ricoma®
THINK BEYOND

Computerized Embroidery Machine

ST10

OWNER'S MANUAL

RiCOMA(Huizhou)Co.,Ltd.

Content

Part 1 Overview

Welcome to use our controller for computerized embroidery machine. Please read this manual carefully before operating the machine so as to operate it correctly and to avoid accidents. And please keep it properly for future use.

Some functions listed in this manual, due to different mechanical configurations, might not be covered by some machine types. Functions are subject to actual situation.

1.1 Precautions

1.1.1 Safety Notice

	Danger	A potential danger, if not avoided, severe injuries would probably be caused to the operators.
	Warning	A potential danger, if not avoided, the equipment would probably be damaged.
	Prohibition	Refer to operations prohibited.
	Notice	Refer to operations that shall be done.

Danger

	Do not touch any operating parts of the machine while it is running; otherwise personal injuries would be caused.
	To avoid electric shock or fire disaster, the equipment shall be free from humidity, dust, corrosive gas, and flammable and explosive gas.
	To avoid accidents, please don't open the cover plate of the case while operating as it is with high voltage.
	The non-professionals are prohibited to perform maintenance and debugging of the electrical parts; otherwise the safety performance of the equipment would be degraded and equipment breakdown would be expanded, even personal injuries or property damage would be caused.
	Please replace the fuses according to the specifications identified by this product strictly, so as to ensure the safety of personnel and property.
	The power switch has the function of over-current protection. If the over-current protection switch turns off, customers shall turn it on 3 minutes later.
	If you have to open the cover plate of the case, please cut off the power in advance. And at least one minute shall be allowed for the capacitors to discharge before you touch the inner parts of the case, as it is still with electricity even after the power is cut off.
	Damages caused by unauthorized modifications on the products would not be covered by our warranty.

Warning

!	Please use disks of good quality. Poor ones would probably damage the disk drive.
!	To avoid disk damage and data losing, the disk in storage shall be free from magnetic materials like magnet, TV set, etc.
!	The disk drive and the USB port are precision devices. When inserting a disk or USB flash disk into it, more attention shall be paid to the direction. And please don't move out the disk or USB flash disk when the LED of the drive is on; otherwise the disk, or the USB flash disk, even the drive would be badly damaged.
!	The machine shall be operated in a clean and well-ventilated environment. Don't put sundries around the control box, which is for better heat radiating. And regular cleaning shall be done to remove dust.
!	Don't use the circuit parts that are not from our company, as they are more vulnerable to fire disaster, electric shock or severe damage.

Figure 1-1

Requirements for power supply:

(1) Only the specified power supply type can be used for this system, and if the fluctuation of electricity grid exceeds 10%, then a stabilizer is needed.

(2) The system can only be connected to permanent power input and shall be **grounded**.

(3) The embroidery machine shall not share the same power supply wire with other high-power equipment to ensure that the controller will work safely and reliably.

Grounding requirements:

(1) Please ground firmly to avoid electric shock or fire disaster caused by leakage, over-voltage and insulation of electrical equipment, and to ensure the computerized embroidery machine to run steadily in a long time.

(2) **The grounding resistance shall be no more than 10Ω. And the grounding conductor shall be multi-stranded copper core wires with the cross-sectional area no less than 4mm^2.**

1.1.2 Installation Environment for Embroidery Machine

①Solid ground;

②Avoid direct sunlight;

③Enough space for maintenance, at least 60 cm away from the wall;

④Clean and dust-free surroundings;

⑤Space temperature: 5 to 40℃;

⑥Relative humidity: 30 to 95%;

⑦Install the devices in horizontal level;

⑧Good ventilation.

1.1.3 Safety Precautions on Operating Embroidery Machine

①Please cut off the power supply before overhauling and adjusting the machine.

②The operators and maintenance personnel shall be trained before operating.

③Stop the machine while operating under the needles.

1.1.4 Specifications for Power Supply

①Supply voltage: Single-phase (AC) 220V, single phase(AC)110 / 220V .

②Frequency: 50/60 Hz.

③Capacity: 1.5KW for no more than 10 heads; 2.1KW for 10 heads or more.

1.2 Function Introduction

The electronic control system adopts advanced graphical user interface and shortcut keys, which makes the operations easy and practical, thus improving the performance and efficiency.

(1) Color LCD

Adopt color LCD monitor to display the embroidering progress and information in real time.

(2) Automatic Speed Adjustment

The speed can be adjusted automatically according to stitch size.

(3) Design Merging

This function makes it convenient for operators to merge the designs. Operators can combine, divide, copy and delete the designs in memory for the convenience of flexible embroidering and partial adjusting of the designs.

(4) Design Embroidery Setting

The designs can be embroidered with conversion in horizontal, vertical, or mirror way. Rotate of any angle in the unit of one degree is available. And the designs can be scaled in horizontal and vertical direction by any rate ranging from 50% to 200%.

(5) Design Data Saving

For designs in memory, settings such as start point, conversion, rotation, scaling, etc. can be saved.

(6) Color Change Function

Both manual and automatic color change can be performed through setting of color change mode and needle bar sequence.

(7) Trimming Function

Manual trimming is available. And automatic trimming can be enabled by setting **“Machinery Parameter”**.

(8) Thread Breakage Detection

The machine can detect the thread breakage automatically after certain setting in parameter.

(9) Function of Limit Check

Limit check can be used to check whether the embroidery range fit the size of the design. Machine frame will idle along the design border and give alarm if the start point is not properly set. Then operators need to adjust the embroidery start point manually.

(10) Automatic Start Point Setup Function

Embroidery start point can be automatically set by right pulling the bar or pressing the key START, and by manual operation.

(11) Offset Point Setting Function

After setting the offset point, the frame shall move out to offset point for placing or collecting the cutting pieces.

(12) Appliqué Embroidery Function

This function can be used to embroider designs with appliqué. When the machine work to the appliqué point, it will stop automatically and the frame moves out to offset point for the convenience of appliqué placing or collecting.

(13) Braking Adjustment Function

This function is to adjust the stop position deviation of slip, variable frequency and servo motor. If machine main shaft did not stop at zero position (100°) after ORG operation, braking adjustment function can be used to adjust the stop position of the main shaft.

(14) Parameter Setting Function

Through adjusting the machinery parameters, the control system can be adapted to machines of different configuration, thus improves the embroidery quality.

(15) Cyclic Embroidery Function

After setting the **“Machinery Parameter”**, operators can perform the operation of cyclic embroidery.

(16) Eyelet Embroidery Function

Through parameter setting, any needle bar can be specified to perform eyelet embroidery.

(17) Sequin Embroidery Function

The feeding angle of sequin embroidery can be adjusted through parameter setting. The functions of single sequin, double sequin, and overlapped sequin can be realized. (Please note that the overlapped sequin function is available in only some machine types.)

(18) Easy-Towel Embroidery Function

This function can be realized after specify the machine head, needle height, and needle position, etc.

(19) Easy-Cording Embroidery Function

This function can be realized after setting device position, swing, and reversed angle, etc.

(20) 中文/ENGLISH Switch

Support Chinese and English interface. Other languages can be customized.

(21) Upgrading Function

The system can be upgraded through USB stick.

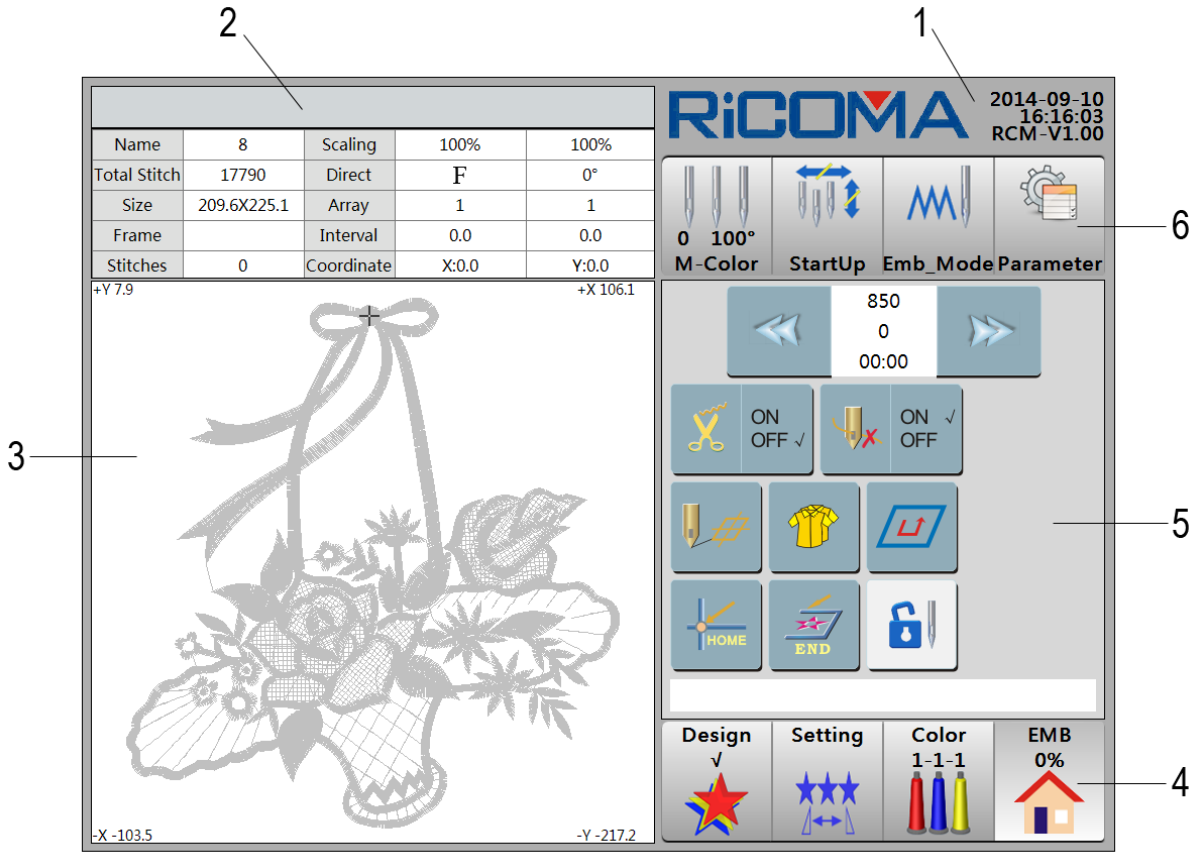
1.3 Performance Index

1. Max. Speed of main shaft: 1200rpm
2. Max. Speed of sequin: 850rpm
3. Max. Speed of easy towel: 850rpm
4. Max. Speed of easy cording: 850rpm
5. Precision of frame control: 0.1mm
6. Range of stitch size: 0.1 to 12.7mm
7. Stitch capacity: 50 million stitches
8. Identified design format: DST, DSB and DSZ
9. Display: 10.4 inch with TFT LCD monitor

Part 2 Introduction of Interface and Electronic Components

2.1 Displaying Interface and Operation Panel

LCD monitor: Display progress and other information of embroidery.



1: Display company logo, system date, time and version.

2: Title Bar. Display prompt message.

Information List: Display the following information of current design: design name, scale, total stitches, direction, size, array, frame, interval, current stitches and current coordinate.

3: Main Display Area. Display the embroidery information of the design when embroidering; display some prompt information and menu when stop embroidering.

XY Coordinate: Display the embroidery scope of selected design, which is used to measure the physical dimension of the design.

4: 

Design key

This key is used to select, display, delete, copy, devide, combine, edit and group designs in memory and so on. Before embroidering the design, operators shall select

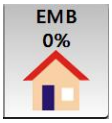
the design as needed through this function.

Setting key

This key is used to set the following parameters:  X magnification,  Y magnification,  design direction,  rotation angle,  X repeat times,  Y repeat times,  X repeat interval,  Y repeat interval, and  frame type. These must be set throught this function before embroidering.

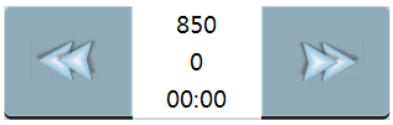
Color key

By pressing this key, operators can set color-change sequence of the system. Deceleration means speed one needle bar down. Besides, the distance of moving frame out can be set through this function key, which is convenient for the following operatios: sewing the die-line, collecting and placing the embroidery works and realizing appliqu é embroidery. Moreover, the offset value of appliqu é embroidery can be implemented by seting Y-OFF value. In addition, operaors can set the design color and cyclic needle bar. **“1-1-1”** means color-change sequence.



Embroidery key

It is used to enter **“EMB”** interface and display embroidery progress.

5: 

Display then appointed rotation speed, current speed and estimated time remaining.

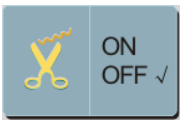
Press the key  to switch the stauses:  ,  and  ,  .

Press the key  to adjust the speed of the main shaft. It means to accelerate at 10 R/time.

Press the key  to adjust the speed of the main shaft. It means to decelerate at 10 R/time.

Press the key  to adjust the speed of the main shaft. It means to accelerate at 50 R/time.

Press the key  to adjust the speed of the main shaft. It means to decelerate at 50 R/time.



Trimming key

It is used for manual thread trimming (Tips: this function is invalid in machines without cutter). Displaying **"ON √"** means trimming function is on, **"OFF √"** means trimming function is off.

Thread Breakage Detection key

It is used to detect thread breakage during embroidering. Displaying **"ON √"** means thread breakage detection function is on, **"OFF √"** means thread breakage detection function is off.

Start Point Setup key

Press this key to perform the following operations: Set the Offset Point, Save the Start Point, Restore the Staat Point, etc.

Return to Start Point key

At stop during embroidering and stop after finishing embroidery, this operation enable the frame return to start point.

Design Periphery Operation key

For detailed instructions, please refer to **Part 19**.

Return to Origin key

It is used to retrun to the design origin when stops machine during emberoidering.

Return to Embroidery Stop Point key

It is used to retrun to the embroidery stop point after moving frame during emberoidering.

Embroidery Remove key

It represents embroidery preparation mode currently. Under this condition, operationslike positioning idling and offset point setting can not be set.

Embroidery Confirmation key

It represents embroidery ready mode currently. Right pulling the bar or pressing the key 

can start embroidering.

 Information Bar.

It is used to display prompt message.

6： 

Manual Color-Change key

Press this key to change the needle bar manually and perform embroidery.

“7” represents current needle bar; **“10”** means main shaft angle.

Start Up key

It represents automatic color-change and start.

Press this key to set the color-change mode and start mode. There are three modes in total, i.e. automatic color-change and automatic start, automatic color-change and manual start, manual color-change and manual start.

Start Up key

It represents automatic color-change and manual start.

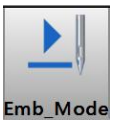
Start Up key

It represents manual color-change and manual start.

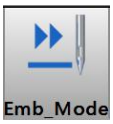
Emb_Mode key

It represents normal embroidery state.

By pressing this key, operators can switch the embroidery modes into three statuses, i.e. normal embroidery, high speed idling, low speed idling. The interface function includes back frame by stitch, forward frame by stitch, back frame by color, and forward frame by color, etc.



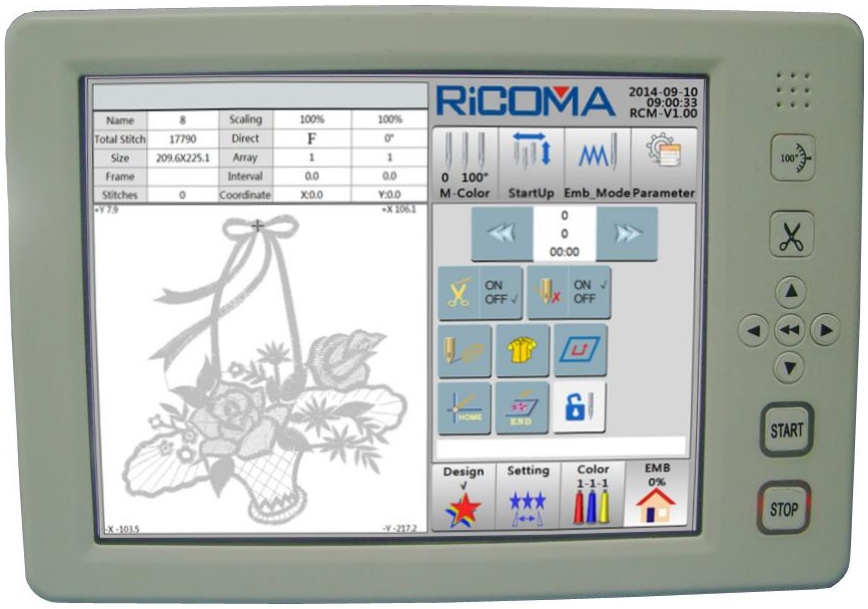
Emb_Mode key: It represents low speed idling.



Emb_Mode key: It represents high speed idling.

Parameter key: To set work parameter, machine setup and advanced parameter, etc.

See the figure of Operation Panel as below:



Note: The arrangements of some operation panels are different, but the meaning of keys and operation methods are in the same way.

2.2 Brief Introduction of Panel Keys and Functions

Trimming key

It is used to trim thread manually during embroidering (Tips: this function is invalid in

machines without cutter).

Inching key

According to system prompt, press this key to make main shaft back to zero position.

Direction keys and **Frame Moving Speed Switch** key

The keys and are used to move the frame in X direction.

The keys and are used to move the frame in Y direction.

The key is used to change the frame moving speed under manual operation. And the increased/decreased rate of main shaft speed can be changed by it. When moving the frame at high speed, the lifting speed of main shaft is 50 rpm; when moving the frame at low speed, the lifting speed of main shaft is 10 rpm.

Start key: In stop state, it means starting embroidery;

In embroidery state, it means running at low speed.

Stop key: In embroidery state, it means stop embroidery;

In stop state, it means running back the stitches;

In running back state, it means stop running back.

Keypad:

Numeric Keys from 0 to 9

They are used to input numeric information.

Decimal Point key

It is used to input numeric information with decimals.

Backspace key

It is used to delete the inputted value.

Minus key

It is used to input minus. A number with **"- "** means negative value; a number with**"+ "** means positive value.

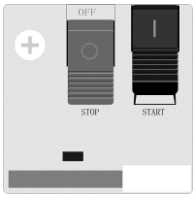
ESC key

It is used to cancel current input and quit keypad.

Enter key

It is used to confirm input.

2.3 Power Switch and Socket



There is a switch at the front side of the electronic box. See the figure on the right:

It is the power switch of the embroidery machine. Push the black switch downward is for **ON**; pressing the red switch downward is for **OFF**. The power supply socket is in the middle of electronic box right side plate. The output voltage is of single phase with 220V, AC, and 50Hz. It is used for small devices such as lighting lamp, bobbin winder, etc. High power equipment is not allowed to use this power socket.

2.4 Pull Bar and Main Shaft ORG Switch

Right pull the bar: Start embroidery under stop state;

Run at low speed under embroidering state.

Left pull the bar: Stop embroidery under embroidering state;

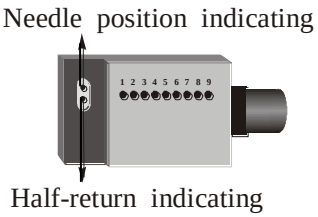
Run backward under stop state;

Stop running back under running back state.

Main Shaft ORG Switch: Main shaft will rotate one circle at low speed and stop at the zero position each time the switch is pressed.

2.5 Needle Position Indicating Light

See the figure on the right:



There are two indicating lights on the color change box.

If both of the lights are on, this indicates that the needle position is correct.

Otherwise, the needle position is incorrect, and operators shall not start embroidering.

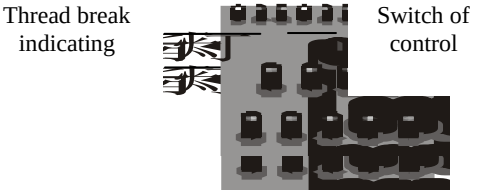
2.6 USB Port

See the figure below:

USB port lies on the right of operation panel which is used for inputting/outputting designs in U disk or USB floppy disk.

2.7 Machine Head Control Switch and Thread Break Indicator Light

See the figure on the right:



Two position control: this switch has three dial positions, but only the middle and the bottom one can be locked. When the switch is pulled to top position, the indicator light is red, which means embroidery reparing is operating. At this moment, the switch can not be locked at the top position, and it will rebound to middle position. Pull the position to the bottom and lock the needle bar, the indicator light is not bright. In normal embroidery state, the switch is at the middle position and the indicator light is green. If thread breaks during embroidery, the indicator light turns red. In patching, the indicator light also turns red.

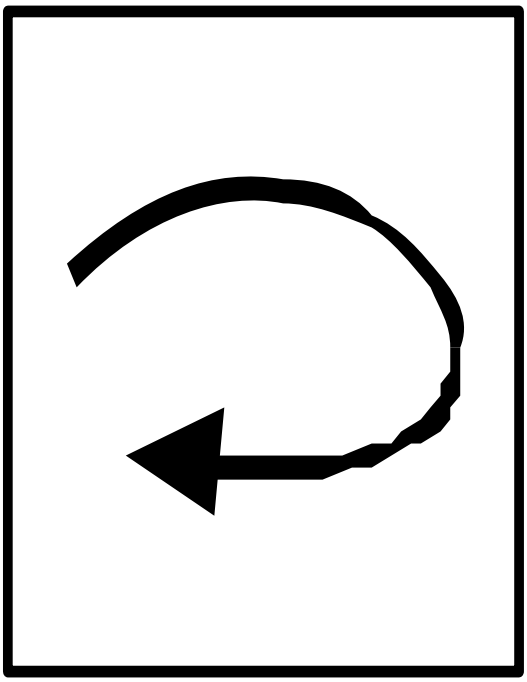
2.8 Preparation before Embroidery

The operation of computerized embroidery is base on the designs stored in the computer memory. When using a new machine, operators shall initialize the system and then input the needed designs into memory from U disk. After that, operators can select one of designs stored in memory to start embroidering.

Part 3 How to Start Simple Embroidery

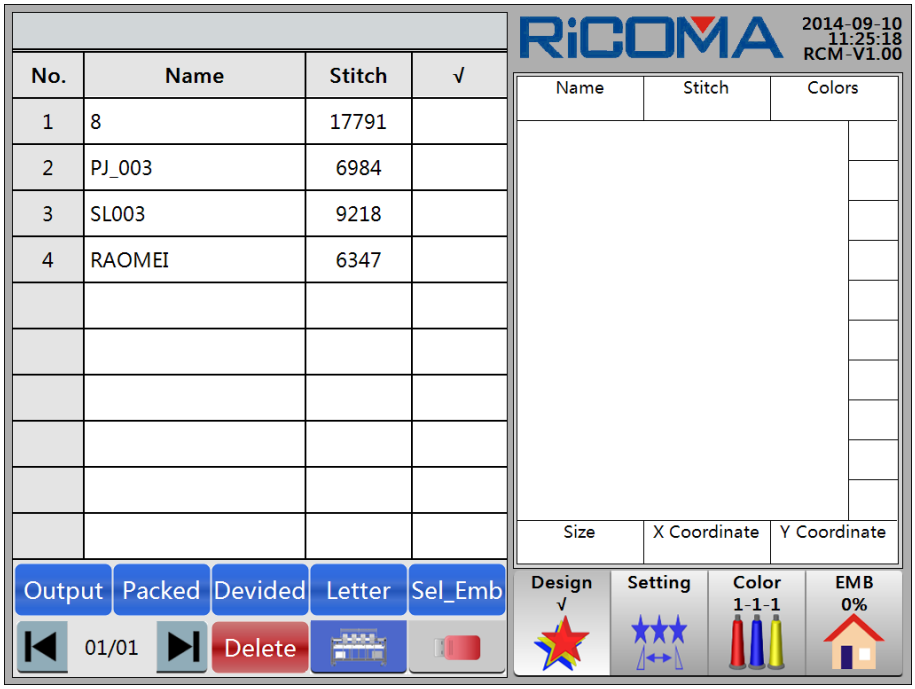
Basic Procedures of Embroidery:

Computerized embroidery machine is based on the designs stored in memory. See the figure below for basic procedures:



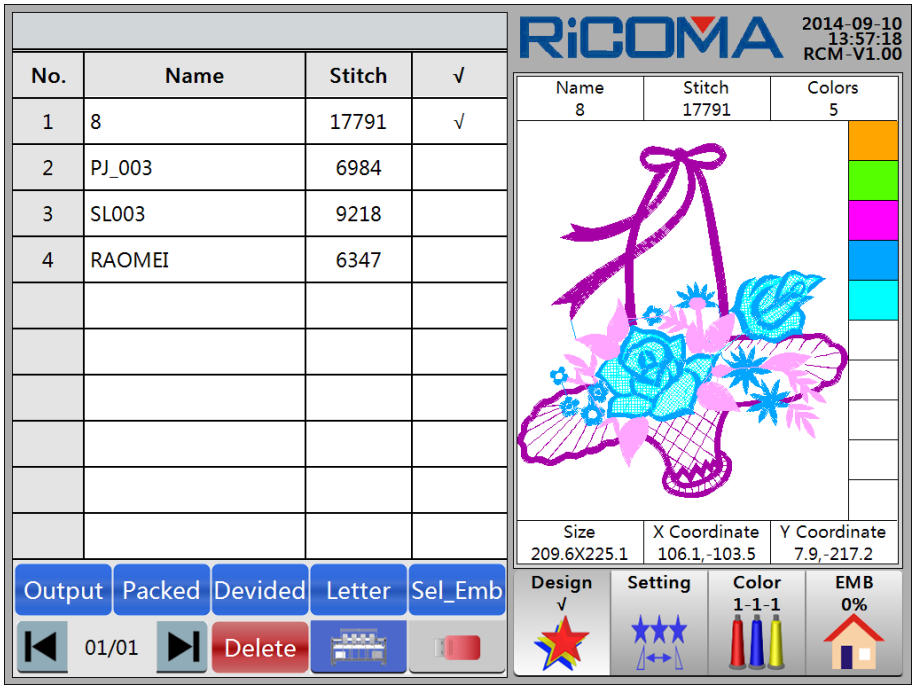
3.1 Design Input

Operators can use floppy disk or U disk to input designs. Operation of inputing design from disk to memory can be realized in **"Design"** menu (Please refer to **Part 4 How to Input Designs** for detailed instructions).



3.2 Design Selection

Before embroidering designs in the memory, operators shall select designs to embroider, then set relative parameters and then confirm to embroider. (Please see **Part 5.1 Embroidery Design Selection** for details).



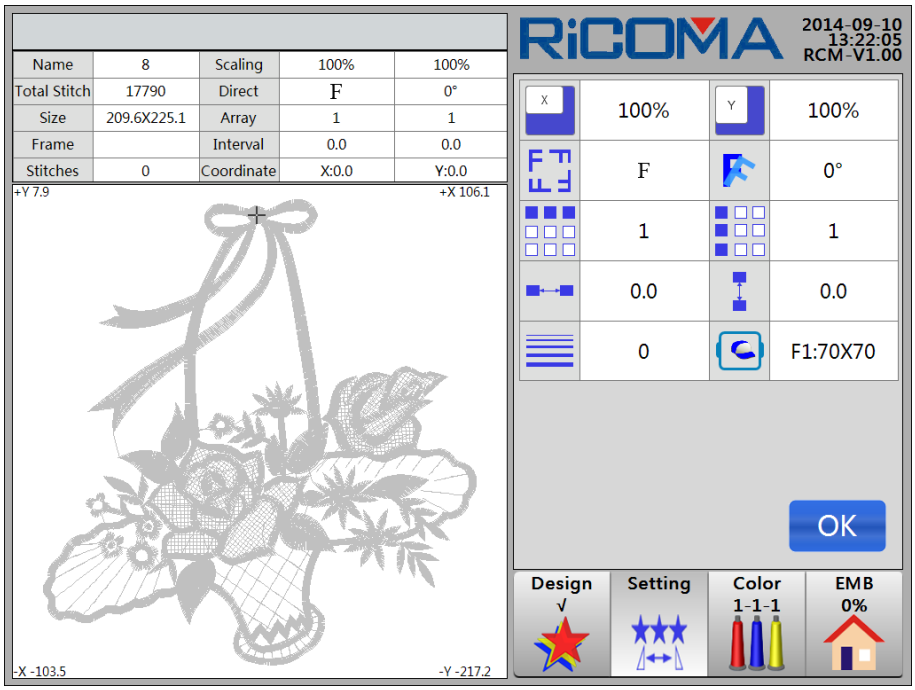
3.3 Embroidery Preparation

Before embroidering, namely under **Embroidery Preparation Mode**, operators shall finish or confirm the following settings:

①Auto color-change or manual color-change, that is, changes color automatically or wait for changing color manually after machine stop when meeting color-change code during embroidering. If operators have set as **"Automatic Color Change"**, operators also need to set the color-change sequence as auto (Please refer to **Part 5.4 Color Change Sequence Setting** for details).

②Auto start or manual start, that is, start embroidery automatically or pull bar manually to start embroidery after changing color automatically (Please refer to **Part 9 Operations of Color Change** for details).

③Designs stored in the memory may be unsuitable for the specific requirements of embroidery so that operators need to set the direction of pattern in designs, including the rotation angle, scale ratio and repetition embroidering numbers of the pattern (Please refer to **Part 5.2 Setting of Design Conversion** for details).



3.4 Embroidery Confirmation

Before pulling the bar or pressing the key START to embroider, the following work shall be done: (Take flat embroidery for example)

1. Hoop the fabric first, and then press the keys ▲▼◀▶ to move the frame to the position operators want to start (Please see **Part 6 How to Set the Start Point of Design** for details).

2. Press  to switch embroidery state. Confirm embroidery mode as **Embroidery Ready Mode**  .

3. Make sure the main shaft stops at the right position, if not, please press the key  to confirm.

Instructions on Embroidery Start Point Saving:

(1) What is "**Save Design Origin**"?

It is to save start point position of any design in system memory. One design might be used again after embroidery of other designs. In case of the same start point being used, this function can be employed to avoid repeat setting of start point.

(2) Instructions and Tips for using the operation of **"Save Design Origin"**

Key 1: When selecting the design, if the system prompts **"Restore Design Origin?"**(This indicates that the start point of the design has already been saved), and the current position of

frame is different from the saved position, then operators can restore the start point; if the machine haven't saved the start point of the design, then it will prompt **"Save Design Origin?"** for saving the start point.

Key 2: We would recommend you to adopt following operation procedures to use this function:

Step 1: Select the design to be embroidered;

Step 2: Move the frame to confirm the start point of design;

Step 3: Confirm to embroider and save the start point according to system prompt.

Key 3: The start point set by moving frame after embroidery confirmation will not be saved.

Key 4: If the start point of design has been saved, it also can be used to assist in restoring the frame position after power failure. When the power off and the frame has been moved, on the condition that the original point of frame is available (if not, operators can repeat the last settings of frame origin to make them be the same), please remove embroidery confirmation and reselect this design and recover the startpoint and make embroidery confirmation, then idle at high speed to the stop point and go on stitching at last.

Instructions on Embroidery Parameter Saving:

When make embroidery design confirmation, the machine can save parameters of this design for reuse in the future. These parameters include: pattern direction, rotation angle, magnify ratio of X, magnify ratio of Y, priority mode, repeated mode, repeat sequence, repeat times of X, and repeat times of Y, repeat interval of X and repeat interval of Y. If this design has already saved the parameters, operators could recover its parameters directly when selecting this design.

This function is especially suitable for embroidering the same design for several times without changing its parameters, so as to avoid inputting parameters repeatedly and operation errors.

3.5 Pulling the Bar to Embroider

Operators can pull the bar to start embroidery after positioning the start point and finishing the relevant settings.

Operations:

Embroidery operation bar (The operation bar is under the platen).

In embroidery stop state: Pull the bar to right to start embroidering (including low speed idling and high speed idling);

Pull the bar to left to return (including low speed idling and high speed idling).

In embroidery running state: Pull the bar to left to stop embroidering at one time;

Pull the bar to right to hold down for low speed embroidering, loose the bar for recovering the speed.

Key Embroidery (The keys are on the operation head)

START **Start** key: In stop state, it means starting embroidery;

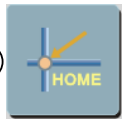
In embroidery state, it means running at low speed.

STOP **Stop** key: In embroidery state, it means stop embroidery;

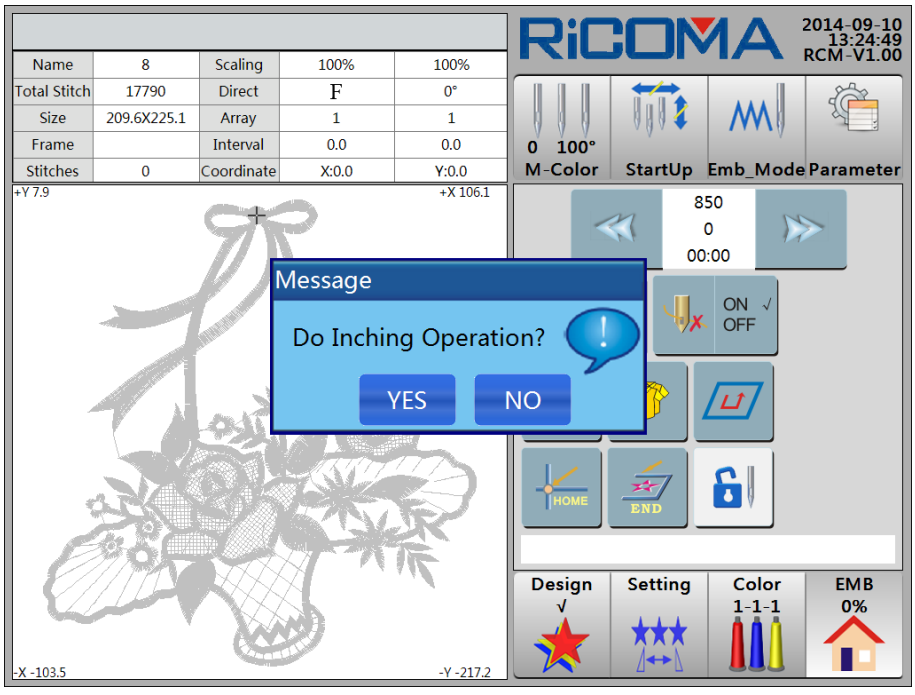
In stop state, it means running the stitches back;

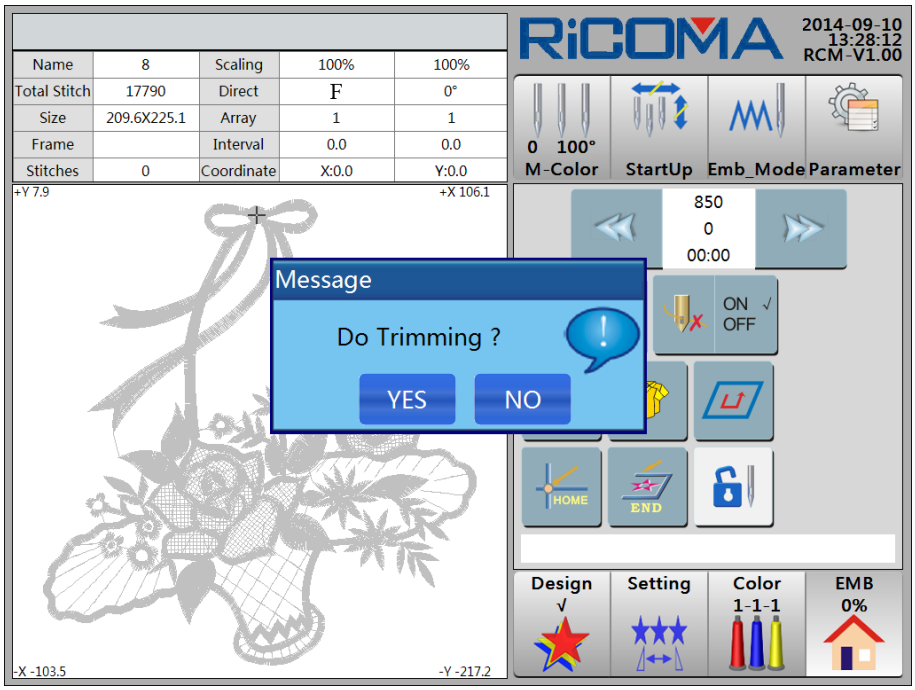
In running back state, it means stop running back.

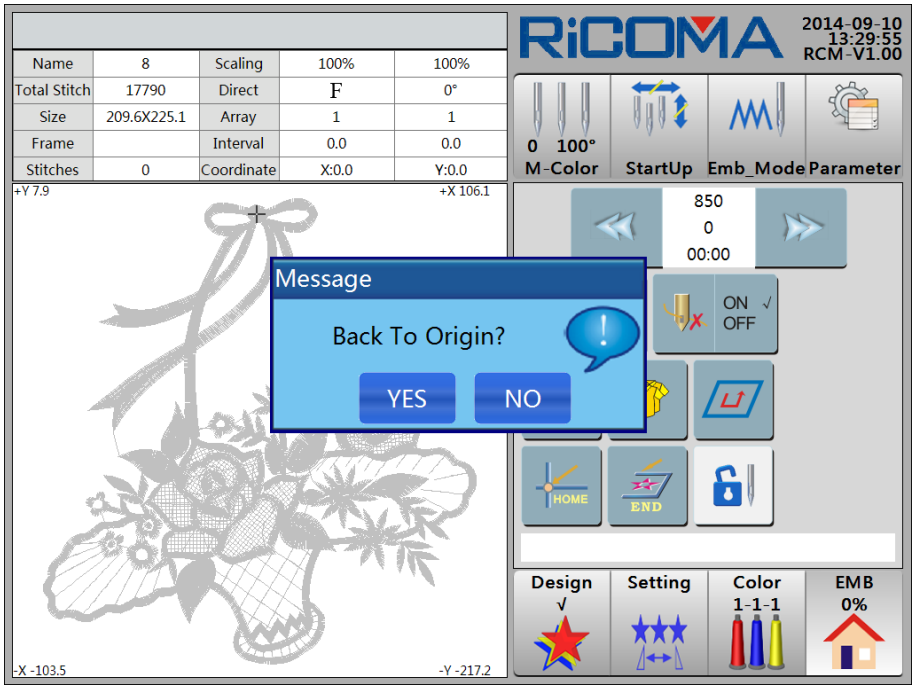
3.6 Manual Operation

Under the embroidery stop state, operators can use the keys   

to control the equipment and do simple operation to make the machine in special status or accomplish special action.







3.7 Cancel Embroidery

In **Embroidery Ready Mode** and stop state, selecting the key  , the dialogue box "Cancel Embroidery Confirmation?" will pop up. Then press the key 

, and quit embroidery operation.

Part 4 How to Input Designs

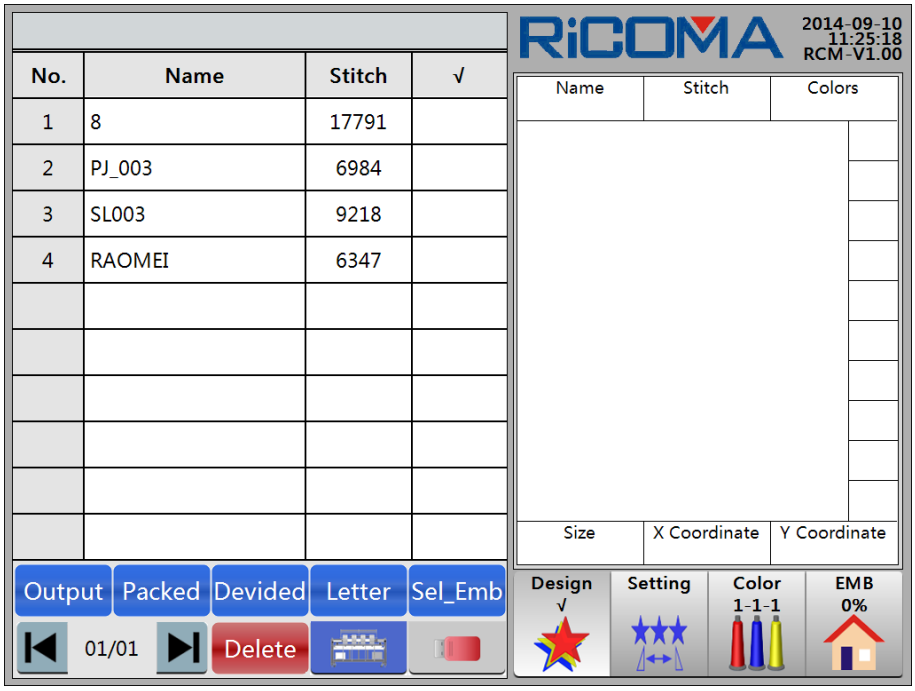
When use a new design in U disk or magnetic disk to embroider, operators shall input the design to the memory of the embroidery machine first and then start to embroider.

The inputting of designs is through U disk connecting to USB port or through floppy disk driver connecting to USB port to read the floppy disk. This system is fitted with one USB port, which can only connect one USB disk or USB floppy disk driver for once.

Design reading and input can be operated in **"Design"** interface.

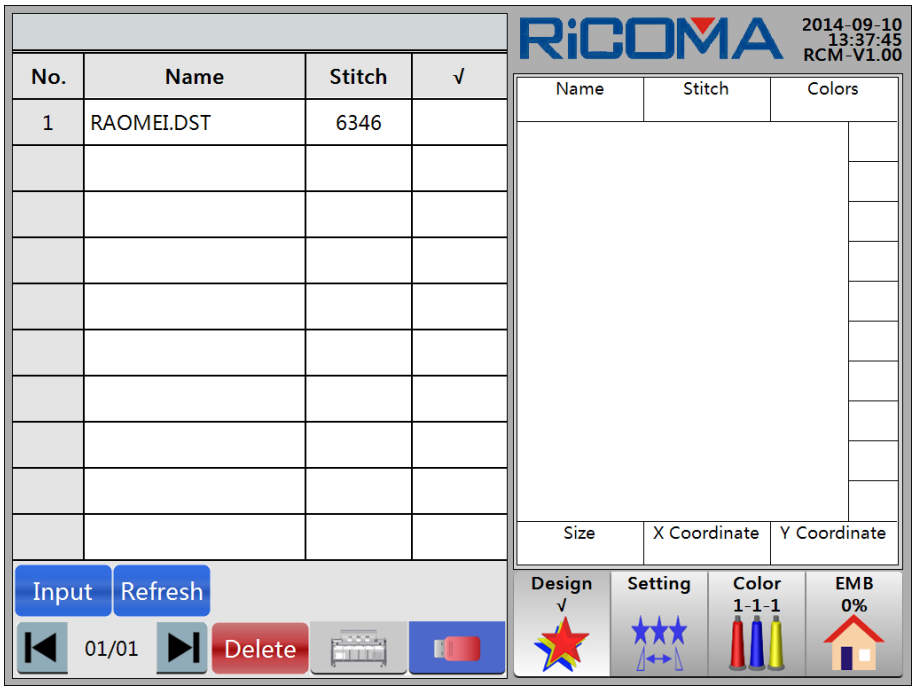
1. Press the key 

to enter **"Design"** interface. See the figure below:



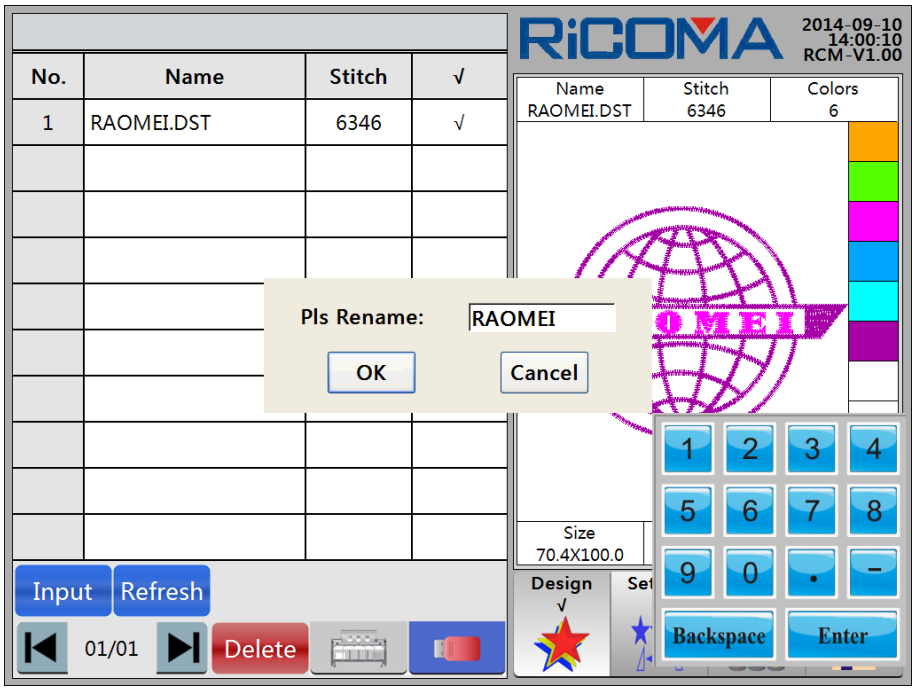
2. Press the key  **"Disk Mangement"**, then system will automatically test the disk or U disk.

3. The design list will be shown on the screen. See the figure below:

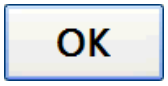


4. Select the design as needed, the mark **"√"** will be shown in the last column. Press the key Input **"Input disk design to memory?"** System prompts **"Input current design into memory?"** Then press the key YES, and the design will be inputted to memory.

5. If the inputting design name is the same with the design name existed in the system, then a piece of prompt will pop up **"Pls rename:"** Input a new design name in accordance with the prompt. See the figure below:

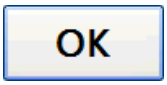


6. If operators agree to input the design and adopt the design name, press the key

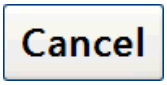


for confirmation.system start reading the design.

7. If not, operators can input a new design name by pressing the numeric keys. Press the **"Backspace"** key can clear the mis-typed value. When the design name entered is the same as the name stored in memory, the machine will not accept this entering. Operators shall press the key 

and input a new design name till the name is not repeated. At last, press the key 

to confirm.

8. If operators do not agree to input the design, press the key 

to quit the operation.

Part 5 How to Select Designs to Embroider

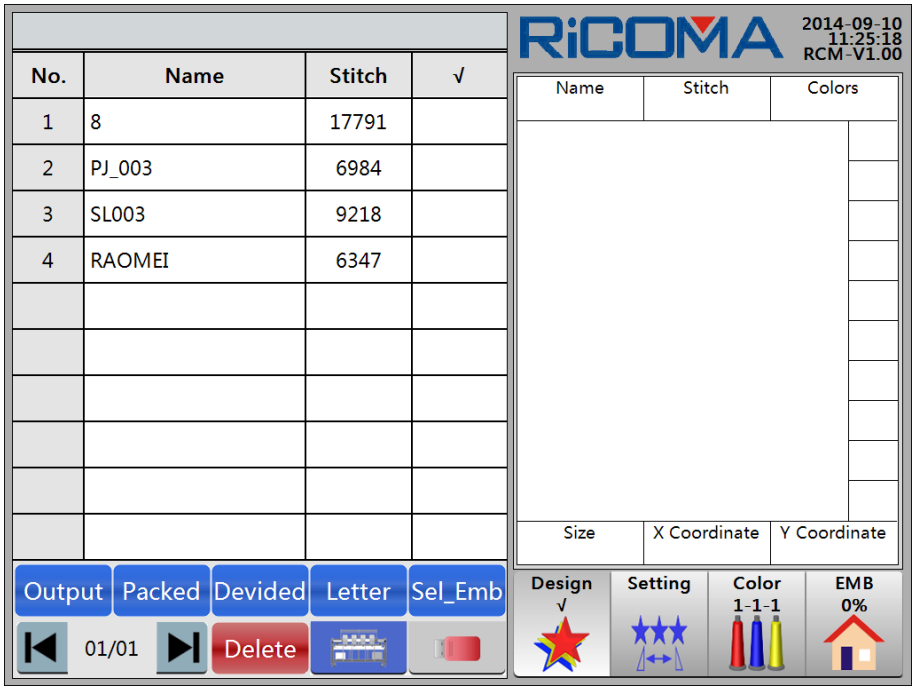
5.1 Embroidery Design Selection

After inputting the designs to memory, operators can select a design to embroider.

Operation procedures are as follows:

1. Select the key 

in the main interface to enter **"Design"** menu.See the figure below:



The screen displays the design list stored in memory (Please refer to **Part 17.2 Displaying Memory Designs** for details).

2. Select the design as needed from the design list. The mark **"√"** will be shown in the last column. To view more pages, please press the keys  to page up/down.

3. Press the key 

"Select embroidery design" key; system prompts **"Embroider current design?"** Press the key 

to confirm. Or press the key 

to quit embroidery operation.

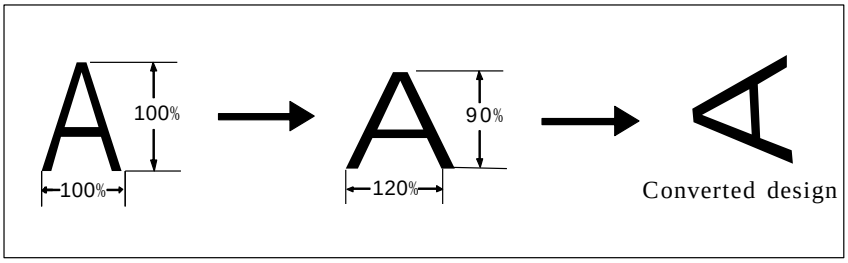
Embroidery confirmation operations:

1. Press the key  in **"EMB"** interface to switch to embroidery state, and confirm the embroidery mode as **Embroidery Ready Mode**  .

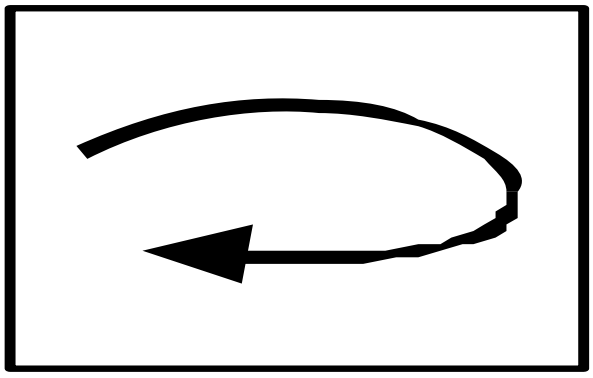
2. Right pull the bar or press the key START to start embroidering.

5.2 Design Conversion Setting

Example 1: Design "A", scale to 120% in horizontal, downsize to 90% in vertical and rotate 90 °. See the figure below:



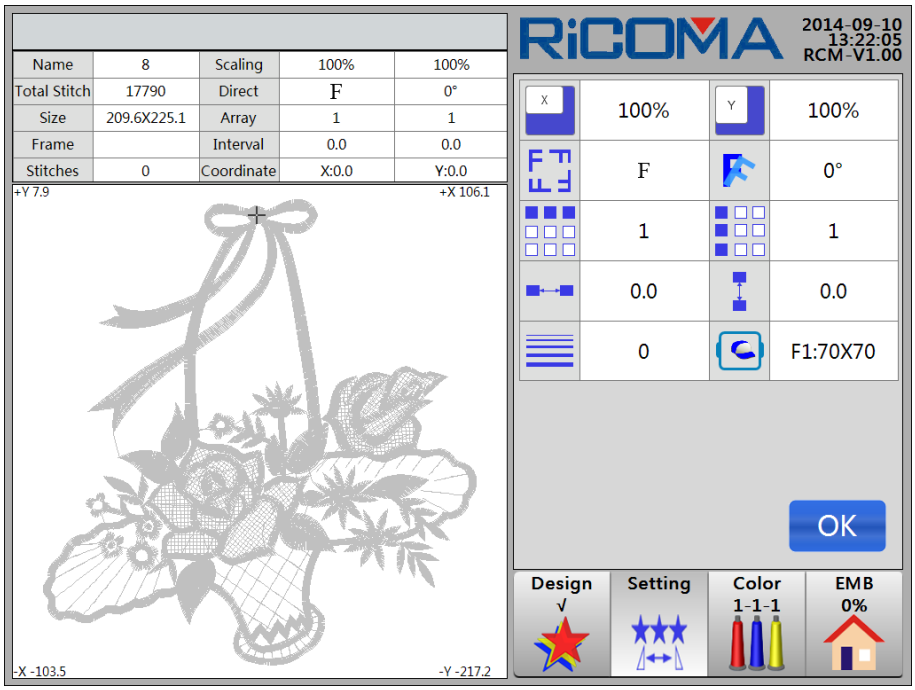
Example 2: Design "A" needs repeated embroidery with three pieces in horizontal direction and two pieces in vertical direction. The interval in horizontal direction (repetition interval of X) is 100mm and the interval in vertical direction (repetition interval of Y) is 100mm. See the figure after conversion below:

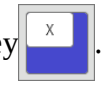


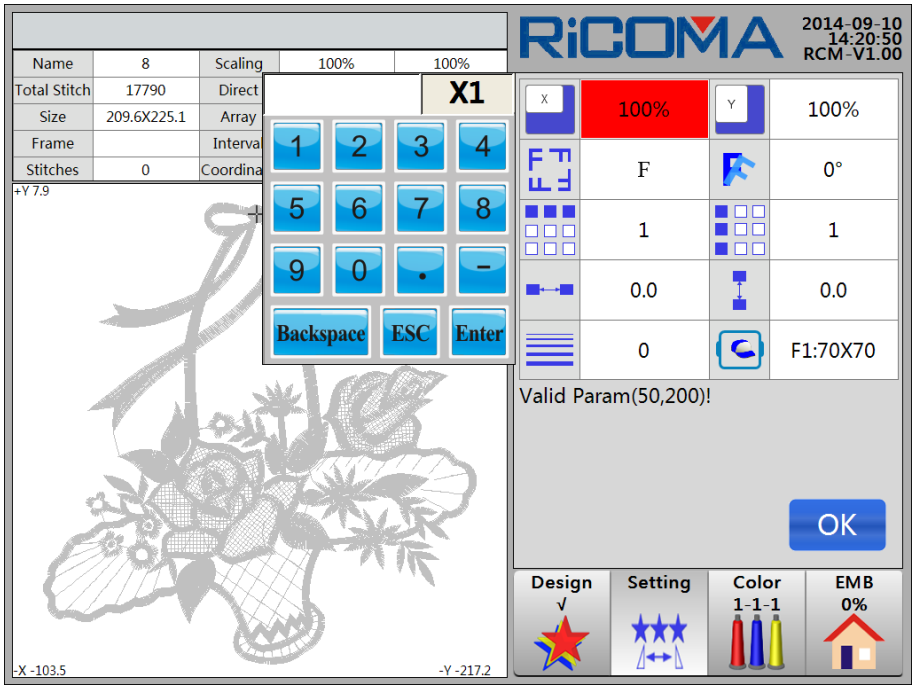
The operation procedures for doing settings as Example 1 and 2 are as follows:

1. Press the key 

to enter **"Setting"** interface. See the figure below:



2. Press the key  . Then see the figure below:



3. According to the prompt, press numeric keys to input the value. The **Backspace** key can delete the mistyped value. Press the **Enter** key to confirm. The **ESC** key can cancel value input and quit keypad. The following content can be inputted:

(1) X Scale (Range: 50% to 200%)

Press the numeric keys and the **Enter** key to input, and the **Backspace** key to delete the mistyped value. The X scale is the horizontal zoom ratio of the design.

(2) Y Scale (Range: 50% to 200%)

Press the numeric keys and the **Enter** key to input, and the **Backspace** key to delete the mistyped value. The X scale is the vertical zoom ratio of the design.

(3) RotationDirection (1 to 8)

The rotation direction of design can be switched by pressing some specified keys.

There are 8 types of design directions can be selected. See the figure below:

When the direction is set as **"1"** and shown as  , it represents that the current stitching direction is in line with its original direction.

(4) Rotation Angle (Range: 0 °to 89 °)

Press the numeric keys and the **Enter** key to input, and the **Backspace** key to delete the mistyped value. The angle is the CCW rotation angle of the selected design direction.

(5) X Repeat Times (Range: 1 to 99)

Press the numeric keys and the **Enter** key to input, and the **Backspace** key to delete the mistyped value. X Repeat Times means the repeat times at horizontal direction, i.e., the repeat times of embroidery in a row.

(6) Y Repeat Times (Range: 1 to 99)

Press the numeric keys and the **Enter** key to input, and the **Backspace** key to delete the mistyped value. X Repeat Times means the repeat times at vertical direction, i.e., the repeat times of embroidery in a column.

(7) X Interval (Unit: mm)

Press the minus key, numeric keys, **Backspace** key, **Del** key and **Enter** key to input.

X Interval means the distance between two neighboring design start point at horizontal direction (precision: 0.1mm). **"+"** means the frame moves to the left; **"-"** means the frame moves to the right.

(8) Y Interval (Unit: mm)

Press the minus key, numeric keys, **Backspace** key, **Del** key and **Enter** key to input.

Y Interval means the distance between two neighboring design start point at vertical direction (precision: 0.1mm). **"+"** means the frame moves outward; **"-"** means the frame moves inward.

(9) Frame Type

Select the customized frame size.

Set the frame type. This function is used for adding customized frame.设

4. Press the 

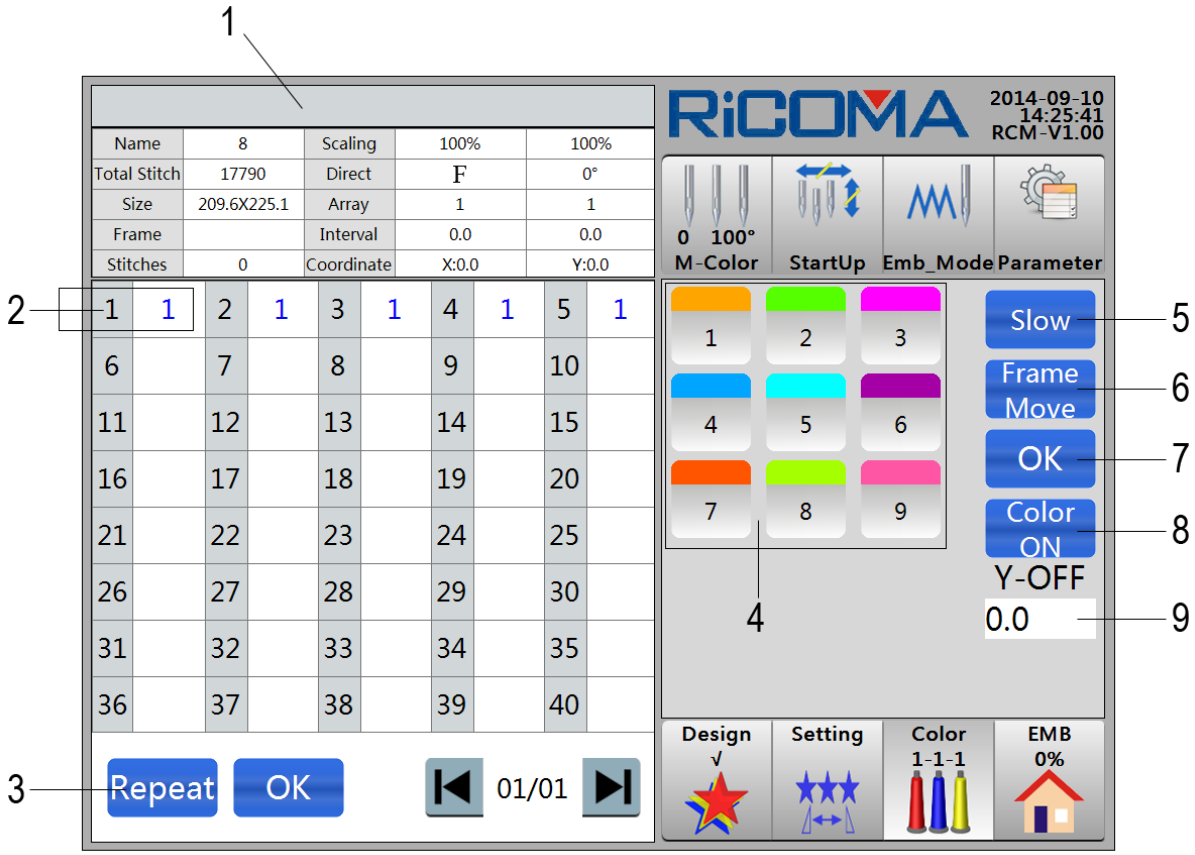
key to confirm the setting.

5.3 Embroidery Setting

For detailed instructions, please refer to **5.2 Design Conversion Setting**.

5.4 Color-Change Sequence Setting

5.4.1 Interface of Color-Change Sequence



1: **Title Bar.** Display the prompt message.

Information List: Display the following information of current design: design name, scale, total stitches, direction, size, array, frame, interval, current stitches and current coordinate.

2: **Color-Block Number:** It represents the color-block number of the selected design.

Needle Bar Number: Display the needle bar number of the color-block number.

3: Repeat Set circular needle bar. Set circular operation on all needle bars before the current needle bar.

OK **OK** key. Save the needle bar setting.

Page Up key. It is used to turn to next page in interface with many pages.

Page Down key. It is used to turn to the previous page in interface with many

pages.

4: **Needle bar number selection area.** Select the needed needle bar number.

5: Slow Speed Down key. Set a needle bar to speed down.

6: Frame Move Move Frame Out key. Set a certain offset distance of frame moving. Thedistance can be set by setting Y-OFF offset value.

7: OK Confirmation key. Realize Speed Down function and Move Frame Out function.

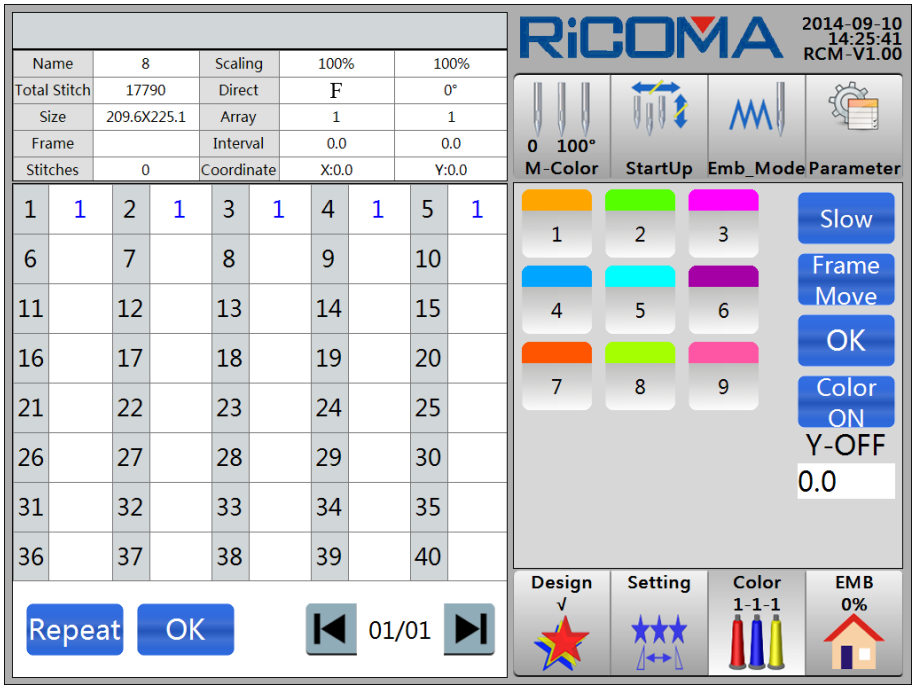
8: Color ON / Color OFF Set design color. The display color of each color block can be set according to the actual color. The display color of each color block shall be the same with the thread color of the needle bar.

9: Y-OFF Offset Value Setting. Set the offset value of moving fame out. Unit: mm.

5.4.2 Color-Change Sequence Setting

1. Press the key 

to enter **"Color"** interface. See the figure below:



(Please refer to **5.4.1 Interface of Color-Change Sequence** for detailed interface instructions)

2. Select the corresponding needle bar number of the color block.

3. After selecting, selest the needle bar number in Needle Bar Selection area, and finish

the color block setting. After that, press the key OK, and color-change sequence setting is completed.

4. If operators have already confirmed the setting before N item in the sequence and hope to repeat the settings before N item from N + 1 item, operators can select N items in the current operating position. Then, press the key Repeat to repeat.

5. Color-change sequence setting is completed after the confirmation.

Note: The maximum times of color-change are 225.

5.4.3 Color-Change Sequence Modification

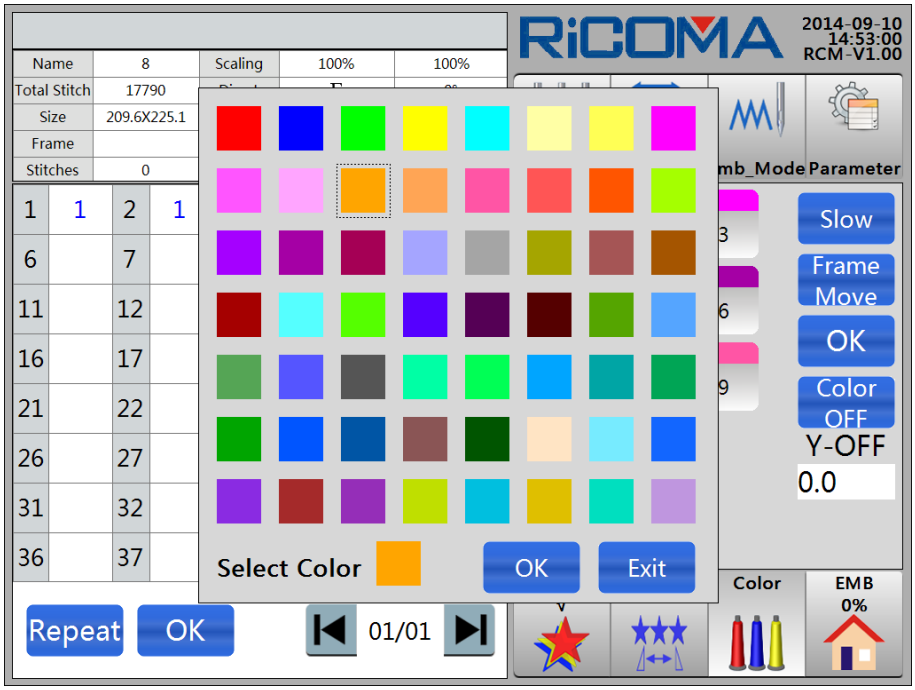
After setting the color-change sequence, operators can modify the color-change sequenc by doing the operations of **Part 5.4.2**.

5.4.4 Design Display Color Setting

In order to make the color of design displayed on the screen close to actual embroidery design color, this system can set the color based on the corresponding needle bar of the actual colorblock of the current design.

1. Press the key Color 1-1-1 to enter **"Color"** interface. Press the key Color ON to set the corresponding color of the needle bar as editable state.

2. Press the key 1 to enter **Design Display Color Setting** interface. Thres are 56 kinds of colors for choosing. See the figure below:



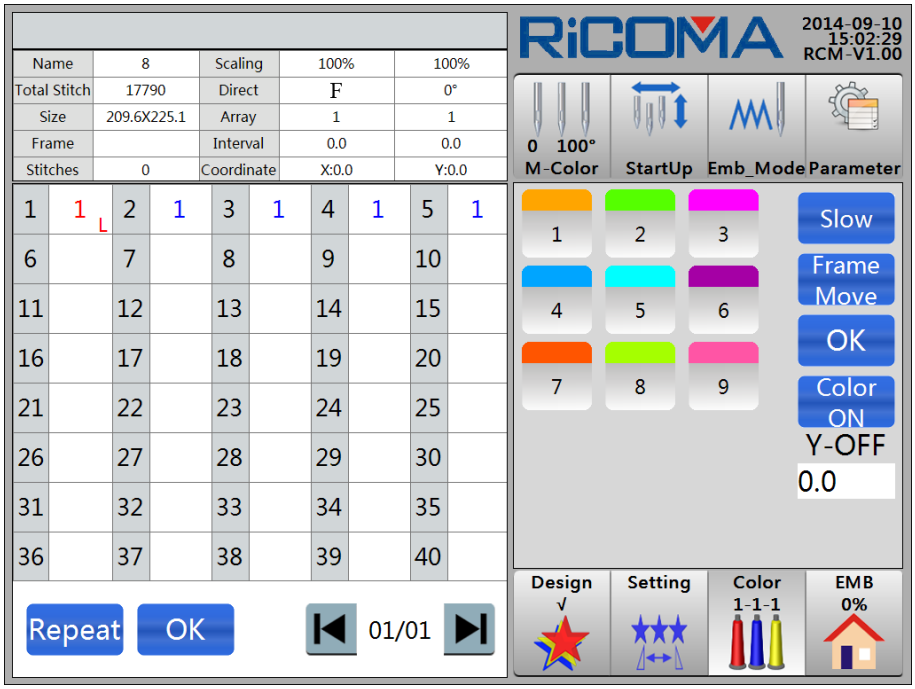
3. Select the needed color, press the OK key. After setting successfully, the corresponding color will be updated on the key of the needed needle bar.

5.4.5 Speed Down

1. Press the key 

to enter **"Color"** interface.

2. Select the needle bar number needed **"Speed Down"**. The needle bar number becomes red once it is selected. Press the key Slow, then the mark **"L"** will be displayed on the lower right corner of the displaying box. See the figure below:



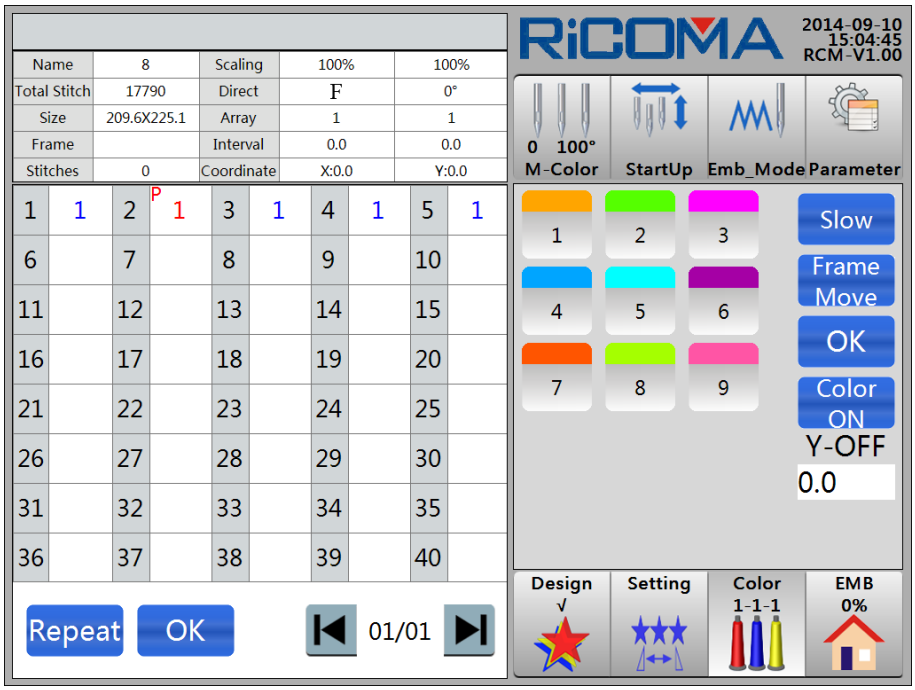
3. The setting finished (The deceleration speed of needle bar can be set in **"Work Parameter"** in **"Parameter"**, and**"Deceleration Speed of Needle Bar"** in**"Main shaft parameter"**). The setting method of other needle bars is the same.

5.4.6 Moving Frame Out

1. Press the key 

to enter **"Color"** interface.

2. Select the needle bar number needed **"Frame Move"**. The needle bar number becomes red once it is selected. Press the key Frame Move, then the mark **"P"** will be displayed on the upper left corner of the displaying box. See the figure below:



3. The setting finished. When embroider the second color-change code, the system will automatically move frame out. The offset value of frame moving is 40.0mm (Range: -999.9 to +999.9mm).

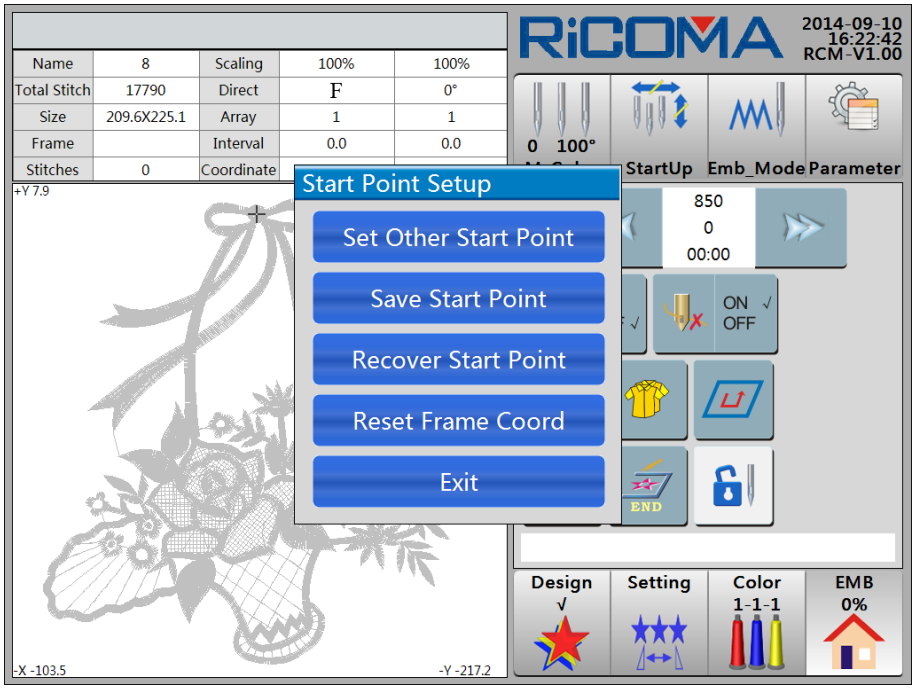
4. If color-change operation is more than once, then operators shall get to the next color-change needle setting once the first one finished. Finish the other setting of color-change needle in the same way.

Part 6 How to Set the Start Point of Design

Methods of setting start point of design in system are as follows:

Method 1:

1. The start point can be set for embroidery after selecting designs and finishing other settings. In **EMB** interface, select the key  to enter **"Start Ponit Setup"** menu. See the figure below:



2. Press to select **"Save Start Point"** item. The system prompts: **"Save Start Point?"** Press the key YES, and system prompts: **"Start Point Saved!"** Press the key OK to save the current frame position as the start point; or press the key NO not to save start point.

3. Press the key Exit to return to **EMB** interface.

Note: If the start point of a design does not change, it just to need to **"Save Design Origin"** for one time and **"Recover Start Point"** operation can be performed repeatedly at any time.

Method 2:

(Please refer to **Part 19.1 Run Frame along Design Border** for details)

Press to select the item **"Run Frame along Design Border"** item, system will automatically set the start point of the design after travelling along the frame.

Part 7 How to Check Design Embroidery Range

After setting the start point of design, if operators want to check that whethere the range is suitable for the design. Operators can do operations as follows:

(Please refer to **Part 19.1 Move Along Design Outer Frame** for details)

Select **"①Move Along Design Outer Frame"** item. Embroidery frame starts travelling along the periphery of design to check whether the embroidery range is enough. If the range is not enough, then LCD prompts limit. Operators shall check whether the specification of the embroidery machine is suitable for embroidering the design, or finish the embroidery by converting the design.

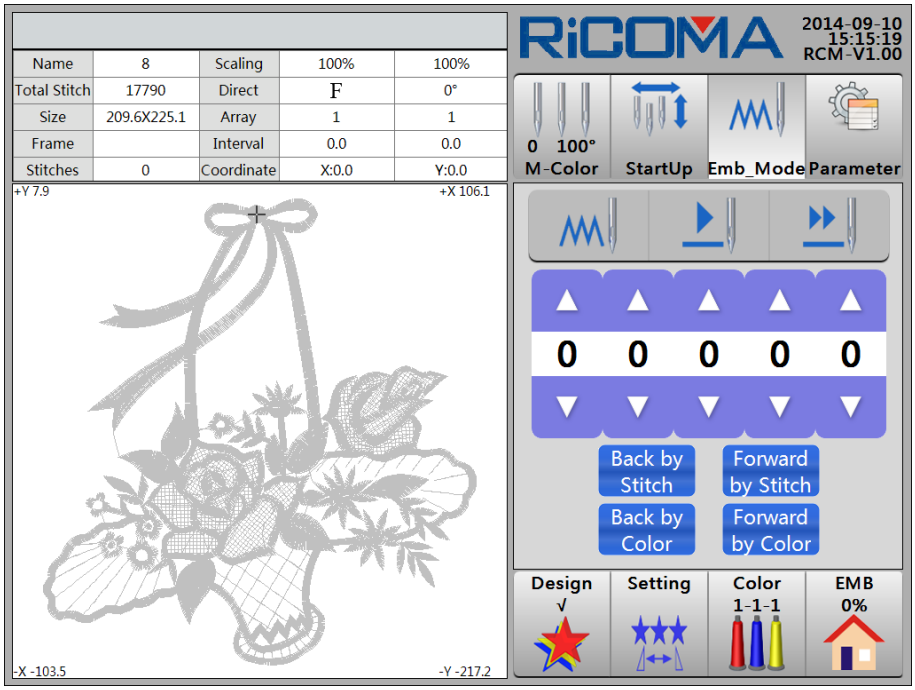
Part 8 How to Fast Position to One Certain Stitch of Design

If operators want the machine to position to one stitch of pattern rapidly, operators shall enter **"Emb_Mode"** interface to make the frame directly run forwards (or backforwards) to a specified position of a stitch, or to the latest color-change position.

Operations are as follows:

1. Press the key 

to enter **"Emb_Mode"** interface. See the figure below:



2. Press the keys  to increase/decrease the number and input the stitch number. After setting, press the keys 

/ 

to perform frame forward or backward operations. The forward/backward stitch number is the number that operators inputted.

3. Select the keys 

/ 

to perform frame forward or backward operations. Frame forward means going to next color-change code, frame backward means returning to the previous color-change code.

Part 9 Color-Change Operation

9.1 Manual Color Change

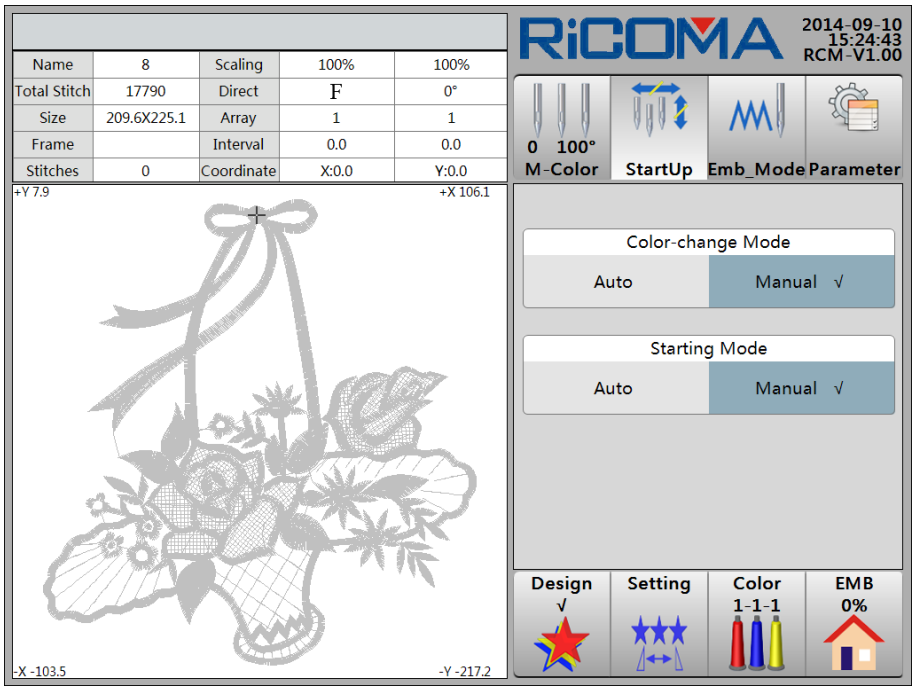
In **“Color”** interface, press the key 

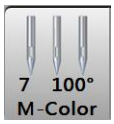
to enter **“M-Color”** interface. To change the color manually, please press the corresponding needle bar number directly.

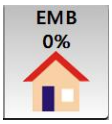
9.2 Setting Manual Color Change and Manual Start

1. In embroidery stop state, press the key 

to enter **“StartUp”** interface, then switch to the state of manual color-change and manual start. See the figure below:



2. When meeting color-change code in embroidering, the machine will stop automatically and wait for changing color manually. Press the key 

to enter “**M-Color”** interface. At this time, operators shall select the needle bar number to change the needle manually. After changing the needle, press the key 

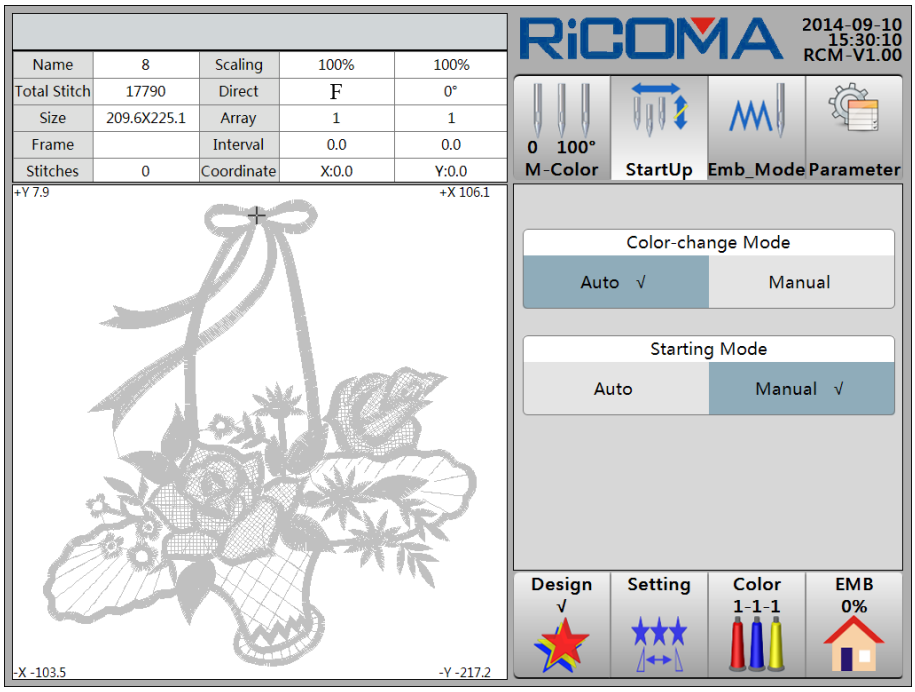
to enter **“EMB”** interface. Right pulls the bar or presses the key 

to start embroidering.

9.3 Setting Auto Color Change and Manul Start

In embroidery stop state, press the key 

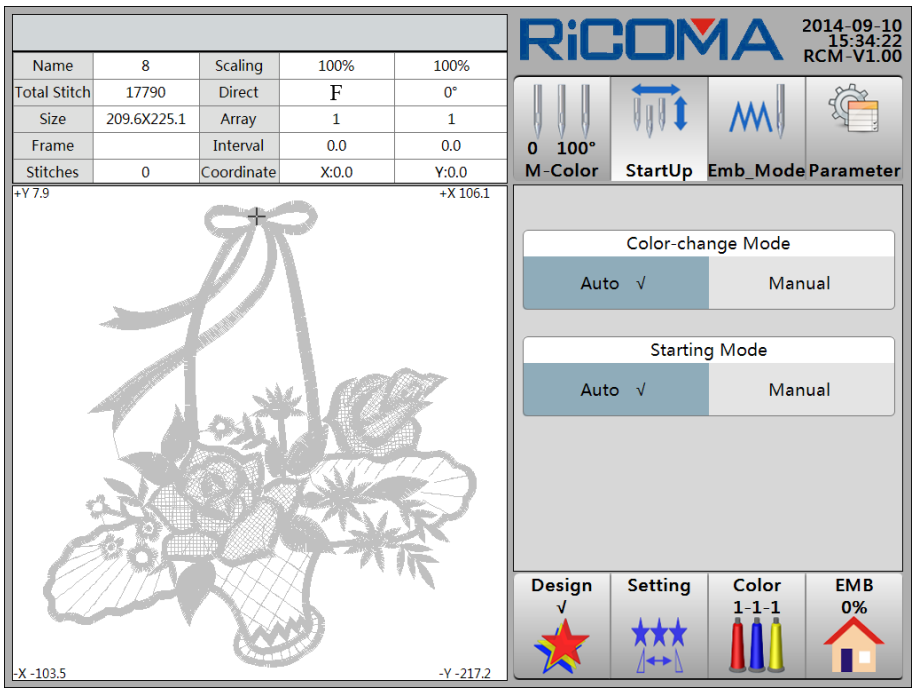
to enter **"StartUp"** interface, then switch to the state of auto color-change and manual start. See the figure below:



9.4 Setting Auto Color Change and Auto Start

In embroidery stop state, press the key 

to enter **"StartUp"** interface, then switch to the state of auto color-change and auto start. See the figure below:



9.5 Color-Change Sequence Setting

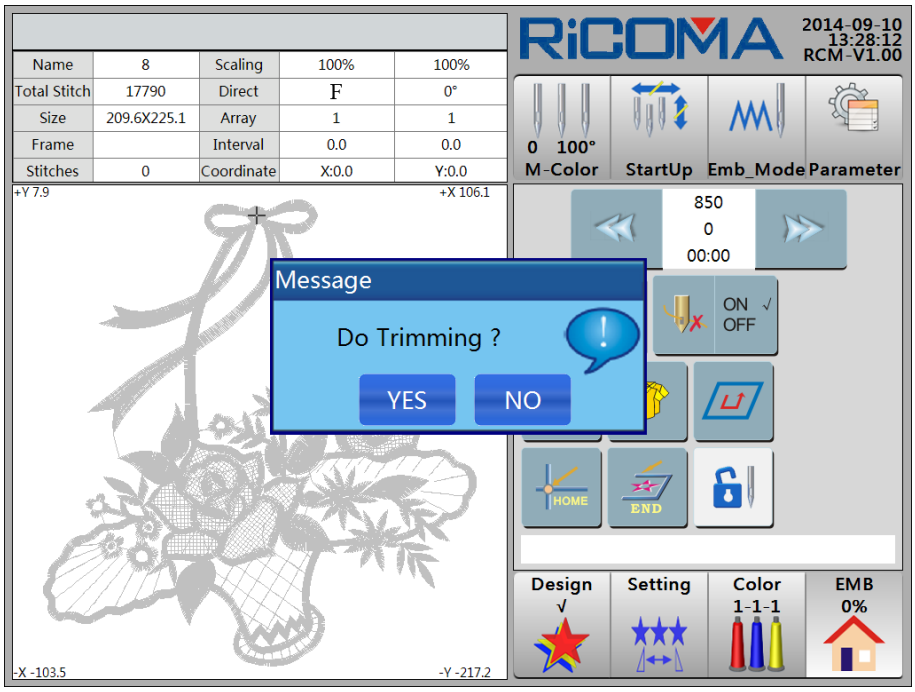
Please refer to **Part 5.4 Color-Change Sequence Setting** for detailed instructions.

Part 10 Thread Trimming

Thread trimming includes manual thread trimming and automatic thread trimming.

10.1 Manul Thread Trimming

1. In embroidery stop state, if operators need to trim bobbin thread or upper thread, press the key (✂) in **"EMB"** interface. The system prompts **"Do trimming?"** See the figure below:



2. Press the key YES to perform trimming operation; or press the key NO to quit the operation.

Note: The control system without trimming does not obtain this function.

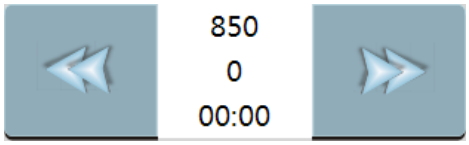
10.2 Auto Thread Trimming

The machine will lock stitch and trim thread automatically (Whether to trim automatically depend on the parameter **"Stop Thread Trimming Temporary or Not"** and the machine obtains trimming function or not) when meeting jumping stitches (The setting of **"Cut Thread at Jumping"** decides how many jump stitches will cause the machine to trim thread), color-change and design finishing during embroidering.

Part 11 Operation of Raising/Reducing Speed

Main shaft speed can be adjusted when the machin is running or at stop state.

See the figure below:



When the button in the figure above is shown as  , it means the machine raises/reduces speed at 50 R/time;

When the button in the figure above is shown as  , it means the machine raises/reduces speed at 10 R/time;

Press the key  to switch the four stauses:  and 

“Main Shaft Speed Display” in the above picture displays the current speed of main shaft. In embroidery running or stop state, press the keys  to accelerate the speed of main shaft; and the keys  to decelerate.

The highest speed of main shaft can be set in **“Work Parameter”** under the menu of **“Parameter”**, or in **“The Highest Speed”** under the menu of **“Main Shaft Parameter”**.

Range of main shaft speed : 250 ~ 1200 rpm.

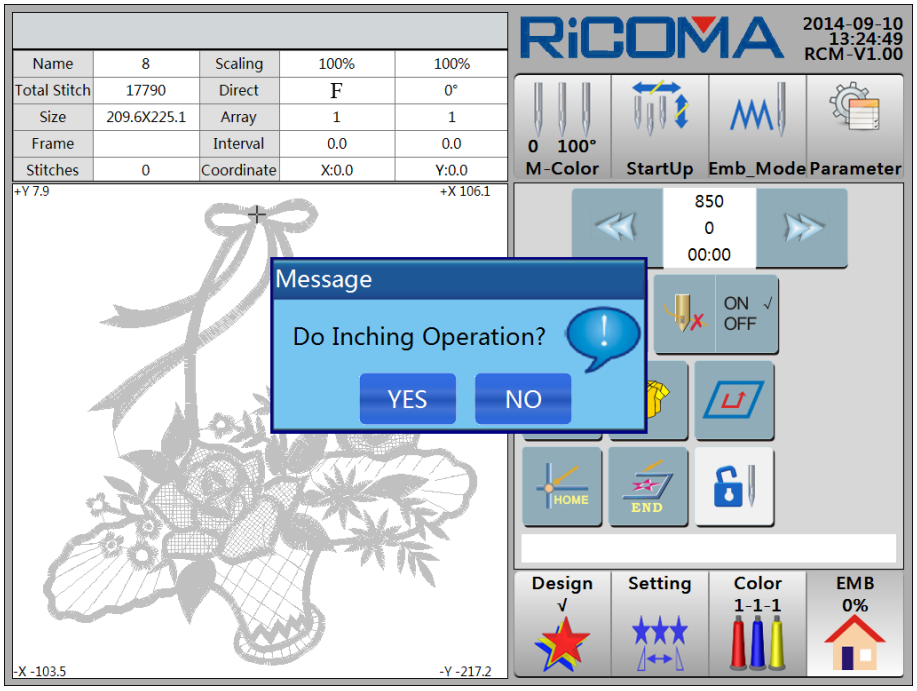
Part 12 Turn the Main Shaft to Zero Position (100 °)

12.1 Turn Main Shaft to Zero Position (100°)

The main shaft sometimes stops out of the zero position (100 °) due to system breakdown or other reasons, which will lead to abnormal working. At this time, operators can use the **Main Shaft ORG** function to turn the main shaft to 100° .

See the operation procedure as follows:

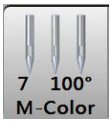
In embroidery stop state, press the key  in **“Color”** interface. System prompts **“Do Inching Operation?”** (i.e. “Do main shaft ORG operation or not?”). See the figure below:



Press the key YES, then main shaft will move slowly to zero position, right pull the bar or press the key START to continue embroidering; or press the key NO to quit this operation.

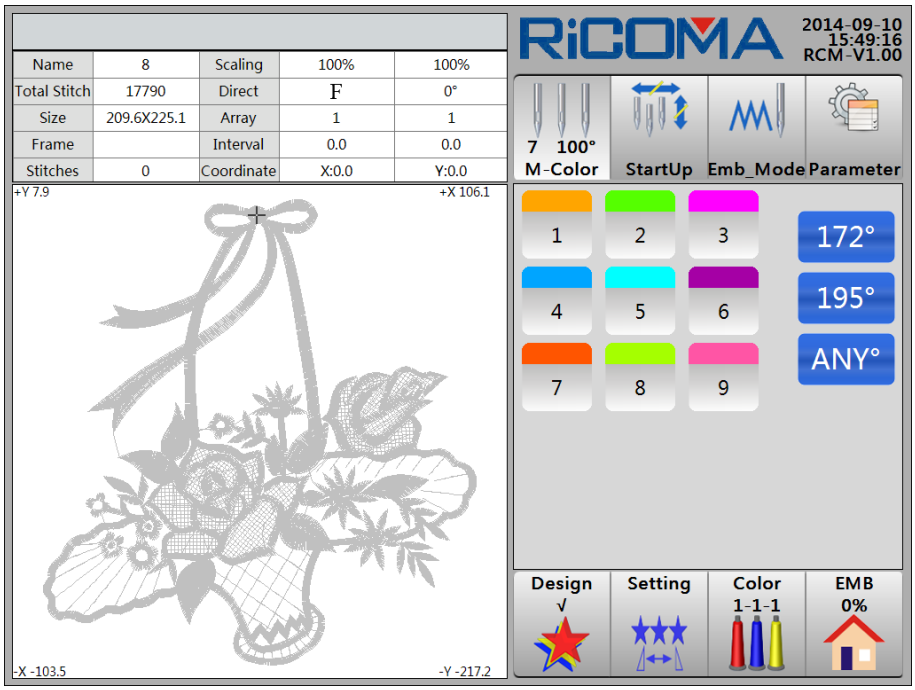
12.2 Inch 172°

This angle is the main shaft angle when the needle down, which is used to perform **Let Needle Down** operation.

In embroidery stop state, press the key 

in **“Color”** interface to enter **“M-Color”**

interface. See the figure below:

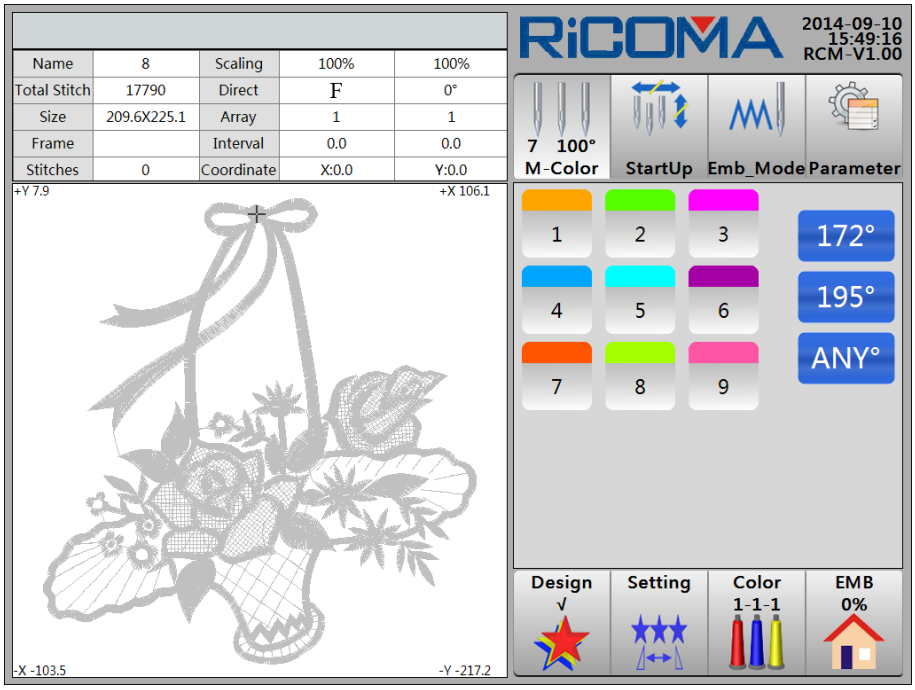


Press the key 172°, the system prompts “Inch 172°?” Press the key YES, then main shaft rotates to 172°, and the needle stabs down into the embroidery fabric; or press the key NO to quit this operation.

12.3 Inch 195°

This angle is the main shaft angle when the rotating shuttle threading, which is used for machine setting.

In embroidery stop state, press the key 7 100° M-Color in **“Color”** interface to enter **“M-Color”** interface. See the figure below:

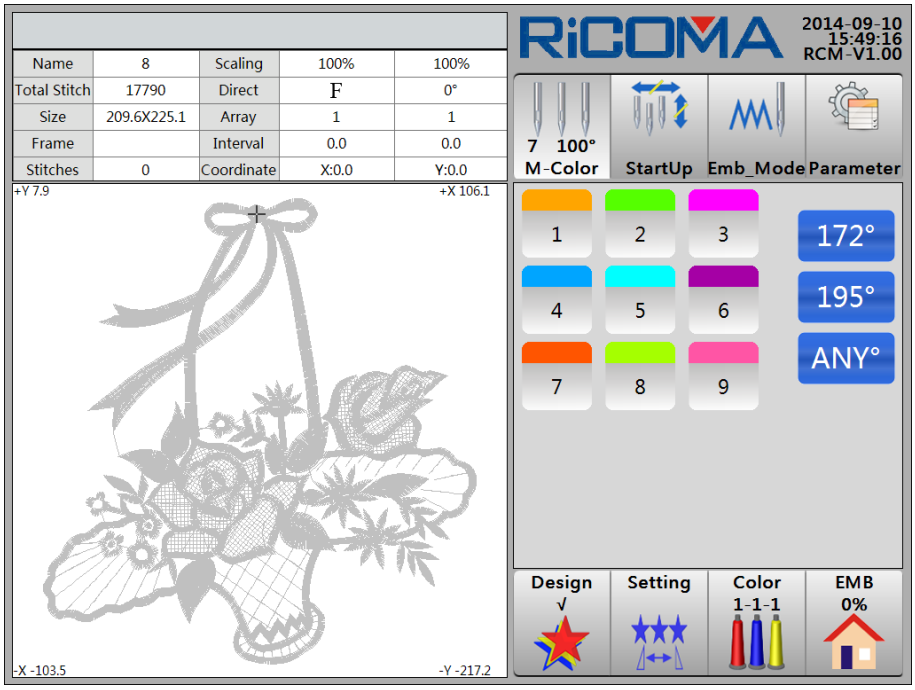


Press the key 195°, the system prompts “Inch 195°?” Press the key YES, then main shaft rotates to 195°; or press the key NO to quit this operation.

12.4 Inch ANY°

This function can realize inching to any angle.

In embroidery stop state, press the key 7 100° M-Color in **“Color”** interface to enter **“M-Color”** interface. See the figure below:



Press the key ANY°, the system prompts to input “Inching Angle:” Please press numeric keys to input “100”, and then press **Enter** key to confirm. The system prompts “Inching 100° or not?” Press the key YES, then main shaft moves slowly to zero position, right pull the bar or press the key START to continue embroidering; or press the key NO to quit this operation.

Part 13 Operation of Moving Frame

13.1 Moving Frame Manually

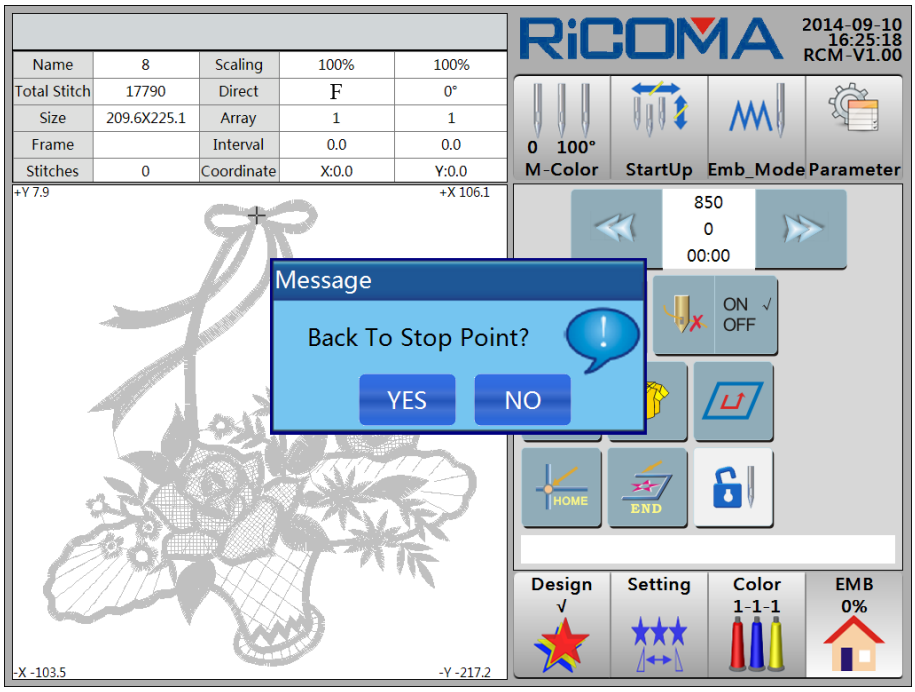
Operators can press the four direction keys  to move the frame to the needed position. Press the key  to increase/decrease the speed of moving frame.

13.2 Moving Frame to Stop Point

In embroidery stop state, if operators need to move frame manually and then return to the stop point, operators can do the following operations:

1. In **"EMB"** interface, press the key 

, and then system prompts **"Back to stop point?"** See the figure below:



2. Press the key 

then the frame will move at high speed to stop at the last stop point. Right pulling the bar or pressing the key 

can continue embroidering; or press the key 

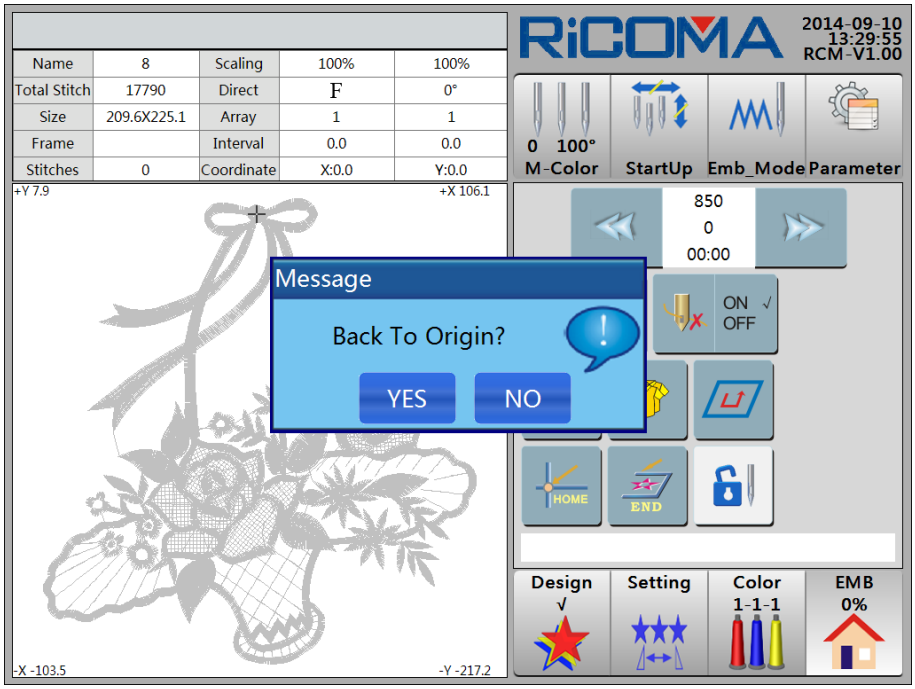
to quit this operation.

13.3 Back to Origin

Operators can make frame back to origin by moving frame manually.When the machine stops in the midway or after embroidering, **Back to Origin** function can return frame to the origin of the design.

1. In **“Embroidery”** interface, press the key 

, and then system prompts **“Back to origin?”** See the figure below:



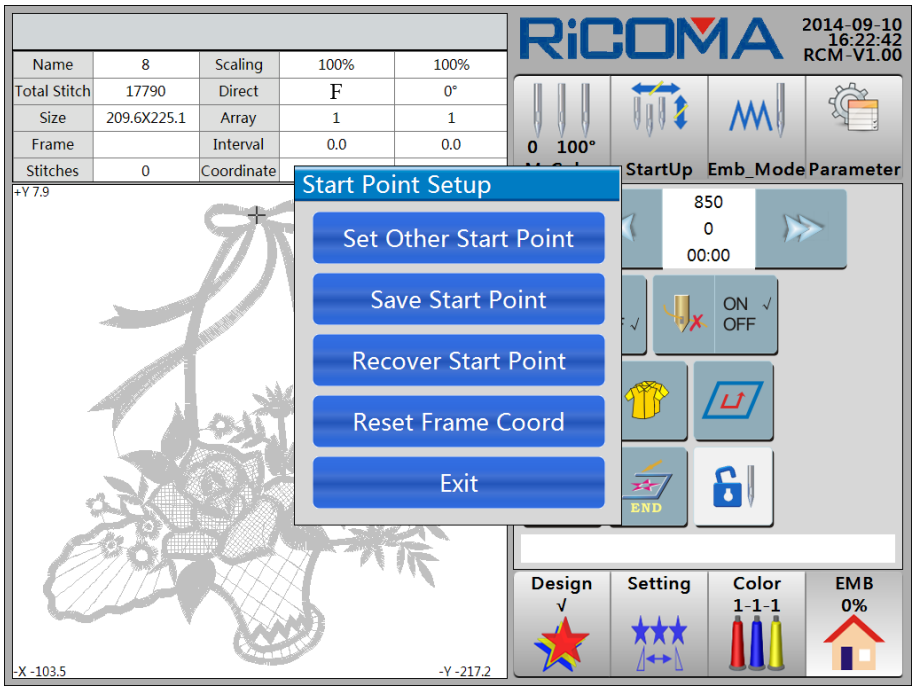
2. Press the key 

then the frame will move at high speed to stop at the design origin; or press the key 

to quit this operation.

13.4 Set Other Start Point

1. In **“EMB”** interface, press the key 
, and then the **“Start Point Setup”** menu will pop up. See the figure below:



2. Select the item **"Set Other Start Point"**, and then system prompts **"Set other start point?"** Press the key YES, then system prompts **"Move frame to other point, and confirm!"** Press the four direction keys to move frame to the needed position, and then press the key OK to complete the setting; or press the key Exit to quit this operation.

3. Press the key Exit to return to **"Embroidery"** interface.

13.5 Save Start Point

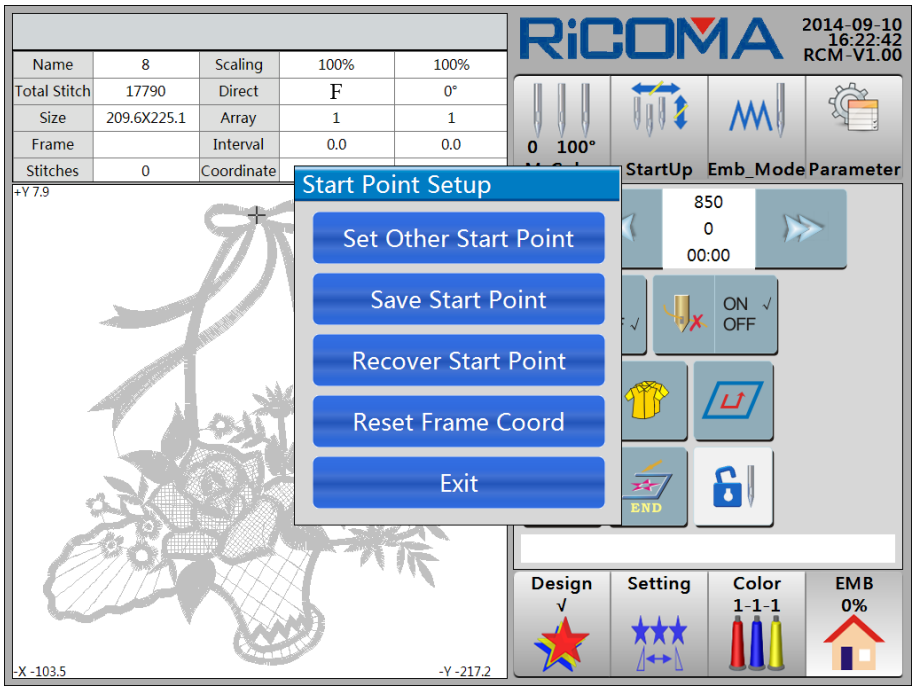
Please refer to the content of **Method 1** in **Part 6** for details.

13.6 Recover Start Point

If the current design has been saved the previous start point, operators can make the frame automatically return to the previous start point.

Operation procedures are as follows:

1. In **"EMB"** interface, press the key , and then the **"Start Point Setup"** menu will pop up. See the figure below:



2. Press the item **"Recover Start Point"**, and system prompts **"Recover start point?"** Press the key YES to make frame back to the previous start point; or press the key NO to quit this operation.

3. Press the key Exit to return to **"EMB"** interface.

13.7 Move along Design Outer Frame

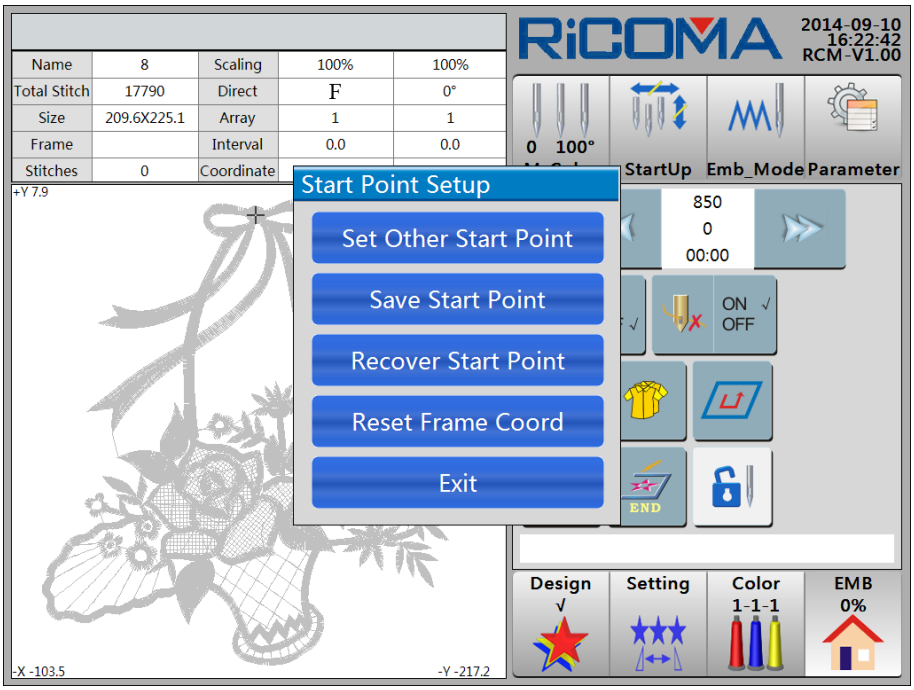
Please refer to **Part 19.1 Move along Design Outer Frame** for details.

13.8 Positioning Idling

Please see **Part 8 How to Fast Position to One Certain Stitch of Design** for details.

13.9 Reset Frame Coordinate

1. In **"EMB"** interface, press the key  , and then the **"Start Point Setup"** menu will pop up. See the figure below:



2. Press the item **"Reset Frame Coord"**, and system prompts **"Reset Y &Y frame coord?"** Press the key YES to perform this operation; or press the key NO to quit this operation.

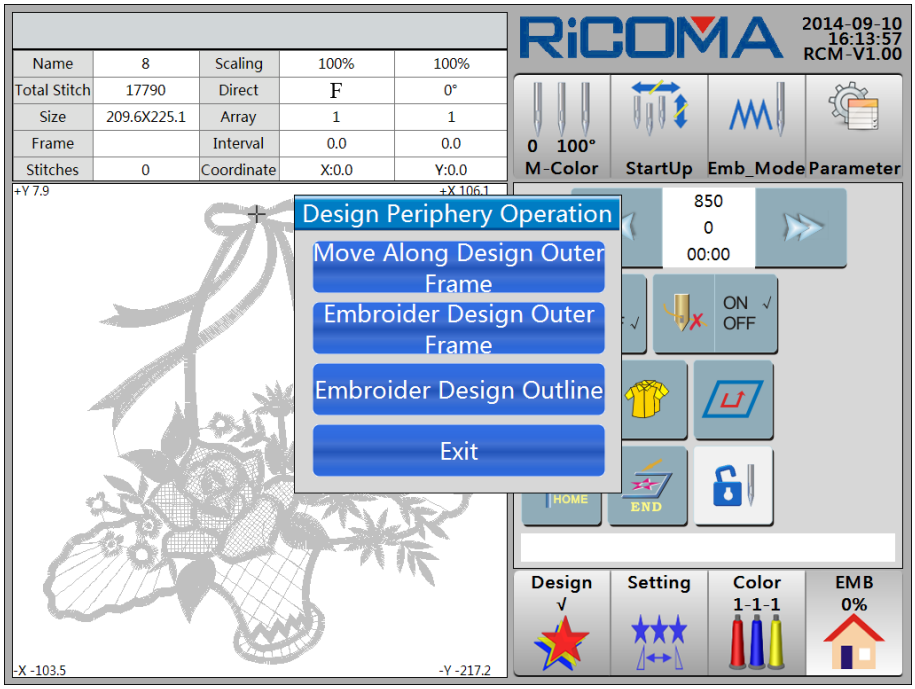
3. Press the key Exit to return to **"EMB"** interface.

Part 14 How to Make Design Die-line

After confirming the start point, if operators need to embroider the design in the maximum range or move frame to generate frame edge to locate embroiderr/cut-parts position, please operate with **Periphery Embroidery** or **Embroidery Die-line** function.

14.1 Embroider Design Outer Frame

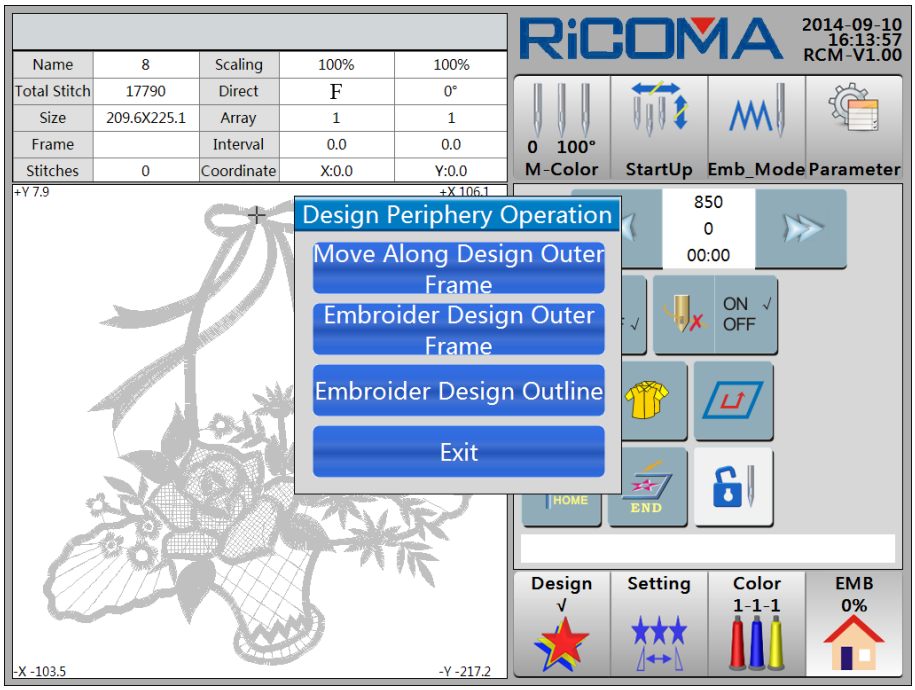
1. Set a start point first, and then press the key  in **"EMB"** interface, and the menu **"Design Periphery Operation"** will pop up. See the figure below:



2. Press the key Embroider Design Outer Frame, the system prompts "Embroider design outer frame?" Press the key YES, then right pull the bar or press the key START to start embroidering, and then the machine will embroider square border lines at current position; or press the key NO to quit this operation.

14.2 Embroider Design Outline

1. Set a start point first, and then press the key  in **"EMB"** interface, and the menu **"Deign Periphery Operation"** will pop up. See the figure below:

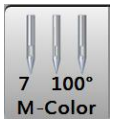


2. Press the key Embroider Design Outline, the system prompts “Embroider design outline?” Press the key YES, then right pull the bar or press the key START to start embroidering, and then the machine will embroider an outline at current position; or press the key NO to quit this operation.

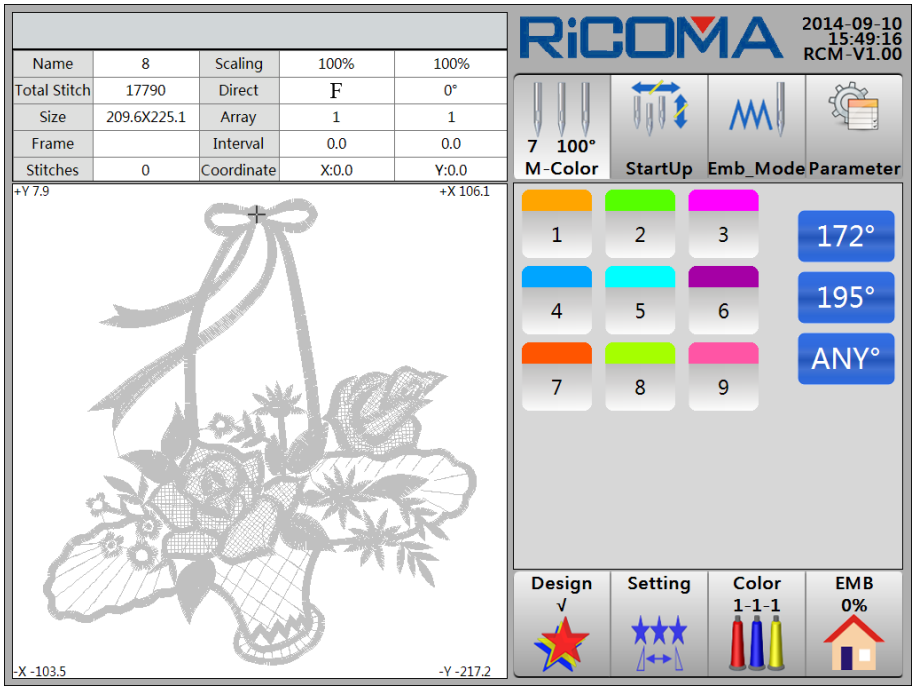
Part 15 Continuous, Applique and Cyclic Embroidery

15.1 Operation of Continuous Embroidery

In order to joint designs seamlessly during continuous embroidering in whole piece of fabric, operators shall use **Let Needle Down** operation to stitch the needle into the fabric at the start point of next design, and then loose all the fabric clamps and move the frame manually. Operations are as follows:

1. In embroidery stop state, press the key 

in **"Color"** interface to enter **"M-Color"**. See the figure below:



2. Press the key 

, the system prompts "Inch 172°?" Press the key 

, then main shaft rotates to 172°, and the needle stabs down into the embroidery fabric; or press the key 

to quit this operation. Operators can loose embroidery fabric once the needle stabs into the fabric, and move frame when the needle stop.

3. Continue embroidering after frame moving and the fabric is well clamped.

Note: Before moving frame, please make sure to separate the frame from fabric under the needle, otherwise it will damage the fabric and needle.

15.2 Operation of Applique Embroidery

When embroider a design with appliqué, for the convenience of appliqué operation, the frame

shall be moved at a certain distance towards the operators while meeting the appliqué point. This operation can be realized by the function of **Appliqué Embroidery**. The offset distance can be set by setting Y offset parameter.

Method 1:

Please refer to **13.4 Offset Point Setting** for details.

Method 2:

Please refer to **5.4.6 Moving Frame Out** for details.

Note: To set appliqué distance, the two options "Offset Point Setting?" and "Moving Frame Out" cannot be set at one time. Once one of the options is selected, the other shall be not possible to select. To set a certain offset distance of frame, the machine frame will automatically move out when meeting the color-change stitch and return to embroidery point after operators pulling the bar.

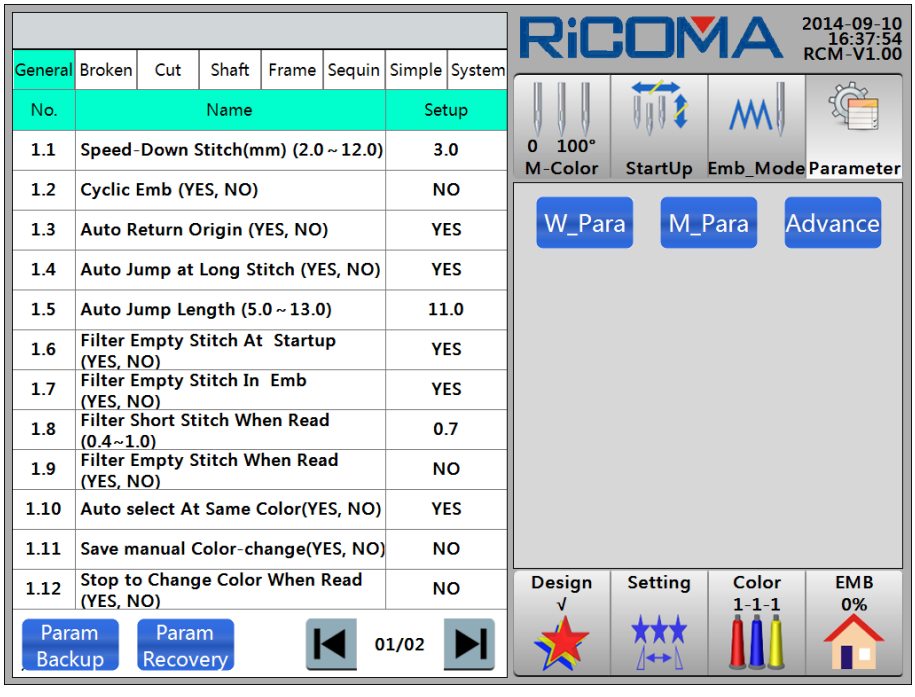
15.3 Operation of Cyclic Embroidery

During embroidering, if one design is needed to embroider repeatedly, operation of **Cyclic Embroidery** can be adopted to realize. After specific setting, the machine will automatically continue to embroider from the start point of the current design when the last one finished.

Operations are as follows:

1. In **"Color"** and **"EMB"** interface, press the key 

to enter **"Parameter"** interface, ans then press the key W_Para. See the figure below:



2. Select the item **"1.2 Cyclic Emb (YES, NO)"** If it is set as **"No"** originally, switch the

item to **“Yes”**, which means the cyclic embroidery is well set; if it is set as **“Yes”**, switch the item to**“No”**, which means the cyclic embroidery is not set.

Part 16 Operation of Embroidery Repairing

The operation of **Embroidery Repairing** is needed when there is thread breakage or stitching missing during embroidery process. It is to make up the missing stitches so as to avoid substandard or ruined embroidery products. It can be realized by backing some stitches through pulling the bar or positioning function.

16.1 Pulling the Bar to Run Back

Pulling the bar to run back can be accomplished by selecting one of the following three ways according to actual situation: Running back under Normal Status, Low Speed Idling and High Speed Idling.

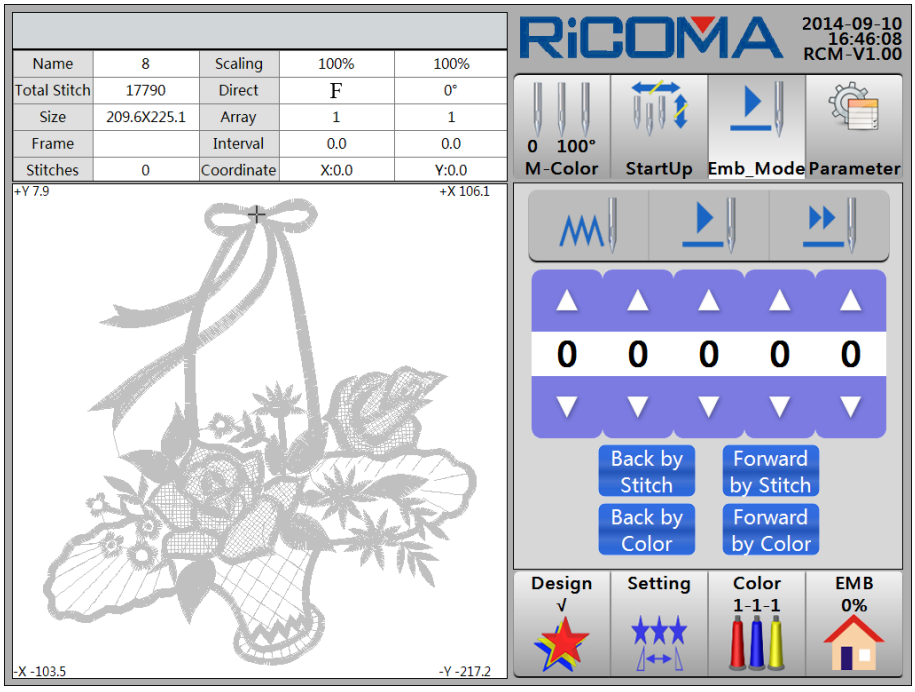
16.1.1 Running Back under Normal Status

Under the status of embroidery stoppage, pulling the bar to left will run back. When release the pulling bar within 5 stitches, the frame will stop running back. If operators release the pulling bar running more than 5 stitches, the frame will run back continuely. Pull the bar to left to stop run back for one time after the stitch get to the required position.

16.1.2 Low Speed Idling

In embroidery stop state, press the key 

to enter **"Emb_Mode"** interface, and then press the key  to switch to **"Low Speed Idling"** mode. See the figure below:



After setting the embroidery mode as **"Low Speed Idling"**, right pull the bar and the main

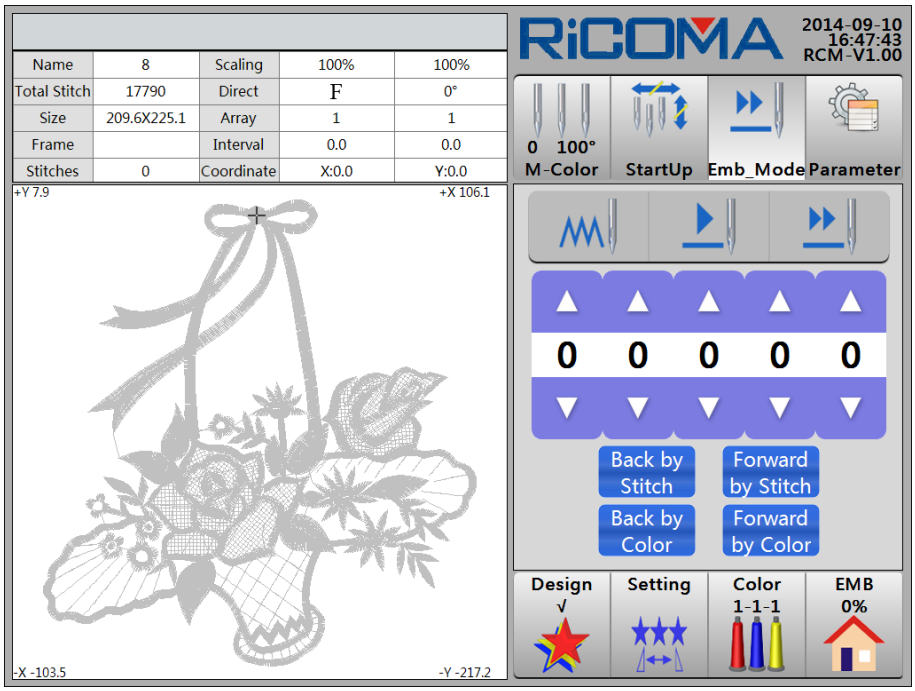
shaft stops and the frame starts to run forwards slowly tracing the design stitches. Left pull the bar to stop the frame running with low speed. Left pull the bar and the main shaft stops. The machine frame starts to run backwards slowly tracing the design stitches (the backing stitches will show grey on the interface). Left pull the bar again to stop the backing.

The **Low Speed Idling** is comparatively slow and it is used to precise positioning to a certain stitch for embroidery repairing.

16.1.3 High Speed Idling

In embroidery stop state, press the key 

to enter **"Emb_Mode"** interface, and then press the key  to switch to **"High Speed Idling"** mode. See the figure below:



After setting **"High Speed Idling"**, right pull the bar and the main shaft and frame stops. LCD displays the increase of stitches. Left pull the bar to stop the frame running with low speed. Left pull the bar and the main shaft and frame stops. LCD displays the decrease of stitches (the backing stitches will show grey on the interface). Left pulling the bar again to stop, the frame runs back directly to the real position of current stitch.

The speed of high speed idling is comparatively fast and it is suitable for large scale advancing or backing. Using "High Speed Idling" can position rapidly to a certain area. To positioning more precisely operators need to adopt "Low Speed Idling".

16.2 Running Back with Positioning

Compared to **Left Pulling the Bar to Run Back**, **Runing Back with Positioning** will locate the needle to one point more precisely.

Please refer to **Part 8 How to Fast Position to One Certain Stitch of Design** for details.

16.3 Running Back by STOP Key

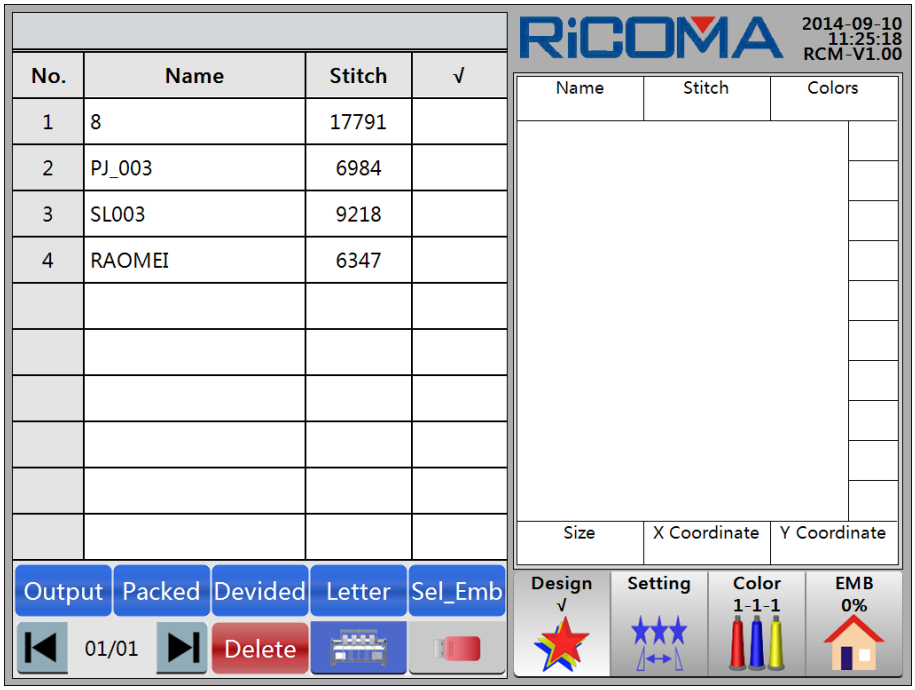
The detailed operations are the same with **16.1 Pulling the Bar to Run Back**. Press the 

key to run back.

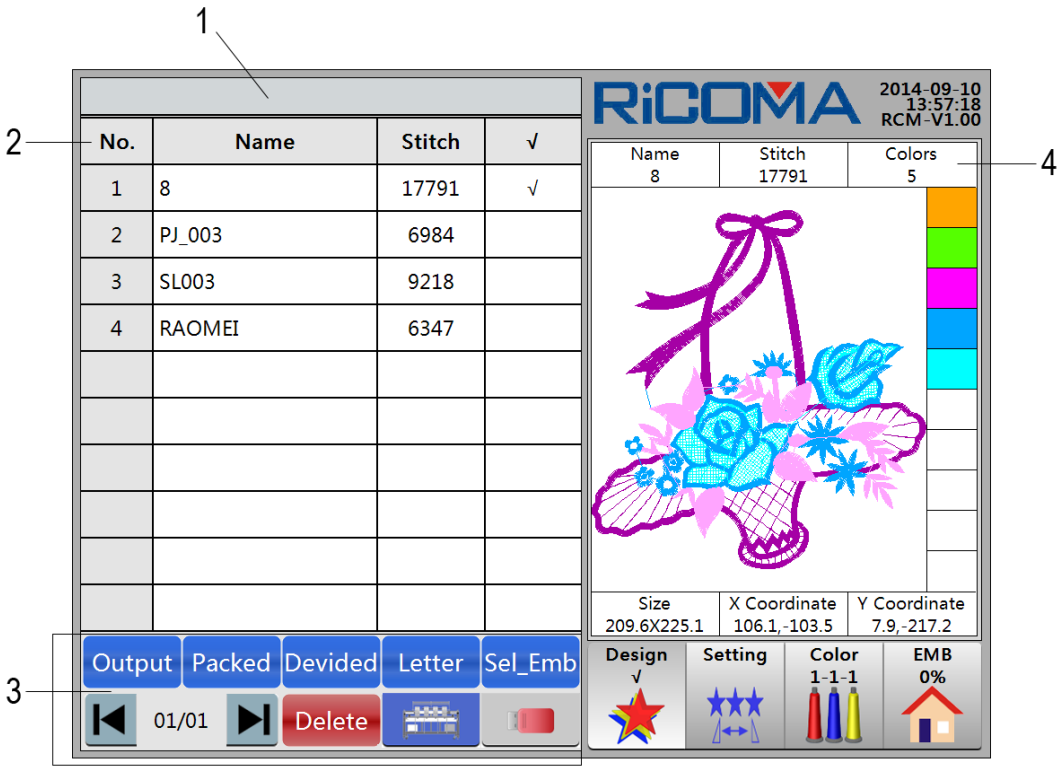
Part 17 Design Management

Press the key 

to enter **"Design"** interface. See the figure below:



Select the design in the design list. A mark "√" will be displayed in the last column. See the figure below:



The interface of **Design** including the following contents:

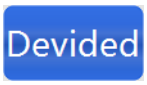
1: Title Bar. Display the prompt message.

2: Design List in Memory. Display design information, such as design number, design name, total stitches and selection mark "√".

3: Functional Zone.

Output key: Copy the design in memory to disk or U disk. 【

Packed key: Combine two designs into one at a certain distance (Combine 4 designs together at most).



Divide key: Divide one design into two accoding to the stitch number.

Letter Library key: Operators can arrange the letters or numbers to creat different designs as needed.

Design Selection key: Select design to perform embroidering.

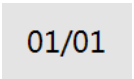
Disk Management key: Perform the following operations on the designs in disk or U disk: input design to memory, refresh, deletion, etc.

Memory Management key: Perform the following operations on the designs in memory: output design to U disk, combination, dividsion, letter library, design selection, deletion, etc.

Delete key: Delete the design in memory.

Page Up key

Page Down key



Display the current page and total pages. Each page shows up to 10 designs.

4: Display the name, stitch number, color-change times of the selected design.

Display the color sequence.

Display the preview pattern of the selected design.

Display the size, X coordinate, Y coordinate of the selected design.

17.1 Embroidery Design Selection

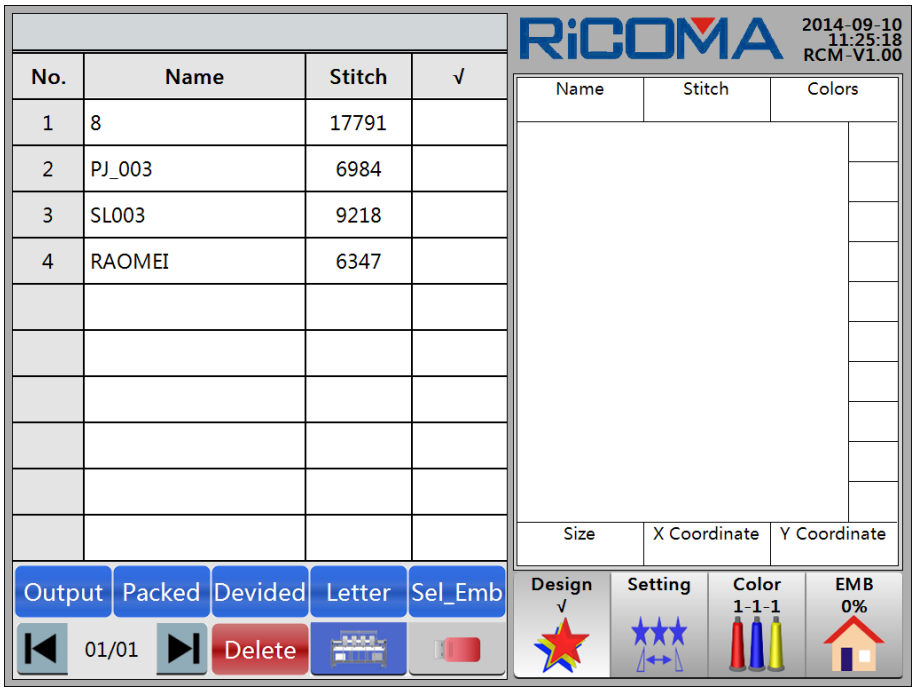
Please refer to **Part 5.1 Embroidery Design Selection** for details.

17.2 Displaying Memory Design

1. Press the key 

to enter **"Design"** interface.

2. The screen will list the catalogue of memory design automatically. On each page, it shows up to 10 design files. To view more pages, press the keys  to page up/down. See the figure below:



3. Select the design and a mark "√" will be displayed in the last column. The display area on the right side of the screen will shown the following information: the selected design name, stitch number, color-change times, color-change sequence, the preview pattern, size, X coordinate, Y coordinate, etc.

17.3 Disk Design Input to Memory

Please refer to **Part 4 How to Input Designs** for details.

17.4 Memory Design Output to Disk

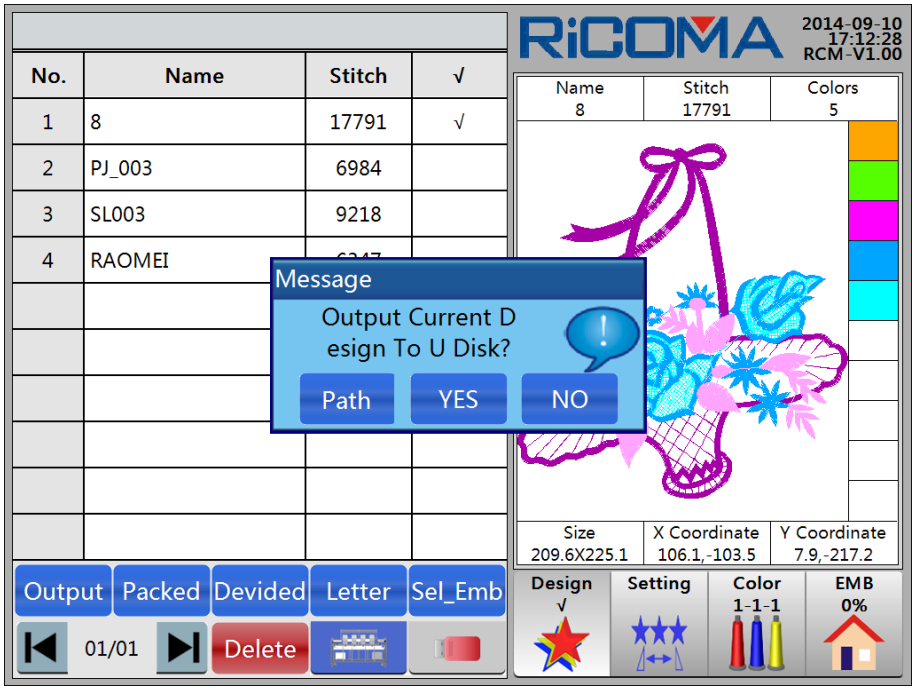
Output the design in system memory to disk or U disk. With the use of **"Output"** key, this function can finish copying a design from a disk to another disk.

Operations are as follows:

1. Press the key 

to enter **"Design"** interface.

2. The screen will automatically list the design catalogue in memory. Select the design needed to output, and then a mark **"√"** will be displayed in the last column. Press the key Output, then system prompts **"Output current design to U disk?"** See the figure below:



3. Press the key Path to select the input path. To view more pages, please press the keys Last Next to page up/down. Press the key OK to confirm, and then disk reading starts, the design will be inputted to memory.

4. Press the key YES, and then disk reading starts, the design will be inputted to memory.

5. If the design has existed, system will prompts “Pls input a new design name” Please input a new namm according to to prompt.

6. If operators agree to input the design and adopt the name, then press the key OK to confirm. System starts reading the disk, and the design will be inputted to memory.

7. If operators do not agree to use the design name, then press the numeric keys to input the design number. For the mis-typed number, press **“Backspace”** key to delete. When the inputting design number is the same with the existed number, the machine will not accept the input, and system will prompt “The number has existed. Pls input a new one!” Press the key OK to input a new design number. Once the design number is accepted by the machine, press the key OK to confirm.

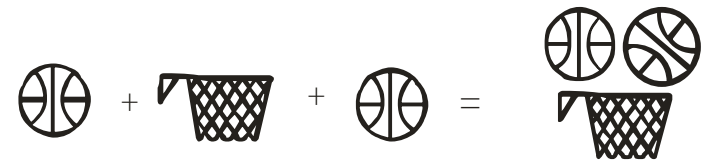
8. If operators do not agree to input the design, then press the key Cancel to quitthe operation.

Note: The designs can be saved in the subdirectory which can be extended to 5 levels.

17.5 Packed Design Edition

In order to make embroidery easier, two or more designs needed to be combined as one for embroidering which can be finished by using the **“Packed”** function in **“Design”** menu. At most 4 designs can be combined together.

For example:



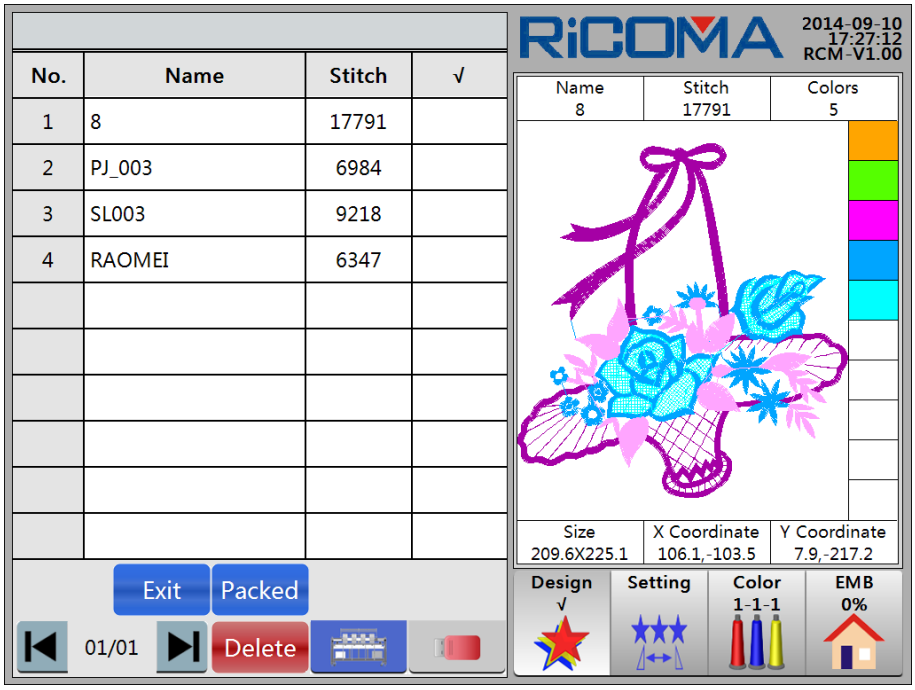
Design 1 Design 2 Design 3 Combined design

Operations:

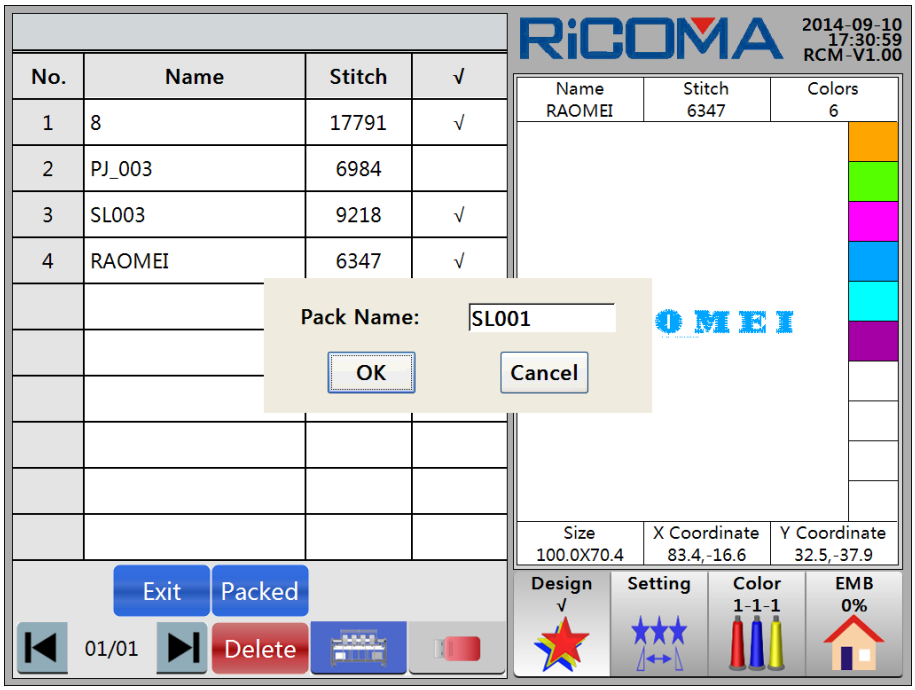
1. Press the key Design to enter **“Design”** menu.

2. The screen will automatically list the design directory in memory. Press the key

Packed to enter **"Packed"** interface. See the figure below:

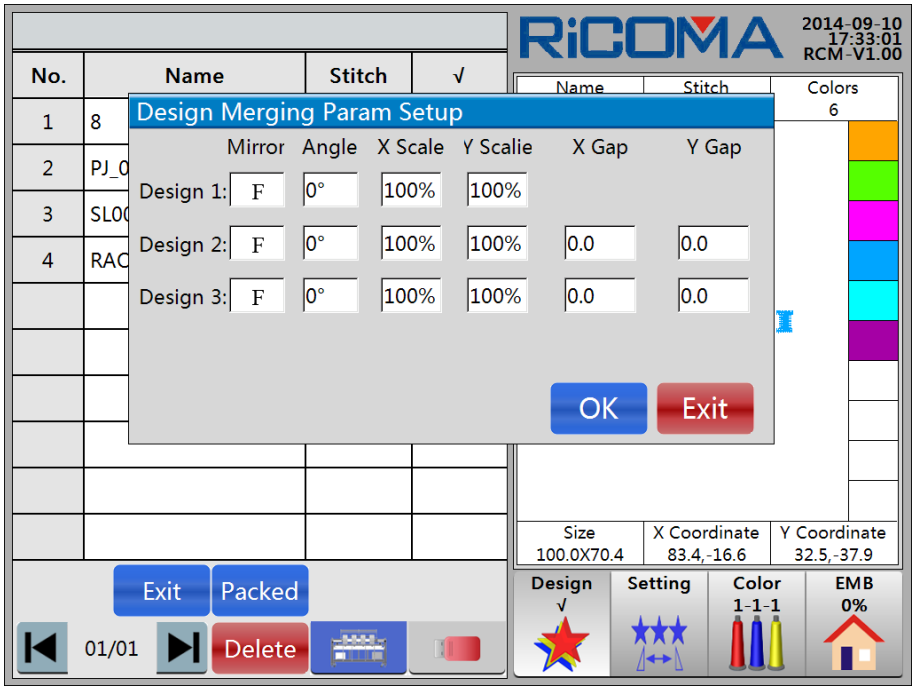


3. Select the designs that need to combine, and then a mark "√" will be displayed in the last column. For example: To select three designs, press the key Packed, the system prompts "Pack name: SL001". See the figure below:



4. Select **"SL001"**, then the keypad pop up. Press the numeric keys to input the new design name for the combined design, or use the default name provided by system. After

inputting the name, press the key OK (Or press the key Cancel to quit the opration) to perform the operation. The following menu will pop up:



5. Select the parameter items that need to modify, then the keypad pop up. Press the numeric keys to modify the following value: design direction, angle, and X/Y scaling and relative X/Y distance. Then press the key OK to save the combined design into the memory. Or you can press the key Exit to quit the operation.

17.6 Design Division

This operation divides any designs in memory into two new ones and keeps the origin one unchanged.

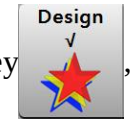
Example:

Design Divided Design 1 Divided Design 2

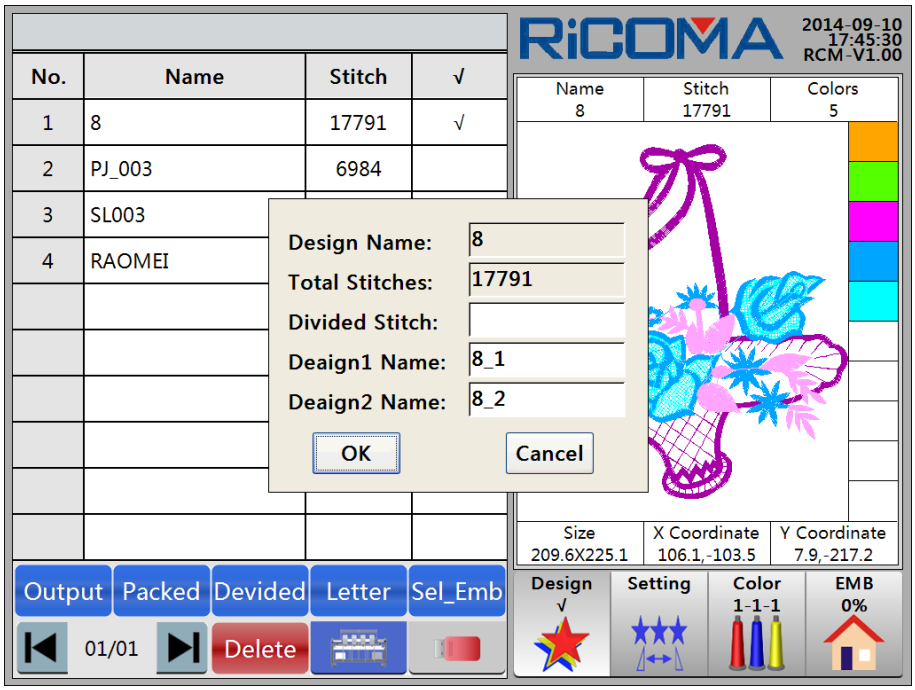
Operations:

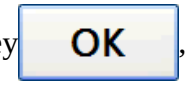
1. Press the key Design √ to enter **"Design"** menu.

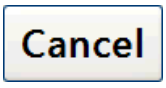
2. The screen will automatically list the design directory in memory. Select the design

need to divide, and press the key 

, and then the following menu will pop up:



3. Select **"Divided Stitch:"** item, then the keypad pop up. Press the numeric keys to input the division point (that is the stitch number after the design 1 is divided). Then press the key 

, and system will automatically divide the design and save them into memory. Or you can press the key 

to quit the operation.

17.7 Letter Library

The system has 28 kinds of fonts, including 26 capital letters, 26 lowercase English letters, 10 numbers, exclamation mark and question mark. Users can combine different letters or numbers to creat new designs according to their own requirements.

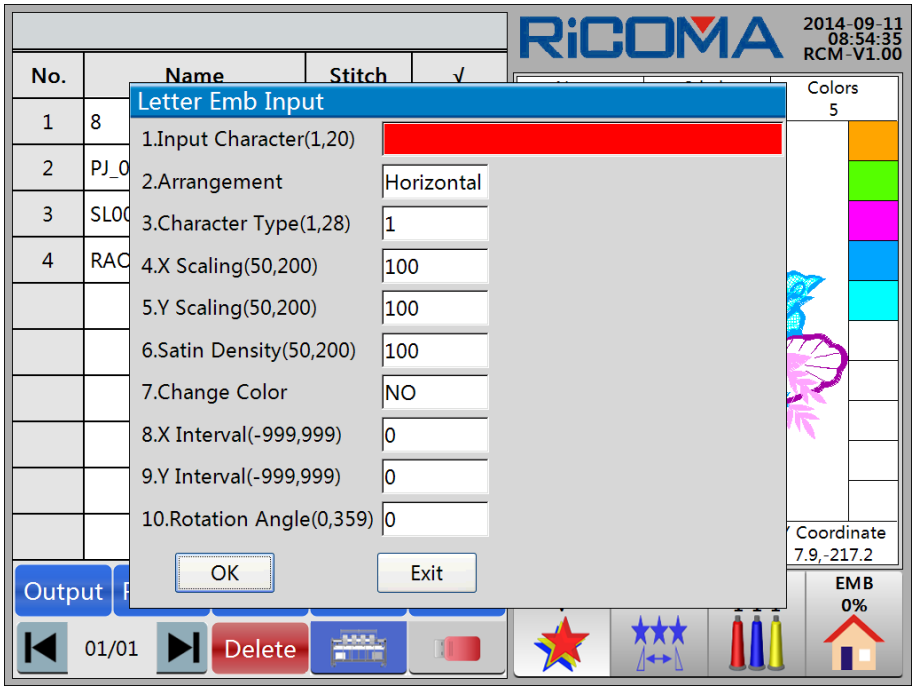
Operation:

1. Press the key 

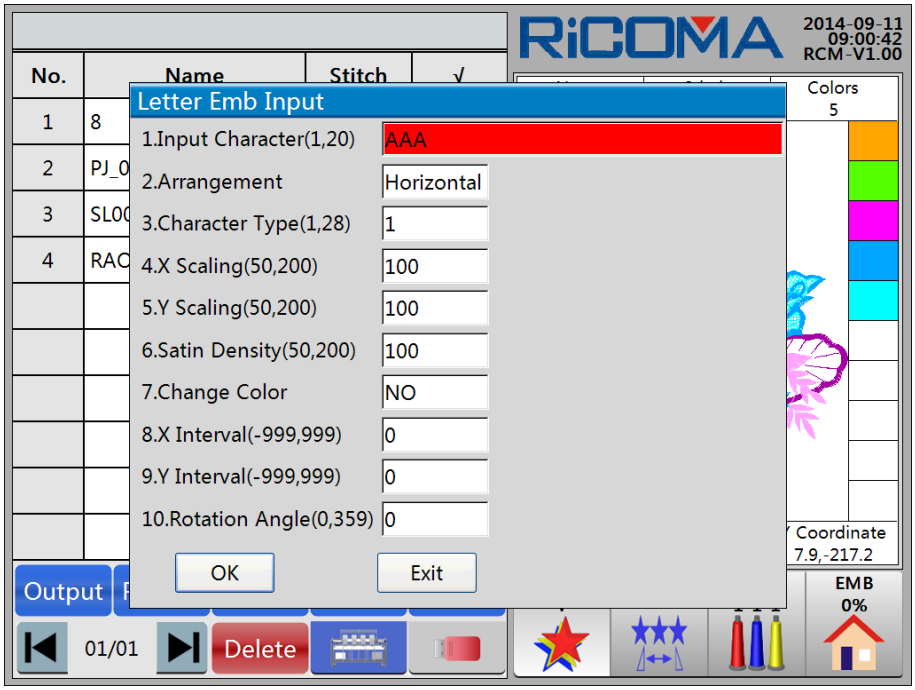
to enter **"Design"** menu.

2. The screen will automatically list the design directory in memory. Press the key 

, then the following menu will pop up:



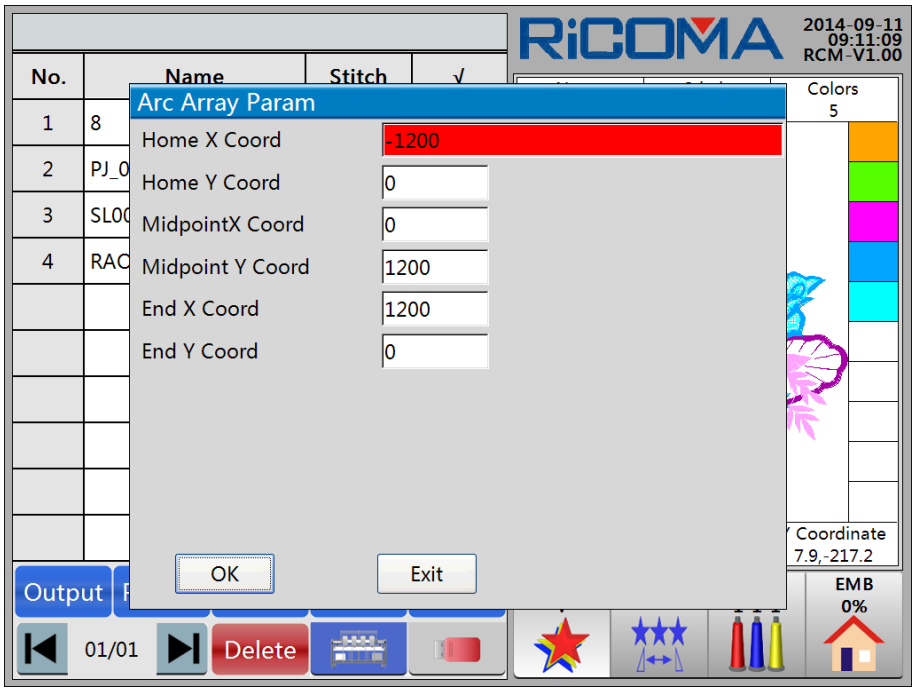
3. System goes to **"Letter Emb Input"** interface. Please select the red zone of the **"Input Character (1, 20)"** item. Then the keypad pop up. Press the keys to input the embroidery letter (The letter can be one or more). Then press the key OK to complete the input. See the figure below:

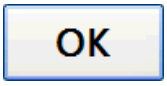


4. The parameter setting of letter design can be set in each item. **Tips:** the unit of X/Y scaling and stitch desity is percent, the unit of X/Y gap is 0.1 mm, the unit of rotation angle is 1°. After finishing the parameter setting in this page, press the key OK to enter next

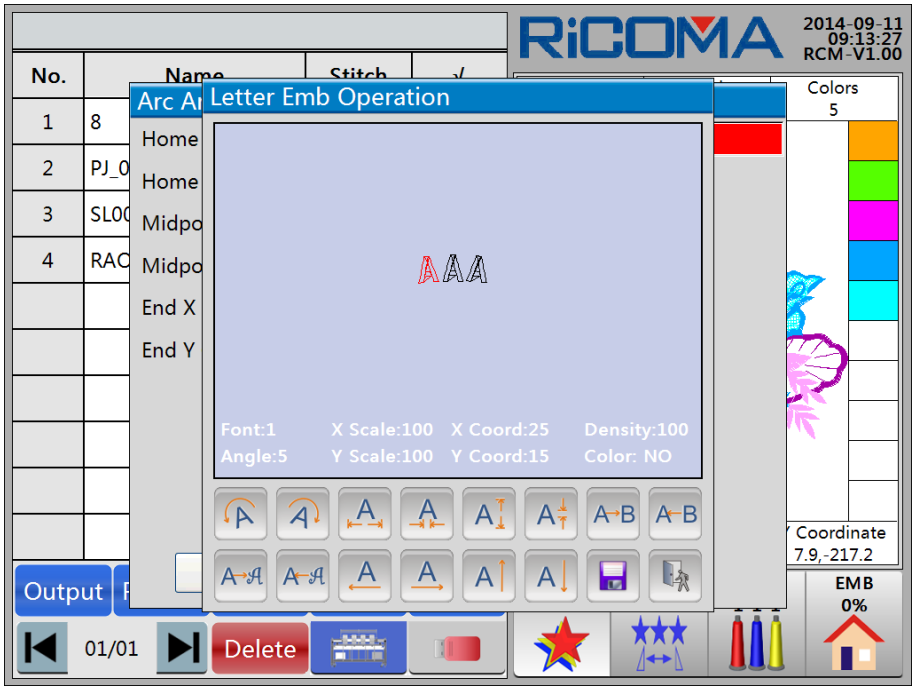
step.

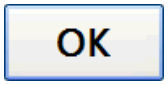
5. When the **“Arragement”** is selected as **“Arc Array Param”**, system will prompt oprators to input the arc array parameter, including the coordinate of start point, the the coordinate of mid point and the coordinate of end point. See the figure below:



After finishing the input, press the key  to enter next step. Please skip this step if the **“Arragement”** is not selected as **“Arc Array Param”**.

6. The outline of the letter will be shown on the screen. Operators can adjust some parameters of the letter design by pressing the keys in the figure below, i.e. design angle, X/Y scaling, characters conversion, fonts, location, etc. See the figure below:



7. Press the key  , then system prompts "Input design name:" Press the numeric keys to input, or use the smallest design number provided by the system. Then press the key 

to save the design. System prompts "Letter design is saved!" Press the key 

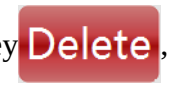
to return to **"Design"** interface. Or press the key  to quit the operation.

8. Operators can preview the design and parameter by selecting the design in memory design list.

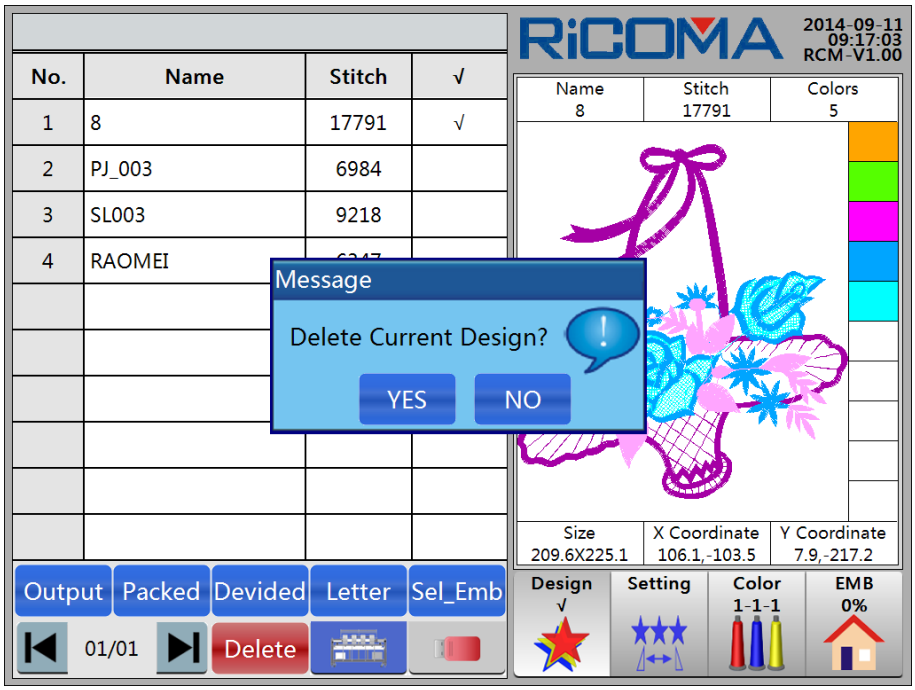
17.8 Delete Deisgn

1. Press the key 

to enter **"Design"** menu.

2. The screen will automatically list the design directory in memory. Select the design that need to delete, and then a mark "√" will be displayed in the last column. Press the key 

, the system will prompt **"Delete current design?"** See the figure below:



3. Press the key YES to delete the design; or press the key NO to quit the operation.

17.9 Design Setting Applique

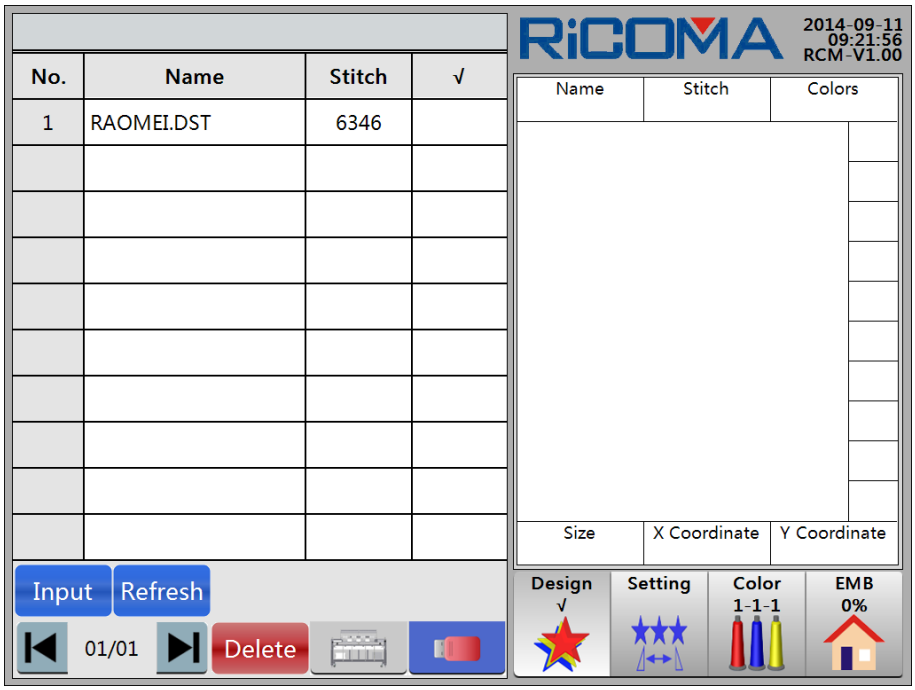
Please refer to **15.2 Operation of Applique Embroidery** for detailed instructions.

Part 18 Disk Management

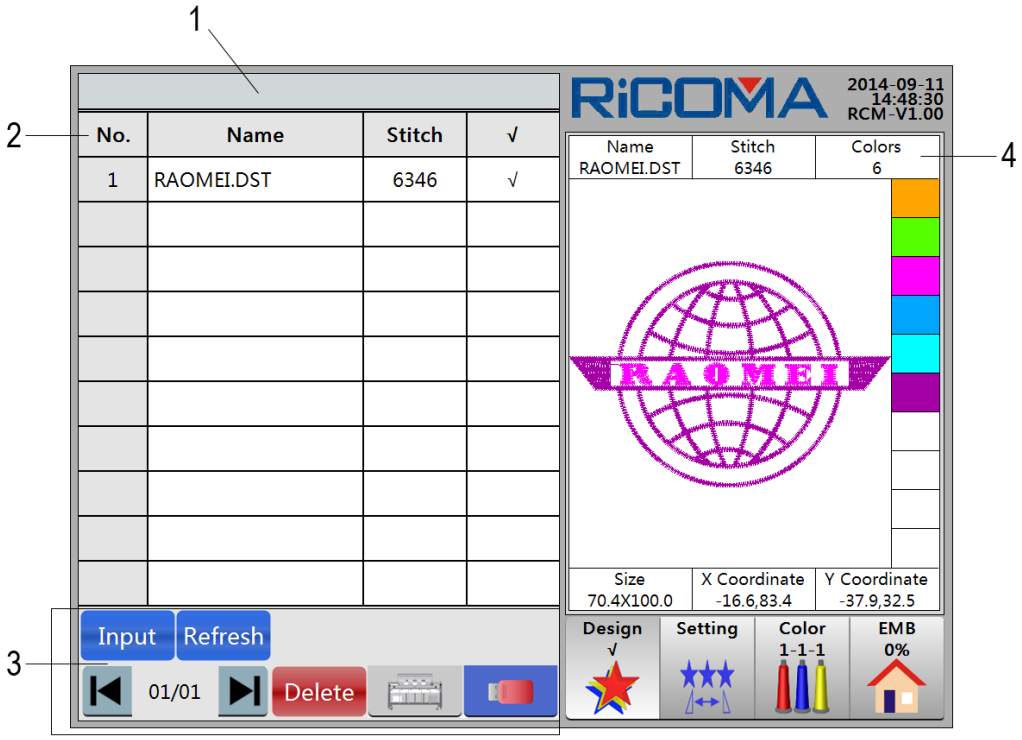
Operations about disk are the same with U disk operations.

Press the key 

to enter **"Design"** interface. Press the key  **"Disk Management"**, and system will automatically check the disk or U disk, and then the design list in disk or U disk will be displayed on the screen. See the figure below:



Select the design in disk or U disk, and then a mark "√" will be displayed in the last column. See the figure below:



Design Management functions includes the following:

1: Title Bar. Display the prompt message.

2: Disk or U disk design list. Show the design information in disk or U disk, i.e. design number, design name, total stitch, and selection mark "√".

3: Functional Area

Input key: Copy the design in disk or U disk to memeory.

Refresh key: Refresh current directory in disk or U disk.

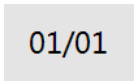
Disk Management key: Perform the following operations to the design in disk or U disk: input design to memory, refresh, deletion, etc.

Momery Management key: Perform the following operations to the design in memory: output design to disk or U disk, combination, division, letter library, design selection, deletion, etc.

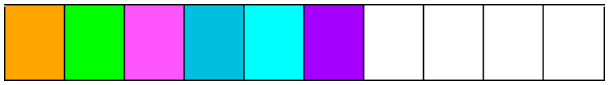
Delete key: Delete the design in disk or U disk.

Page Up key

 **Page Down** key

 Display the current page and total pages. Each page shows up to 10 designs.

4: Display the name, stitch number, color-change times of the selected design.

 Display color-change sequence setting.

 Display the preview pattern of the selected design.

Display the size, X coordinate and Y coordinate of the selected design.

18.1 Disk Design Preview

Through this operation, operators can view the design name, design size and design pattern in the disk or U disk.

Operations:

1. Insert the disk or U disk, then press the key 

to enter **"Design"** interface.

2. Press the key  **"Disk Management",** then the design list in disk or U disk will be diaplayed on the screen. Press the keys  to page up/down.

3. Select the design, and then a mark "√" will be displayed in the last column. The design information will be shown on the display area of the screen, including: design name, stitch number, color-change times, color sequence, preview pattern, size, X/Y coordinate, etc.

18.2 Disk Design Input to Memory

Operations:

Please refer to **Part 4 How to Input Designs** for details.

Note: When **"Disk Design Input to Memory"** is performed, the system will preview the selected design in disk. If there is an error data in the design, system will preview the design twice. The design previewed at the first time is **Error Design**; the design previewed at the second time is **Normal Design**.

18.3 Disk Design Deletion

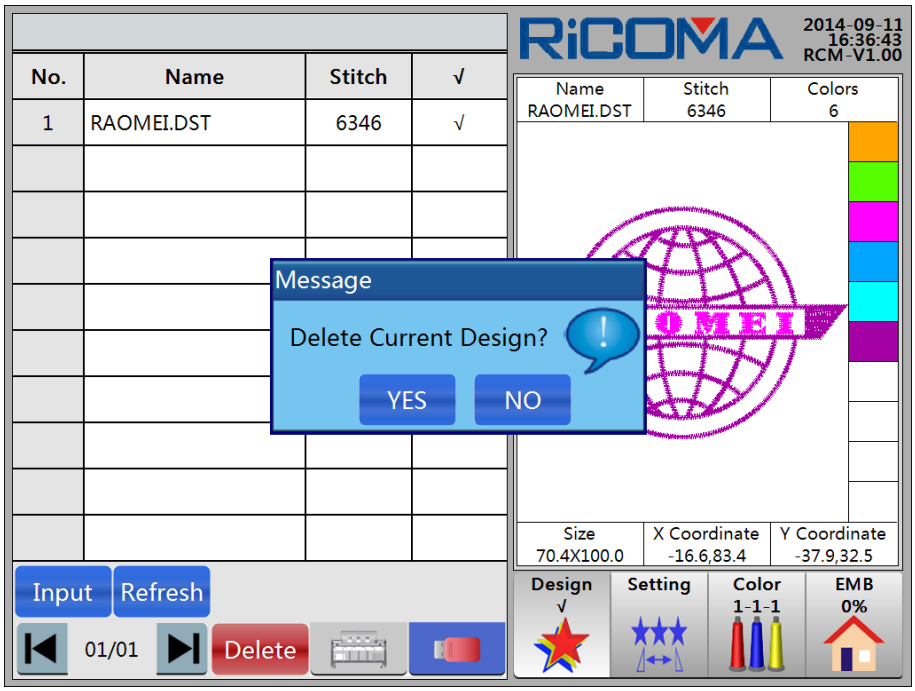
Operations:

1. Insert the disk or U disk, then press the key 

to enter **"Design"** interface.

2. Press the key  **"Disk Management", then** the design list in disk or U disk will be diaplayed on the screen. Select the design that need to delete, and then a mark "√" will be displayed in the last column. Select 

key, the system prompts **"Delete current design?"** See the figure below:



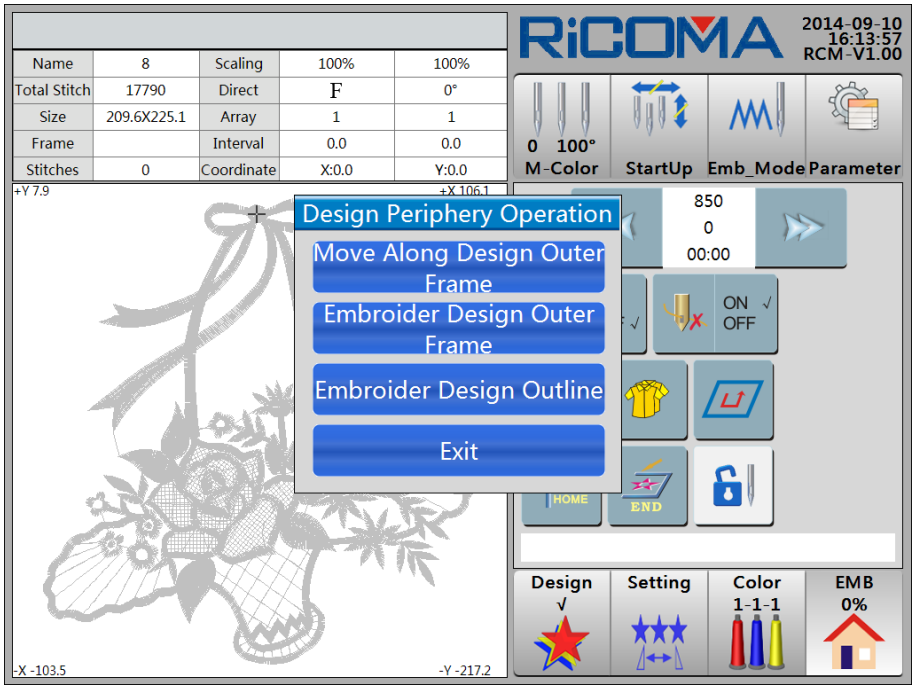
3. Press the key 

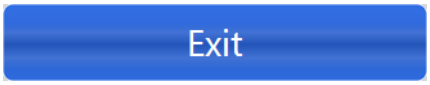
to delete the design; or press the key 

to quit the operation.

Part 19 Design Periphery Operation

In **“EMB”** interface, press the key  , and then the **“Design Periphery Operation”**menu will pop up. See the figure below:



Press different function to operate, and the key 

to exit.

19.1 Move along Design Outer Frame

Before embroidering a certain design, carring out this operation to run the frame along the design border so as to check whether the available embroidery range is enough for the coming work. And this operation can be performed both under the **Embroidery Preparation Mode** and **Embroidery Ready Mode**.

1. After setting the start point of embroidery, press the key  , then the **“Design Perphery Operation”**menu will pop up. See the figure above.

2. Press the key 

, then system prompts “Run frame along design border or not?” Press the key 

, the frame will start running along the design border on the basis of X/Y value; or press the key 

to quit the operation.

19.2 Embroider Design Outer Frame

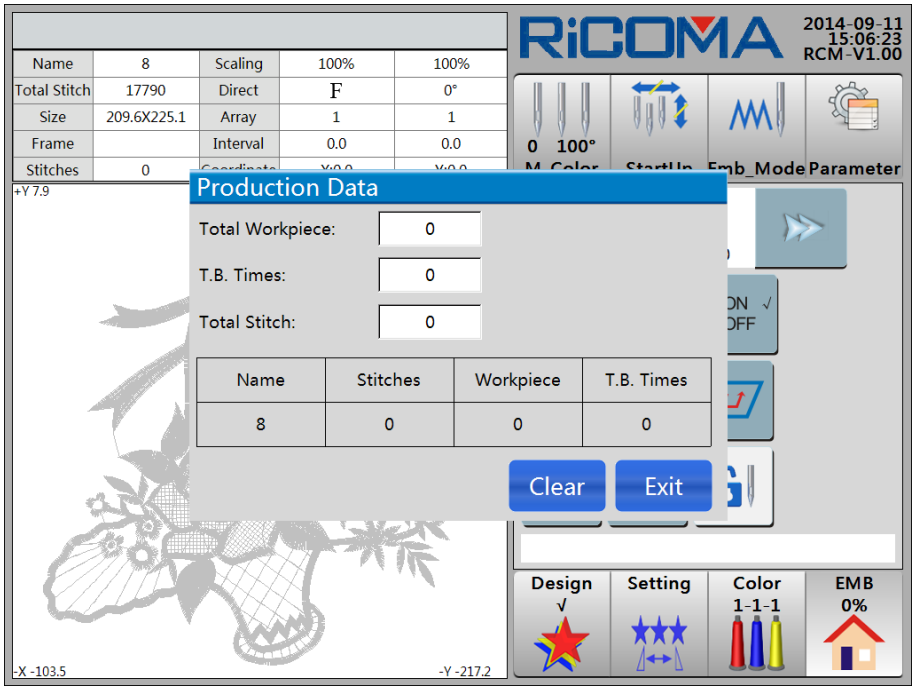
Please see **Part 14.1 Embroider Design Outer Frame** for details.

19.3 Embroidering Design Outline

Please see **Part 14.2 Embroider Design Outline** for details.

Part 20 Production Statistics

In **“Embroidery”** interface, press the key  , and then the **“Production Data”** will pop up. See the figure below:

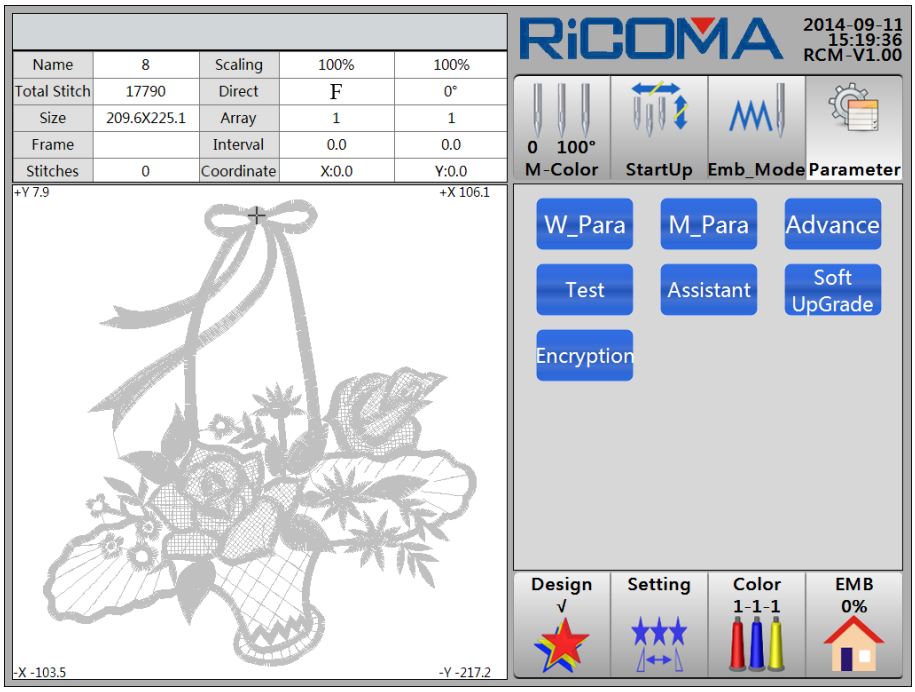


This function includes: Total Workpiece Count, Thread Break Times, and Total Stitch. Press the key Clear, the system will prompt **“Clear production data?”** Then press the key YES, system will clear all datas in production statistics; or press the key NO to quit this operation.

Part 21 Advanced Management

In **“Color”** and **“EMB”** interface, press the key 

to enter **“Parameter”** interface, and then press the key Advance to enter the following menu:



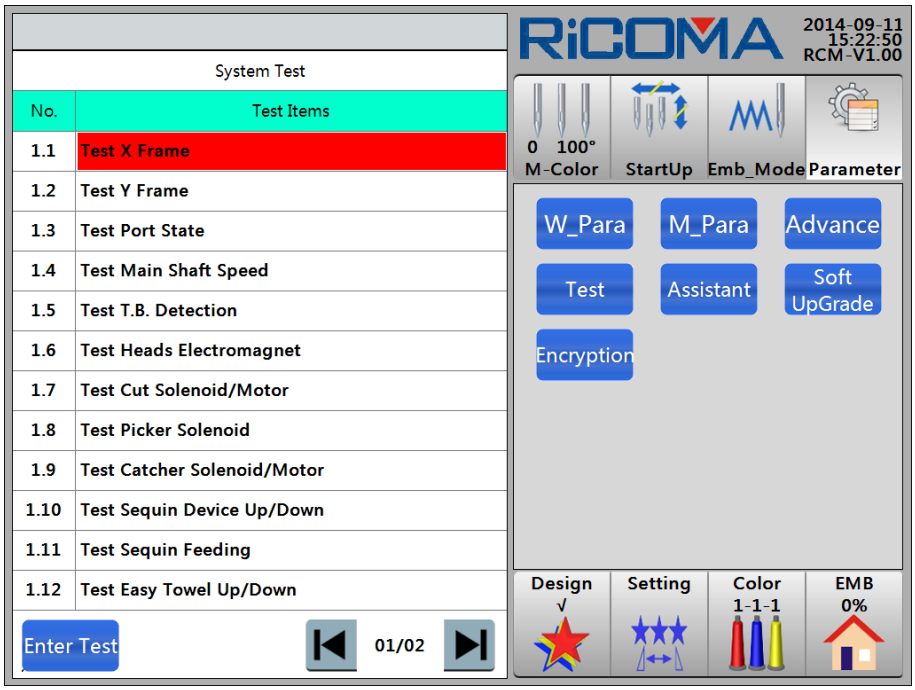
Press different functions to operate.

21.1 System Test

This test includes: X/Y Frame Direction, Port Status, Main Shaft Speed, Thread Breakage Detection, Head Solenoid, Trimming Solenoid/Motor, Holding Solenoid, Catching Solenoid/Motor, Sequin Device Up&Down, Sequin Feeding, Simple Towel Up&Down, Simple Towel Swing, Simple Taping Up&Down, Simple Taping Looping Motor and Keypad Test, etc.

Operations:

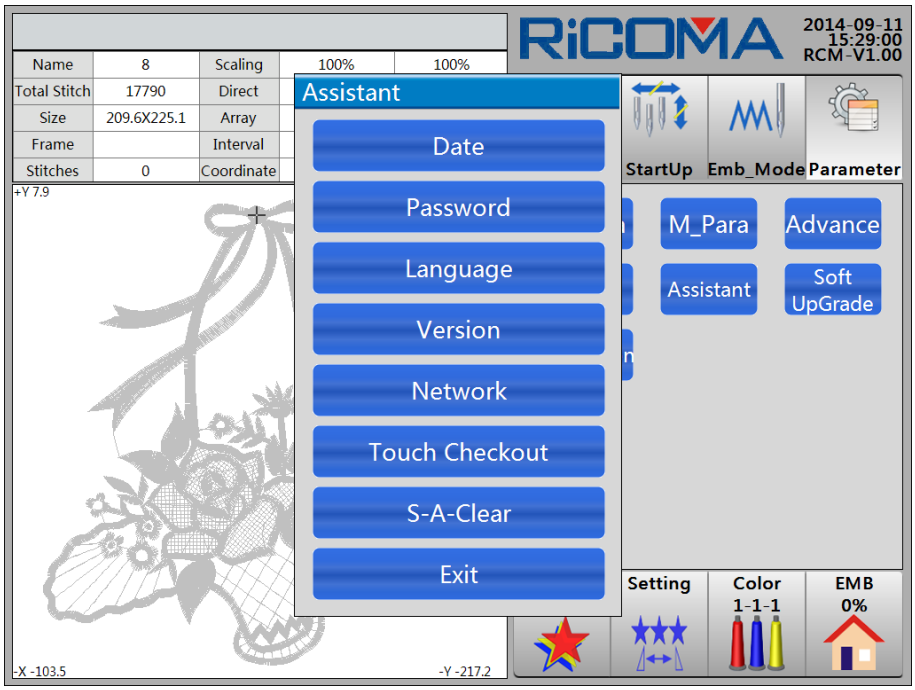
1. Press the key Test to enter **“System Test”** list. See the figure below:



2. Select the item that need to test, and press the key Enter Test to start testing. The test items are displayed on two pages. The operation method of page two is the same with of page one.

21.2 Auxiliary Function

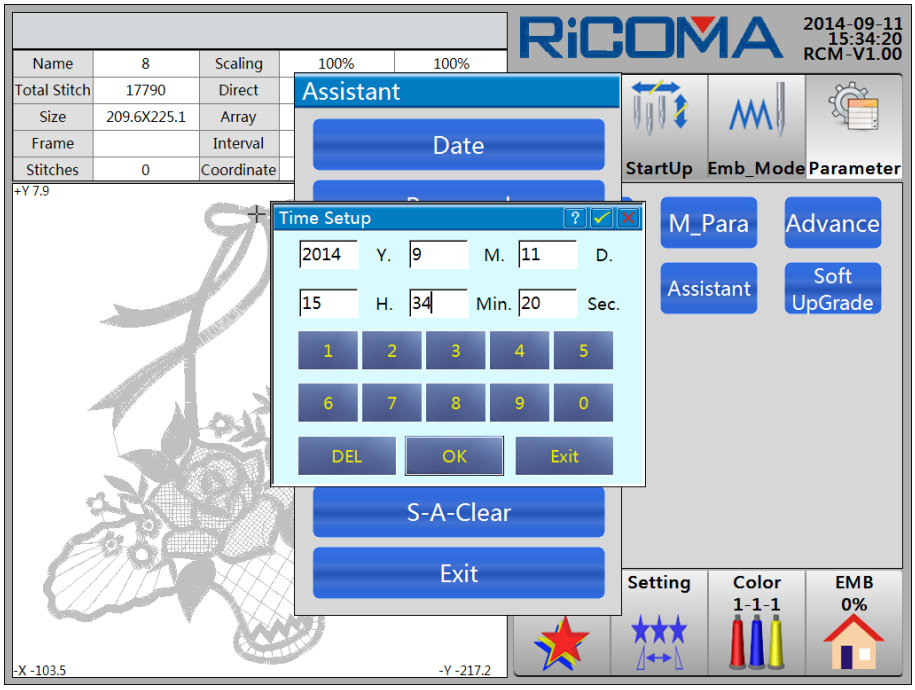
Press the key Assistant to enter **"Assistant"** menu. See the figure below:



21.2.1 System Time Setting

1. Press the key Date, then the interface **"Time Setup"** will

pop up. See the figure below:



2. Select the items: Year, Month, Day, Hour, Minute and Second to input the value.

3. Then press the key 

, system prompts **"System time setup succeeds!"** Press the key 

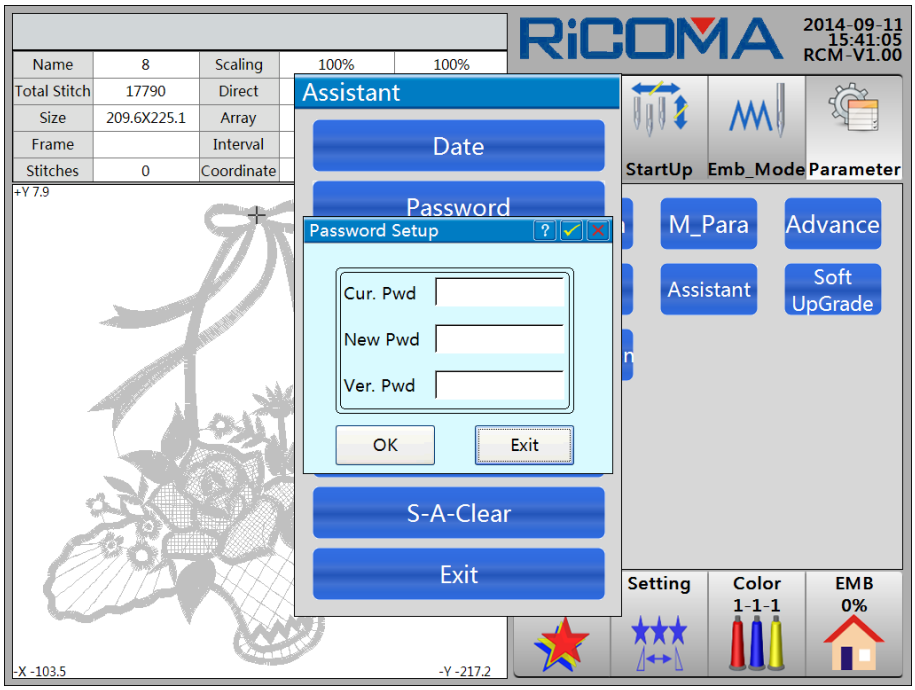
to confirm the setting; or press the key 

to quit the operation as needed.

21.2.2 Password Setting

1. Press the key 

, then the interface **"Password Setup"** will pop up. See the figure below:



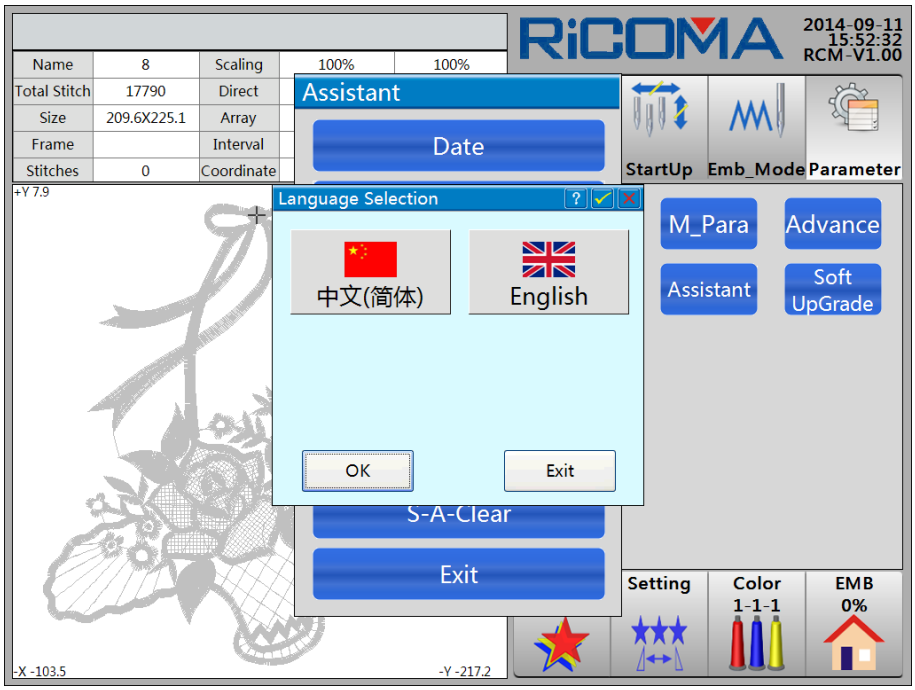
2. Input the password according to the prompt, then press the key OK, system will prompt "Reset password or not?" Next press the key YES, system prompts again "The new password is set!" Last, press the key OK to confirm the setting; or press the key NO to quit the operation.

3. Or you can press the key Exit to quit password setting.

Note: When inputting the encrypted password, if the the two password inputs are different, the system will prompt "Two password inputs differ!" Then operators shall reenter the password.

21.2.3 Language Switch

1. Press the key Language, then the interface **"Language Switch"** will pop up. See the figure below:



2. System shows the switch language **"中文**(简体)/English**"**. Select the target language directly to realize language switch, and then press the key OK, system prompts "Switch language to English?" Press the key YES to confirm; or you can press the key NO to quit the operation.

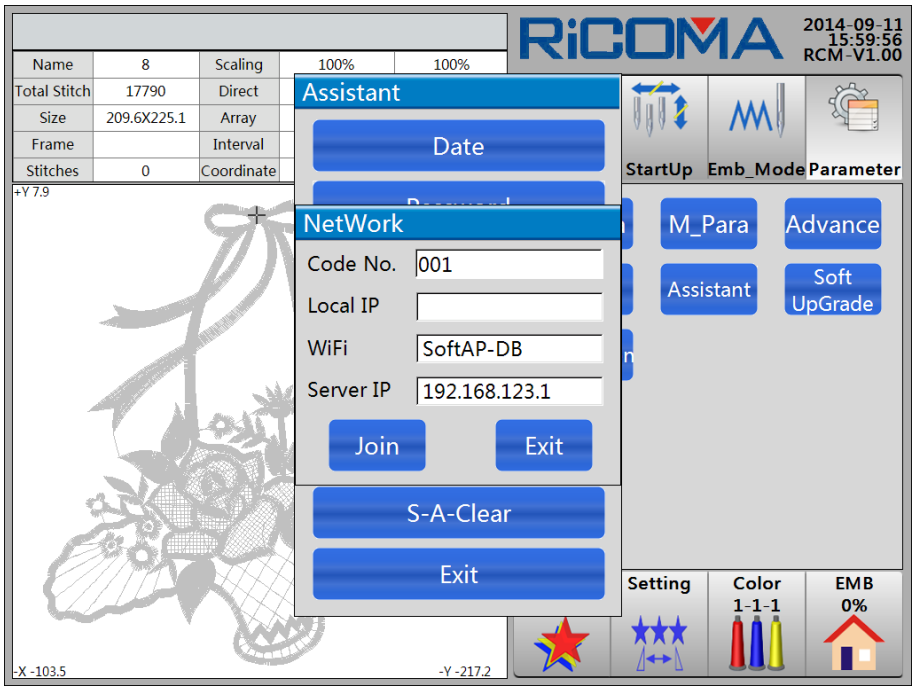
3. Or you can select the key Exit to quit the setting.

21.2.4 Version Information

Throught this function, operators can consult the version information of system. Press the key Version in **"Parameter"** interface, then the **"System Software Info"** interface will pop up, and the version information is displayed on the interface (The display of **"System Software Info"** would be diverse in different software version).

21.2.5 Network Connection

1. Press the key Network, then the interface **"Network"** will pop up. See the figure below:



2. IP address can be set in this function.

21.2.6 Touch Screen Checkout

Press the key Touch Checkout , system prompts **"Verify screen touch?"** Then press the key YES to enter calibration interface. The system prompts again **"Pls gently and precisely click on the center position of the cross cursor with the use of the touch pen. When the target moves, pls repeat the action. Press ESC key to quit the operation."** Then you shall operate according to the system prompt. There are five checkout points in total, and the checkout methods are the same.

Note: When proofread the touch screen, operators shall precisely click the center positon of the cross cursor according to system prompt.

21.2.7 System Clear All

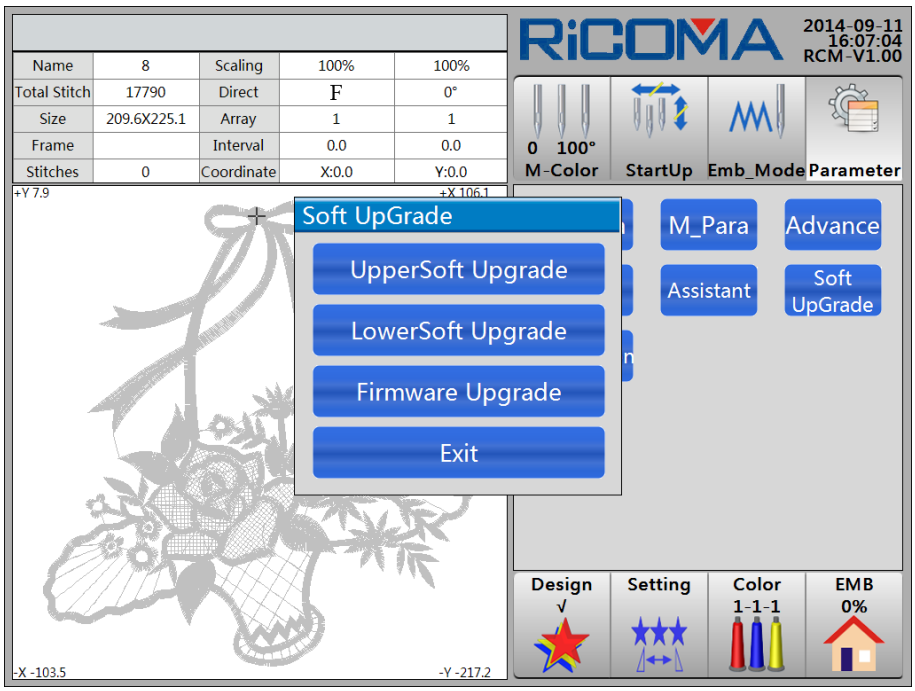
Press the key S-A-Clear , then system prompt **"Clear all memory data?"** Press the key YES . System prompts again **"Pls input password"** Please input the password by pressing numeric keys. Last press the key OK to confirm the opetaion; or you can press the Exit key to quit the operation. Or press the key NO not to perform the operation.

This function mainly applies to newly installed machine and memory errors repairing. After

clearing all the datas, operators shall cut off the power and then turn it on again, then to set the parameter value.

21.3 Software Upgrade

Press the key Soft UpGrade to enter **"Soft Upgrade"** menu. See the figure below:



21.3.1 Upper Soft Upgrade

The upgrading operation shall be performed through disk or U disk.

Press the key UpperSoft Upgrade, then system prompt **"Pls input password"** Press numeric keys to input. System will find the upgrading files in disk or U disk. Then press the files that need to upgrade. System starts upgrading. After the upgrade is finished, please restart the computer.

Note: The upgrading operation shall be performed through disk or U disk. Before upgrading, please make sure that the disk or U disk has connected to USB port.

21.3.2 Lower Soft Upgrade

Please refer to **Part 21.3.1** for details.

21.3.3 Firmware Upgrade

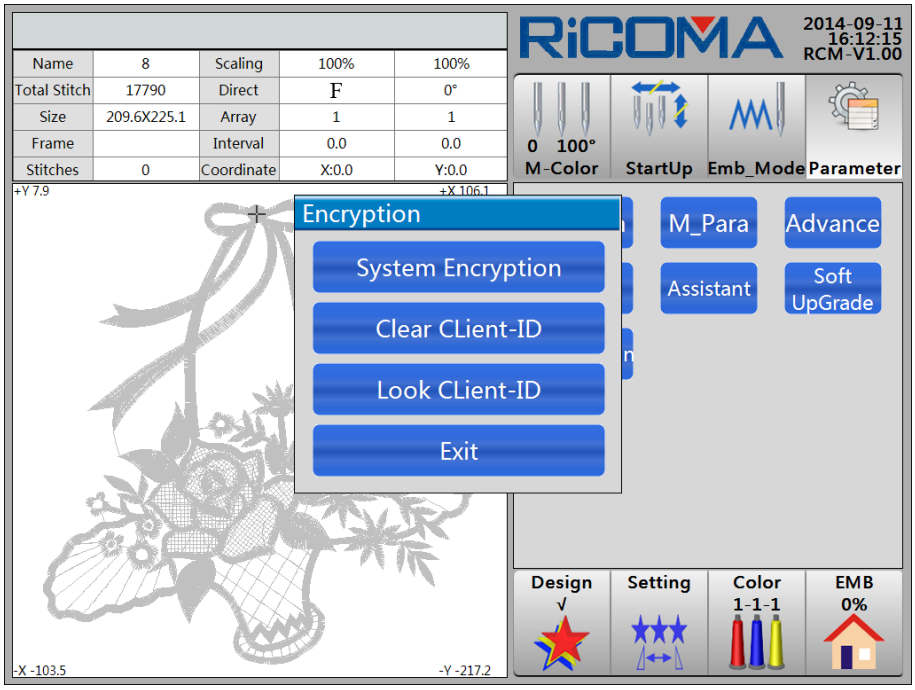
Please refer to **Part 21.3.1** for details.

21.4 Encryption

If the customers set time encryption item, please decode it in **"Encryption"** menu.

1. Press the key Encryption, then the menu **"Encryption"** will pop up. See the figure

below:



2. Select the item and finish the setting according to system prompt.

Part 22 Parameter Setting

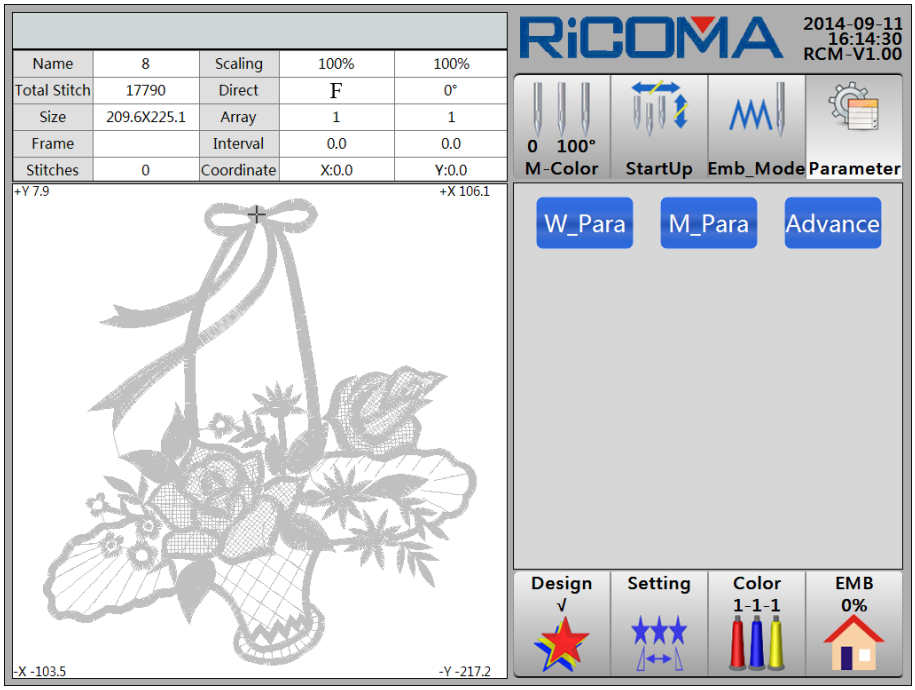
This function displays the machinery parameters of the current control system which can be adjusted according to the machinery configuration.

Operations:

In **"Color"** and **"EMB"** interface, press the key 

to enter **"Parameter"** interface.

See the figure below:



The parameters, including work parameter, machine setup, advanced, etc., can be adjusted according to the parameter of the machine.

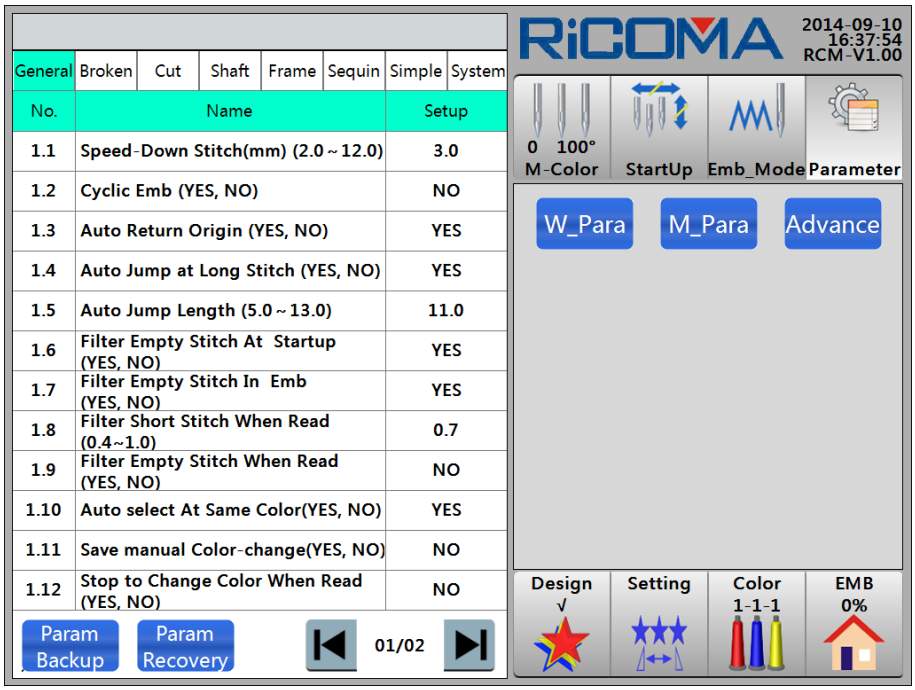
22.1 Work Parameter

22.1.1 Setting Mahince Parameter

1. In **"Color"** and **"EMB"** interface, press the key 

to enter **"Parameter"** interface, and then press the key 

to enter **"Work Parameter"** list. See the figure below:



2. Select the parameter menu, in which selects the item that need to modify. Modify the value according to system prompt.

Note: Please refer to Part 23 for the detailed parameter list.

22.1.2 Cyclic Embroidery Setting

Please refer to **15.3 Operation of Cyclic Embroidery** for detailed instructions.

22.1.3 Braking Adjustment (Newly installed machine shall be adjusted)

This function is used to adjust the parameter features during the process of machine stop, so as to make parameter setting adapt to different machine properties. Also the machine properties might get changed during its usage. This function helps to adjust the cooperation of machine and controller to the best condition.

(1) Stop Position Compensation

This parameter setting is to compensate the stop position error of main shaft. When the main shaft frequently stops at the position less than 100 °, then operators can raise the parameter value; when the main shaft usually stops at the position more than 100 °, then operators can reduce the parameter value. After modifying this parameter value, the main shaft will stop at 100 °. The setting range of this parameter is 0 to 30.

Operations:

1. In **“Color”** and **“EMB”** interface, press the key 

to enter **“Parameter”** interface.

2. Press the key 

, then select **“Main Shaft”** item to enter **“Maing Shaft Parameter”** list. Press the key  to turn to page two.

3. Select the item **“4.13 Stop Position Compensation”**, and then press numeric keys to change the value. (When the main shaft frequently stops at the position less than 100 °, then operators can raise the parameter value; when the main shaft usually stops at the position more than 100 °, then operators can reduce the parameter value) Press the **Backspace** key to delete the mis-typed value, and then press the **Enter** key to confirm. Pressing **ESC** key can cancel the input and exit the keypad. After selecting the value, press **Enter** key to confirm.

(2) Test after Adjusting Braking Parameter

After adjusting the braking parameters, operators can test the setting by carrying out **“Main Shaft ORG”** operation. If the result is still not satisfied, operators can repeat to adjust the parameter.

22.1.4 Setting Embroidery Repairing on All Heads

1. In **“Color”** and **“EMB”** interface, press the key 

to enter **“Parameter”** interface.

2. Press the key 

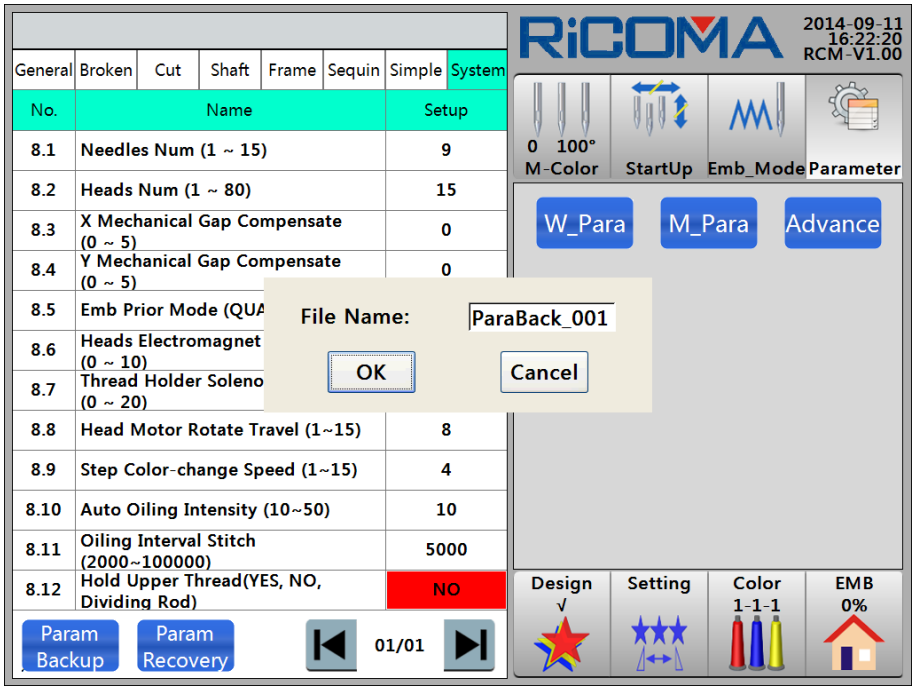
, and select **“Thread Breakage”** item to enter **“Thread Breakage Parameter”** list. Then select **“2.3 Setting Embroidery Repairing on All Heads”**, select **“Yes”** or **“No”** to set the parameter.

22.1.5 Parameter Backup

1. In **“Color”** and **“EMB”** interface, press the key 

to enter **“Parameter”** interface.

2. Press the key W_Para. If operators wan to save the current value, and then press the key Param Backup, and the system will prompt **"File Name:"** See the figure below:

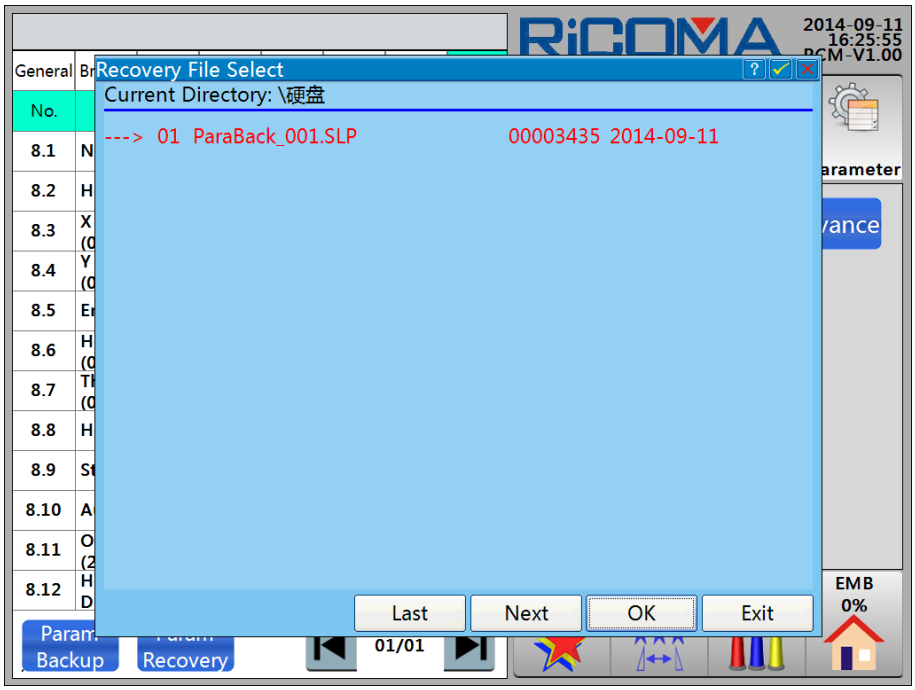


3. Select **"ParaBack _ 001"**, then a keypad will pop up. Input the new backup file name by pressing numeric keys, or use the default name provided by system. After finishing the input, press the key OK (Or press the key Cancel to quit the operation) to confirm the operation. System prompts **"Output Succeed!"** Last, press the key OK to complete parameter backup.

22.1.6 Parameter Recovery

1. In **"Color"** and **"EMB"** interface, press the key Parameter to enter **"Parameter"** interface.

2. Press the key W_Para. If operators want to recover the parameter, and then press the key Param Recovery, the interface **"Recovery File Select"** will pop up. See the figure below:

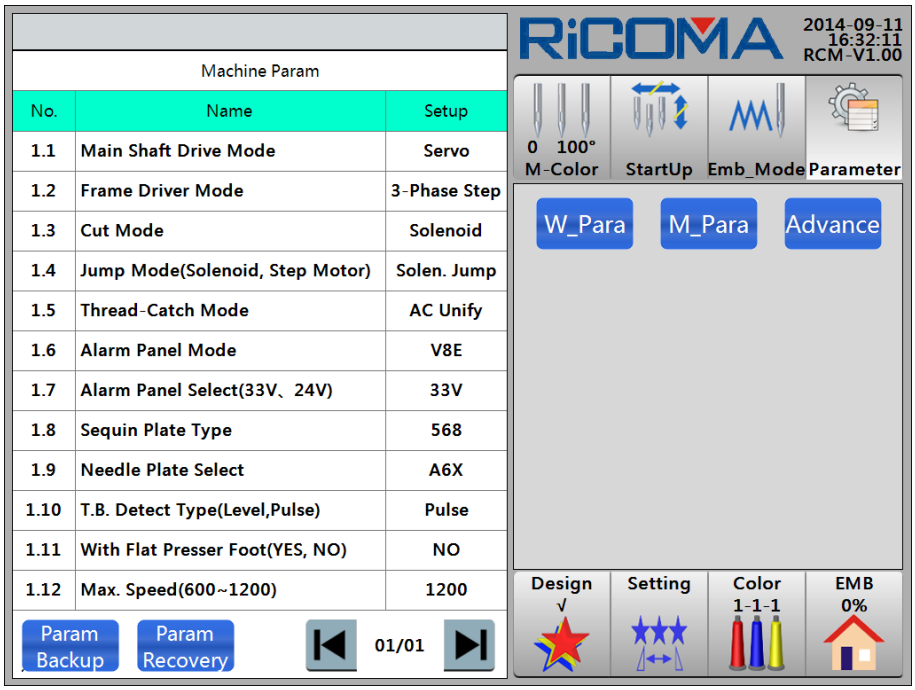


3. Select the backup files. To view more pages, please press the key Last Next to page up/down. Then press the key OK, system prompts "Select current file or not?" then press the key YES to confirm.system prompts again "Pls input password" Input the password by pressing numeric keys and press the key OK. System prompts "Parameter is recovered, Pls restart!" Then press the key OK to complete the operation; or you can press the key NO to quit the operation.

22.2 Machine Setup

1. In **"Color"** and **"EMB"** interface, press the key Parameter to enter **"Parameter"** interface.

2. Press the key M_Para. System prompts **"Pls input password"** Input it by pressing numeric keys, and then press the key OK to enter **"Machine Parameter"** list. See the figure below:



The parameter can be adjusted according to the details.

22.3 Advanced Management

Please refer to **Part 21 Advanced Management** for details.

Part 23 Appendix

23.1 List of Parameters

	Parameter Name	Meaning and Function	Value Range	Default
General	Speed-Down Stitch (mm)	How many stitches excced wil the set value begin to slow	2.0 ~ 12.0	3.0
	Cyclic Emb	Set the cyclic embroidery mode	YES, NO	NO
	Auto Return Origin	The frame return to start point or not after finishing embroidery	YES, NO	YES
	Auto Jump at Long Stitch	Jump or not when meeting long stitch	YES, NO	YES
	Auto Jump Length	Set the jumping length	5.0~13.0	11.0
	Filter Empty Stitch At Startup	Embroider the empty stitch or not when start up	YES, NO	YES
	Filter Empty Stitch In Emb	Embroider the empty stitch or not when embroidering	YES, NO	YES
	Filter Short Stitch When Read	The length of the filtering short stitch	0.4~1.0	0.7
	Filter Empty Stitch When Read	Filter the empty stitch or not during design inputting to memory	YES, NO	NO
	Auto select At Same Color	When meeting the same needle position in color-change sequence, the machine will start embroidering automatically. If the parameter is set as “No”, then the machine will stop.	YES, NO	YES
	Save manual Color-change	Whether to save the manualcolor-change sequence into the color-change sequence	YES, NO	NO
	Stop to Change Color When Read	Whether to switch the stop code of the design to color-change code during the process of inputting design to memory	YES, NO	NO
	Boring Emb Needle Position	This parameter is the needle position when doing boring embroidery. 0 represents not perform boring embroider, and the needle which use boring embroidery do not check thread breakage	0 to the max. needle bar	0
	Boring Emb Displacement	This parameter is used to confirm the displacement of the hole carving cutter. The frame position can be changed through this parameter setting.	0,12	0
	Display Stitches	Whether to show the embroidery stitch number in embroidery interface	YES, NO	YES
	To Avoid When T.B.	To set a certain offset distance for the convenienc of threading	YES, NO	NO
	To Avoid Distance	The distance of frame avoiding after thread breakge	0 ~ 999	0
	Avoid Trim Mode	Set the trimming mode of simple cording embroidery	Up, Dow, Not	Up
	Filter Small Stitch When Read	Whether to filter the small stitch during the process of inputting design from U disk to the operation head	YES, NO	YES
Broken	Thread Break Detect	Whether to check thread breakge during embroidering	YES, NO	YES

	T.B. Detect When Jump	Whether to check thread breakge during stitch juping. This parameter shall be set according to the actual demands	YES, NO	NO
	Set All Heads Repair	Whether to set all heads repairing on embroidery	YES, NO	NO
	Startup Not Detect Stitches	When to check thread breakage after machine starting	0 ~ 15	8
	Not Detect Stitche At Jump	Machine does not check thread breakage within specified stitch number after jumping	0 ~ 15	3
	T.B. Backward Stitches	How many stitches the machine will automatically run back when thread breaks.	0 ~ 9	0
	Repair Stitches	Before thread breaks, at which stitch the machine will start to feed with all heads when embroidery repairing	0 ~ 10	1
	Lag Stitches For Top T.B. Alarm	Adjust the sensitivity of thread breakage. 0 represents that upper thread do not detect	0 ~ 6	3
	Lag Stitches For Bobbin T.B. Alarm	Adjust the sensitivity of thread breakage. 0 represents that bobbin thread do not detect	0 ~ 6	3
	Bobbim Thread Test Sensitivity	Adjust the sensitivity of bobbin thread detection. Large value means high sensitivit	0 ~ 10	0
	Sti. For Filter T.B.	Adjust the sensitivity of upper thread detection. Large value means low sensitivity	1 ~ 6	3
	Stop After T.B.	Whether stop or not after detecting broken thread and the red light of head card is on	YES, NO	YES
	Repair End Action	Whether to decelerate or stop during embroidery repairing	Not, Speed Down, Stop	Not
	Buzzing For T.B. Alarm	Whether buzzing or not when thread breaks and the icon flashes	YES, NO	NO
Cut	Trim at Jump①	How many jumping stitch occurs between two flat stitches, then the machine start trimming or not trim	1 ~ 7, Jump Not Cut	3
	Turn on Trimming①	Whether the machine use trimming function	YES, NO	NO
	Triming Length①	The remaining length of the upper thread after trimming	1 ~ 8	5
	Thread Take-off Angle Adj	Adjust thread take-off angle	- 100 ~ 100	0
	Auto Tie-off①	Whether to lock the needle when trim thread	YES, NO	YES
	Rotation Speed At Trim①	The starting speed of main shaft when trim thread	30 ~ 120	80
	Tie off Size Before Trim(mm)①	The stitch length of tie-off before trimming	0.3 ~ 1.5	0.7
	Tie off Stitches Befor Trim①	How many stitches does the machine tie off before trimming	0 ~ 2	1
	Post-cut Rotations Before Stop①	It is used after trimming. How many rounds does the main shaft need to rotate to stop	1, 2	1
	Post-cut Startup Speed ①	The rotation speed after trimming	60 ~ 150	100

	Post-cut Slow Stitches ①	Jogging stitches when starting acceleration after trimming	1 ~ 7	2
	Post-cut Tie off Size (mm)	The length of the locked stitch after trimming	0.3 ~ 1.5	1.0
	Post-cut Tie off Stitches①	Number of locked stitches when starting embroidery after trimming	0 ~ 3	1
	Post-cut Move Frame ①	Whether perform frame moving operation or not after trimming	YES、NO	YES
	Post-Cut Move Action Type①	Swing direction or moving needle position after trimming	X /Y /Move Needle	Y
	Cutting Brake Speed	Adjust trimming speed, especially when the stop is not in place. Turn it down if overshoot and up when it is less than 100 degree	1 ~ 4	1
	Check Cutter In Place Or Not①	Whether detect the trimming in place signal or not	YES、NO	YES
	Pre-Cut Loose Bobbin Thread	Whether loose the lower thread first, and then trim	YES、NO	NO
	Loosed Bobbin Thread Length	Length of loosened lower thread before trimming	1 ~ 5	1
	Thread Take-off Travel Adj.	Adjust hooking travel of step motor	0 ~ 55	15
	Thread Take-off Speed Adj.	Adjust hooking speed of step motor	1 ~ 15	2
	Cutter Motor Compensation	In place adjustment of step motor when trimming	0 ~ 6	0
	Adjust Picker at Static Cutting	Time of loosening hook when AC motor trimming. Large value means later loosening hook	1 ~ 10	10
	Static Cutting Angle	Adjust opening angle of trimmer when AC motor trimming. Small angle means forwarding	-50 ~ 50	0
	Put_on Trim Shu Time Adj.	Adjust the time of shuttle hook to trim/hold	-5 ~ +5	0
	Gear Ratio of Cutter Motor	Set the parameters according to the real trim motor gear ratio of the machine	1 ~ 5	1
	Set Trim Motor Back Speed	When stepper motor trimming, cutter closing speed will be adjusted after opening cutter	1 ~ 5	3
Shaft	Max. Speed	The maximum speed of machine	250 ~ 1200	850
	Min. Speed	The minimum speed of machine	250 ~ 550	400
	Jump Speed	Setting the speed when jumping the stitches	400~600	500
	Startup Slow Stitch	Jogging stitches before starting acceleration and after each stoppage	1 ~ 9	1
	Startup Slow Rotate Speed	Jogging speed before starting acceleration and after each stoppage	80 ~ 150	100
	Startup Picker Compensation	It is used to adjust the hooking angle after main shaft start running. The smaller the angle value, the shorter the hooking time.	- 4 ~ 3	0
	Speed At Pull / Hold Bar	The main shaft speed when pulling the needle bar	80 ~ 350	150

	Startup Acceleration	Speed up to the maximum acceleration at start; 1-30 represents 10-300 rpm	1 ~ 30	15
	Thick Fabric Compensation	Set according to different materials of embroidery	0 ~ 5	0
	Applique Slow Stitches	Jogging stitches after starting main shaft during appliqu éembroidery	0 ~ 9990	0
	Applique Slow Moving Speed	Jogging speed at start after appliqu é embroidery	80 ~ The max. speed	700
	Main Driver Frequency Ratio	Adjust the frequency value to the main shaft driver	-15 ~ +15	0
	Stop Compensation	Adjust the first braking angle before the stoppage	0 ~ 30	5
	Needle-Down Angle Adj.	Adjust the angle to 172 °	0 ~ 30	15
	Lock Shaft When Stop	Whether cancel the ON signal on the servo when at stoppage	YES, NO	NO
	Allow Pull Bar Only At 100°	Whether pull the drawbar to start embroidery when the main shaft doesn't stop at zero position	YES, NO	YES
	Brake Adj. (Limited)	Adjustment the braking speed when the stoppage is not in place	1~3	2
	Machine Resonance Speed	The shaking speed of the machine during embroidery. The rotation speed will be avoided after setting this parameter	0, 800~950	0
	Needle Bar Slow Down	Set a speed at each needle bar	250 ~ 1200	800
Frame	Frame Motion Curve	Adjust the curve when the frame moves during embroidery (Different curves, different effects)	1~7	3
	Frame Motion Angle	The angle when frame starts to move during embroidery	200~260	230
	Frame-Passing by Steps	Deal with various constant jump stitches. **Yes** means exceeding the frame step by step according to the size the jump stitches when occurring various constant jump stitches and machine stoppage after trimming; **No** means exceeding the frame at one time after calculating the length of all jump stitches when occurring various constant jump stitches and machine stoppage after trimming	YES, NO	NO
	High Frame-moving Speed	Adjust the frequency when manually moving the frame at high speed	1 ~ 30	16
	Low Frame-moving Speed	Adjust the frequency when manually moving the frame at low speed	1 ~ 30	16
	Frane-Passing Speed	Change the rated frequency when frame exceeding	1 ~ 30	16
	Back Frame Speed	Adjust the frequency of frame when backing	1 ~ 10	5
	Frame Type	Set the frame type. This function is used for adding a customized frame	Flat Frame, Cap/Garment	Flat Frame

Sequin	Left Sequin	**No** means there is no left sequin device; **Have** (highest needle position) means left sequin device is installed on the N needle position	Have, No	Have
	L Sequin Num	Feeding sequin pieces at left head during embroidery	1 ~ 4	1
	L Sequin Mode	Sequin feeding mode of the left sequin head.	Fork, Roller	Roller
	L Sequin A Feeding Angle	Fine adjustment of feeding angle of sequin A at the left head during embroidery	6 ~ 66	24
	L Sequin B Feeding Angle	Fine adjustment of feeding angle of sequin B at the left head during embroidery	6 ~ 66	24
	L Sequin C Feeding Angle	Fine adjustment of feeding angle of sequin C at the left head during embroidery	6 ~ 66	24
	L Sequin D Feeding Angle	Fine adjustment of feeding angle of sequin D at the left head during embroidery	6 ~ 66	24
	L Sequin Limit Speed	Set the rated speed of left sequin head during embroidery	300 ~ 1000	700
	L Sequin Feeding Angle Adj	Set the corresponding main shaft angle when feeding sequin	210~300	230
	Sequin Fall Time	Adjust the delay time after the start command is sent	10 ~ 100	30
	Auto Start Sequin Emb	Pull the bar manually or automatically start the sequin	YES, NO	YES
	Right Sequin	**No** means there is no right sequin device; **Have** means right sequin device is installed on needle position 1	Have, No	Have
	R Sequin Feeding Num	Feeding sequins at the right head during embroidery	1 ~ 4	1
	R Sequin Mode	Sequin feeding mode of the right sequin head	Fork, Roller	Roller
	R Sequin A Feeding Angle	Fine adjustment of feeding angle of sequin A at the right head during embroidery	6 ~ 66	24
	R Sequin B Feeding Angle	Fine adjustment of feeding angle of sequin B at the right head during embroidery	6 ~ 66	24
	R Sequin C Feeding Angle	Fine adjustment of feeding angle of sequin C at the right head during embroidery	6 ~ 66	24
	R Sequin D Feeding Angle	Fine adjustment of feeding angle of sequin D at the right head during embroidery	6 ~ 66	24
	R Sequin Limit Speed	Set the rated speed of the right sequin head during embroidery	300 ~ 1000	700
	R Sequin Feeding Angle Adj	Set the corresponding main shaft angle when feeding the sequin	210~300	230
	Auto Raise after T.B.	Control the position of sequin device after thread breakage	YES, NO	NO
	Raise valve at No jump cut	Control whether to raise at jump stitch or not	YES, NO	NO
	Multi-Sequin Switch Time	Switching time of big and small interval air valves when adjusting multi-sequin. Large value means longer time	0~5	0
	Sequin Up/Down Way	Set the control mode on sequin frame up&down	Air Valve, Motor	Air Valve

Simple	Simple Towel Emb.	Set whether the machine can perform easy towel embroidery	YES、NO	No
	Easy Towel Needle	Set the needle bar No. of easy towel embroidery	1 ~ 15	1
	Easy Towel Needle Height	Looping height during easy towel embroidery	1 ~ 8	5
	Easy Towel Zero Precision	Adjust the precision of easy towel motor in place	0 ~ 3	1
	Easy Cording Position	Set the position of the current cording device	NO, Left, Right, Left/ Right	NO
	Cording Max. Speed	Set the max. speed of main shaft when operating easy cording embroidery	500 ~ 1200	800
	Cording Speed-down Angle	When operate easy cording embroidery, the speed of main shaft will decrease if the rotation angle beyond setting angle	60 ~ 180	90
	Cording Cut Mode	Set the trimming mode of easy cording embroidery	Not, No jump cut, Cut Up/Under, Cut Under	Not
	Cording Swing	Theswing of tracking motor when doing easy taping embroidery	0~90 Manual input	30
	Cording Mechanical Zero	Set the intersection angle contained by the mechanical zero position of the lacing hole and Y frame positive direction (according to the actual situation of the machinery)	0~80 Manual input	0
	Cording Working Zero	When the needle bar starts, the lacing hole will rotate to the loosest part of the cord tension and take the current position as the zero position. When the cording machinery zero position is zero, then it will take effect and it is non-effective when setting other values	0~80 Manual input	0
	Cord-absence Sensitivity	Set the easy taping embroidery as cordless to judge the sensitivity	1 ~ 8	4
	Tension Motor Speed	Adjust the speed of thread feeding motor	0 ~ 9	6
	Tension Motor Tight Speed	Adjust the thread take-up speed of tension motor	0 ~ 9	6
	Cording Up/Down Time Adj.	Adjust the waiting time of cording frame up&down	1 ~ 10	3
	Cording Up/Down Mode	Set the control mode of cording up&down	Air Valve, Motor 1, Motor 2	Air Valve
	Cording Winding Motor Speed Adj.	Set the speed of winding motor	0 ~ 10	0
System	Needle Num	Set the number of needle bar at head	1 ~ 15	9
	Heads Num	Set the number of heads	1 ~ 80	15
	X Mechanical Gap	Needle position during boring embroidery (Zero means not to perform boring embroidery and to detect thread breakage of boring embroidery)	0 ~ 5	0
	Y Mechanical Gap	Confirm the borer shifting to change the frame position during boring embroidery	0 ~ 5	0
	Emb Prior Mode	Embroidery material selection	QUAL, Efficiency	QUAL

	Heads Electromagnet Voltage	Adjust the voltage of head solenoid lockhead	0 ~ 10	0
	Thread Holder Solenoid Voltage	Adjust the voltage value of upper thread holding solenoid	0 ~ 20	0
	Head Motor Rotate Travel	Adjust the travel of lockhead step motor	1 ~ 15	8
	Step Color-change Speed	It is the motor speed when step motor change the color	1 ~ 15	4
	Auto Oiling Intensity	Automatic lubrication time setting	10 ~ 50	10
	Oiling Interval Stitch	Machine will automatically lubricate after embroidering how many thousands of stitches	2000~100000	5000
	Hold Upper Thread	Top thread holding take effect or not?	YES, NO,Dividing Bar	NO

① only be suitable for machines with trimming function.

23.2 List of Error and Simple Troubleshooting Approach

Errors	Simple Trouble Shooting Approach	Errors	Simple Trouble Shooting Approach
+X Limit	Manually moves the frame in opposite direction or check the limit switch of this direction.	Hook/Trim Error	Manually reposition or change approaching switch.
-X Limit	Manually moves the frame in opposite direction or check the limit switches of this direction.	Design database Error	Re-input design or change disk.
+Y Limit	Manually moves the frame in opposite direction or check the limit switch of this direction.	No Floppy Disk or no USB	Insert disk or USB disk
-Y Limit	Manually moves the frame in opposite direction or check the limit switch of this direction.	Write Disk Error Write USB Error	Change disk or USB disk
Color-change Overtime	Lock the mechanical part of color change or signal wire not to connect with motor wire terminal or damage driver board.	No design in floppy disk or USB disk	Change floppy disk or USB disk
Needle Error	Turn the mechanical part to normal position or change A6 potentiometer of needle.	Not at the zero position	Re-inching , check if hole of zero position board blocked or adjust braking parameter
Motor Error	Check the power supply of main motor and signal wire or change motor and driver.	Motor X Error	Adjust or changeX frame driver
Motor Inverse	Adjust power phase of main moter or parameter of servo controller.	Motor Y Error	Adjust or change Yframe driver

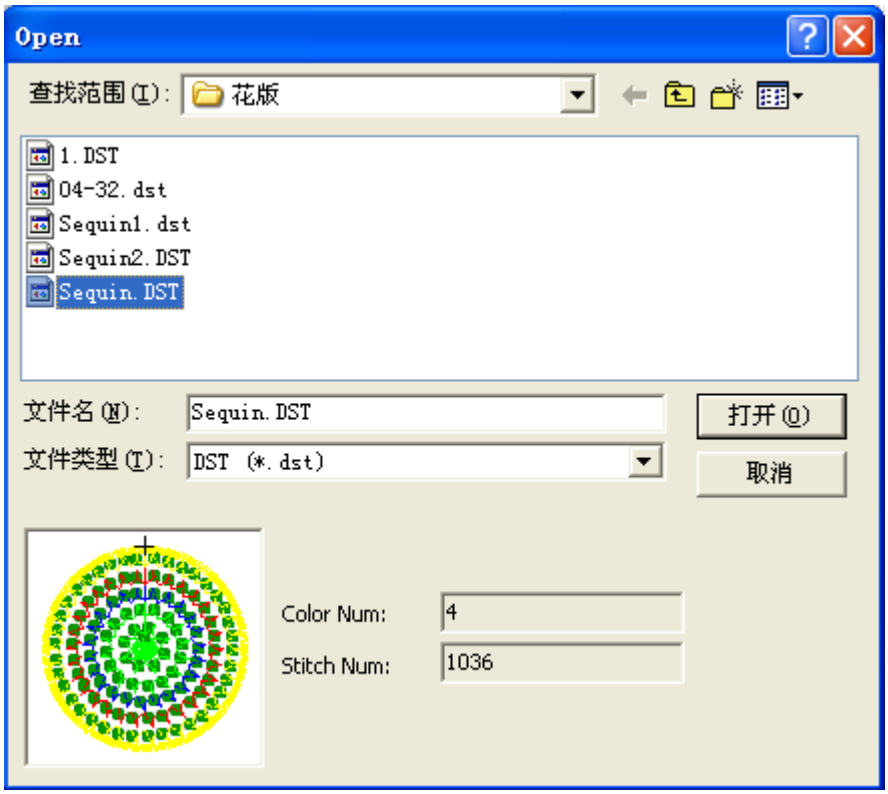
23.3 Multi-Sequin Design Conversion Software

As it is very complicated to use common digitizing software to make sequin designs that can be automatically identified by Shanlong Technology. Shanlong provides a software named TOWEL which can convert common design to specialized design with only an easy click on

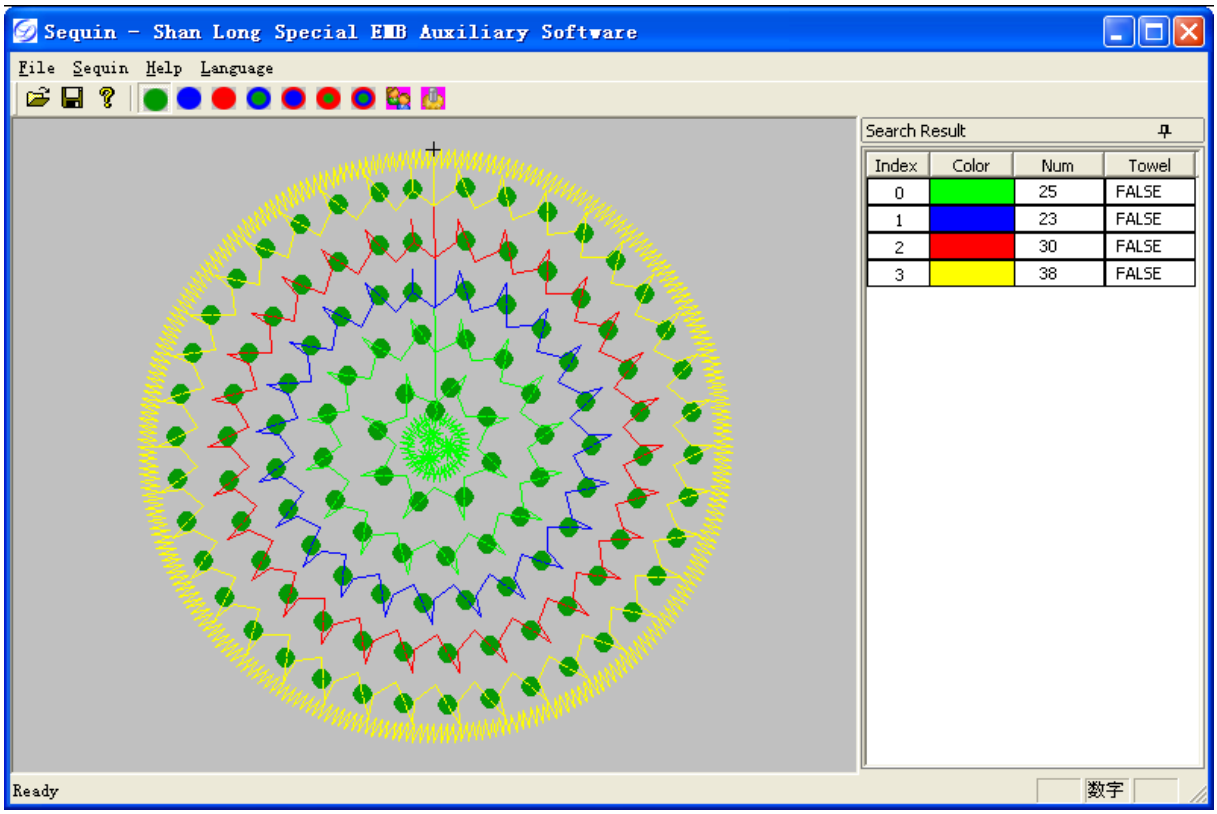
operatorsr mouse. The operating procedures are as follows:

23.3.1 Open Sequin Design

Through selecting **"Open"** under menu of **"File"**, or clicking the Toolbar button, the dialogue box will pop up. Select the sequin design file to be converted from dialogue box. See the figure below:

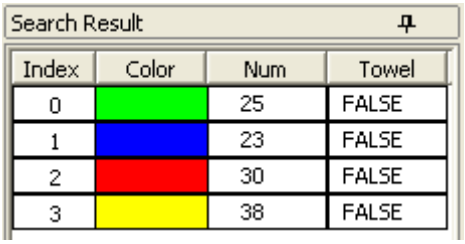


After selection, press the **“Open”** button to confirm. Then operators will enter the following interface:



23.3.2 Viewing Color List

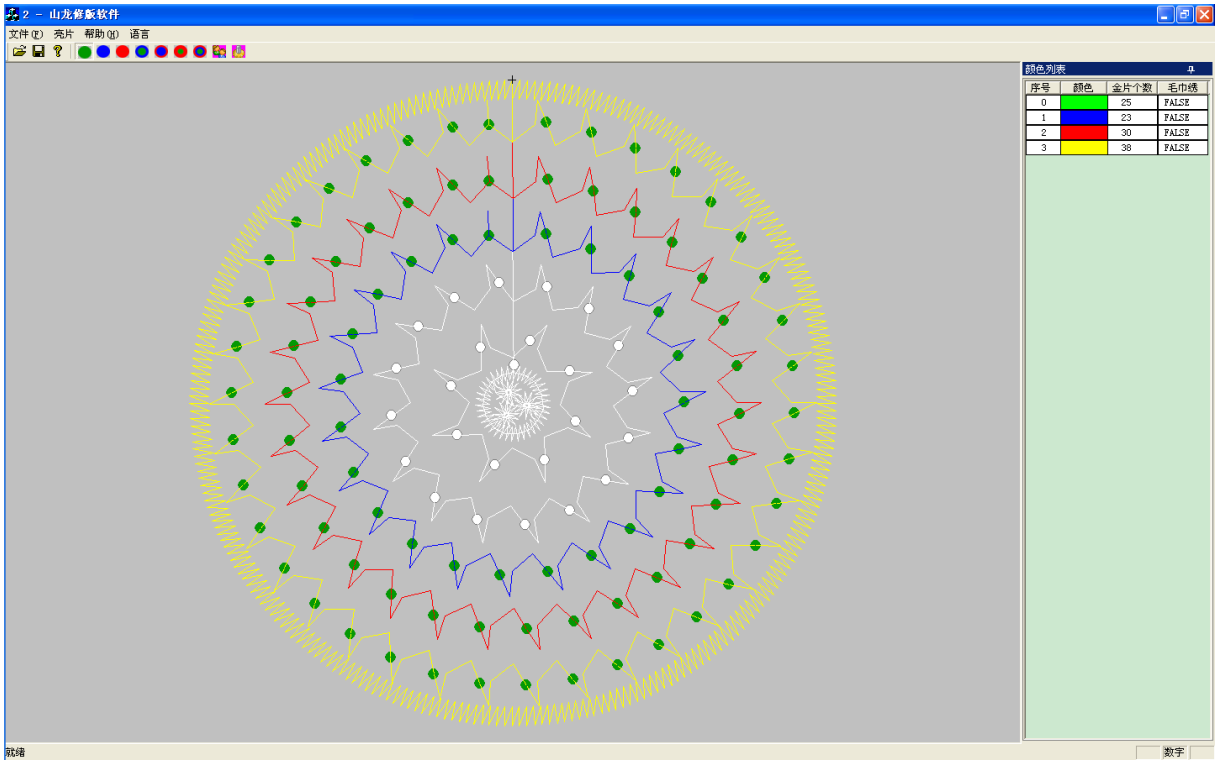
The color section of each sequin displays as the figure below:



23.3.3 Converting to Multi-Sequin Design

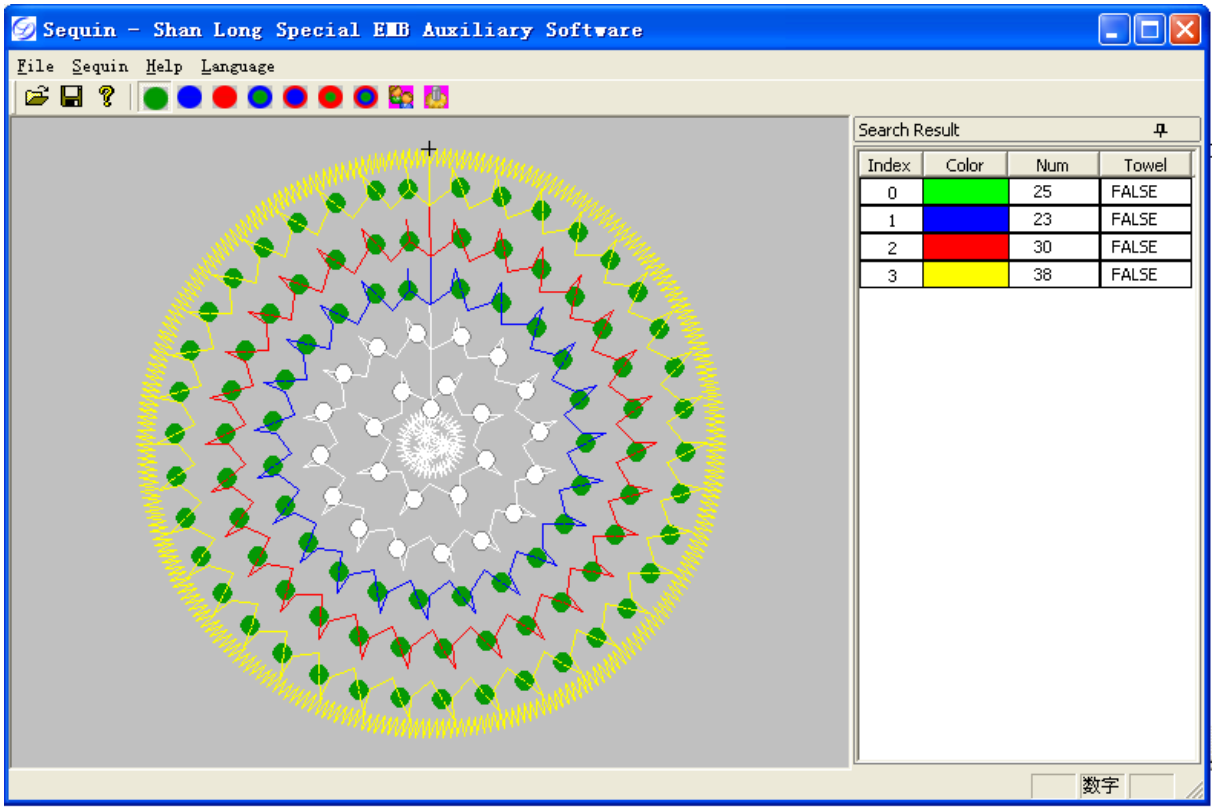
(1) Convert Single Sequin Design to Multi-Sequin Design

If there is a need to change the sequin of one certain color, operators only have to left click the corresponding color in the color list, then the sequin of this color will be selected and displayed as white.



If operators want to convert the selected section to other sequin mode, just take the option "**Multi-Sequin**" under the menu of "**Sequin**", or click the accordant multi-sequin modes shown on the Toolbar. The sequin of this color will change to desired multi-sequin mode.

Select Sequin B:

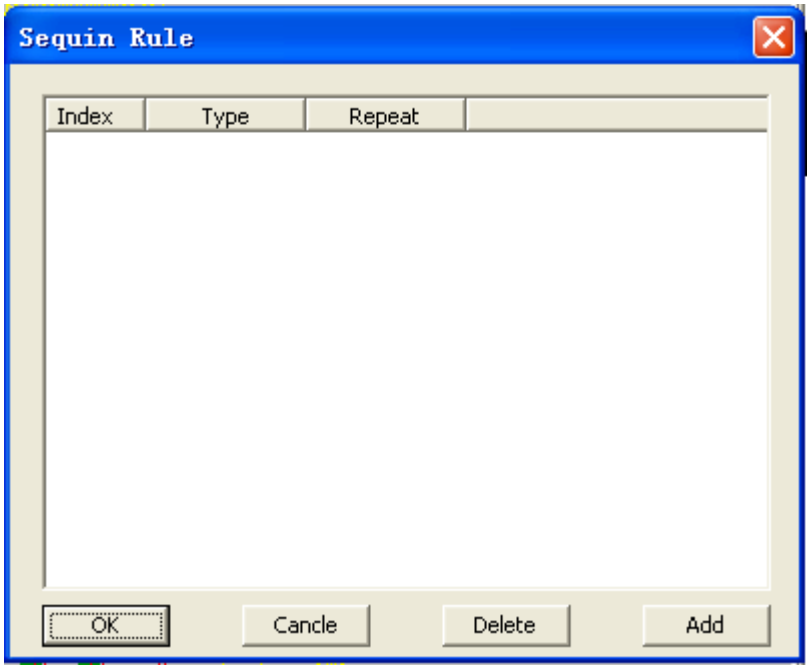


After clicking the color from the color list, operators can cancel the previous selection by

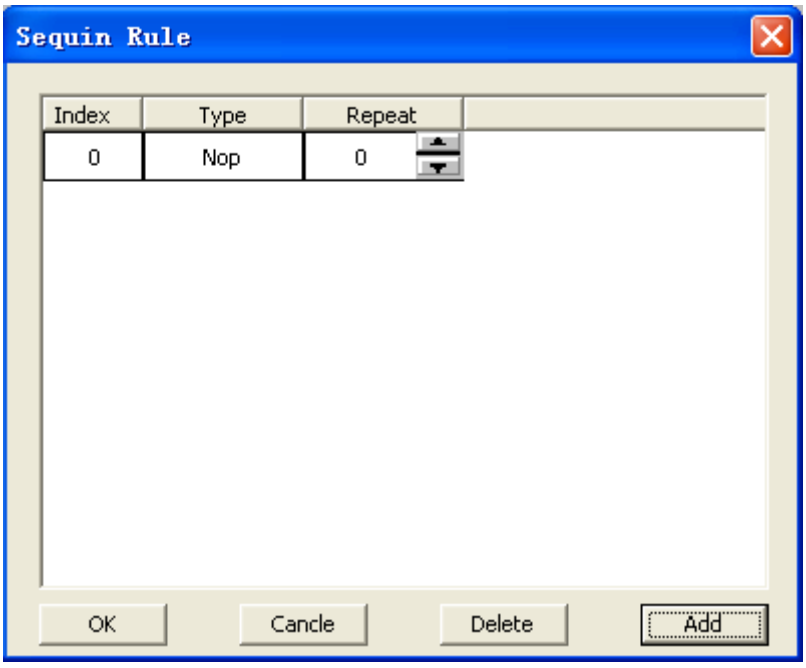
clicking the area without colors below the color list.

(2) User-Defined Replacement

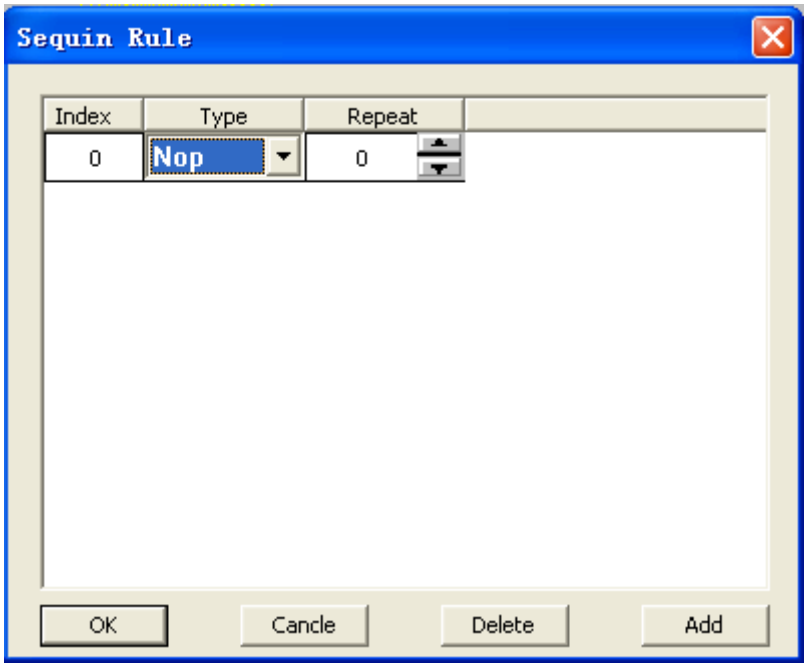
If operators select the user-defined mode, then the selected sequin will be replaced according to the defined sequence of the replacing rules. The detailed procedure is to edit the replacing rules: Click the item **"Sequin"** on the menu bar, then the **"Replacing Rules"**, or clicking the Toolbar button, then the window pop up:



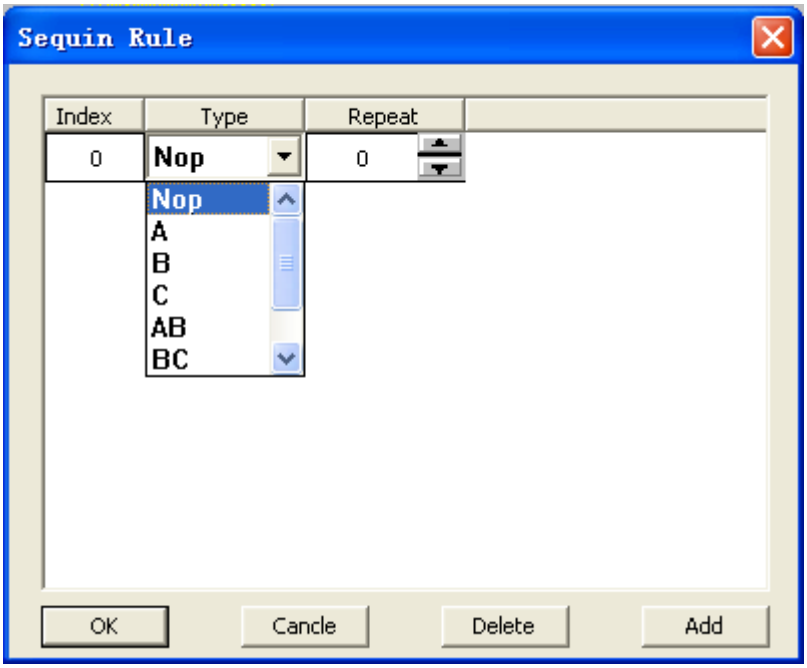
Click the button **"Add"** (which can be used to define the sequin type and repetition times):



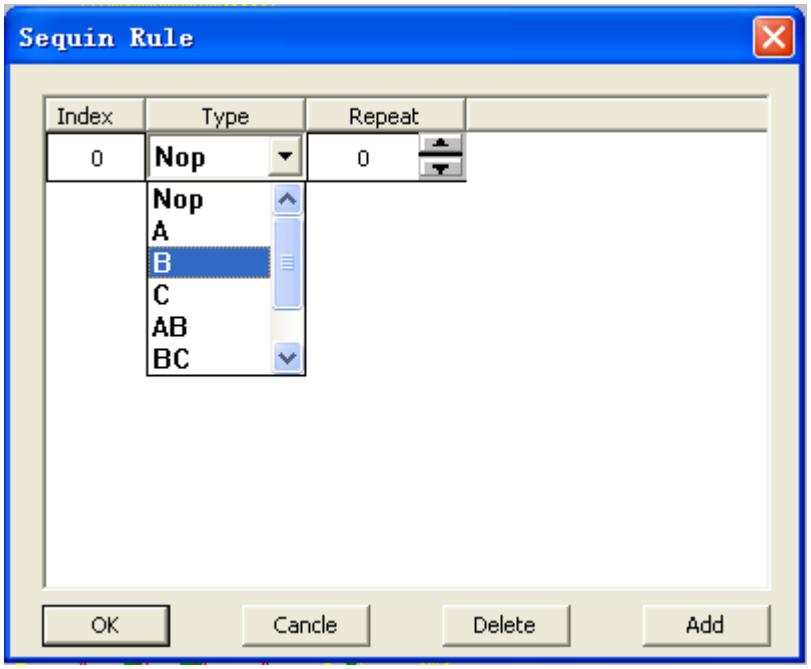
Click the sequin type box that “**Nop”** lays:



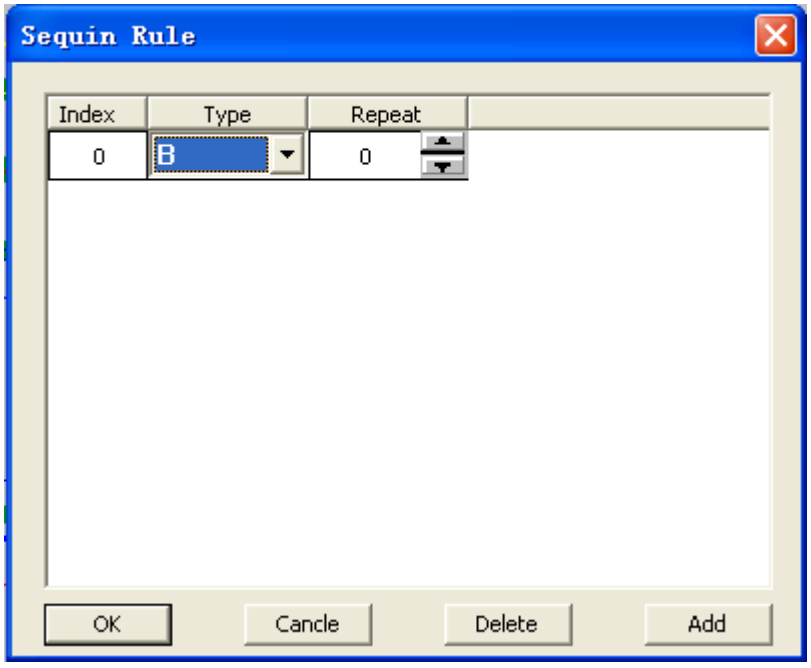
Click the button  :



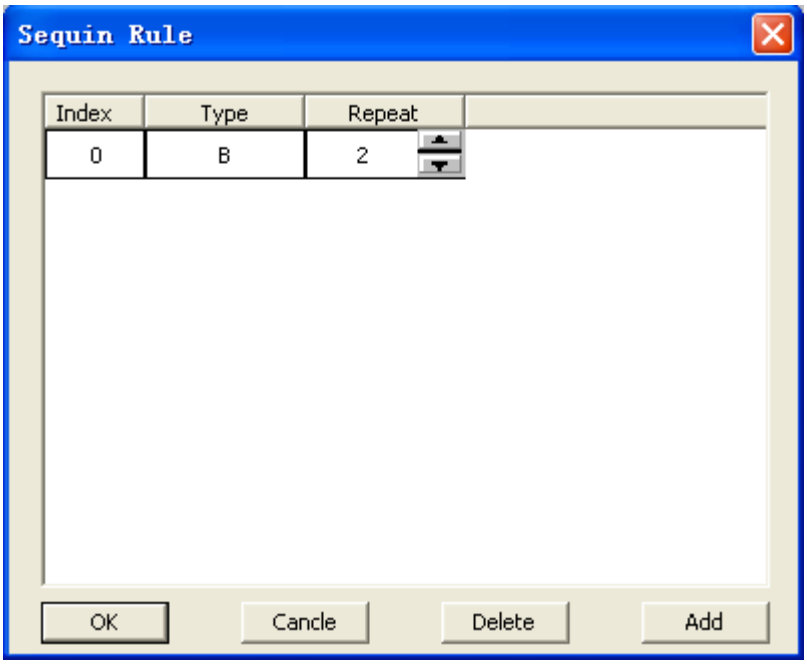
Click the sequin type to operators want to select:



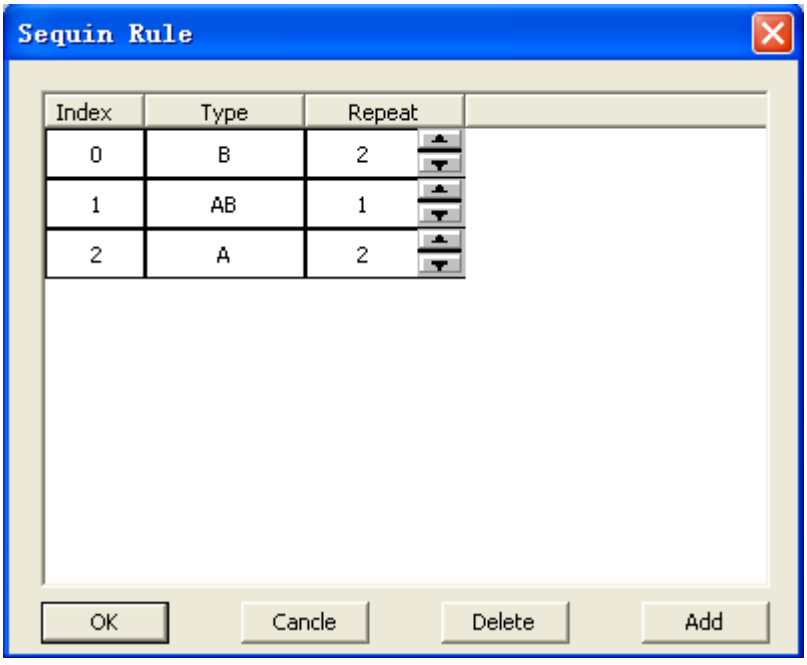
Click the selected sequin type:



Press **“Up/Down”** button  and select the suitable repetition times.

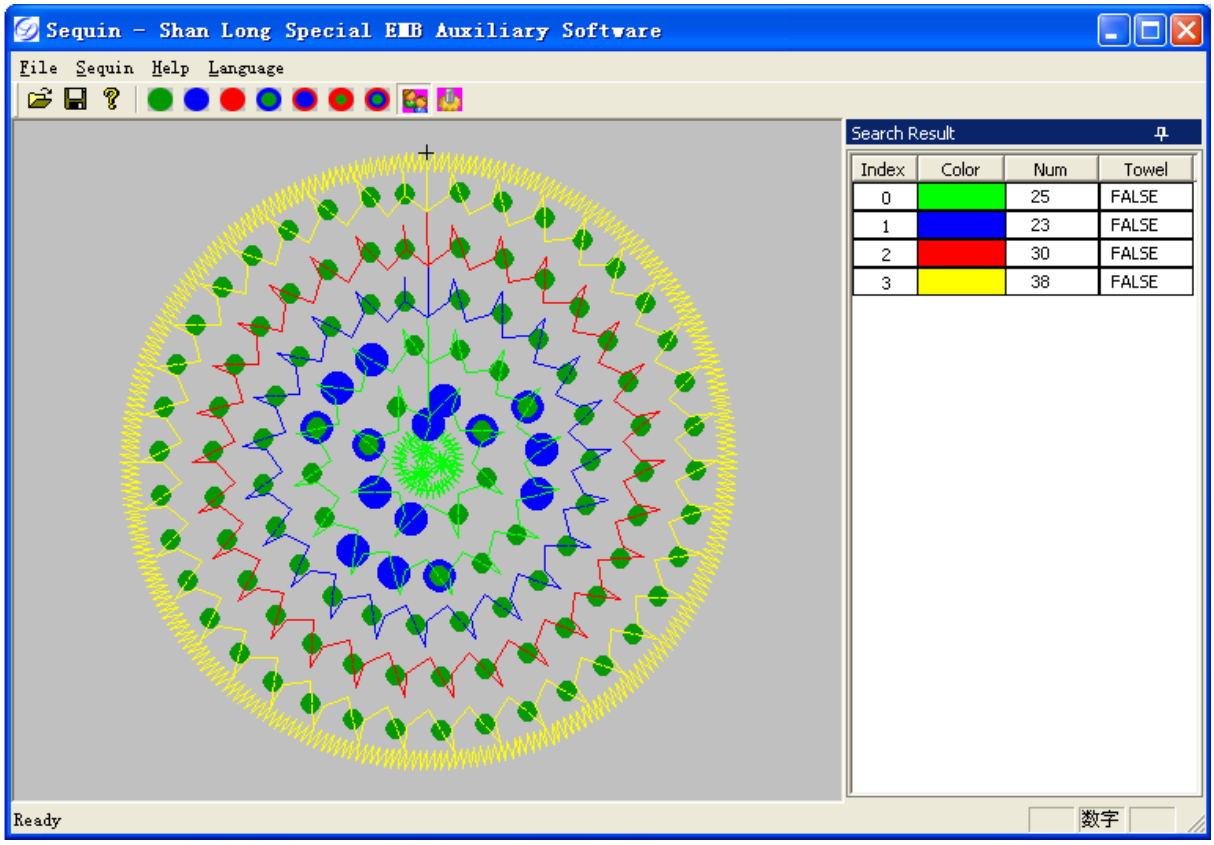


Add more lines with the same method:



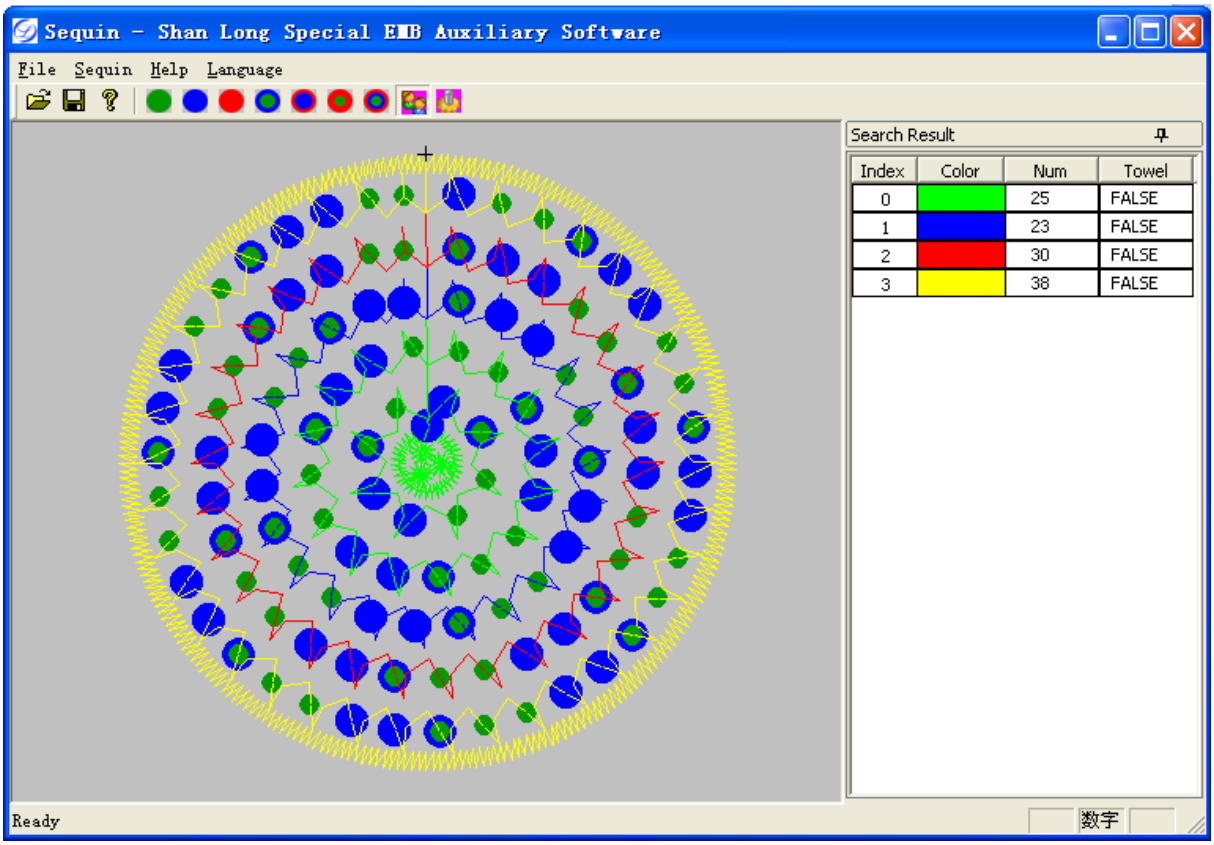
After setting, click the button **“OK”** to confirm, then use the item **“User-Defined”.**

The following figure is modified through the **B2AB1A2 Mode**:



Explanation:

When clicking the area without colors below the color list (not selected color), and clicking the item "**Multi-sequin**" of the menu "**Sequin**", or clicking the multi-sequin button of the Toolbar, operators can convert all sequins of different colors according to the selected the sequin type. The following figure is modified through the **B2AB1A2 Mode**:



(3) Save

Save as DST. File.

THINK BEYOND

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