to install the inkjet printer to exhaust air.

(7)　This Function can turn off the automatic stopping jet when charge fault.

(8)　This Function can turn off the automatic stopping jet when gutter fault.

(9)　Disable/Enable rolling phase.

(10) Turn on/turn off each valve and main pump separately.

(11) Set gutter mode Continuous or Intermittent.

(12) Drain the Ink System

(13) Wash nozzle automatically

(14) Ink system clean

2.8.7.Config

```
    Config
1→  Heater Set Point
2→  Set Running Pressu
3→  VMS Calibration
4→  Modulation Set Level
5→  Phase Charge Set
6→  Phase Offset Set
7→  Charge Value
8→  EHT Trip Level Set
9→  LCD Light Saver
10→ Set Time/Date
11→ Pressure Zero Offset
12→ EHT Range Set
13→ Set Ink Type
14→ Speed Ratio
15→ Serial Port Configuration
```

(1) Set nozzle temperature(0 to 40 °C)

(2) Set pump pressure (0 to 450 Pa)

(3) It is able to set the viscosity of ink manual/auto.

(4) Set modulation value.

(5) Set phase charge value.

(6) Set phase offset value.

(7) Set charge value.

(8) Set EHT trip level.

(9) Set the contrast of the LCD.

(10) Set the Real Time Clock(RTC) in the printer to the local time and date.

(11) Pump zero adjustment.

(12) Set EHT value of each grade

(13) Select the ink type.

(14) Set character width ratio/print delay ratio/Internal Interval ratio/ External Interval ratio.

(15) Serial port configuration

2.8.8. Date

(1) Display each of current status of the printer.

(2) All current operational monitoring data of the printer which are conductive to diagnose malfunctions.

(3) It can be used to reset counter.

(4) Display software version.

(5) Set the type of menu language.

(6) Display printer running time and maintain time.

(7) Copy internal message to USB.

(8) Copy internal Logo to USB.

(9) Copy message from USB to Printer.

(10) Copy Logo from USB to memory. Support monochrome bitmap file format(.bmp).
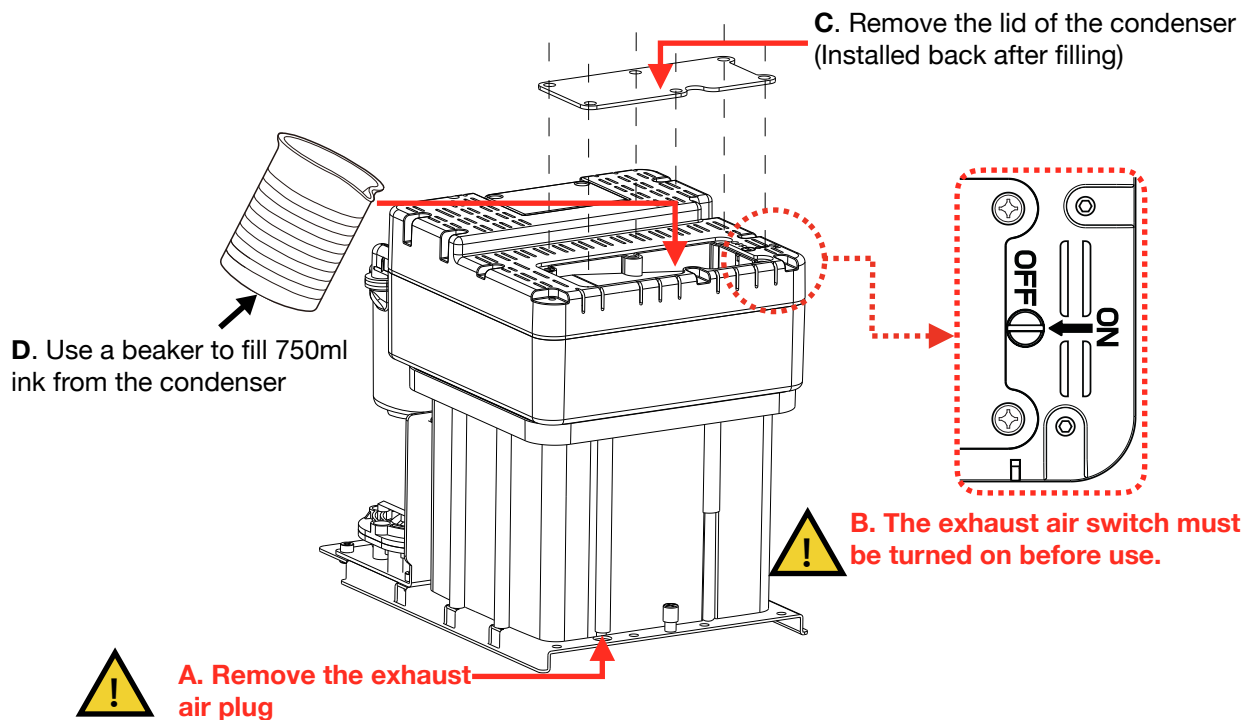
(11) For maintenance .

3. Printer Operation

3.1. Commission

Printer needs to be filled with ink and exhaust air before use.

1. Open the lower cabin door, pull out the ink system, and fill 750ml of ink into the mixer tank with a beaker in the order of A. B.* C. D., as shown in figure:

C. Remove the lid of the condenser (Installed back after filling)

D. Use a beaker to fill 750ml ink from the condenser

B. The exhaust air switch must be turned on before use.

A. Remove the exhaust air plug

* During normal use of the printer, the exhaust vent plug **A** needs to be removed, and the exhaust air switch **B** needs to be opened , otherwise it will cause printer failure.
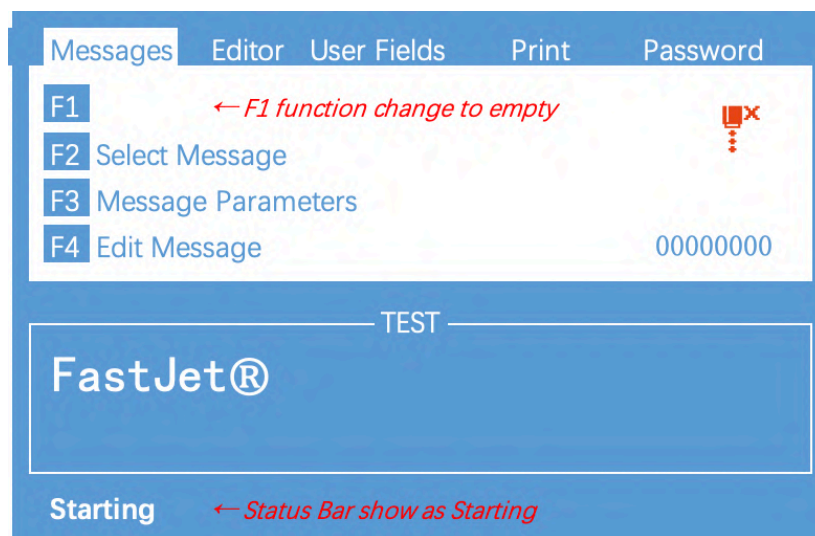
2. During the ink filling process, check the diagnostic screen. The low level of the mixer tank should be changed to " **ON** " to reach the minimum ink level required by the printer (approximately 210ml of ink at this time), and continue to fill the remaining ink in the bottle.

3. According to the label, fill the correct ink and make-up to the correct tank, push the ink system into the cabin and close the lower cabin door .

4. After the manual ink filling operation is completed, confirm that the levels of the mixer tank, ink tank and solvent tank both are normal, and then the air exhaust air operation can be started.

5. Exhaust Air, please follow the steps as below:

a. Enter the DEBUG function in **SYSTEM** menu.

b. Open the Printhead cover, place a container under the head

c. Turn on "Pump", "Valve 6", "Valve 11", and "Valve 12" in turn, and keep them on for three minutes.

c. After approximately 3 minutes of operation, open "Valve 7".

d. After approximately 15 seconds of operation, close "Valve 7".

e. After approximately 30 seconds of operation, open "Valve 7".

 f. Repeat steps "e-f" one time.

g. Exit the "**DEBUG**" menu and end the air exhaust operation.

h. Wash the printhead and blow dry it with a blower. At this point, preparations for the first use are complete.
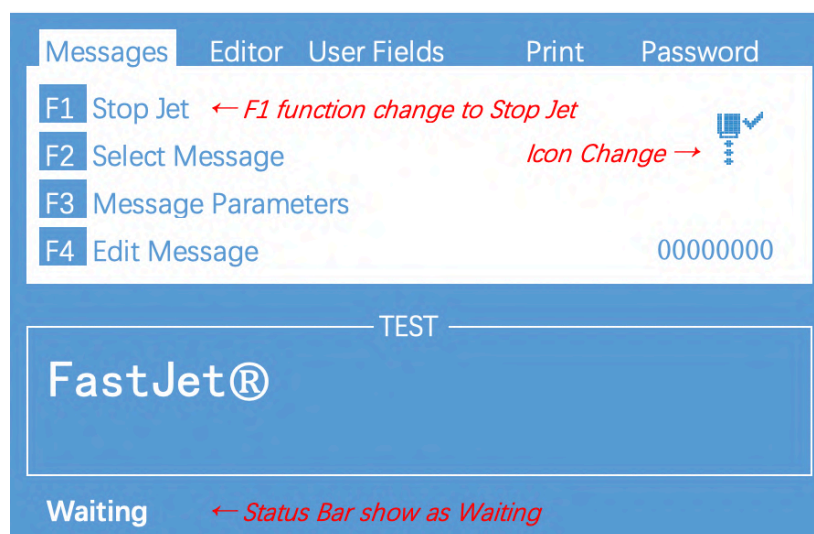
3.2. Start The Printer

3.2.1. Start Jet

1. Connect the printer to an appropriate power source.

2. Open the printer head cover, check various components in the printhead, and check that various components are clean and dry.

3. Put on the printhead cover, press the power button at the right side of the printer, and wait for the screen to enter the main operation interface

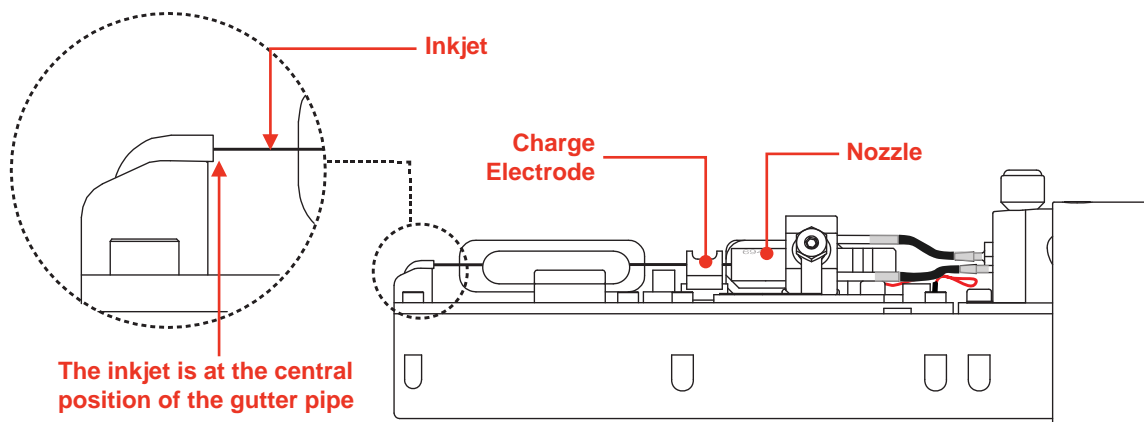4. Press F1 to start the program for about 3 minutes. The interface is as follows:

Messages	Editor	User Fields	Print	Password
F1	← F1 function change to empty			
F2 Select Message				
F3 Message Parameters				
F4 Edit Message			00000000	

─── TEST ───

FastJet®

Starting ← Status Bar show as Starting

5. Observe the status indicator and the main screen. When the green LED is lit, the startup is completed. The interface is as follows:
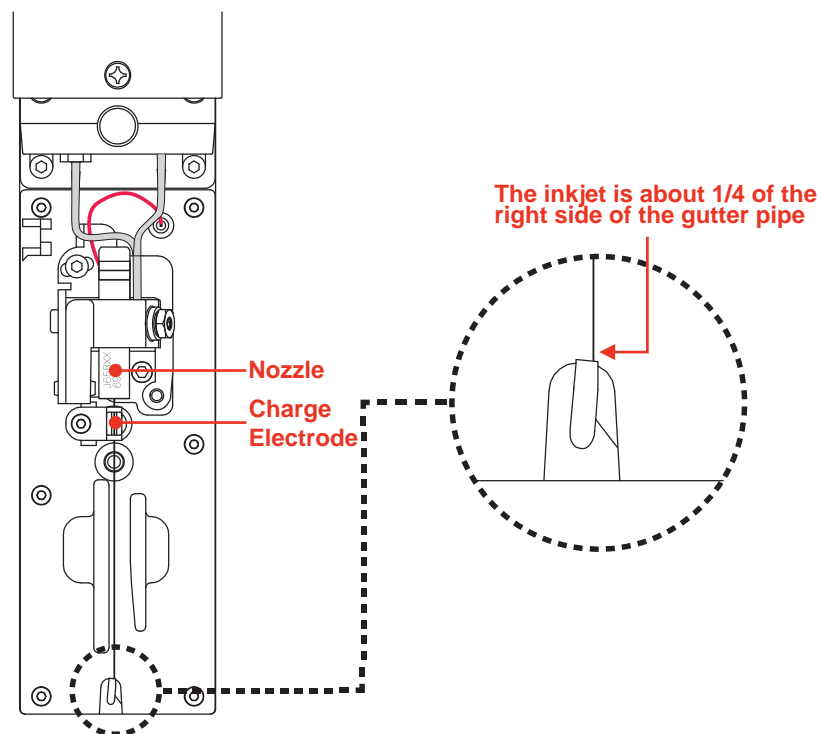
Messages	Editor	User Fields	Print	Password
F1 Stop Jet	← F1 function change to Stop Jet			
F2 Select Message		Icon Change →		
F3 Message Parameters				
F4 Edit Message			00000000	

─── TEST ───

FastJet®

Waiting ← Status Bar show as Waiting

3.2.2. Inkjet Observation

Side View

Inkjet

Charge Electrode

Nozzle

The inkjet is at the central position of the gutter pipe

Front View

The inkjet is about 1/4 of the right side of the gutter pipe

Nozzle

Charge Electrode

3.2.3. Drops Observation

The drops are generated after printer has started normally. It directly affects the printing effect and printing durability. Good drops roughly depend on the following three factors:

- Appropriate and stable pressure
- Correct ink viscosity
- Correct modulation value

The observation method is as follows:

1. Take out the magnifying glass in the standard and place it on the red LED light about 15mm.

2. Adjust the distance of the magnifying glass up and down slightly to observe the drops shown in the figure below:
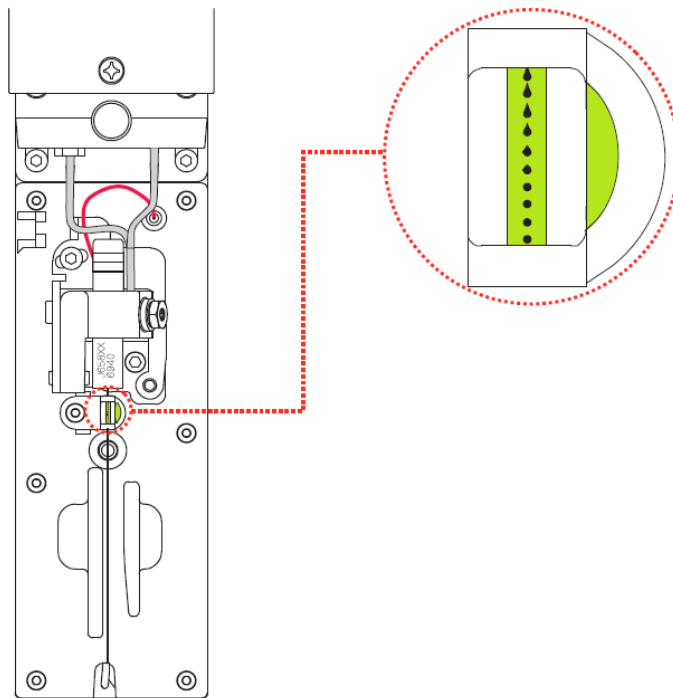
3. The drops are disconnected at the middle of the charge electrode. The shape of the drops before disconnection can refer to the following figure:
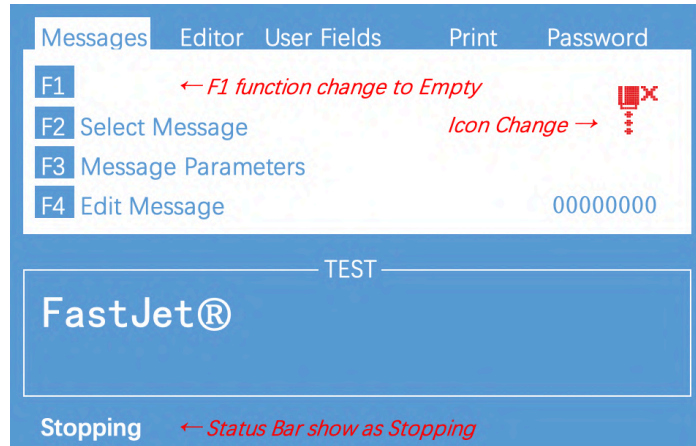

Pool conditions   To be avoided   Good
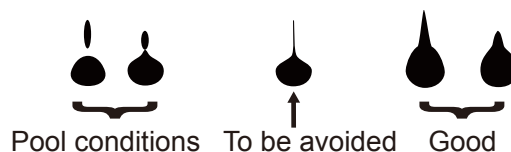
* The shape of drops can be adjusted through the "Modulation Set Level" in the **Config** menu;

3.3. Stop Jet

3.3.1. Stop Jet and Clean

1.Press F1 button, it lasts for about 4 minutes, the screen is as follows:

2. During cleaning after shutdown, remove the Printhead cover and observe if the printhead is dirty. If needed clean the printhead with the necessary cleaning agent.
3. Only after the interface is shown as below, the power can be turn off, Otherwise some of the tubes will be blocked, causing permanent damage.
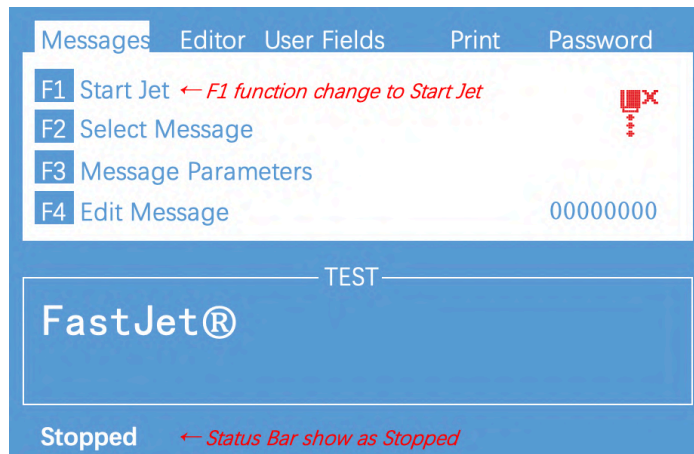
3.3.2. Stop&Clean (Power off during the inkjet running)

If abnormal stop is caused due to power off, inkjet must be restarted at the earliest time after power on. It shall be normally cleaned and shut down after planned shutdown else some ink tubes of the printer may be blocked, causing permanent damage to the printer.

3.3.3. Stop and Clean (long-term stop)

Due to the quick-dry property of the ink, if long-term stop are needed, it's always suggested to drain the ink and clean the system. For details, check the section "4.6 Drain" and "4.7 Clean the ink system" .

3.4.Create Message

3.4.1.Create a sample message

For example: Create the following message as follows with a file name "TEST" to create this message:

$$FastJet®$$

Follow these steps:

1. Enter the **MESSAGE** menu，select **New Message,** confirm and enter the screen as shown in the following figure:

2. Input file name TEST, then press enter key, as shown in the following figure:

3. Press **_F1_** repeatedly. When the editing state is displayed as "16 High " then input "FastJet".

4. Press **F2** to select the **"R"** User Field (refer to 3.5.7 Logo), press the Enter key to insert, as shown below:

   * In the editing interface, the **F2** function is " Insert User Field ".

```
Messages    Editor  User Fields       Print      Password
              ┌Select User Field ─────────────┐
              │Shift                           │
   FastJe     │R                               │
              │1                               │
              │2                               │
              └────────────────────────────────┘
                                             7 High
              ────────────────TEST────────────────
      ®    ←Preview area, press "Enter" key to insert.


   Stopped
```
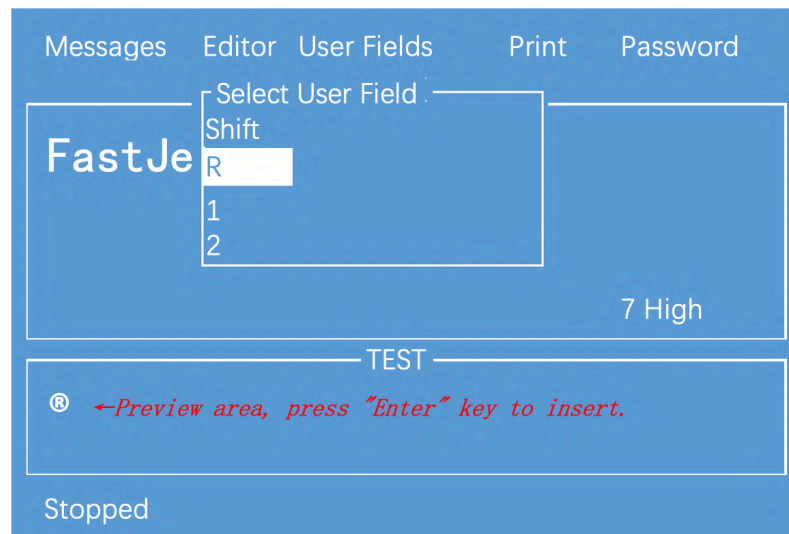
5. After the content is entered, press the " Shift + F1" button and confirm.

* If you need more operations, please press the "esc" key in the editing screen to exit to the main menu and select the "Editor" menu. There are "Select Font", "Insert User Field", "Save Message", "Save and Exit", Clear Message, and Abandon options.

Message Edit Additional Instructions:

a. `shift ⬆` + ` ▲ ◄ ▼ ► ` key , move the cursor in units of one pixel.

b. `alt` + ` ◄  ► ` key, move the cursor left and right in units of 100 pixels.

Bold, reverse, etc. for specific characters:

a. In the editor , Press `Enter ↵` to switch to the "Select" mode.

b. Use `ctrl` + ` ◄  ► ` to select the characters you want to adjust.

c. After selected , press `F3` adjust the property for the characters.

d. After adjusted , press `Enter ↵` to continue editing the normal content.

3.5. Create/Edit User Field

3.5.1. Time User Field

Follow the steps below to create:

1.Enter the **USER FIELD** menu， select **New User Field**, as shown in the figure below:

```
User Fields
Edit User Field
New User Field
Delete User Field
Reset Counter
Set Shifts
Set Timer
```
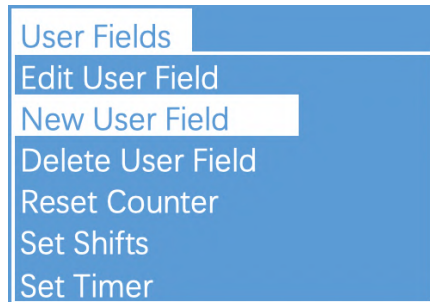
2. Input a file name, switch "**Attr**" to "**Time"** then confirm , as shown in the figure below:

```
New User Field
Name DATE
Attr    Time      |
```

→

```
DATE
Text    20BC/DE/FG  |
Expiry    0
Print Form   Value
Barcode Width
Barcode Height
```
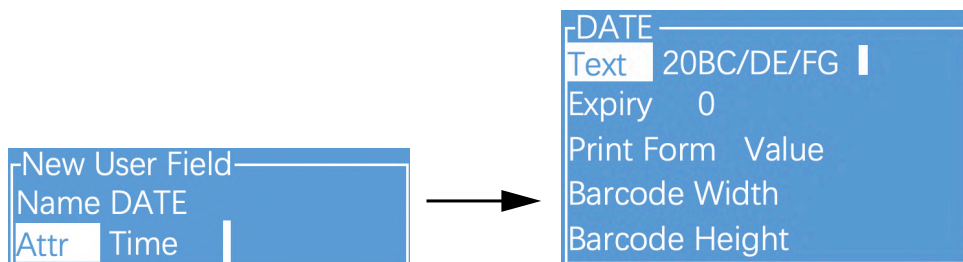
3. Fill the **Time Code**[*] in the Text field, and switch the "**Print Form**" to the Form needed, if the printing result is digital numbers, just keep it as "**Value**".

4. Press Enter to complete, then press F2 while editing the message to insert this field into the message.

* Time Code definition please refer to "3.5.2 Time User Field Additional instructions".

3.5.2. Additional remarks for time user field

Definition of Time User Field Code

Code	Definition
A	Monday to Sunday
BC	Year
DE	Month
FG	Day
HI	Hour
JK	Minute
LM	Second
OO	Week
PPP	Day
RR	Alpha Year Code
SSS	Alpha Month Code
T T	Alpha Day Code
U U	Alpha Hour Code
V V	Alpha Minute Code

1. Actual printing date and time = system current time + number of days of Expiry term. If it is required to print the current time, the Expiry term is set as 0.

2. In the printing information, the time user field size is determined by the fonts selected during insertion.

3. When the "Print Form" is Data Matrix or QR Code, the "Width" and "Height" shall be set according to the standard. For details, see the section of preparation of QR code & bar code User Field.

3.5.3. Barcode User Field

The standards of barcode supported by the type include:

QR Code (Figure 1), Data Matrix (Figure 2), Code39 (Figure 3), Code128 (Figure 4), EAN8 (Figure 5), EAN13 (Figure 6), EAN128 (Figure 7)

Figire(1)　　　Figire(2)　　　Figire(3)　　　Figire(4)

Figire(5)　　　Figire(6)　　　　Figire(7)

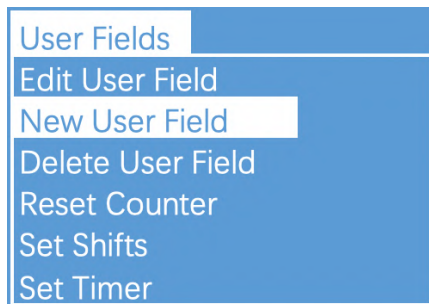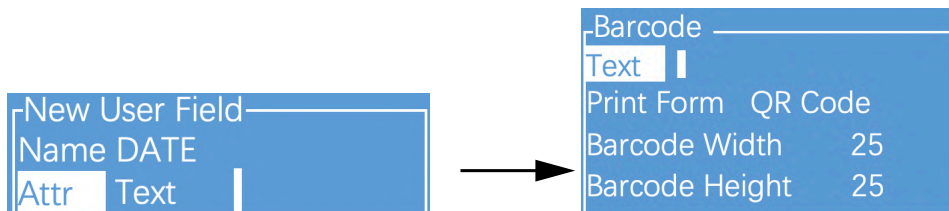1. Enter the **USER FIELD** menu, select New User Field, as shown in the figure below:

2. Input a file name, switch "**Attr**" to "**Text"** then confirm , as shown in the figure below:

3. Fill the contents of Barcode to "**Text**" field, and switch the "**Type**" to the Barcode required.

4. When the "**Type**" is Data Matrix or QR Code, it is required to set the "**Width**" and "**Height**".

3.5.4. Additional remarks for Barcode User Field

1. The size (Height x Width) supported by Data Matrix include 10x10, 12x12, 14x14, 16x16, 18x18, 20x20, 22x22, 24x24, 26x26, 32x32, 8x18, 8x32, 12x26, 16x36, 16x48.

2. The size (height x width) supported by QR Code include 21x21, 25x25, 29x29, 33x33.

3. If the prompt of "Unsupported size" or "Coding error" appears, please modify it to larger height and width for saving.

4. Code39 and Code128 are the Barcodes with variable length, EAN8 can code the character string with length of 7, and EAN13 can code the character string with length of 12.

5. The width of the Barcode is automatically generated with the printer, and the height is determined by the current font when the message is inserted in the User Field. It is not required for the user to adjust the "Width" and "Height".

3.5.5. Counter User Field

1. Enter the **USER FIELD** menu，select New User Field, as shown in the figure below:
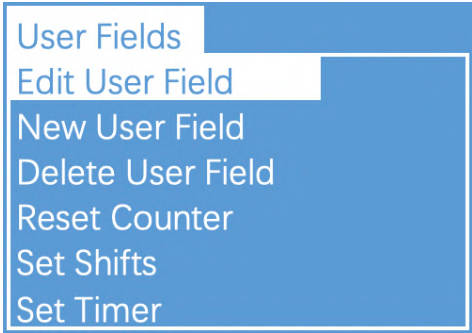
```
User Fields
Edit User Field
New User Field
Delete User Field
Reset Counter
Set Shifts
Set Timer
```

2. Input a file name, switch "**Attr**" to "**Counter"** then confirm , as shown in the figure below:

```
New User Field
Name DATE
Attr    Text
```

→

Brcode	
Start Value	0
Current Value	0
End Value	1
Reset Value	0
Step Size	1
Direction	Inc
Repeat Count	1
Leading Char	0
Inc/dec	Print
print Form	Value
Barcode Width	
Barcode Height	
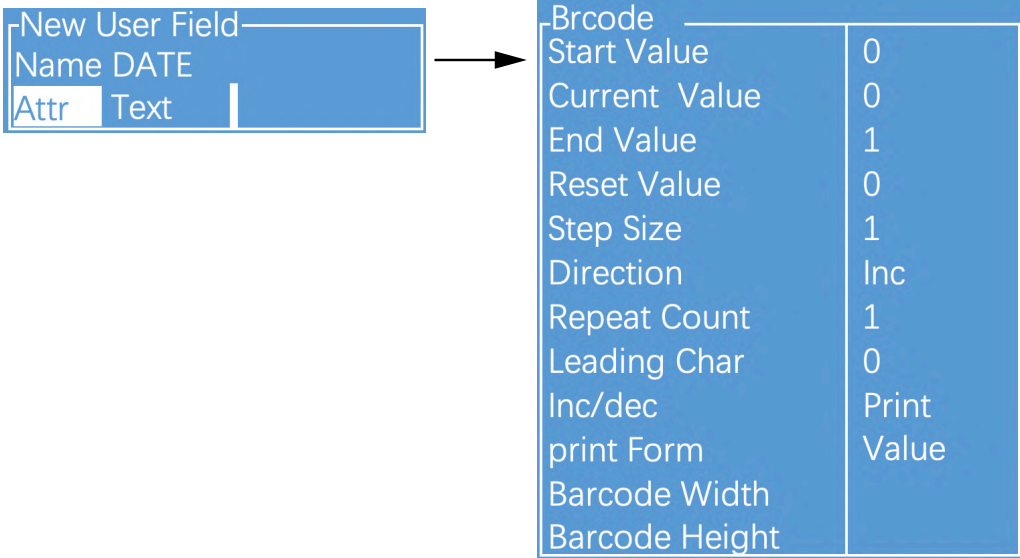
* Instructions of each items refer to " 3.5.6 Instructions for items in the Counter ".

3.5.6. Instructions for items in the Counter

1. **Start value** : Start value of the counter.

2. **Current value**: Set the current value of current counter

3. **End value** : End value of the counter

4. **Reset value** : Value to be reset when the function of "Reset Counter" of the Photocell 2 is used.

5. **Step size** : 1 at default, if set as 2, the counter will become "1, 3, 5, 7, ...".

6. **Direction** : Increase or decrease can be selected.

7. **Repeat Count** : 1 at default, printing times of each current value. For example, if set as 2, each counter will be printed for 2 times.

8. **Leading Char** : Leading character in front of the counter. For example, a counter range from 1 to 999, when the print counter is "1" and the leading character is "blank space", the printing result is "1". When the leading character is "0", the printing result will become "001".

9. **INC/DEC** : It is used for nesting use between all the counters in the printer.

10. **Print Form** : The counter can be converted to printing in special form, such as 1D barcode and 2D Barcode. For more details please refer to "3.5.4 Additional remarks for Barcode User Field".

11. **Barcode width** : When the "**Print Form**" is Data Matrix or QR Code, it is required to set the "**Width**" and "**Height**"

12. **Barcode Height** : When the "**Print Form**" is Data Matrix or QR Code, it is required to set the "**Width**" and "**Height**"

3.5.7. Logo User Field

The Logo User Field can create the customized logo of maximum 34 dots height.

1. Enter the **USER FIELD** menu，select New User Field, as shown in the figure below:
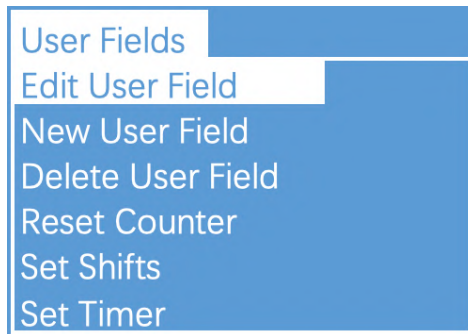
2. Input a file name, switch "**Attr**" to "**Counter"** then confirm , as shown in the figure below:
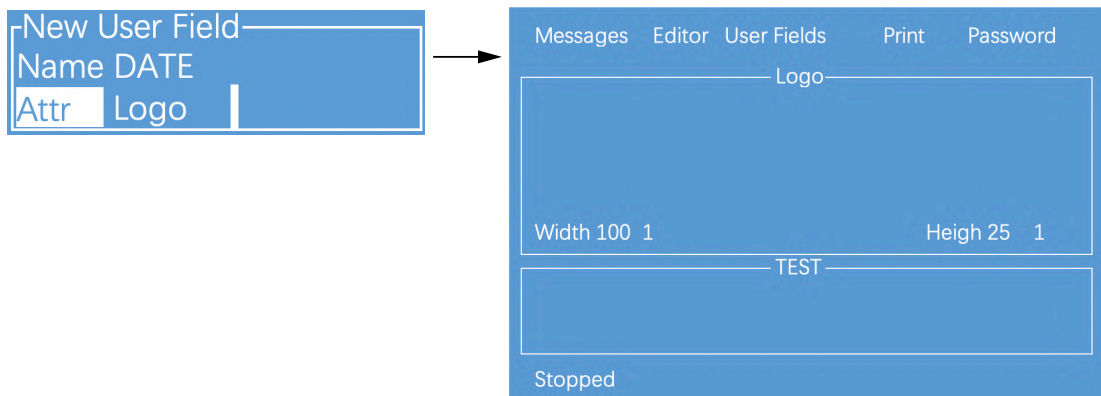
3. Operation instructions for logo are shown in the following table:

Key combination	Function
▲ ◄ ▼ ►	Move the cursor by a dot
shift ↑ + ▲ ◄ ▼ ►	Move the cursor by a dot, and fill the dot
ctrl + ▲ ◄ ▼ ►	Move the cursor by a dot, and delete the dot
[spacebar]	Reverse the current dot, draw dot / delete dot

4. After drawing, press the "**ESC**" key to return to the main menu, press the arrow keys to move left or right to the "Editor" menu, you can set the pattern size, as shown below:

Messages	Editor	User Fields		Print	Password
Select Font					
Insert user Field					
Save Message					
Save and Exit					
Clear Message					
Abandon			Heigh 25	1	

TEST

FastJet®

Stopped
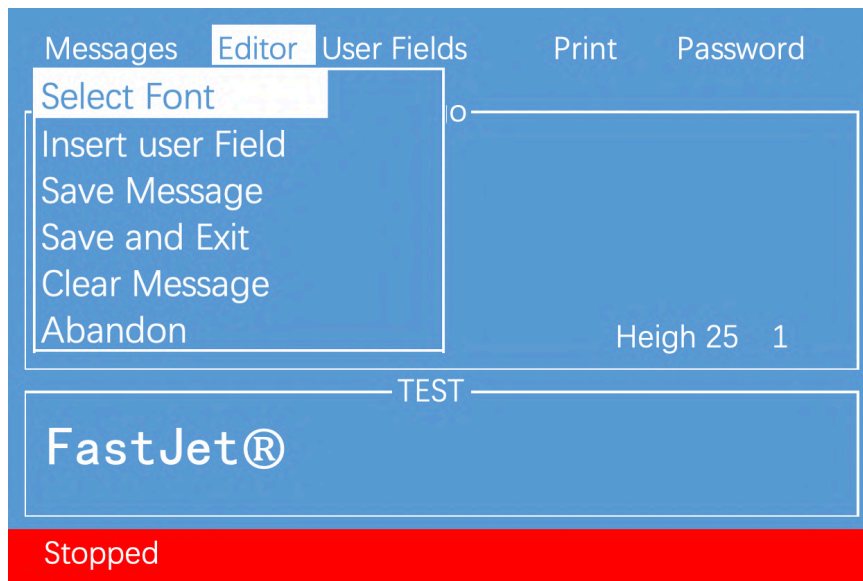
5. After setting the size of the pattern, press the "enter" key to confirm the size, then enter the "Editor" menu to save and exit the pattern (or use the shortcut "Shift" + "F1" to save and exit). This pattern can then be recalled and printed within the message.

Additional remarks for setting logo size:

1. The default canvas size is 100 dots wide and 25 dots high;

2. Use ⟦alt⟧ + ⟦▲◄▼►⟧ key to rapidly move the box for setting logo size;
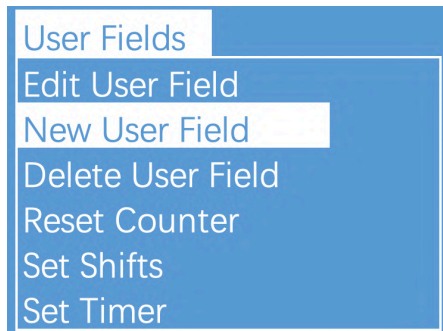
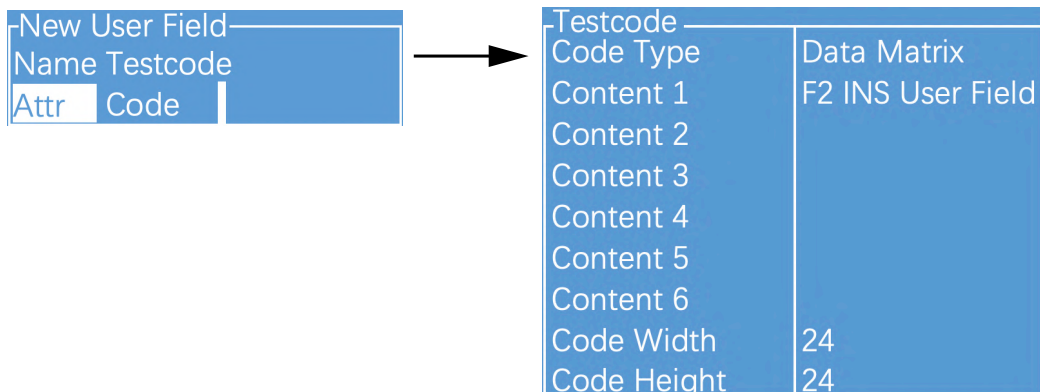3. In message editor , press *F2* can call the user fields list .

3.5.8 Code User Field

This function can integrate multiple User Fields (Time, counter and text) in to generate a code.

1. Enter the **USER FIELD** menu， select **New User Field**, as shown in the figure below:

```
User Fields
Edit User Field
New User Field
Delete User Field
Reset Counter
Set Shifts
Set Timer
```

2. Input a file name, switch "**Attr**" "**Code"** then press *Enter* to confirm ,
When the cursor hovers between Content 1 and Content 6, press *F2* to insert in sequence the User Fields to be combined. as shown in the figure below:

```
New User Field
Name Testcode
Attr   Code
```

→

```
Testcode
Code Type        Data Matrix
Content 1        F2 INS User Field
Content 2
Content 3
Content 4
Content 5
Content 6
Code Width       24
Code Height      24
```
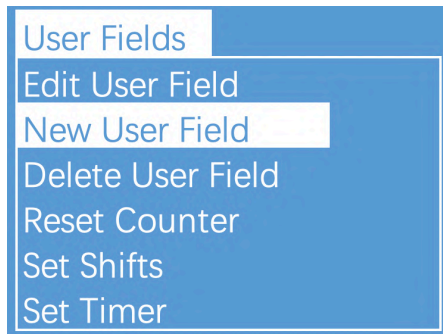
Note:
When the code type is selected as Data Matrix or QR code, the Barcode Width and Height shall be set. For more details please refer to " 3.5.4 Additional remarks for Barcode User Field "
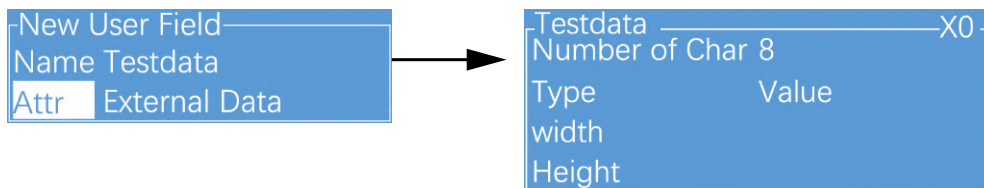
3.5.9 External data User Field

The function can receive the external data predefined by the user and print them in sequence. The preparation steps are as follows:

1. Enter the **USER FIELD** menu, select **New User Field**, as shown in the figure below:

User Fields
Edit User Field
New User Field
Delete User Field
Reset Counter
Set Shifts
Set Timer

2. Input a file name, switch "**Attr**" "**Code"** then press *Enter* to confirm , When the cursor hov

New User Field
Name Testdata
Attr   External Data

Testdata ——————————X0
Number of Char 8
Type   Value
width
Height

Setting analysis:
a. **Number of Char** : the bit of data transmitted from the computer to the ink jet printer.
b. "**X0**" at the upper right corner of the external data editing interface is the identification code for communications with the external data User Field. Please correspond it with the setting of "User Field" in the computer software.
c. When the **Type** is selected as Data Matrix or QR code, the Width and Height shall be set. For more details please refer to " 3.5.4 Additional remarks for Barcode User Field "

3.6 Message Parameters

3.6.1 Modify message parameters

In the main screen, press the **F3** key to enter the interface to modify parameter of current message , as shown in the figure；

```
Para For   Message
Character Width    10
Character Height   10
Character Gap      0
Product Delay      30
Reverse            Off
Inverse            Off
Raster Repeat      0
Printed Dots       34
```

More detail about **Message Parameters**, please read the following table:

Parameter	Range	Function
Character Width	1-255	Set information width, If the value is 1, the jet printing speed reaches the fastest speed under the current dots.
Character Height	1-10	The larger the value is, the higher character is.
Character Gap	0-8	The larger the value is, the larger the character spacing is.
Product Delay	3-10000	Set product jet printing delay time. The larger the value is, the longer the time delay is.
Inverse	On / off	Adjust the character jet printing up / down direction
Reverse	On / off	Adjust the character jet printing left / right direction
Raster Repeat	0-7	Bold the current message
Printed Dots	5-34	The larger the value is, the slower the speed is, and the larger the number of dots to be printed is. The smaller the value is, the faster the speed is, and the smaller the number of dots to be printed is.

3.7 Print Mode Setting

3.7.1 Single Printing Mode

The mode is commonly used for beer, beverage, food, daily necessities and other familiar industries, one trigger one printing.

1. Select **PRINT** menu and press **Enter** to call out the following sub menus:

Print
Print Enable
Manual Print
Continuous Print
Photocell Level
Photocell Signal Block
Reverse Print Config

2. Enter **Continuous Print** sub menu **,** Switch the "Continuous Mode" to "Close" then the printer is in the Continuous printing mode.

Continuous Print
Trigger Mode	Trigger
Continuous Mode	Close
Continuous Time	1
Internal Interval	500
External Interval	500

3. Other valid settings please refer to "2.8.4 PRINT Menu" and its Sub Menu.

3.7.2 Continuous Printing Mode

The mode is commonly used for building materials, pipe, steel material and other industries. The common feature is continuous processing, messages automatic interval printing.

1. Select **PRINT** menu and press **Enter** to call out the following sub menus:

```
Print
Print Enable
Manual Print
Continuous Print
Photocell Level
Photocell Signal Block
Reverse Print Config
```

2. Enter **Continuous Print** sub menu **,** Switch the "**Continuous Mode**" to "**Continuous**" then the printer is in the Continuous printing mode.

```
        Continuous Print
Trigger Mode       Trigger
Continuous Mode   Open
Continuous Time    1
Internal Interval  500
External Interval  500
```

3. Other valid settings please refer to "2.8.4 PRINT Menu" and its Sub Menu.

3.7.3 Times Printing Mode

In this mode you can set the specific numbers of printing per trigger.

1. Select **PRINT** menu and press **Enter** to call out the following sub menus:

Print
Print Enable
Manual Print
Continuous Print
Photocell Level
Photocell Signal Block
Reverse Print Config
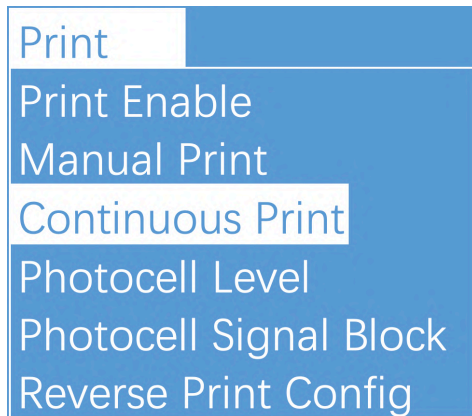
2. Enter **Continuous Print** sub menu **,** Switch the "**Continuous Mode**" to "**Times**" then the printer is in the Times printing mode. Repeat times and internal/external interval both can be set in this screen.
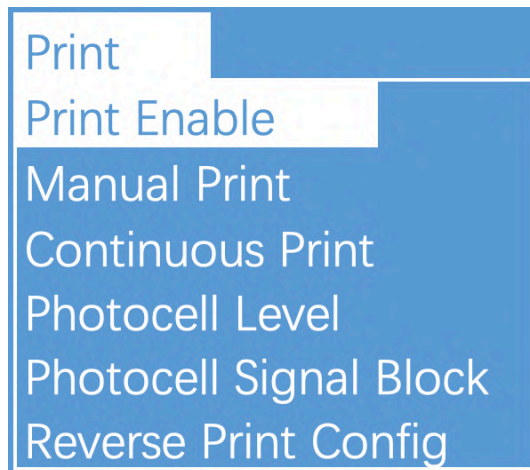
Continuous Print
Trigger Mode	Trigger
Continuous Mode	Times
Continuous Time	1
Internal Interval	500
External Interval	500
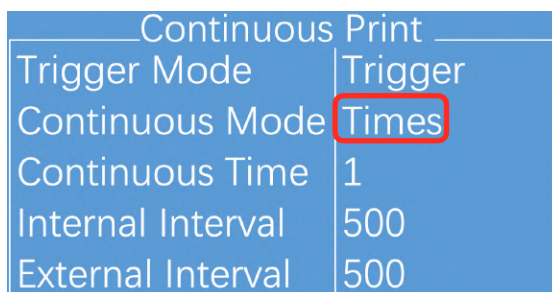
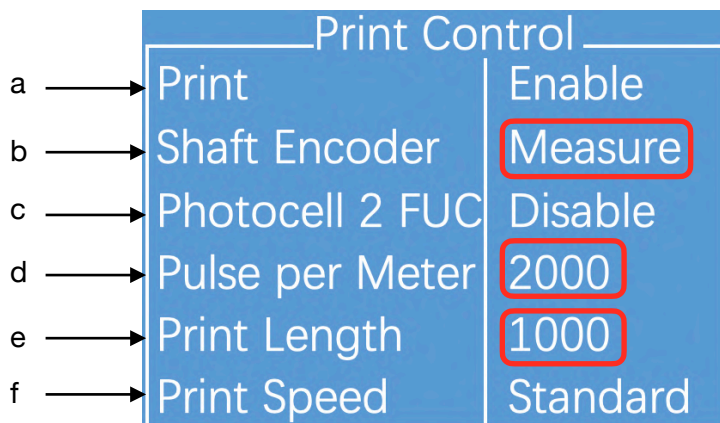3. Other valid settings please refer to "2.8.4 PRINT Menu" and its Sub Menu.

3.7.4 Measure mode

The mode is commonly used in the wire cable, pipe and other industries requiring labelling of number of meters , the encoder must be used.

1. Select **PRINT** menu and press **Enter** to call out the following sub menus:

Print
Print Enable
Manual Print
Continuous Print
Photocell Level
Photocell Signal Block
Reverse Print Config

2. If you want to use meter mode to print . You should set *Print Enable* menu.

Print Control

a →	Print	Enable
b →	Shaft Encoder	Measure
c →	Photocell 2 FUC	Disable
d →	Pulse per Meter	2000
e →	Print Length	1000
f →	Print Speed	Standard

a. **Print** : This item should be set as "**Enable**"

b. **Shaft Encoder** : This item should be set as "**Measure**"

c. **Photocell 2 FUC** :This setting is invalid for the "Measure Print" mode.

d. **Pulse per Meter** : For example, if the perimeter of the wheel is 250mm, the encoder with 2000 pulses then the value of pulse per meter is: (1000÷250) x 2000 ＝ 8000.

e. **Print Length** : After the value of pulse per meter set, the length of each message interval within 1000mm can be set in this option.

f. **Print Speed** : This setting is invalid for the "Measure Print" mode.

3.7.5 Traverse Printing Mode

The mode is commonly used in electronics, label printing, egg and other industries, and provides highly-efficient production mode for the array type printing.

In this mode you can set the specific numbers of printing per trigger.

1. Select **PRINT** menu and press **Enter** to call out the following sub menus:

Print
Print Enable
Manual Print
Continuous Print
Photocell Level
Photocell Signal Block
Reverse Print Config

2. Enter **Continuous Print** sub menu **,** Switch the "**Continuous Mode**" to "**Reverse**" then the printer is in the Reverse printing mode.

Continuous Print	
Trigger Mode	Trigger
Continuous Mode	Reverse
Continuous Time	1
Internal Interval	500
External Interval	500

3. Enter " **Traverse Pint CONFIG** " submenu, as shown in the following figure:

Opposite Print Config	
Forward Delay	16
Oppoesite Delay	16
Print Reset	No
Print Times	1
Forward Reverse	Close
Opposite Reverse	Close
Forward Inverse	Close
Opposite Inverse	Close

a. **Forward Delay** : Set the print delay when print forward direction

b. **Opposite Delay** : Set the print delay when print opposite direction.

c. **Print Reset** : After reset, the printer will start to print forward direction

d. **Print Times** : use to set the print times after trigger.

e. **Forward Reverse** : If set it to OPEN, the Forward direction will pint Reverse-off and vice versa.

f. **Opposite Reverse** : If set it to OPEN, the Opposite direction will pint Reverse-off and vice versa.

g. **Forward Inverse** : If set it to OPEN, the forward direction will pint Inverse-off and vice versa.

h. **Opposite Inverse** : If set it to OPEN, the Opposite direction will pint Inverse-off and vice versa.

Reverse Mode print sample:

Forward direction:

And 7x5 TEST MESSAGE
TWIN LINE FASTJET

Figure 2-32. Forward direction sample

Opposite direction:

And 7x5 TEST MESSAGE
TWIN LINE FASTJET

Figure 2-32. Forward direction sample

4. Trouble Shooting and Maintenance

4.1 Diagnostic screen

Diagnostic screen can be entered into any time by press the "i" key located at the left bottom keyboard.

Ink : 0bar	Ink Temp 19
Temp: Cabinet 19	Head 35
Phase: Angle 0	Profile 0
Levels: Ink Low	Solvent Low
Chamber: Low On	High Off
VMS: Set 39 Now 0	Topup 0
Mix: OK On Low On	High Off

Stopped, Solvent Empty, Ink Tank Empty

1. **Ink** : real time pressure of Ink. It is generally 300-350 under normal startup mode. **Temp**: Temperature of ink in the ink system

2. **Temp:Cabinet** : Temperature inside the cabinet
   Head: Temperature of print head of inkjet printer. It is generally 35 under normal startup mode.

3. **Phase Profile**: Phase working status. It is generally 06~10 under normal startup mode.

4. **Levels: Ink Low**: Ink level in the ink tank now is low
   Solvent Low: Solvent level in the solvent tank now is low

5. **Chamber：Low, High**: Low, high level status in the viscosity chamber. ON and OFF will alternate when the printer is running

6. **VMS：Set**: Setting value of ink viscosity during running. The value will vary because of different ink and temperature. **Now**: Actual value of the ink viscosity during running; normally, the actual value approximates to the setting value of ink viscosity.

7. Mix：OK，Low, High——Low, medium and high ink level probe in the mixing tank. ON means there is ink in the tank, OFF means no ink.

4.2 Faults and Warning Icons

4.2.1 Fault Icons

Icon	Name	Cause	Remedial Action
	Mixer Tank Empty	Ink leak	Check the ink system with the help of engineer.
		Solvent vaporization	Add ink until the icon disappears.
		Valve Clogging	Take V2 down and clean it up with special cleaner.
	Charge Fault	Nozzle Clogging	Perform *Nozzle Flush* and *Wash Nozzle* program. Remove the head cover and clean the print head. Close the head cover when all components is dry and clean.
		Poor break point	Observe the Break point and adjust it to the best condition.
		incorrect ink stream position	Observe the ink stream and adjust it to the best position.
		ink is out of expiration date or polluted	Drain the ink and clean the ink system. Renew ink.
		fitter exhaustion	Cleaning up the ink system and change the fitter. Contact the engineer for more information.
	Charge Fault	Nozzle Clogging	Perform *Nozzle Flush* and *Wash Nozzle* program. Remove the head cover and clean the print head. Close the head cover when all components is dry and clean.
		Gutter Clogging	Clean gutter until it is though.
	EHT Trip	High Voltage Deflection Plate accumulate ink	Clean print head's high voltage Deflection Plate and dry it. Contact the engineer for more information.

4.2.2 Warning Icons

Icon	Name	Instructions for warning
	Low ink level	Add solvent. Please contact maintenance engineer if the icon still appears after adding.
	Low solvent level	Add ink. Please contact maintenance engineer if the icon still appears after adding.
	Print head cover is open	The head cover is opened, the printer cannot print, the warning will disappear after the head cover is closed
	Viscosity fault	Too high or low viscosity. Please report to maintenance engineer if the display of the icon exceeds 20 min.
	mixer tank full	Mixer tank full. Please report to maintenance engineer if the display of the icon exceeds 20 min.
	Encoder over speed	Synchronizer runs too fast to reach the width required by printing. Please report to maintenance engineer if the width of inkjet printer is disqualified.
	Service	The printer needs maintenance, please consult the relevant service engineer
	No enough time for phasing	Increase the print interval between each messages until it disappears
	VMS Chamber can not be empty	Please consult the related service engineer.
	VMS Chamber can not be full	Please consult the related service engineer.

4.3 Troubleshooting

- **Turn on the power supply, there is no display on screen.**

Reason	Solution
No voltage of the power supply	Check the power supply and related fuse

- **Poor jet printing character quality or incomplete character**

Reason	Solution
The printhead is too far from the product	Adjust the distance between the printhead and the printing surface
The character height is too small or too large	Reset the character height
The character width is too small or too large	Reset the character width
Wrong breakpoint shape	Observe and adjust the breakpoint. Refer to "3.2.3 How to Observe Break-up point".
Ink deposited on the gutter pipe	Clean the gutter pipe deposited with ink, check and adjust the ink position in the gutter. Refer to "3.2.2 Inkjet Observation ".
The print varies in width and height	Determine the printing position again or select the rotary encoder

- **No failure prompt but printing is not clear**

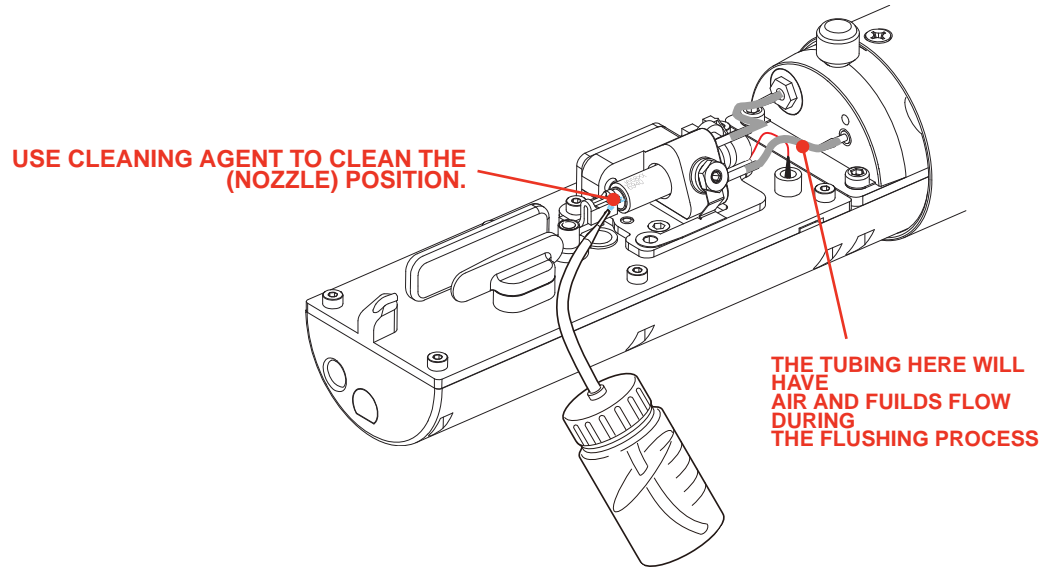| Reason	Solution
Error in print width or wrong print on product position	Adjust the print width or printing delay
No print on product	Check sensor sensitivity

- **Wrong or unstable Ink jet position**

| Reason	Solution
Nozzle blockage	Clean the nozzle. See "4.4 Wash Nozzle".
Filter blockage	The trained operator can replace the filter under guidance of the service engineer.
Wrong ink jet position	Refer to "4.5 Ink jet adjustment".

4.4 Wash Nozzle

When the nozzle is blocked, manual cleaning is required for the function. The operation procedures are as follows:

1. Go to **SYSTEM** menu，select and perform **Nozzle Flush** program.

2. After the program is started, manually clean the position shown in the following figure with cleaning agent.

USE CLEANING AGENT TO CLEAN THE (NOZZLE) POSITION.

THE TUBING HERE WILL HAVE
AIR AND FUILDS FLOW DURING
THE FLUSHING PROCESS

4.5 Jet Alignment

Horizontal alignment : Slightly loosen the screw "A" and rotate the screw "B" slightly ,then the jet stream can be horizontal moved.

A

B

C D
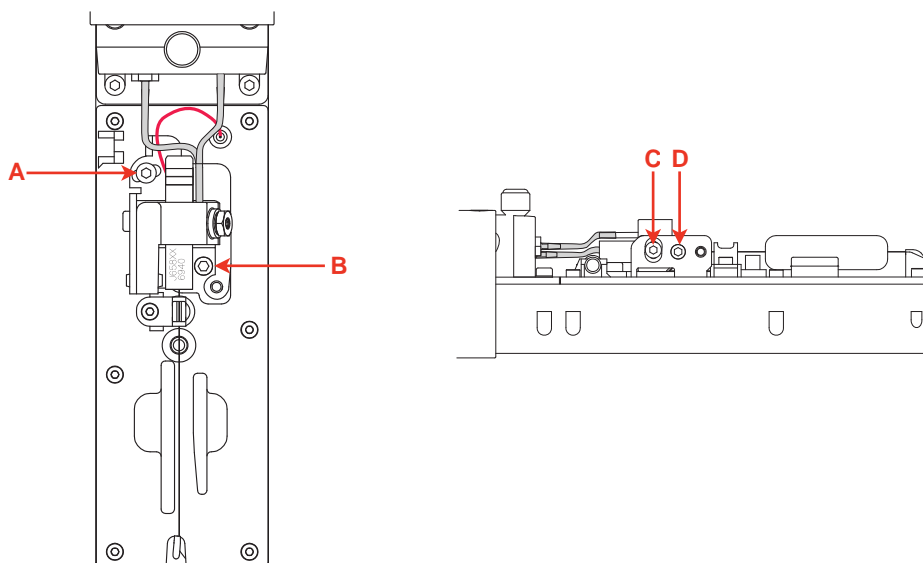
Vertical alignment : Loosen the screw "C" and rotate the screw "D" slightly ,then the jet stream can be vertical moved.

4.6 Drain

Go to the "**System**" menu, select "**System Flush Purge**" and press the "enter" key to confirm.

1. First pull out the **OUT** port of the ink and connect it to the special waste bottle.

2. Invert the pressure buffer.

3. Go to the "**System**" menu, select "**System Flush Purge**" and press the "enter" key to confirm.
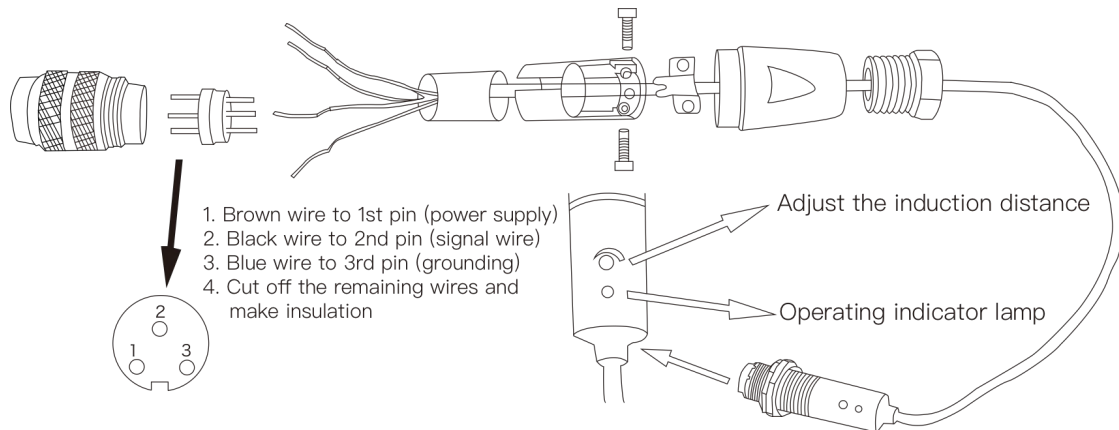   Or go to the "**System**" menu, select "**Debug**" and press the "enter" key to confirm , turn on "Pump", "Valve 6", "Valve 11", "Valve 12" in sequence, the ink will instantly start from The **OUT** port pours out.

4. Or go to the "System" main menu, select "**Debug**" and press the "enter" key to confirm the entry, turn on "Pump", "Valve 6", "Valve 11", "Valve 12" in sequence, the ink will instantly start from The **OUT** end pours out.
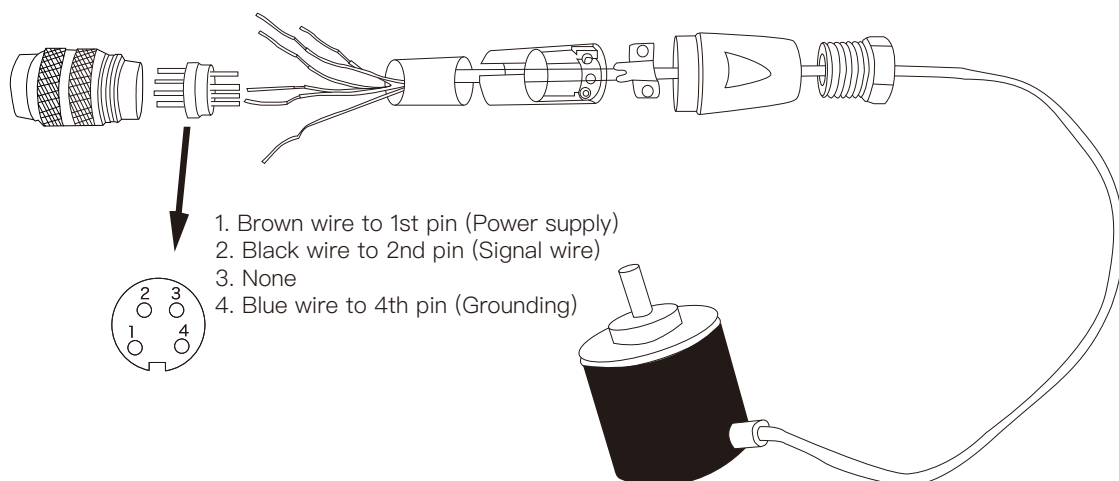
5. After the ink is discharged, close the menu, restore the pressure buffer, and restore the **OUT** port.

4.7 Sensor and Encoder Wiring Diagram

4.7.1 Sensor Diagram

1. Brown wire to 1st pin (power supply)
2. Black wire to 2nd pin (signal wire)
3. Blue wire to 3rd pin (grounding)
4. Cut off the remaining wires and make insulation

Adjust the induction distance

Operating indicator lamp

4.7.2 Encoder Diagram

1. Brown wire to 1st pin (Power supply)
2. Black wire to 2nd pin (Signal wire)
3. None
4. Blue wire to 4th pin (Grounding)

Fastjet reserves the right to modify the technical characteristics of the product without prior notice.

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