

刺绣机电脑

Computerized Embroidery Machine

BECS-MATE-A9

(English)

Version: 2024-01

操作手册

OWNER'S MANUAL



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Chapter 1 General Descriptions

Thanks for using the Computerized Embroidery Control System of DAHAO Company. It is appreciated that you do read this manual carefully in order to operate the machine correctly and effectively. Besides, you should keep this manual for future use.

1.1 Warnings and Cautions

In order to avoid fire, electrical shock or unpredicted injuries, you should follow the listed safety rules.

Notice	
Danger	During the operation, do not try to open the machine box. The high voltage contained in some parts can be deadliness. Rotating parts may cause serious injury.
Forbidding	Don't expose the machine to humidity gas, poisonous gas, water, and dust.
Forbidding	Don't restore or operate in vibration, which may cause trouble to the machine.
Notice	Please abide all the warnings and safety requirements to save life.
Notice	LCD belongs to fragile goods. Do not use hard materials to click on the screen.
Notice	Please insert U disk correctly and don't force it in, otherwise, USB interface or U disk may get damaged.
Notice	We will add appendix if necessary, if there is any difference between the manual and appendix, subject to the appendix.
In Transportation	
Notice	Don't hold the cable when moving..
Notice	Please abide all the warnings and safety requirements to save life.
Force	Overloading may cause serious loss. Please load according to the instruction on the box..
Installation	
Notice	Don't jam the vent on the device. Don't plug up the machine, or it may set fire.
Notice	Make sure the installation direction is correct..
Notice	Don't expose the machine to humidity gas, poisonous gas, water, and dust.



Cable Connection	
 Forbidding	Don't test the insulation of the circuit loop.
 Forbidding	Never try to connect overloaded electronic device on the connector..
 Notice	Make sure the insulating of the cable is fine.
 Notice	Communicating cable and power cable should be separated.
 Notice	All the cables should be well fixed. Don't put any strength on cables. Make sure the turning point of cable is well protected. Add pipes to increase insulating capability.
 Notice	Please confirm that: The computerized control equipment involved in this manual must be grounded. The equipment-grounding conductor should use the wire with insulation having an outer surface that is green, with or without yellow stripes. the cross-sectional area of the wire shall not be less than 2mm ² , and the grounding resistance should be less than 10Ω. The equipment-grounding conductor must be pressed crimping to the circular pre-insulated terminal and connected to the position where the grounding mark of the machine case is.
Operation direction	
 Danger	Don't operating the machine when there is any damage on the surface..
 Forbidding	When machine is running, do not touch any running part.
 Notice	Make sure the configuration of power supply in normal. Use stabilized voltage power supply when the voltage rebound is between -10%~10%.
 Notice	In case of warning, please check out the problem. Operation can only be carried out again when problem is solved.
 Notice	The power supply has over-currency protection function. There is a 3 mins time lag before the function can be used again.
Maintenance	
 Warning	If you need to open the machine cover, cut out the power supply first. Duo to the capacitance after power off, operator must wait one minute till he can open the machine cover.
 Notice	Circuit boards can be damaged by static. Non-professional technician can not disassemble circuit boards.
 Notice	If machine is inactive for a while, users must power on the machine regularly (once in 2 or 3 days, more than an hour for each time).



 Notice	If machine is inactive for a long time, users should have the machine checked before power on.
Rejection	
 Notice	Rejection should obey the rules and regulations set by national industrial electronic standards.

1.2 Main Features

1. User Friendly Touch Screen

Adoption of touch screen technology offers delightful operation and easy learning. The beautiful screen display turns everyday work into joyful experiences.

2. Super-Large Memory Capacity

The memory capacity reaches 100,000,000 stitches, in which 1000 designs can be restored. Its super-large memory capacity can meet demands of different customers.

3. Maximum One Million Stitches for One Design

At present a single design in the system has the maximum of 5,000,000,000 stitches and 5000 times of automatic color changing.

4. Multi-Task Parallel and Free Shift among Tasks

During embroidering, actions like design input & output, preparation for the following designs and modification of parameters can be carried out. Flexible shift among tasks can be realized by using the task-shifting key.

5. Storage of Frequently Used Parameters and Color-Changing Order for Each Design

Design will be saved along with its parameters, color-changing orders and needle bar colors. System can memorize the operational details for each design. Users can set parameters for a design during the embroidery process of the previous design, which will help saving time and improving efficiency. More importantly, it is one basis to realize network management.

6. Group Management of Parameters

Parameters can be divided accord to their function, and the part of parameters can be restored, recovered, and the machine has password-protected function can password-protected.

7. Input & Output Using USB



Customers can use USB disk for data transfer. USB disk supports DIR operation, which is easy for design management. For each directory, system supports operation on 1000 designs or sub-directory. There is no limitation between directory levels. Design designs like DSB and DST and ZSK and FDR can be loaded.

8. Input of Several Design Files at One Time

USB disk support multi-design input under one directory.

9. Support Dahao Cloud intelligent factory function, remote online upgrade and remote fault diagnosis.

10. Patch Embroidery

This function can set a patch code after the color code or stop code, and when the machine embroiders the patch code, it will halt and move frame out for patching. After stick a patch, user would pull the operation bar to let the frame move back and continue embroidering.

11. Break Adjusting

For various machines, this function can make the machines stop correctly, which means that the main shaft stops at 100 degree.

12. Starting Point Saving

This function can save and store the start embroidering point of each design, instead of repeating moving frame manually to find the design origin when selecting the same design.

13. Mechanical Maintaining and Debugging

This function is to easily judge the malfunctions when maintaining and testing, which consists of computer testing, encoder testing, main shaft speed testing, machine parts testing and the main shaft stopping at any position, etc.

14. Multi-Language Support

Currently, the system supports language shift among Chinese, English, Spanish, Turkish, Russian, French, Portuguese, Arabic, Thai, Persian, Polish, Korean, German, Italian, Japanese and Dutch and so on.

15. Design Output

Mate-A9 can only export Dahao DHA format, the advantage is perfect compatibility with Dahao EMCAD software. When importing, if it is in the format of dst, dsb, tbf, export the dsb.



If the imported format is in the format of dha, dhd, dhe, etc., the export still retains the format of dhe.

16. Repetition Embroidery

The machine can increase embroidery productivity by repetition embroidery, which can also be used with cyclic embroidery.

17. Cyclic Embroidery

The machine also can increase embroidery productivity by using cyclic embroidery function, by which the machine automatically returns to the origin point and starts the same embroidery design again when finishing the design one time.

18. Design Compiling

(1) Compiling the Data of Selected Design to Generate New Design

Users can compile any design according to zoom ratio, rotate angle, normal repetition or partial repetition to generate a new design and save it in the memory card. The newly generated design can be used for embroidering, output or other operations.

(2) Compiling the Combined Design

System can compile the pre-set combined design to generate a new one and save it to the memory card. The newly generated design can be used for embroidering, output or other operations.

19. Letter Design

There are altogether 28 letter-bases. Users can make groups and change the letter order according to different tasks. This operation is simple and easy managing.

20. Design Editing

By using this function, users may insert, modify or delete certain stitch at the selected point. New designs can be created by this function too.

21. Speed Adjusting

The highest speed for embroidering can be set. During the process of embroidering, speed changes automatically as long as the needle interval changes.

22. Thread Trimming

Thread trimming can be manually controlled. Trimming acts automatically at the end of



embroidery process or color changing.

23. Thread Break Detect

In case of thread break or running out of bottom thread, machine stops and warning lights start to blink.

24. Color Changing

At the color changing point, user can either act color changing manually or let the system do according to the preset order automatically.

25. Special Embroidery

BECS-A98 computerized embroidery adds special embroidery functions (coiling, taping and Zigzag embroidery).

26. Setting up B point (Optional)

This function is specially designed for easy threading when thread breaks appear on giant frame. See 9.4 for details.

1.3 Technical Specifications

1. Maximum design saving quantity: 1,000 designs
2. Memory capability: 100,000,000 stitches
3. Screen resolution: 1280*1024
4. Maximum number of stitches: 50,000,000
5. Color-changing times: 5000;
6. Comprehensive integration of main control system and drive system can comprehensively improve the control performance
7. Support dual-band WiFi, 4G networking
8. Support Dahao cloud platform smart factory
9. Support network remote software upgrade
10. Support network online installment encryption and decryption
11. Support online remote problem diagnosis
12. Network transfer speed: 10Mbps
13. Data transfer mode supported: USB disk and network
14. Stepping Precision: minimum stepping precision is 0.1mm
15. Stitch range: 0.1mm~12.7mm

Chapter 2 Embroidery Guide

2.1 Configuration and Direction of the Control Panel

I. Configuration of Control Panel



1. Touch Screen

It adopts high-luminance LCD display and touch screen man-machine interaction.

2. Main USB Interface

USB disk can be plugged in for data input/output.

3. Operational Buttons

Common actions can be realized by using operational buttons on the control panel. Those actions include: frame moving speed shifting, frame moving, and manual color changing.

II. Direction of the Control Panel

It adopts touch screen technology. In order to extend the life of the control panel, please do not lay too much pressure on the screen during operation. Try to avoid using hard or shape tools to touch the panel.

III. Direction on Using the USB Disk

Please pay close attention to electrostatic phenomenon. Don't forget to discharge before plugging in/out the USB disk.

USB disk features plug-in direction. Users should avoid plugging out during writing or loading data, because it may result in loss of data. We highly recommend users to check the data integrity in case of data missing.

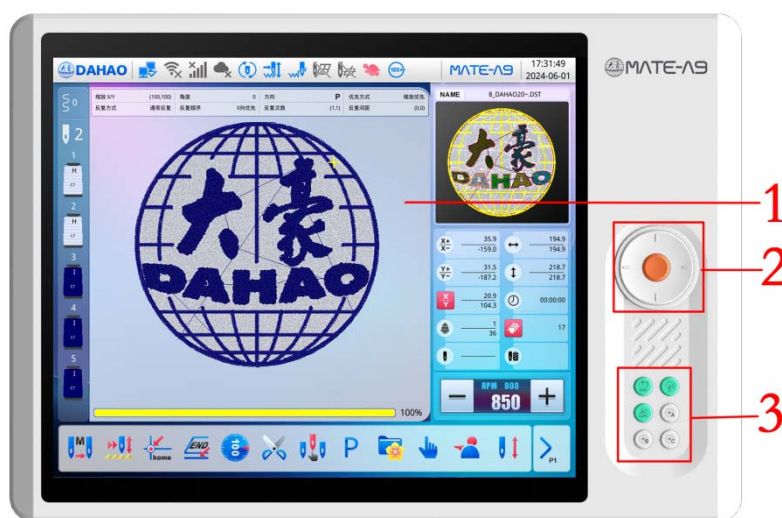
Note: During the process of USB format, sudden loss of electricity or plugging out the disk may break down the USB.

IV. Direction of Network Connection

Preset the network parameters before the connecting. Otherwise other machines in the network maybe can't communicate.

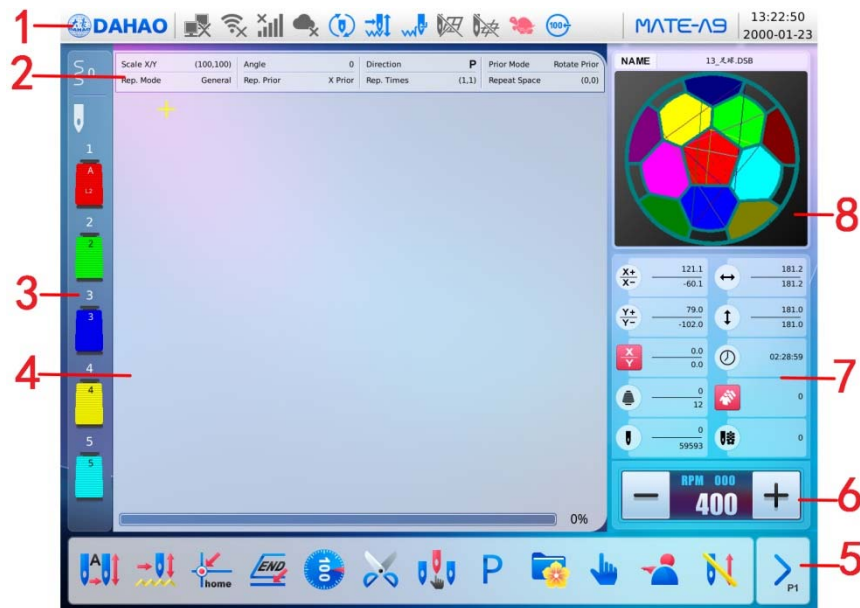
2.2 Instruction of Control Panel

Operation can become much easier by using shortcut keys and the touch screen on the panel.



No.	Name	Description
1	LCD	This area displays the operation interface.
2	Manual Frame Movement	The direction of frame moving is the same as the direction key. The combination of directions is supported.
	Manual Frame-moving Speed Shift	Press this key to shift between high speed (🐇) and low speed (🐌).
3	Assistant Operations	Include such operations like pattern origin, needle stop at down position, start elsewhere, sequin, quilting, special embroidery

2.3 Instruction of the Main Screen



No.	Display	Name	Description
1		Network Connection Failure	Network status (unconnected  , connected  , register successfully )
		Wifi Connection status	Wifi Connection Status (disconnected  , connected )
		Signal connection status	Signal connection status (disconnected  , connected )
		Cloud service connection status	Cloud service connection status (disconnected  , connected )
		Cyclic Embroidery Prompt	The machine is currently set with cyclic embroidery. Click  to enter the parameter management screen, in which the cyclic parameters can be set.
		Taping mode	Press relative icon to select the embroidery mode you need
		Assistant embroidery status/lockstitch/special embroidery	Lockstitch, sequin, etc.



No.	Display	Name	Description
1		Assistant Operation Status	Click to enter other functions and select any one of embroidering along the design range, one line, one cross and the design outline, and then the icon will appear after coming back to the main screen.
		High-speed Manual Frame Shifting Status	When the machine stops, press the manual frame-shifting keys to move the frame, and the frame will move in the high speed. Switch between and can be achieved by pressing the switching key on the panel.
		Low-speed Manual Frame Shifting Status	It's opposite to the high-speed manual frame shifting status and used for speed-adjusting.
		The main shaft stops at the right position (100°).	When the machine stops while the main shaft stops at the right position, you can do operations such as color-changing and frame-moving.
		The main shaft hasn't stopped at the right position (100°).	When the machine stops and the main shaft haven't reached the right position, you need to turn the shaft to the 100° position manually by clicking .
2		Parameter Setting	Interface for parameter setting
3		Looping needle height	Set the height of the looping needle
		Manual Color-changing	When the machine stops and the main shaft reaches the set position (), click it to enter the manual color-changing screen and then click the corresponding needle number to change color.
		Current Color Change Order	The order of the numbers represents the needle-changing sequence. And the three-dimensional icon represents the current icon.
4		Design viewing Area	This area displays the embroidery designs.
		Display of Processing Bar	Display of Processing Bar: This button will display the Time for Finishing Pattern and the



No.	Display	Name	Description
			Embroidery Percent.
5		Manual Color-changing Manual Start	In this status use manual color-changing key  or the color-changing key on the panel to select the needle position before embroidery, and then pull the bar to start embroidery. When meeting the color-changing code during embroidery, the machine will halt automatically and the color-changing icon appears. And the operator needs to do manual needle-changing ( or the color-changing key on the panel) to select the needle position, and then pull the bar to start embroidery(manual start).
		Automatic Color-changing Manual Start	If the machine is set as automatic color-changing, the color-changing sequence should be set before embroidery. When pulling the bar to start, needle-changing will be done automatically following the set color-changing sequence and then embroidery will start. When meeting the color-changing code during embroidery, the machine will automatically halt and do the needle-changing following the settings. If it's set as automatic start, the machine will start embroidery automatically. If it's set as manual start, embroidery will start by pulling the bar.
		Automatic Color-changing Automatic Start	
		Normal Embroidery	The machine is currently in normal embroidery status. When pulling the bar for normal embroidery, the main shaft rotates, the frame moves along the stitch trace and threads shape the design on the embroidery materials. When pulling the bar for returning, the machine returns in low-speed idling. When the machine stops, click this key to switch to the low-speed idling status  .

No.	Display	Name	Description
5		Low-speed Idling	The machine is currently in low-speed idling status. When pulling the bar for normal embroidery, the main shaft remains inactive and the frame advances along the stitch trace. When pulling the bar for returning, the main shaft remains inactive and the frame returns along the stitch trace. When the machine stops, click this key to switch to high-speed idling status  .
		High-speed Idling	The machine is currently in high-speed idling status. When pulling the bar for normal embroidery, the main shaft and the frame remain inactive while the count of stitches decreases. When pulling the bar for stop, the frame directly moves to the actual position of the current stitch count. When the machine stops, click this key to switch to the normal embroidery status  .
		Back to origin	When the machine stops, click it, the frame will automatically return to the start point of the current design.
		Back to stop point	When the machine stops, click the key “Manual Frame-moving” to move the frame (e.g. in case of patching). Then click this key and the frame will automatically return to the stop point of the current design.
		Turn the main shaft at 100° manually	If the main shaft doesn't arrive at 100°  ; click the key and then the main shaft will arrive to this position  .
		Manual Trimming	After machine stops, click this key to do manual trimming (Trim up-lower thread and Trim bottom thread).
		Manual Color-changing	When the machine stops and the main shaft reaches the set position (), click it to enter the manual color-changing screen and then click the corresponding needle number to change color.



No.	Display	Name	Description
5		Change design direction	Press this key to shift the design direction.
		Memory Design Management	Click it to enter the memory design management screen, which includes “select design”, “disk input”, displaying designs, creating new designs and monogram operation.
		Other Functions	Press this key to enter other assistant management interfaces, like clock setting and help.
		Assistant embroidery operation	Design origin, needle stops down, offset point, sequin, special embroidery, etc.
		Preparation Status Click the key to enter Embroidery Confirmation Status	The machine is currently in the preparation status and you can choose the design, or set the parameters such as scaling and repetition. Click the key and confirm, and the machine will switch from the preparation status to the embroidery confirmation status .
		Embroidery Confirmation Status Click the key to cancel embroidery	The machine is currently in the embroidery confirmation status. You can pull the bar to start embroidery or click the key and confirm to cancel embroidery, when the machine will return from embroidery confirmation status to preparation status .
		Previous/Next Page	Function menus are displayed in pages.
		Set UI Language	
		Machine Test	
		Mchn. Para Setting	
		Frame Selection and Position	Frame selection and position
		Idling	Used to move the frame to appointed position without embroidery

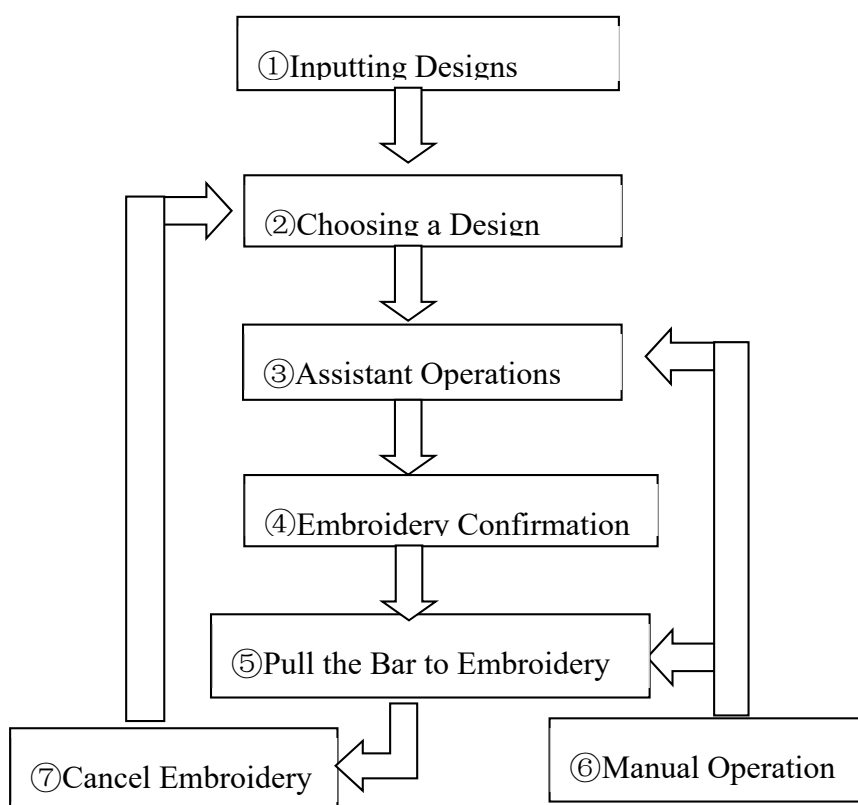
No.	Display	Name	Description
6		Decreasing the Main Shaft Speed	It's used to decrease the main shaft speed (until the set lowest speed).
		Increasing the Main Shaft Speed	It's used to increase the main shaft speed (until the set highest speed).
7		Design Information	Related design information is displayed in this area.
8		Pattern Management	Click it to enter the memory design management screen.

2.4 Notes on Menu State

If one menu is labeled with “gray text” it indicates that this menu can not be accessed and modified. While if one menu is labeled with “black text”, it indicates that this menu can be accessed and modified. If there is a “🔒”, then this parameter can be modified only if the user relieves the password at first.

2.5 Flow Chart of Embroidery

The machine embroiders based on the designs in its memory. The following is the basic Flow Chart of Embroidery.





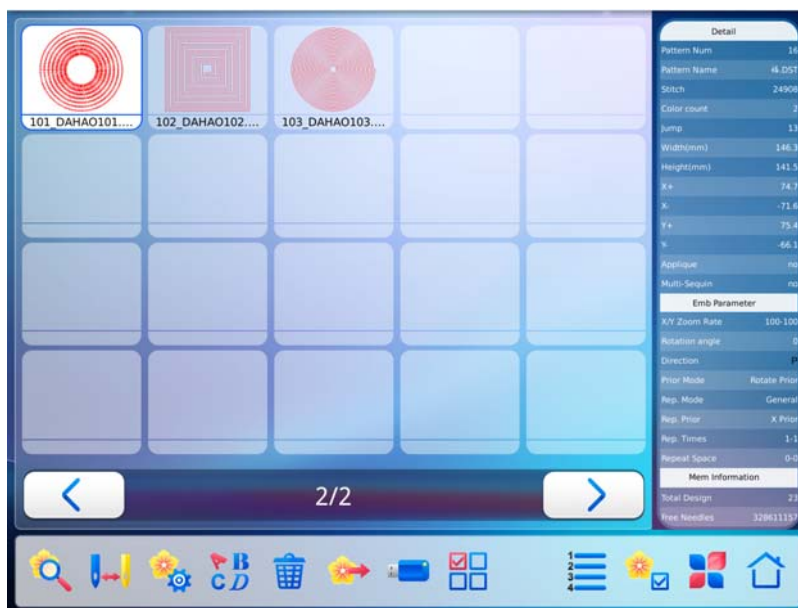
I. Input of Designs

The user can input designs through network, USB disk. Only with  displayed (register successfully), can it possible to transmit designs by network. For disk operation, (USB disk included), you can input designs by choosing  in the design management screen.

II. Choosing a Design

If the design management screen is not opened, click  in the main screen to enter it.

1. Click “Select Design” in the design management screen.



2. If the design's start point has been saved, the prompt “Move frame to design's start” will appear when entering the main screen. Click  and the frame will automatically return to the start point.

III. Assistant Operation

After choosing the design, the user will enter the main screen, and he can do the needed assistant operations before embroidery.

1. Set repetition, rotation and scaling—click  → “Zoom, Rotate and Repeat” to enter the parameters management screen.
2. Set the color-changing order—click  and then needle (color) changing to enter the color-changing screen
3. Set patching embroidery—click  → “Modify Color Line”. Then click  to set patching according to prompts.



4. Show the range of embroidery design, move frame along the design range, embroider along the design range, embroider one cross, embroider one line, embroider the design outline——click  , click “Design border operation”, to enter the other functions screen.

Or click  to enter frame selection and position operation.

5. Move frame to let design be central——click  , click “Design border operation”, to enter the other functions screen. Or click  to enter frame selection and position operation. Note: this function is to place the design at the center of the design range set by software (soft range of design).

6. Save the design’s start point——click  to enter frame selection and position operation. Note: The origin point has to be set before saving the start point. To set the origin point, click  to enter frame selection and position operation.

7. Set cyclic embroidery——click  to enter the parameter management screen. Then click “Sewing Para1” and set according to prompts.

IV. Embroidery Confirmation

1. The user can click  after finishing assistant operations. Choose  in the followed prompt and  (embroidery preparation) will change into  (embroidery confirmation), which means that the machine has entered the embroidery confirmation status.

If  is chosen, the machine will remain in the preparation status. Pull the bar and the machine will not run and a prompt will appear to ask the user to confirm embroidery.

2. Setting Off-Set Point

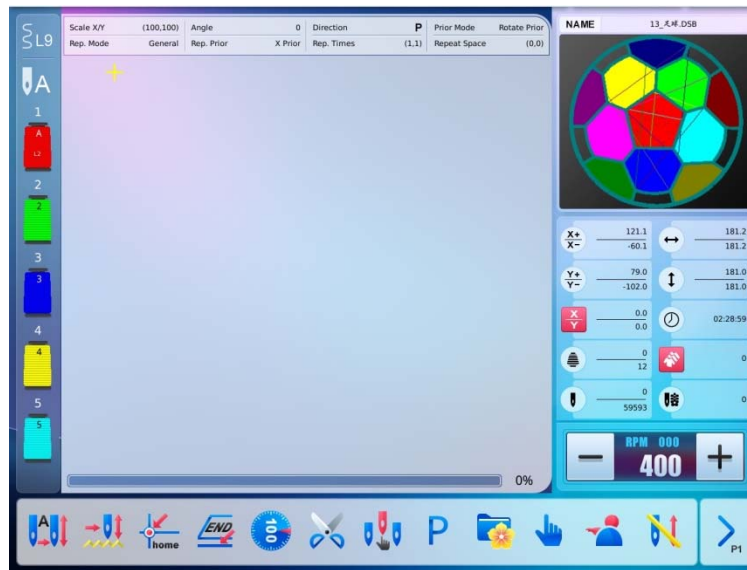
After embroidery confirmation, if needed, click  to set off-set point according to the prompts. Note: It’s of no effect to set off-set point after starting embroidery.

3. Setting the Way for Color-Changing and Starting

In the main screen, click “” (or “”, “”), the status will switch among  (auto color-change, auto start),  (auto color-change, manual start) and  (manual

color-change, manual start).

4. Setting Normal Embroidery and Idling



Click the position pointed in the above picture and the status will switch among  (normal embroidery),  (low-speed idling) and  (high-speed idling).

V. Pull the Bar to Embroider

Operation bar (embroidery bar under the table)

1. Stop Status:

Pull the bar right to begin embroidery (including low and high speed idling)

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

2. Running status:

Pull the bar right to the end to embroider slowly and release to normal speed.

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

VI. Manual Operation

1. Manual Trimming:

When the machine stops, click  in the main screen to display a hint window, where user can click “Trim bottom Thread” to trim the bobbin thread only, or click “Trim Up-lower thread” to trim threads. Click  to exit trimming operation.



2. Manual Frame-Moving:

When the machine stops, press the keys (“   ”) to move the frame in the corresponding direction. Press the next two keys at the same time to move the frame in the direction of the angle bisector. Press “” to switch between  (high speed) and  (low speed).

3. Clearing the Frame Coordinates

When the machine stops, click  to clear the XY displacements displayed in the main screen. The function can be used with manual frame-moving.

4. Manual Color-Changing

When the machine stops, click  in the main screen to enter the manual color-changing screen. Then click the needle number for color-changing, and the machine head will automatically move to the corresponding needle position. It's also possible to do color-changing by pressing “ 6”. Please note: if the user wants to automatically save the order of the manual color-changing (yes for “Store Manual Color” in embroidery parameters), it has to be operated in the manual color-changing screen of the touch screen.

5. Turn the Main Shaft to 100° Manually

Usually the main shaft is needed to stop at 100° when needle/color-changing, frame-moving and beginning embroidery. The user can manually turn the main shaft at 100° when it hasn't reached there. In the main screen click  to carry out the function.

After the operation, the icon  (main shaft not in the right position) will be replaced



by (main shaft in the right position).

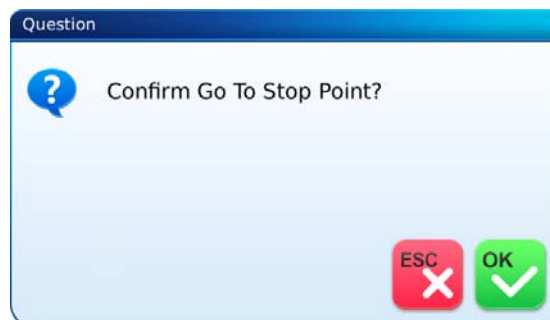
6. Back to the origin

In the main screen click and choose in the followed prompt. Then the frame will return to the start point.



7. Back to Stop Point

Click in the main screen and choose in the followed prompt. Then the frame will return to the stop point.



8. Positioning Idling

Use this function after embroidery confirmation. Positioning idling enables the machine to move to the designated position without embroidering according to the user's requests. Click in the main screen and click move frame to stitch; Or Click in the main screen, then the user can set the positioning idling of needle number, color-changing code and stop code.

9. Let Needles Down

This function is designed for quilt embroidering. Click in the main screen and then the option, then click “Let needles down to loosen cloth”, then click the needle will prick into the embroidery cloth and a prompt will appear. After releasing the cloth (cloth has to be



separated from the frame), move the frame to the designated position and click . After this operation, the needle is still down. When the cloth is placed on the frame again, click  to turn the main shaft to 100° manually.

10. Manual Operations of Sequin and Special Embroidery

Some machines are equipped with devices for sequin and special embroidery. For such machines, click  and then use “Operations for special embroidery” to enter the concerned menu. Click the corresponding keys according to the prompts.

VII. Embroidery Cancel

When the machine stops, click . Choose  in the followed prompt and  (embroidery confirmation) will change into  (embroidery cancel).

2.6 Normal Embroidery, Returning and Patching

In embroidery confirmation status (the icon  appears), push the patching switch of machine head (that will perform normal embroidery) to the normal embroidering mode, and push the patching switch of machine head that will not embroider to the patching mode, and then pull the operation bar to right and release it to let the machine start normal embroidery. (When you pull the bar right and don't release it, the machine will embroider in lower speed.) During embroidering, pull the bar left, the machine will stop.

After the machine stops, pull the operation bar to left and the frame will return to its last position along original path. Pull the bar one time, the frame return one needle step. Pull the bar continuously and the frame will return one needle step after another continuously. After the frame returns 10 needle steps continuously, the frame can return continuously even when you release the bar. (This may be different for different machine types). When the frame return continuously, release the bar and pull it left again, the frame will stop returning. Or click  to return the frame back along with the original embroidery path; one click, one stitch back; hold clicking for 2s to return continuously, even without holding ; click  again to



stop.

The aim of returning is usually to perform patching embroidery. After the returning stops, push the patching switch of machine head that will perform patching embroidery to go to the patching mode, and then pull the operation bar to right and the machine head will start patching embroidery while other heads don't. When the frame goes to the point where the frame begins to return, other heads whose patching switches are in normal embroidering mode will start to embroider.

2.7 Relations of Normal Embroidery, Idling and Position Idling

Functions as idling, returning, etc. are intended for the convenience of darning. Low-speed idling, high-speed idling or positioning idling can be used as needed in embroidery. In the status of idling, the returning can be low-speed idling returning, high-speed idling returning or positioning idling returning.

In the main screen, you may press  /  /  to switch between  (normal embroidery) ,  (low speed idling) and  (high speed idling) .

After setting low-speed idling  , the main shaft remains inactive when pulling bar for normal embroidery, but the frame runs forward along the stitch trace. When pulling bar for returning, the main shaft keeps inactive, but the frame returns along the stitch trace.

After setting high-speed idling  , the main shaft and frame remain inactive, the count increases based on a unit of 100 stitches. After pulling the bar for halting, the frame moves directly to the actual position of the current count. When pulling bar for returning, the main shaft and frame keep inactive, but the count decreases. After pulling the bar for halting, the frame returns directly to the actual position of the current count.

The positioning idling can move the frame directly forwards (or backwards) to a designated position, or to a latest color-change position, or even to a latest stop-code position. Click  in the main screen and click move frame to stitch, Or Click  in the main screen, then the user can set the positioning idling of needle number, color-changing code and



stop code. After the system returns to the main screen, pull the bar forward/backward to complete the positioning idling.

2.8 Operation Bar and Turn Shaft Button

I. Operation Bar (Embroidery Bar under the Table)

Stop status: pull the bar right to begin embroidery (including idle running in high or low speed) and pull the bar left to return (including idle running in high or low speed)

Running status: pull the bar right to the end to embroider slowly and release to normal speed and pull the bar left to stop embroidery.

II. Turn Shaft Button (over the operation bar case, on the right under the table)

To press the button to make the main shaft rotate one cycle and stop at $100 \pm 2.5^\circ$.

2.9 Thread break detect and mending switch

Based on working different principles, thread break detect have three methods: thread take-up spring type, thread winding wheel (chopper wheel) type and mixed type.

For thread take-up spring type, it warns thread break by detecting connection of take-up spring and contact point. When thread breaks, the spring will close to the contact point. In normal condition, this detecting type reacts sensitive to face thread breakage, but can hardly detect bobbin thread run-out. In case you change the embroidery thread, or thread tension changes, you need to adjust spring pressure between the take-up spring and contact point. When the spring pressure is too large, there will be False Positive; when the spring pressure is too small, there will be False Negative.

For thread winding wheel type, it judges thread break by detecting the winding wheel angle. It reacts very sensitive in case of face thread breakage; in most cases of bobbin thread run-out, the consumption of face thread will reduce, as a result, system will judge by statistic method and send out warning. Though it can almost avoid False Positive, it is not as sensitive as the spring-type.

For the mixed type method, the two can complement each other with their advantages, which results in sensitive and stabilized detecting effect.



No matter which method you use, there is one switch and one status light on each machine head. There are three positions to switch but only two positions can be locked. When you switch to the down side, status light does not shine, which means the head stops. When you switch to the middle, status light is green, which means the head is now in normal embroidering. In case of thread break, machine stops and status light on that particular head turns out red. System automatically changes to mending mode on that head. If you want to set a single head to mending mode manually, you can switch to the upper side, which can not be locked. When you loose the switch, it returns to the middle. At meantime, status light on this head will turn out red to indicate that mending mode available on this head.

1. Intelligent digital break detection system

This new thread breakage detection technology is based on the testing principle of magnet encoder and is a breakthrough of the traditional spring type and chopping wheel type detection method. It has high detection precision and fast response speed. It can output the thread recognition at the direction of thread passing wheel, which can greatly increase the thread breakage detection sensitivity. It can recognize the upper thread breakage and the empty status of the bobbin thread very quickly. It certainly is a performance leap of thread breakage detection technology.

- (1) The non-contact mode of the magnetic induction with no need of opt coupler detection board and connection spring makes the wire connection much simpler, anti-dust and anti-oil capacity much stronger, fault rate much lower and maintenance much easier.
- (2) The length of the embroidery thread actually used at each needle position can be precisely computed and counted, convenient for the prediction of embroidery thread quantity for the production and reducing waste of materials.
- (3) The intelligent fault detection supports the detection of abnormal actions of motor and solenoid, over-current and short-circuit protection, and power misconnection protection.
- (4) CAN bus communication technology greatly simplify the cable connection of thread breakage detection system.
- (5) Fault memory function after power off makes the board maintenance and remote operation



and maintenance very convenient.

- (6) Support motor jump control and solenoid head jump control .
- (7) Support self-holding upper thread clamp solenoid control.
- (8) Compatible with the customer s existing thread dump device, improve TB performance and function

2.10 Working States

The machine has three working statuses:

1. Preparation  —— preset parameters; choose embroidery designs and other preparation work.
2. Embroidery confirmation “  ” —— confirm the parameter settings to enter the quasi-running status.
3. Embroidery running status  ——embroidery
4. In preparation status ( is displayed), after selecting pre-embroidery design and setting the parameters, first press , then press  . Now the machine is in embroidery confirmation status ( is displayed) . Finally, pull the embroidery bar to right to embroider, which means the machine is in embroidery running status ( is displayed) .

In embroidery running status ( is displayed) , pull the bar left to stop, now the machine is in embroidery confirmation status (Again, pull the bar right, the machine goes into embroidery running status).

In embroidery confirmation status ( is displayed) , first press , then press  to release embroidery confirmation status. Now the machine enters preparation status ( is displayed) .

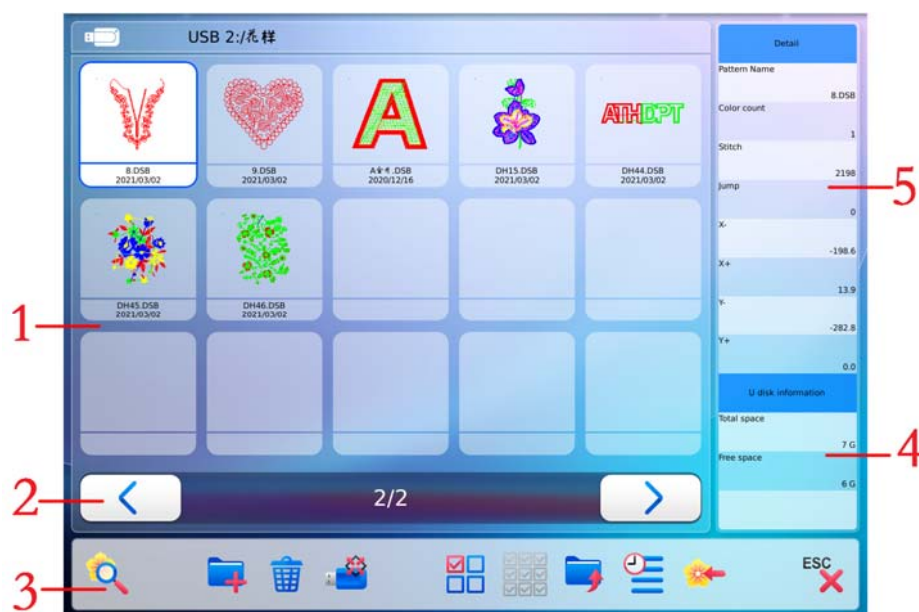
Chapter 3 U Disk Management

In U disk management interface, user can input patternss from U disk to machine, and vise versa; meanwhile, user can undertake some common U disk managements, like erasing file or directory, initializing the disk, etc. User can save patterns data under different directories of the U disk based on different types. Patterns formats like DSB, DST and DSZ can be read by the system. For data output, patterns will be saved in the U disk as DSB format.

3.1 Select U Disk

Since the system support more than one storage device, please choose the objective disk.

1. Click  →  ;
2. Enter the Disk Management Screen.



No.	Display	Name	Description
1		File List	Display the pattern files and file folders within the U disk in icons. It's used to select files.
2	 , 	Page Information	The current page number and total page number
3		Preview of designs	Display the selected file and its information. Load the selected pattern. Check its details, scale up/down the



No.	Display	Name	Description
			pattern, and move or make analog display of the pattern.
		Create Directory	Create new file folder
		Deletion	Delete the file or file folder
		Formatting U Disk	Formatting the U disk
		Single/Multiple Selection	Shift between single selection mode and multiple selection mode.
		Select all	Select all the items in the current folder, only in the multi-selection mode.
		Back to Upper Level	Return to upper level
		Pattern sort	Pattern arrangement: Sort by pattern size 、Sort by time 。
		Pattern Input	Import the patterns in the U disk to memory.
		Exit	Exit U disk management.
4		Disk information	Display the storage and left space of disk and memory.
5		Memory information	Display the current operation information: the file number in the current folder, information of the selected file and design.

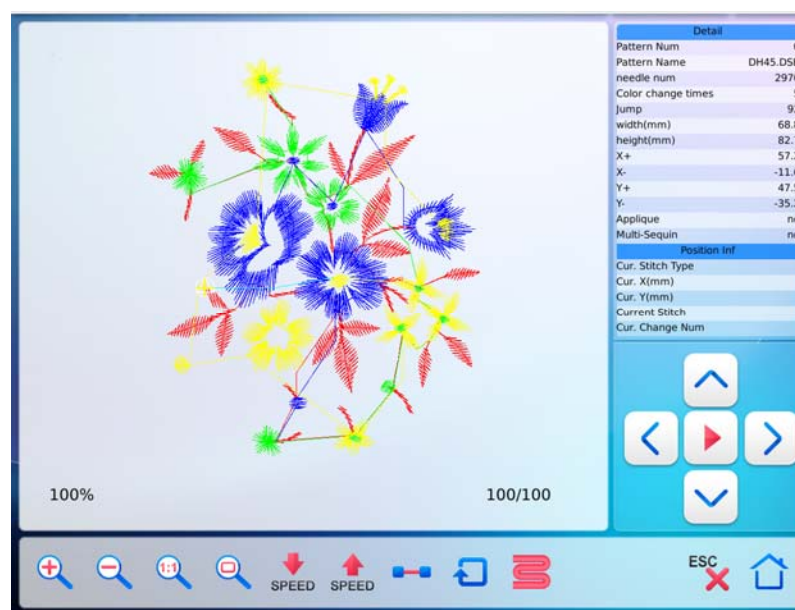
3.2 Design Preview

1. Click and select the design in the disk management screen.



Design files and folders are shown by icon in the list. One page of the list contains 15 items. Click the key to turn pages to look for designs in another page. The selected object has a green frame and a different background color.

2. Click Design Preview Key 

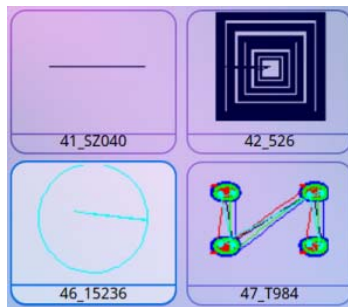


The system reads the data from the disk and displays the design's image according to a certain ratio. At the same time the design's information and color-changing number will show in the information area.

3.3 Select One or Several Designs

Before preview, input and deletion of files, the objective design has to be selected first. The user can select one object for one time, and can also select several objects for one time to improve efficiency.

1. Select One Object



The objects are by default in the unselected status. When one of them is selected, its icon and words will show a different color and the information area will show its contents like stitch number and data.

2. Click a Selected Object to Cancel the Selection

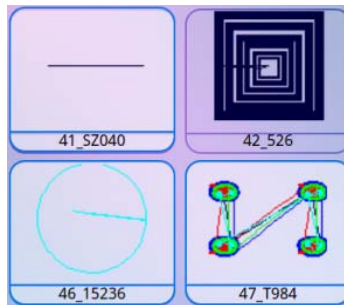
Click a selected object and it will become unselected again.

3. Click the Switch Key of Single/Multi-Selection

When selecting the objects, the system is in single or multi-selection mode. In the single selection mode, one object is selected for one time and selecting another object will automatically cancel the last selection. Click the switch key to switch between the two modes. In the multi-selection mode the user can select several objects. In the single selection mode the switch key shows  when in the multi-selection mode it shows .

4. Select More Than One Object

In the multi-selection mode click the several objects in order to select them.



- Click  to select all objects in the current folder.

The key is effective only in the multi-selection mode. Click this key to select all objects in the current folder.

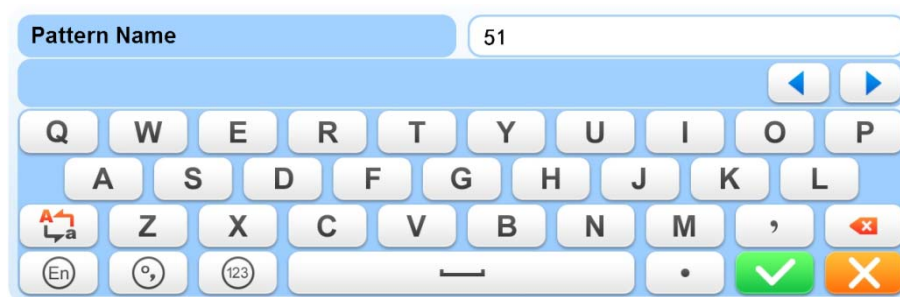
3.4 Design Input

To input the design data in the disk to the machine's memory, the user has to select files from one or more disks first, and then input the design number and name for the file to be saved.

- Select one or more files in the disk
- Click the design input key 

The system asks the customer to input design number and name for system saving.

- The user inputs the design number and name.



The system provides the minimum available design number as the default value. The customer can use the small panel on the right to change the value. See D type sequin operation about "Is multi-sequin Design?". When several designs are input for one time, the user can only input the number of the first design.

To modify the design number and name, click the object item in the left window and



modify it in the right window. After the modification click the modification confirmation key

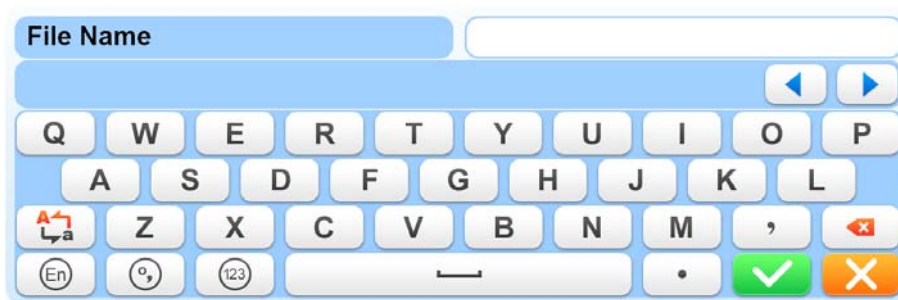


and the results will be save.

4. The system inputs the design data from the disk to the memory and displays the operation results in the information display area.

3.5 Creating a New Folder in the Current Folder

1. Click “” key
2. Input the name for the new folder

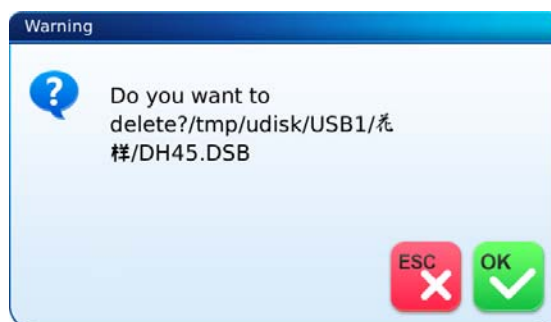


3. Click  to confirm

The system will create the corresponding folder in the disk and refresh the current list of objects.

3.6 Deleting Objects in Disk (Including Design Files and Folders)

1. Select one or more objects (See 3.2)
2. Click the deleting key 
3. System asks to confirm delete



Note:

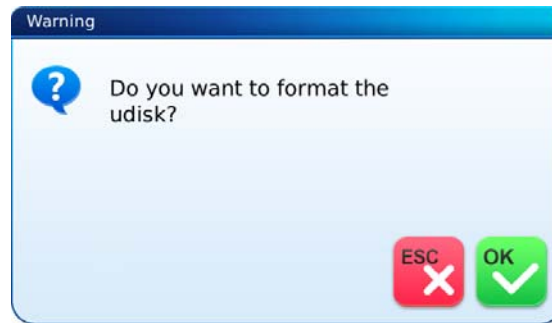
If the user wants to delete a directory, the system will delete all the files and

sub-directories within this directory. In case of “Read Only” or “U Disk Write Protection”, the file will be unable to delete.

3.7 Formatting U Disk

1. Select the U disk for formatting;

2. Press  to start formatting;



3. Press  to confirm

System will begin to format the disk and return automatically to U disk management interface after finishing formatting.

Note: system will format the U disk according to DOS format.

Note: the system will format the disk in DOS format.

3.8 Folder Operation

1. Enter the folder

Double click the icon of the objective folder to enter it. The system reads the item list of the folder and refreshes the screen.

2. Return to the higher level of folder

Click “” to return to the highest level of folder and the screen will be refreshed.



Chapter 4 Common Parameters and Color-Changing Order

In this system each design has its own settings of the normal parameters (like magnify and repetition) and color-changing order. When a new design is selected, the corresponding settings of normal parameters and color-changing order become effective.

In this chapter, we will discuss the most frequently used parameters of current design, and setting color-changing orders. You can start the operations by pressing  , .

This system supports multi-missions at the same time. So it's possible to set or change the normal parameters and color-changing order of non-current designs. Such operations are gathered in the memory design management screen. (read chapter 6 for details) .

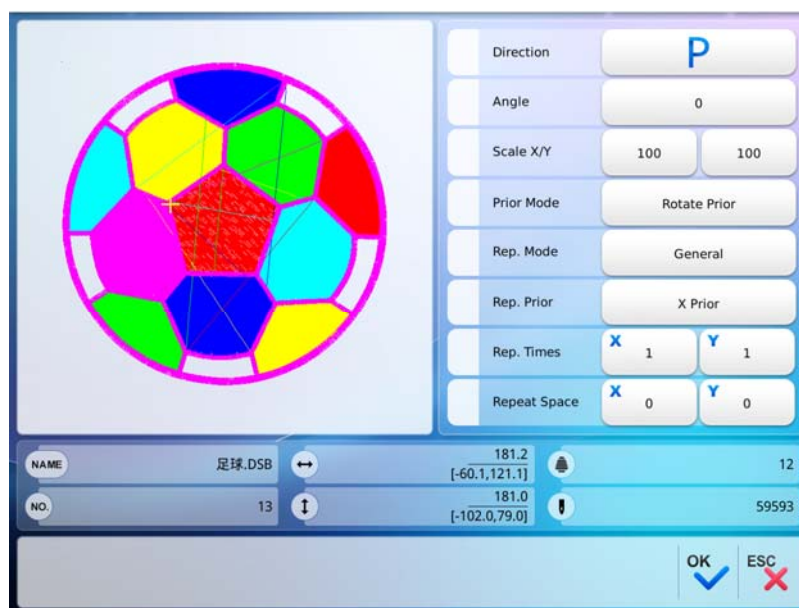
4.1 Setting Common Parameters

Normal parameters include: “Scale X/Y”, “Rotate”, “Direction”, “Prior Mode”, “Rep. Mode”, “Rep. Prior”, “Rep. Times” and “Repeat Space”. Users can control the final embroidery results by adjusting these parameters.

Touch  → Zoom, Rotate and Repeat, or press

Scale X/Y	(100,100)
Rep. Mode	General

 in the main screen for setting parameters:



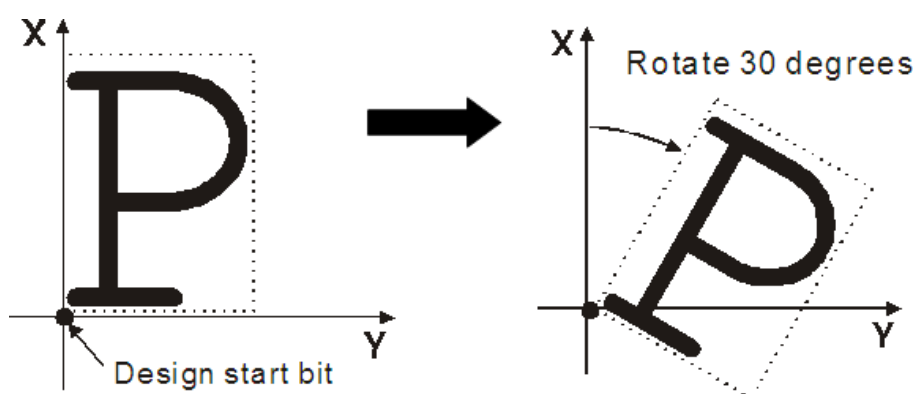
The way to set each parameter is similar. This chapter will explain how to set the “X-Y Scales” as an example and give the definitions of other parameters (Read 4.1.1 as reference).

4.1.1. Design Directions

Design direction	P	᠓	d	᠓	q	᠓	b	᠓	P
Embroidery shape	F	᠓	F	᠓	᠓	᠓	᠓	᠓	F

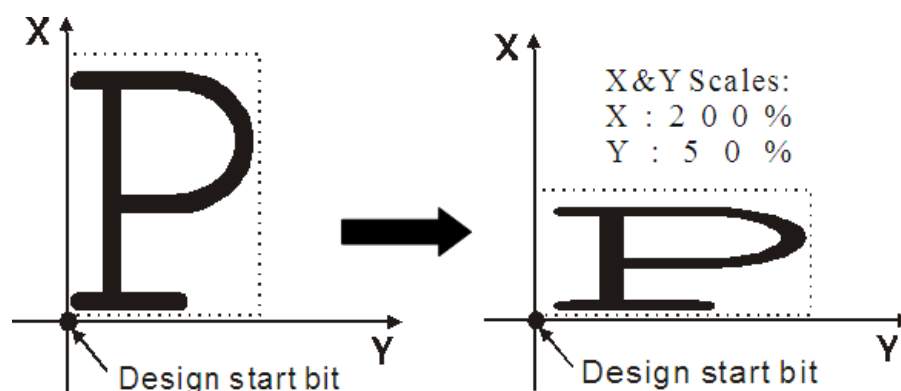
4.1.2. Setting of Rotate

Users can rotate the design to a certain angle by changing this parameter.

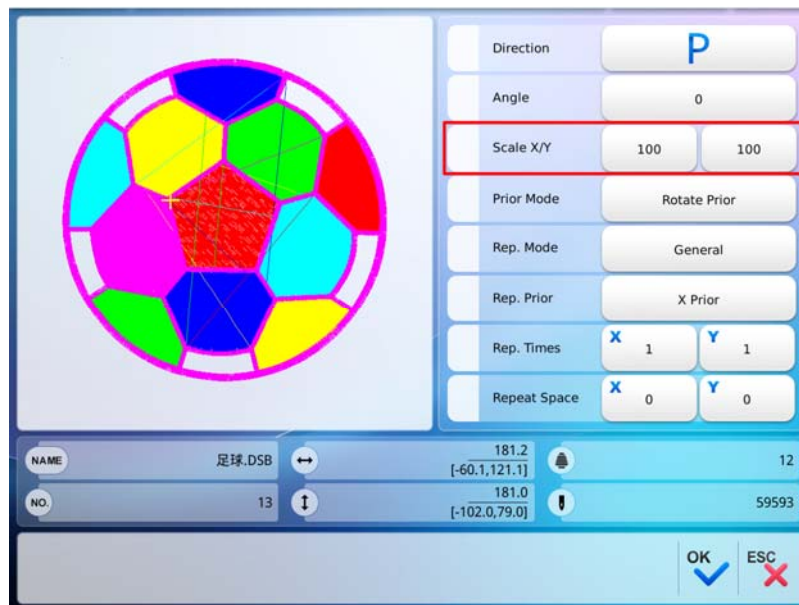


4.1.3. Setting X-Y Scales

This parameter controls the scaling percentages on X (horizontal) and Y (vertical) direction, so as to scale up/down the design.



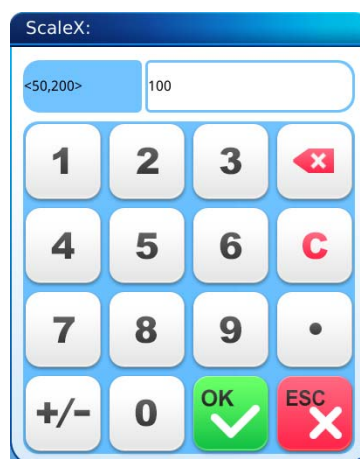
1. Press the option Scale X/Y



System will display independently the modification windows for X Scale and Y Scale for users to set respectively.

2. Adjusting X Scales

User can press number pad to modify the scaling rate at X direction, press  to cancel the last input digit and press  to clear the input number.



3. Press to save the modification

The modification method of Y Scale is the same with that of X Scale.

4.1.4. Prior Mode

There are two modes: rotating prior to scaling and scaling prior to rotating. When the user has set the parameters “X-Y Scales” and “Rotate”, the design will rotate first and then



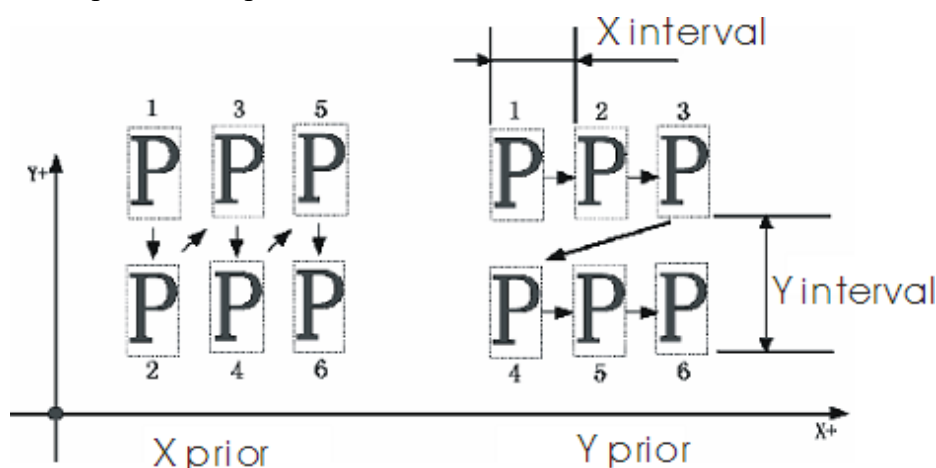
scale up/down with the setting rotating prior to scaling. Otherwise it will scale up/down first and then rotate.

4.1.5. Rep. Mode

There are two repetition modes: normal and partial.

4.1.6. Rep. Prior

There are X prior and Y prior for users to choose.



4.1.7. X-Y Reps

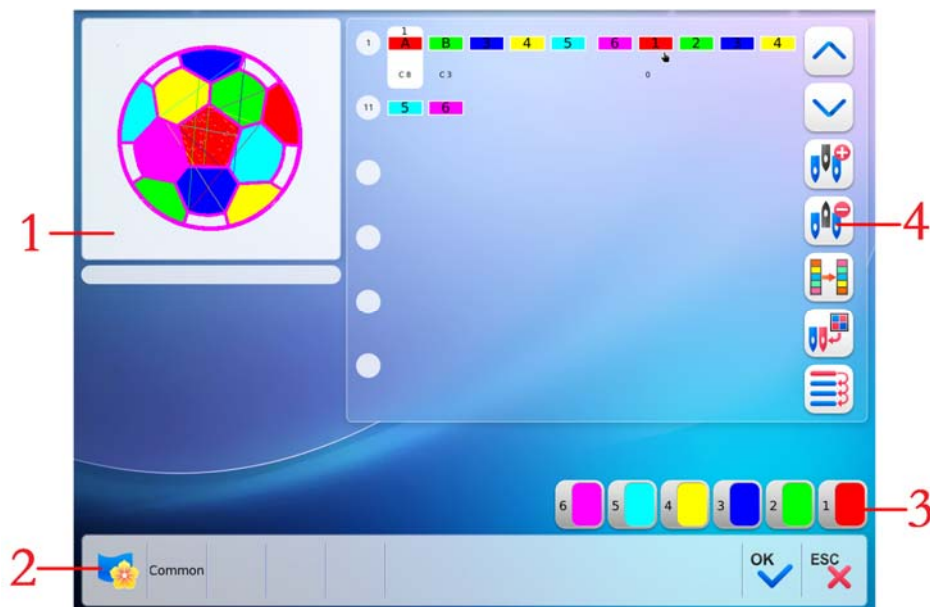
X Reps of this parameter sets the number of rows in repetition, and Y Reps of it sets the number of columns in repetition. The above diagram shows that X Reps is 3 and Y Reps is 2. The largest set value is 99*99.

4.1.8. X-Y Interval

The above diagram also explains the meaning of this parameter.

4.2 Setting of Color-Changing Order

4.2.1. On Color-Changing Screen



No.	Display	Name	Description
1		Design display area	Display the design according to real-time setting of color-changing order. Preview the result of color-changing.
2		Patch Embroidery	Set the patch embroidery of the pattern
		Flat	Flat, special Embroidery
		Yes	Save the patching setting and return.
		Exit	Drop out the color-changing screen.
3		Color Selection Area	Select the color for the needle bar number to be set
4		List of needle sequence numbers	Display the needle sequence numbers corresponding to the color blocks.
		List of needle colors	Display the thread colors for the color blocks in the design.
		Current position	Users can set, insert or delete needle bar number in current position.
		Move upward	Move upward the color-changing list to select the color block.

No.	Display	Name	Description
4		Move downward	Move downward the color-changing list to select the color block.
		Insert a needle number	Click this key and a needle number to insert it in the current list of needle sequence.
		Delete a needle number	Delete the needle number in the current operation position of the needle sequence numbers.
		Interchange needles	Open the needle interchanging screen and set it.
		Setting of needle color	Select and set needle colors in the default colors.
		Repetition	Repeat color-changing order

The design display area displays the designs which are under color-changing setting. Design display will change with the setting at the same time.

Color-changing order display area shows color blocks, needle numbers and needle colors.

Design display can be in parallel with the setting, inserting and deleting needle number, which means users don't need to wait for the end of design display to do the setting and changing of color-changing order.

4.2.2. Setting of Color-Changing Order

1. Click  → “Modify Color Line” in the main screen to enter the color-changing screen.
2. Input the needle numbers in order in the needle number selection area. The design display in the design display area and the color list in the color-changing display area will refresh with the input of each needle number.
3. Click   to see if the input color-changing order is correct.
4. To change a needle number in the color-changing order, the user can click the list to place the intended item to the current operation position, and then click the new needle number.
5. To insert a needle number in the color-changing order, click the order list to place



the intended item to the current operation position, and then click  to insert a needle number after the current item.

6. To delete a needle number, click .

7. If the user has affirm that the first N items are set correctly and hope to repeat the settings of the first N items from the N+1 item, he can click 键   to move the order list to place the item N+1 to the current operation position.

8. After confirm the color change order, click  to exit.

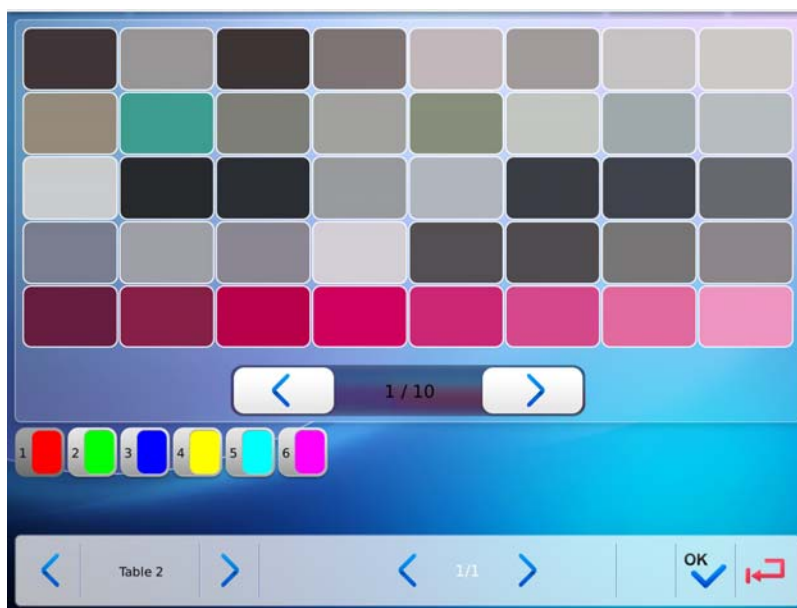
Note: For detailed color-changing operations in sequin or special embroidery, refer to related chapters.

4.2.3. Setting Needle Color

To make the color display in the screen get close to the design color in real embroidery, this system can set all the needle colors used by the current design. This setting will be saved with color-changing for the design.

1. Click  → “Modify Color Line” in the main screen to enter the color-changing screen.

2. Click  to enter the needle color setting screen.

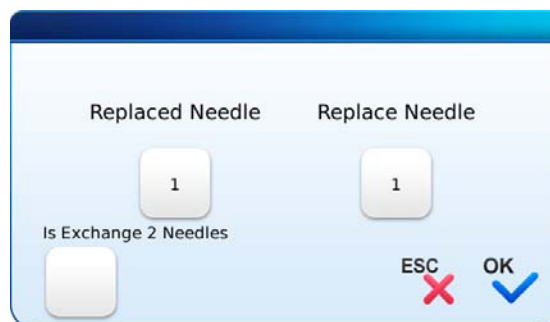


In the needle color setting screen there are totally 400 default colors for selection.

3. To set the needle color, select the needle first and then select the color from the 400 default color blocks. The corresponding color will be refreshed on the needle button.
4. Click  to save the needle color setting and return to the color-changing order setting screen. Click  to cancel the setting and return.

4.2.4. Interchanging of Needle Colors

1. Click  → “Modify Color Line” in the main screen to enter the color-changing screen.
2. Click  to enter the replace a needle screen.



3. Click "Replaced Needle", input to replace the needle.
4. Click “Replacing to Needle”, enter a new needle.
5. Click  to save the setting and return. Click  to cancel the setting and return.

4.2.5. Setting Patching Embroidery

The system has two ways for patching embroidery: manual moving frame out and automatic moving frame out.

Manual moving frame out: when embroidering to meet stop code, the machine will stop automatically. Move the frame to the proper position for patching with the manual frame-moving button. Then click  and  to return to the stop point. At last pull the bar for embroidery.

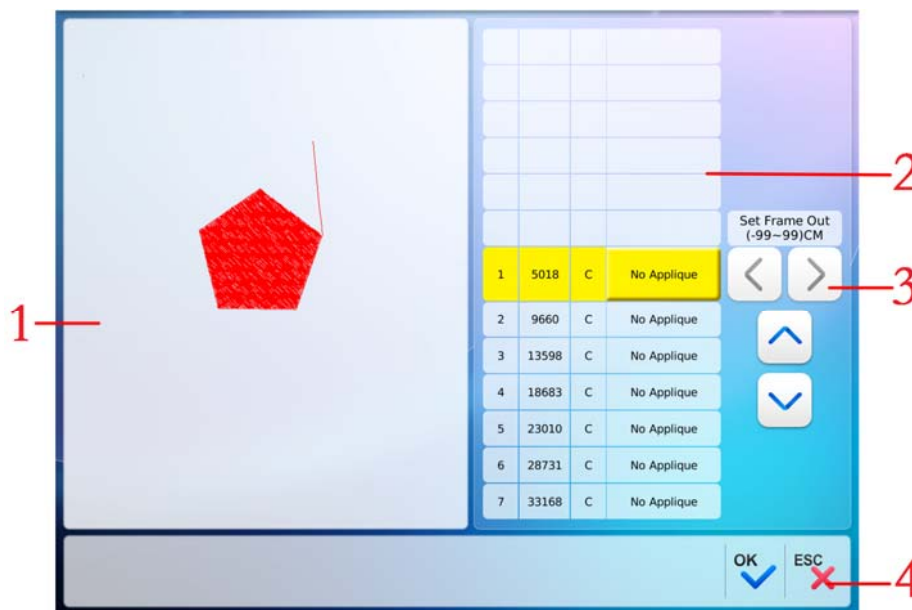
Automatic moving frame out has two ways: moving frame to the offset point and setting



the moving distance. The operation is as follows: First set patching embroidery function for the design. Then when embroidering to the patching point, the machine moves to the offset point (which has to be set) or move out according to the set distance. After patching pull the bar and the machine will automatically return to the stop point to continue embroidery.

The following is how to add patching embroidery to the design:

1. Click  → “Modify Color Line” in the main screen to enter the color-changing screen.
2. Click  to set patching embroidery. Following list will help you understand the screen interface.



No.	Display	Name	Description
1		Design display area	Real-time display of the design when embroidering to the patching point
2	1	Sequence number list	Show the sequence number of the position to set patching point.
	314	Stitch list	Display the design stitches of the position.
	C	Type list	The stitch code type C: color-changing code S: stop code
	No Applique	Option list	Patching option of the position: 1. No patching 2. Moving frame out to offset point 3. Moving frame out to a certain distance
3	< >	The distance for frame to move out	Choose the distance for frame to move out: (2cm to 99cm) or (-2cm to -99cm)

No.	Display	Name	Description
3		Move upward	Move upward the patching list to select the position for patching.
		Move downward	Move downward the patching list to select the position for patching.
4		Yes	Save the patching setting and return.
		No	Cancel the setting and return.

The design display area shows the design which is being set with patching. After setting the patching point, the design will refresh and the result will show directly.

- Click ,  to move the list to the position for patching.
- If choose to move the frame out to the offset point, click the switch button of the item list to select "Another Origin". If user chooses fixed range, user can click the switch button to select "10 cm out of frame". After that, user can click the range setup key ,  to select the range from -99 cm to 99 cm.
- Repeat step 4 and 5 to set all the patching positions of the design.
- Click  to save the patching information and return. Click  to cancel setting and return.



Chapter 5 Setting General Parameters

Parameters management include 8 groups: embroidery assistant parameters, thread-breakage detection parameters, frame parameters, main shaft parameters, thread-trimming parameters, sequin parameters, special embroidery parameters and machine configuration & maintenance parameters. For some machines with parameter-protected function, some parameters can be attached passwords by administrators or embroidery factories. For setting the administrator passwords and the factory password, as well as initialization of parameters, please press  to enter the “purview of machine parameter manage” screen. (Please read Chapter 10)

There are two ways to set embroidery parameters, click  →  set machine parameters on the main screen; Or click on the main interface to set machine parameters.



1. Click  →  in the main screen.



2. System enters the parameter setting screen, where users can set the parameters.



Note:

I. The number, name and value of every parameter are displayed in the parameter list window.

II. Parameter Icon Description: : Common user icon; : Administrator Icon; : Factory icon;

5.1 Setting Procedure for General Parameters

The setting procedure is similar for each general parameter. You can follow the guide of this section to set parameters.

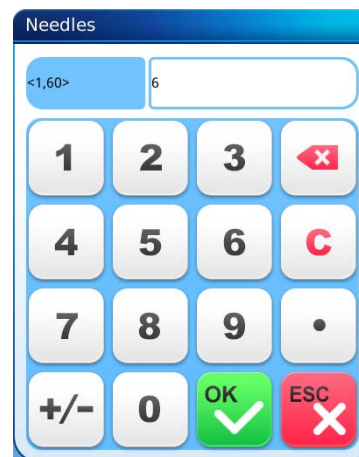
1. Select the parameter group.

The user can use the keys on the bottom of the screen to look for the parameter. And ensure no password or it has been input. (See Chapter 10).

If you want to change the value of “Needles” which is D01 in machine parameters 1, find machine parameters 1 and click. Then all of its parameters will be shown in the parameter list window.



2. Select the parameter “Needles”.



3. Click  to finish the setting.

5.2 Introduction of Some Functions of General Parameters

There are brief introductions of the parameters in the appendix 1. Here are some functions used in embroidery.

5.2.1. Cyclic Embroidery Function

This function is to increase the embroidery productivity.

When the parameter “To Do Cyclic Emb.” is set as “Yes”, the cyclic embroidery function



is enabled and the icon  will appear in the main screen. When this function is enabled, after completing the designated design the machine will automatically embroider it again without pulling the bar.

Usually cyclic embroidery accompanies repetition embroidery and special punched designs and the parameter “Auto Origin” should be also set as “Yes”. Thus when the machine is embroidering the back embroidery cloth-piece, the front one can be replaced. After embroidering the designated design, the frame will automatically return to the start point and the machine will automatically embroider the front cloth-piece again and at this time it's possible to replace the back one.

5.2.2. Store Manual Color-changing

In embroidery confirmation status, the user can choose whether to store the manual color-changing's needle position into the color-changing order unit. Its purposes are as follows: 1) If mistakes are found for the automatic color-changing order in embroidering, the color-changing order can be modified with manual color-change. 2) When a new design is embroidered with manual color-change once, the color-change order is set for the design.

To use this function, the user should set the parameter “Store Manual Color” as “Yes”. Note: the parameter value will automatically change into “No” at the end of one design embroidering.

5.2.3. Brake Adjustment (A Must for New Machine)

This function is to adjust the control parameters for braking, so as to fit machines of different mechanical characteristics, which also change with the machine running. Thus this function can help the machinery parts to work better with the computer. The function depends on the two parameters “Set Brake Para” and “Main Motor Para.”.

“Set Brake Para” is to adjust the stop position of the main shaft. When the main shaft often stops at less than 100 degree, the user can increase the parameter value. When the main shaft often stops at more than 100 degree, the user can decrease the parameter value. Thus the



user can adjust the value to let the main shaft stop close to 100 degree. The value can be set between 0 and 30.

“Main Motor Para.” is to adjust cooperation between main shaft motor and machinery parts. The parameter value can be set between 0 and 30, and set as 0 in most situations. When during breaking the main shaft vibrate without moving or rotate in the reverse direction, the user can increase the parameter value.

After adjusting these parameters, the user can click the task swift key on the panel to return to the main screen. Click  and , to check the effects of the parameter adjustment. If the user is not satisfied with the effects, he can press the swift key on the panel to return to the parameter setting screen, where he can adjust the parameter setting again. Close the parameter setting screen in the end.

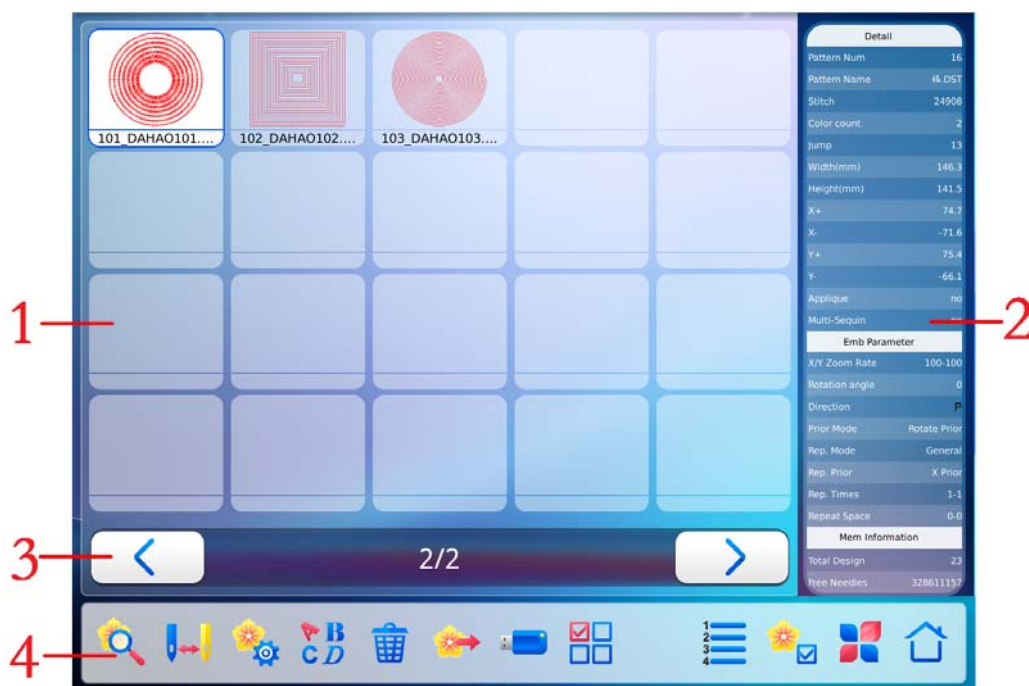
Chapter 6 Memory Design Management

Memory design management includes selecting embroidery designs, setting designs and operations to create designs.

6.1 Memory Design Management Screen and Other Memory Design Operation Screens

Click  in the screen to enter the memory design management screen.

The memory design management screen includes: design image display area, navigation and pagination area, information area, menu and memory design management operation area. The design image display area can show 20 designs at most, beyond that more pages are needed. Navigation and pagination area can help switch to the designated page. The memory design management operation area is to preview designs and set their order.



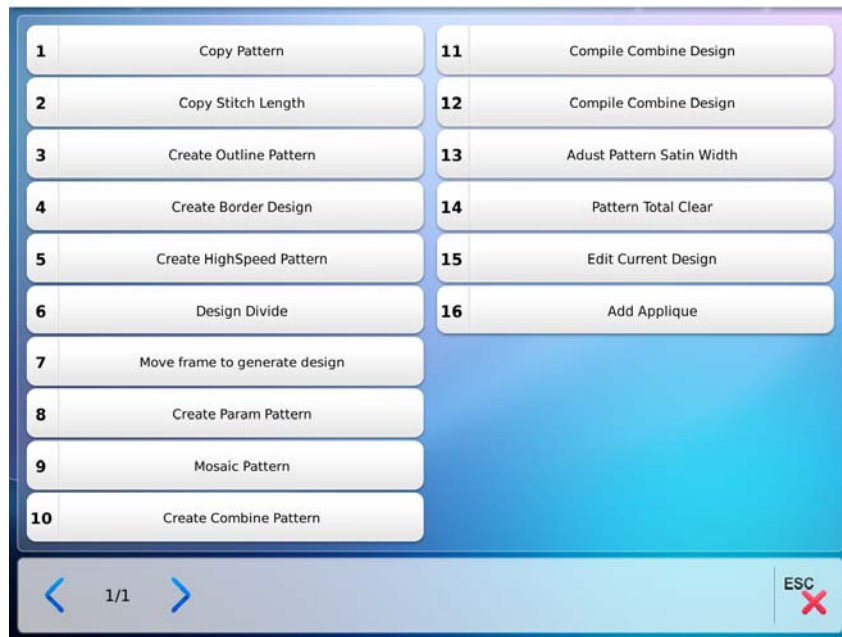
No.	Display	Name	Description
1		Design image display area	Show the design files in memory by icons. It's mainly for selection purpose.
2		Information area	Display the detailed information of the selected design and memory information.



Chapter 6 Memory Design Management

No.	Display	Name	Description
3		Previous/Next Page	Used to shift to appointed page number
4		Design preview	Preview the design's details, scale up/down, move or imitate the design.
		Color changing	Set and select the color changing order of the design.
		Set the embroidery parameters of the selected design	
		Letter Pattern	Set letter embroidery and its parameters
		Delete Pattern	Delete the selected pattern
		Pattern Output	Save the memory pattern to U disk
		U Disk Management	Press it to enter U disk management interface to make related operations.
		Single/Multiple Selection Shift	Shift between single selection and multiple selections.
		Network Pattern Preview	
		Pattern sort	Pattern arrangement: Sort by pattern number 、Sort by time
		Select as embroidery design	In the embroidery preparation status use the selected design as embroidery design.
		Other Operations	Click to open the other operation interface, where user can perform copy, deletion, combination, edition and other operations.
		Return to main screen	Return to the main screen

Click  to enter the more functions operation screen. (To operate a single design, select the design first before entering the screen.)



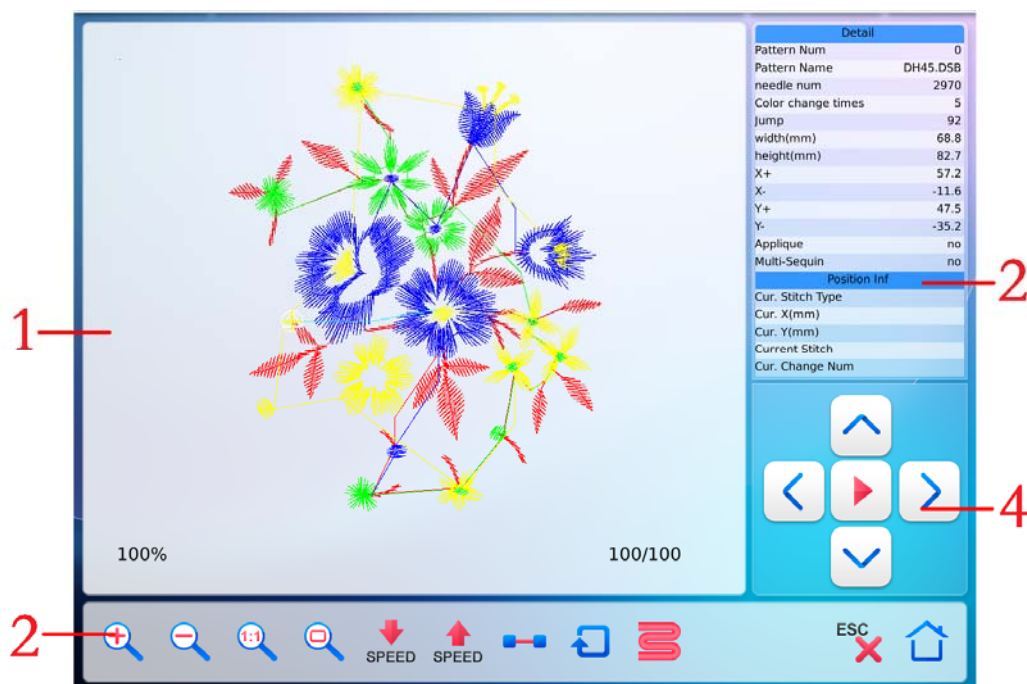
In this screen click the buttons to enter the corresponding operation screens. Please read the following paragraphs for detailed explanation. Click  or  to turn page, and click  to return to the memory design management screen.

6.2 Select a Design to Embroider

1. Select a new design (Ensure that the system is in preparation status .
2. Click  in the main screen to enter the memory design management screen.
3. Select the design in the memory design image area of the memory design management screen.
4. Click  to set the selected design as the embroidery design. If the operation is completed, the system will close the memory design screen to return to the main screen.

6.3 Memory Design Preview

The selected design can be previewed in the memory design preview screen according to the designated way.



No.	Display	Name	Description
1		Design preview area	Display the selected design on the designated way and speed.
2		Information area	Display the detailed information of the selected design and the design's position information.
3		Zoom out	Zoom out the design picture in the design preview area.
		Zoom in	Zoom in the design picture in the design preview area.
		Display in real size	Display the design in its real size.
		Display to the full size	Display the design to the full size in the design preview area.
		Speed down	Decelerate the display speed.
		Speed up	Accelerate the display speed.
		Single step display	Draw the design by single step according to clicks.
		Redraw the design	Display the selected design again.
		3D display	Display the 3D image of stitches.

No.	Display	Name	Description
3		Exit	Exit the operation in the memory design preview screen.
		Return to main screen	Return to the main screen
4		Move up, Move down, Move left, Move right	Move the pattern upwards, downward, leftward, rightward
		Draw/halt switch	 ,  for switching between drawing design and halting the drawing.

1. Click  in the main screen to enter the memory design management screen.
2. Select a design in the memory design image area of the memory design management screen.
3. Click  in the memory design screen to open the memory design preview screen.
4. Click the zoom control keys    in the design preview area to control the design size. Click moving control keys to control the design display position. Use speed adjusting keys   to control the design display speed. Use switch keys   to control the design display and halt. By using , one can automatically switch to halt for single step design display. Click  to resume normal display. Click  to redisplay the selected design.

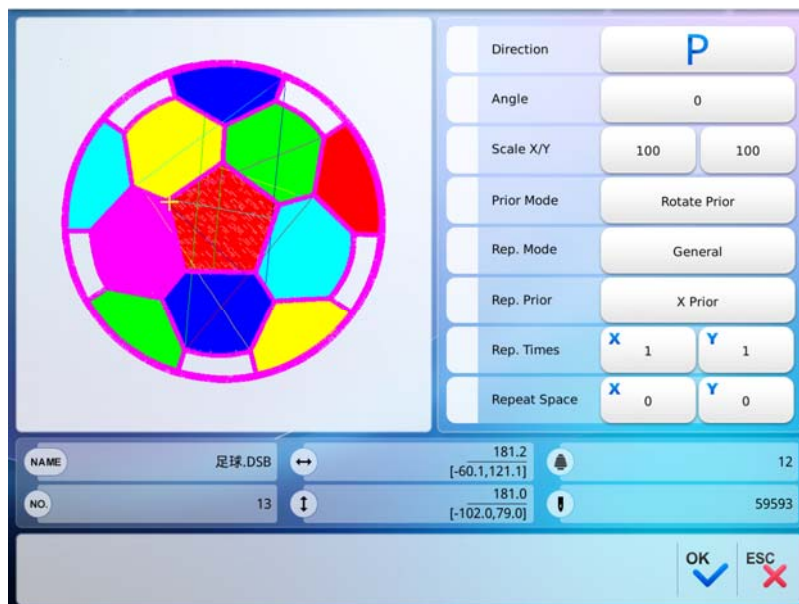
6.4 Setting Design Parameter

Each design has its setting of color-changing order and normal parameters such as scaling up/down and repetition, which can be checked and set here.

1. Click  in the main menu to enter the memory design management screen.
2. Select the design in the memory design image area of the memory design management screen.



3. Click . If the selected design is the current embroidering design, the embroidery parameter setting screen will pop up. Please read Chapter 5 for reference. If the selected design is not the current embroidering design, the non-embroidery parameter setting screen will pop up.

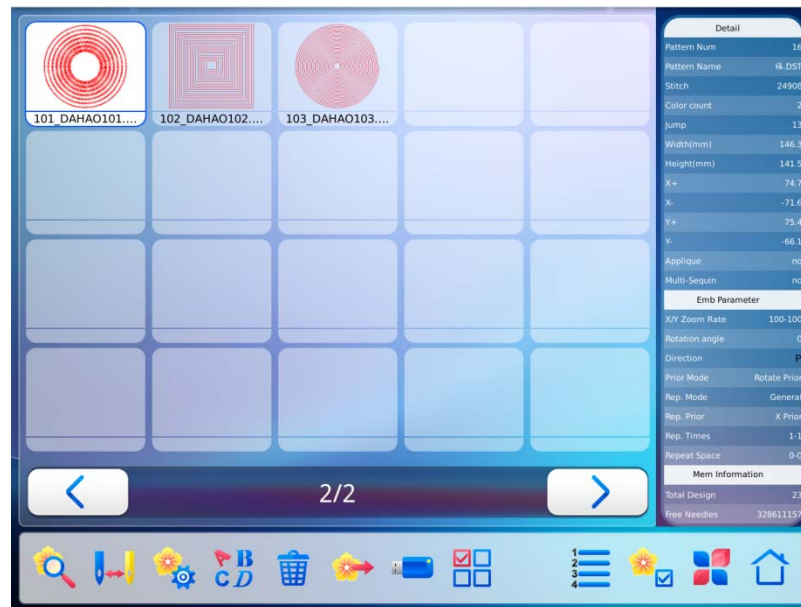


For the setting of normal parameters and color-changing, please also read Chapter 5. After setting, click  to save the setting with the design for later use. Click  to cancel the setting and return to the design operation choosing screen.

6.5 Design Output

The user can output the design data in the system memory to the current disk.

1. Select the design in the memory intended for output



The system displays the list of designs in system memory. The user selects the designs intended for output.

2. Click 
3. Input of the design name for disk saving



The system uses the design name in system memory as the default design name in disk. Use keyboard on the right to change the value, click  to save the result.

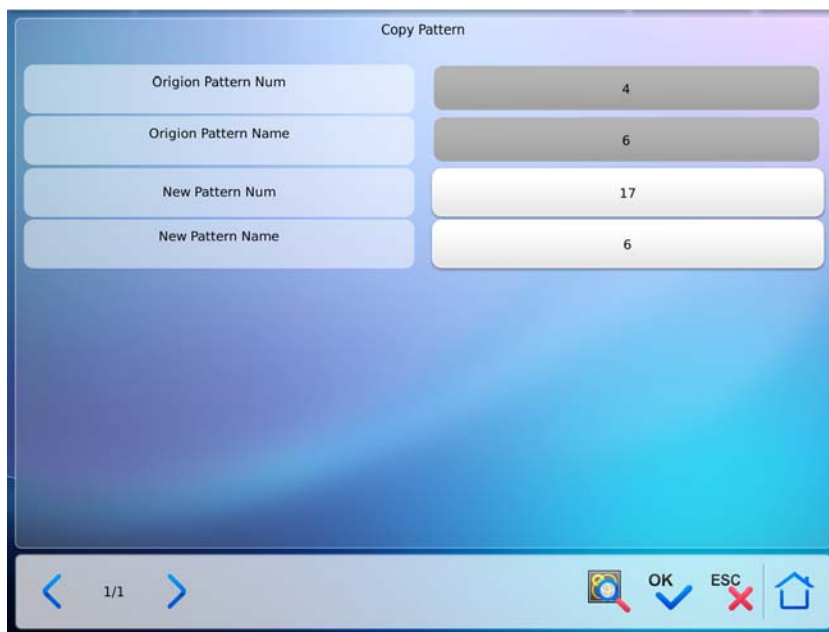
6.6 Copy the Memory Design

1. Click  in the main menu to enter the memory design management screen.
2. Select the design in the memory design image area of the memory design management screen.
3. Press  to enter memory operation selection interface.
4. Click “Copy Design” in the memory design management screen to enter its operation screen. The system will automatically provide the available smallest design



number and default design name. If the user doesn't want to change them, go to "6" directly.

5. To input a new design number, click "New Design number" or "New Design name". Input the new number in the pop-up window, and then click  to confirm the input.



6. Click  to carry out the operation, and return. Click  to cancel the copying operation, and return.

6.7 Make True Design Range

This function is to create a new design according to the outline of the designated design.

1. Click  in the main menu to enter the memory design management screen.
2. Select the design in the memory design image area of the memory design management screen.
3. Click  to enter the design operation choosing screen.
4. Click "Make True Design Frame" to enter its operation screen.
5. If don't use the default values, click the design number and design name and change them.
6. Click  to create a design and return to the design operation choosing screen.



Click  to cancel the setting and return.

6.8 Hi-Speed Design

With this function, those long stitch forms can be cut to short ones, which will keep the embroidery speed at a high level.

1. Click  in the main menu to enter the memory design management screen.
2. Select the design in the memory design image area of the memory design management screen.
3. Click  to enter the design operation choosing screen.
4. Click “Hi-Speed Design” to enter its operation screen.
5. If don't use the default values, click the design number and design name and change them.
6. Click  to create Hi-Speed Design and return to the design operation choosing screen. Click  to cancel the setting and return.

6.9 Design Divide

By operating this function, one design can be divided into two designs at a designated point.

1. Click  in the main menu to enter the memory design management screen.
2. Select the design in the memory design image area of the memory design management screen.
3. Click  to enter the design operation choosing screen.
4. Click “Design Divide” to enter its operation screen.
5. If don't use the default values, click the design number and design name and change them.
6. Click “Divide stitch” to input stitch value and click  to confirm.



Design Divide

Origion Pattern Num	4
Origion Pattern Name	6
1# New Pattern Num	17
1# New Pattern Name	6
2# New Pattern Num	18
2# New Pattern Name	6
Divide Stitch <1-3288>	1644

< 1/1 > OK

7. Click to split a design into two and return to the design operation choosing screen. Click to cancel the setting and return.

6.10 Generate Design from Parameter

This is to change the setting of color-changing order and normal parameters such as scaling up/down and repetition, which is attached to a specific design, so as to create a new design.

1. Click in the main menu to enter the memory design management screen.
2. Select the design in the memory design image area of the memory design management screen.
3. Click to enter the design operation choosing screen.
4. Click “Generate design from parameter” to enter its operation screen.



Create Param Pattern

Origion Pattern Num	4
Origion Pattern Name	6
New Pattern Num	17
New Pattern Name	6

< 1/1 >

OK ESC

5. If you don't use the default values provided by the system, click "New Design number" or "New Design name" and input the new number and name.
6. Click to create a new design and return to the design operation choosing screen. Click to cancel creating and return.

6.11 Combine Design

This function is to combine two designs into a new one. The interval between the two designs is the distance from the end point of the first design to the start point of the second design.

1. Click in the main menu to enter the memory design management screen.
2. Select the two patterns to be combined and record their pattern numbers.
3. Click to enter memory operation selection interface.
4. Click "Mosaic Pattern" to enter the operation interface.
5. User can press to input new pattern number and name instead of default ones.
6. Click "X Interval" to input the value. Press "Y Interval" to input the value.



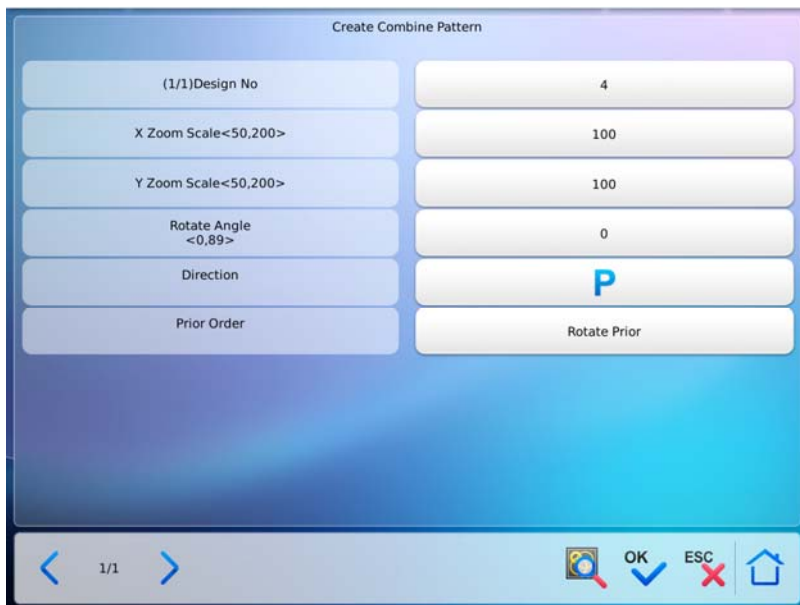
7. Click  to combine and return to the design operation choosing screen. Click  to cancel the setting and return.

6.12 Create Combined Pattern

The combined pattern means a pattern group combined from several certain (less than 99) memory patterns after setting their parameters. The combined pattern is set as automatic continuous embroidery. To embroider a combined pattern, user need return to the memory pattern management interface after creating or editing the combined pattern, where user can select the combined pattern, and then after embroidery confirmation, press start to embroider.

1. Click  in the main menu to enter the memory design management screen.
2. To edit existing combined patterns, select a combined pattern; to create a new combined pattern, just follow the instructions below.
3. Press  to enter memory operation selection interface.
4. Press “Create Combined Pattern” to enter the operation interface.

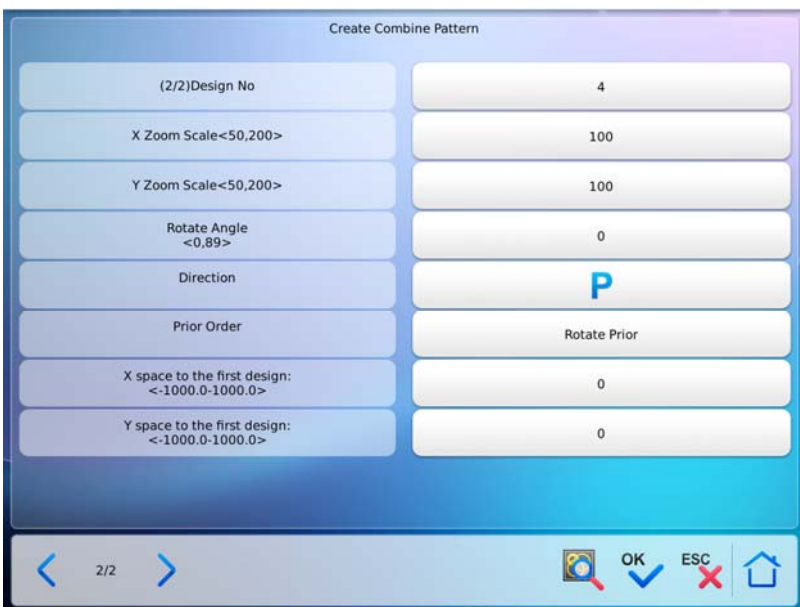
The combined ID shows the current pattern number and how many patterns the combined pattern is composed of. Display form is “pattern number (the total amount of patterns)”.



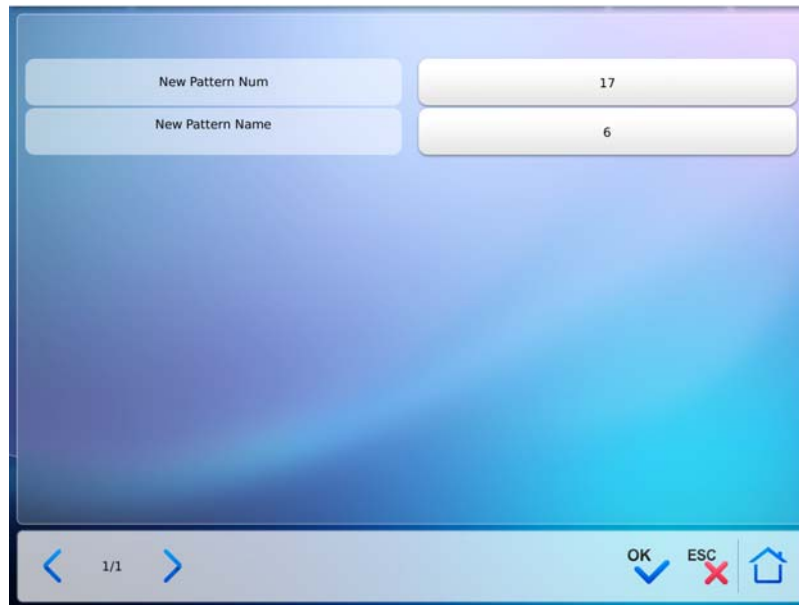
5. Set the parameters of the first pattern, including pattern number, scaling ratio, rotating angle, pattern direction and priority mode.

6. Press  to set several patterns for packing. And press  to go back to change the parameters of combined patterns.

If the current pattern is not the first of the combined pattern, user need set the interval between it and the first pattern.



7. Press  to enter the operation interface.



The system will hint user to input the new pattern number and the new pattern name.

8. Press  to save the combined pattern and return to pattern operation selection interface. Press  to quit saving and return to pattern operation selection interface.

6.13 Satin Stitch Adjust

This operation is to adjust the satin width in the design according to the need.

1. Click  in the main menu to enter the memory design management screen.
2. Select the design in the memory design image area of the memory design management screen.
3. Click  to enter the design operation choosing screen.
4. Click “Satin Stitch Adjust” to enter its operation screen.



Adjust Pattern Satin Width

Origion Pattern Num	4
Origion Pattern Name	6
New Pattern Num	17
New Pattern Name	6
X Adjust Value <-0.2-0.3>	0.1
Y Adjust Value <-0.2-0.3>	0.1

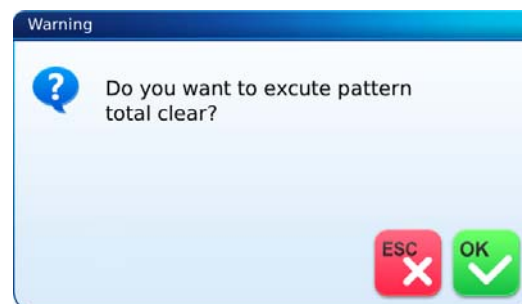
< 1/1 > OK ESC

5. If don't use the default values, click the design number and design name and change them.
6. Click "X Adjust" to input the new value. Click "Y Adjust" to input the new value.
7. Click to adjust the satin width and save it as a new design to return to the design operation choosing screen. Click to cancel the setting and return.

6.14 Clear all Memory Designs

This function is to clear all the designs in the memory. Be cautious to use it.

1. Click in the main menu to enter the memory design management screen.
2. Click to enter the design operation choosing screen.
3. Click "Clear All", and a confirmation window will pop up.



4. Click to clear all the designs and return to the design operation choosing screen. Click to cancel clearing and return.

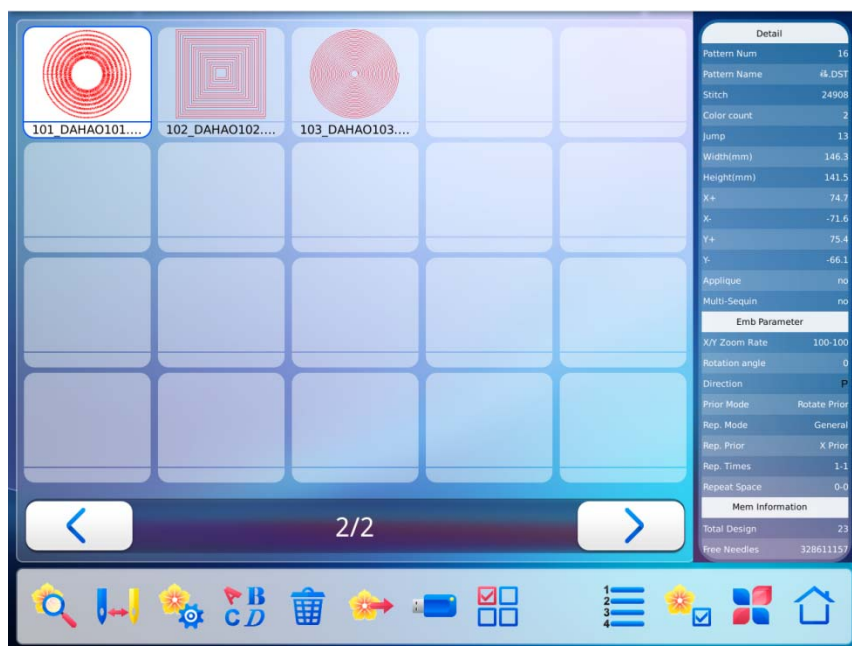


Chapter 7 Memory Design Edit

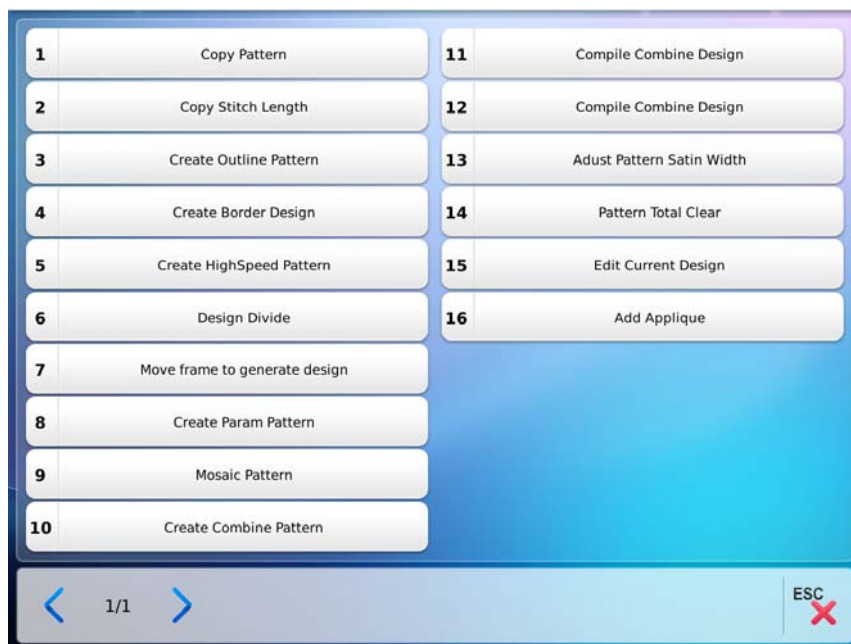
You can edit common designs smaller than 100000 needles in the memory through this function, or establish a new design.

7.1 Start Editing Design

Choose the design that will edit in the window of memory design management, and then click .

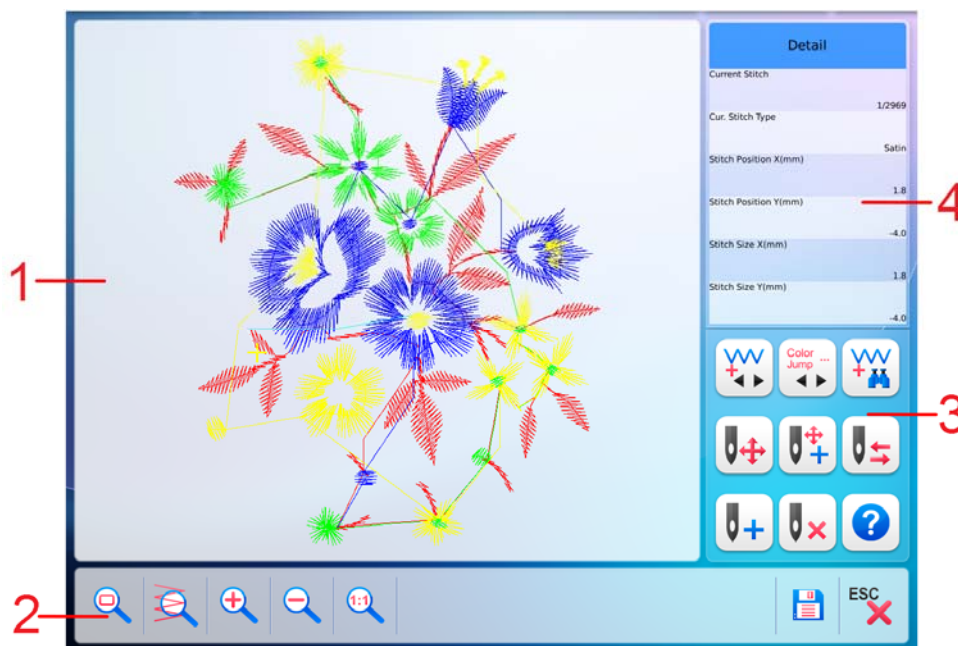


In “Other Design Management Functions” , click “Create New Design” to edit a new design; (Note: the design selected can not be combined design, or system will warn “not common design”)



7.2 Edit Design

7.2.1. Summarize



1. Design preview window: use for preview design. In view, use “+” mark the position of current stitch. The stitch trace of current stitch use white and outstanding manifestation.
2. Document and view operation: Use for save design, withdraw and zoom view function.
3. Stitch check orientation front-panel: use for orient “current stitch” (stitch that need



check and edit).

Stitch edit function key: use for switch stitch code, insert stitch, delete stitch and move the stitch position.

Help key: press this key to enter the usage explanation of keys in this edit window.

4. Stitch information: Use for information about total stitch amount, serial number, position and type of current stitch.

7.2.2. Document and View Operation



Reduce the design thus can see the all of the design. If the design size is smaller than show scope of the screen, then show the design with the actual size.



Enlarge the design to 450% to thus look into the detail of the stitch vestige." Current stitch" will move the middle position of the screen automatically.



Enlarge or zoom view. The scaling is 150% every time.



“Fact”: Show the letter design with the actual size. At this time, the size of design in screen is equal to actual size.



Keep the current design to a new document.



Withdraw the design editor function.

7.2.3. Orient Stitch

Establish “current stitch” arrives some one stitch. At the same time, use “+” to mark the position of “current stitch” in the window of design preview. If there is no “current stitch” show in the view, so the system will renew the view automatically, and show “current stitch” in the centre of view.



: enter the stitch number navigation mode. In this mode press the direction keys to position the stitch number for editing.  : move back.  : move forward.  : go to the



first stitch. : go the last stitch. Press to switch the stitches for each moving forward/backward among 1, 10, 100 and 1000 stitches.



: enter the stitch code navigation mode. In this mode, look for the stitch according to the stitch code type. Press , to switch the stitch code type. Press , to navigate among the stitches of the set stitch code type. The detailed usage of the direction keys is the same to the above.



: search by the stitch number. Press this key to enter the stitch number searching window. Input the stitch number, and press to confirm or press to abandon.

: move the current stitch position. Press the direction keys of the panel to move. Press to switch the moving speed among 0.1mm, 1.0mm and 5.0mm.

: enter the continuous stitch adding mode. Press this key to activate continuous stitch adding function. “Current Stitch” will automatically be relocated to the last stitch.

Users need to locate cursor to the right point by clicking direction keys. Press to insert a stitch to that point; move the cursor to the next point you want to insert, press the key again, etc.



By pressing , one can adjust the moving speed of cursor.



: convert stitch code. Press this key to enter the converting stitch code window.



: insert one stitch. Press this key to enter the window for selecting the inserted stitch code type. Once you select, one stitch will be inserted. If the inserted stitch is at the end of the design, it will follow the direction of the stitch before it. If the inserted stitch is in the middle of design, the new stitch will be inserted between the stitches before and after it.



: delete the current stitch.



Look into online help of the design edit operation screen.

After edition and you press  or , a pop-up window will ask you whether to save the edition result. Press  to save or press  to abandon.

7.2.4. Move Stitch

Position the some stitch, click  key and can move that stitch.

When press “Only Moves Current Sti” down, which will keep absolute position of all of the stitches behind current stitch. While flick, mean keep opposite position of current stitch and all of the stitches behind it, that means at the same time of move the current stitch, absolute position of stitches behind it are all follow to move.

You can press  to change the distance for every moving. The selection range is 0.1mm, 1mm and 5mm.

While move the needle vestige, will use “+” to mark new position of stitch trace automatically in the window of pattern preview. After click , refer to modification.

7.2.5. Add Stitch Continuously

Press  to activate continuous stitch adding function. “Current Stitch” will automatically relocate to the last stitch.

Users need to locate cursor to the right point by clicking direction keys. Press  to



insert a stitch to that point; move the cursor to the next point you want to insert, press the key again, etc.

By pressing , one can adjust the moving speed of cursor.

7.2.6. Convert Stitch Code

After orient some one stitch, click  key and can convert the type of that stitch.

Include X/Y position stitch for move, such as stain stitch, jump stitch, send sequin etc., the stitch code type can convert mutually.

Don't include X/Y position stitch for move, such as switch of sequin、stop code, change color code etc., the stitch code type can convert mutually.

7.2.7. Insert Stitch

Click  key can insert a new stitch code after current stitch.

If the current stitch is the last stitch of the design, so the insert position of new stitch is the excursion of current stitch with same direction and same distance. If the last stitch inserts at the same point, then the newly inserted stitch position is: X/Y intervals are both 4.5mm.

If the current stitch in the middle of design, so the new stitch insert at the middle position of current stitch and next stitch.

7.2.8. Delete Stitch

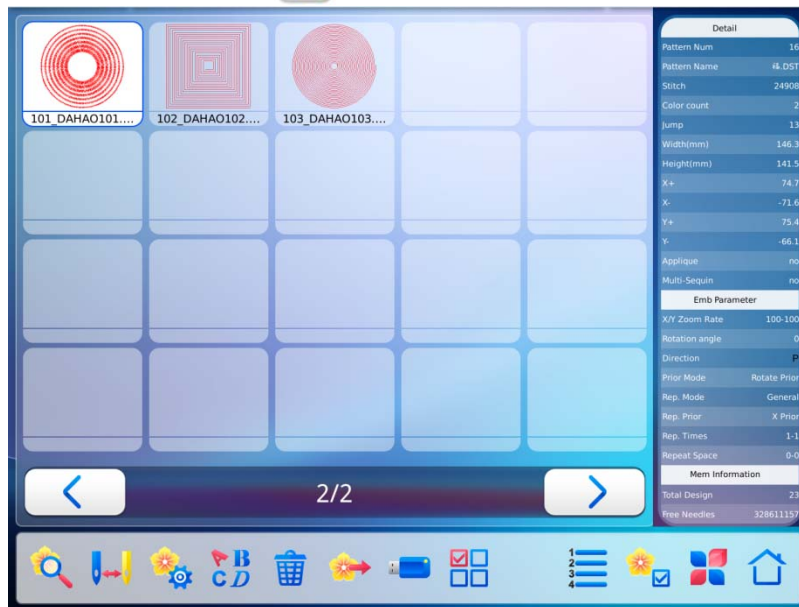
Position the some stitch, click  key and can delete that stitch.

Chapter 8 Letter Design Operations

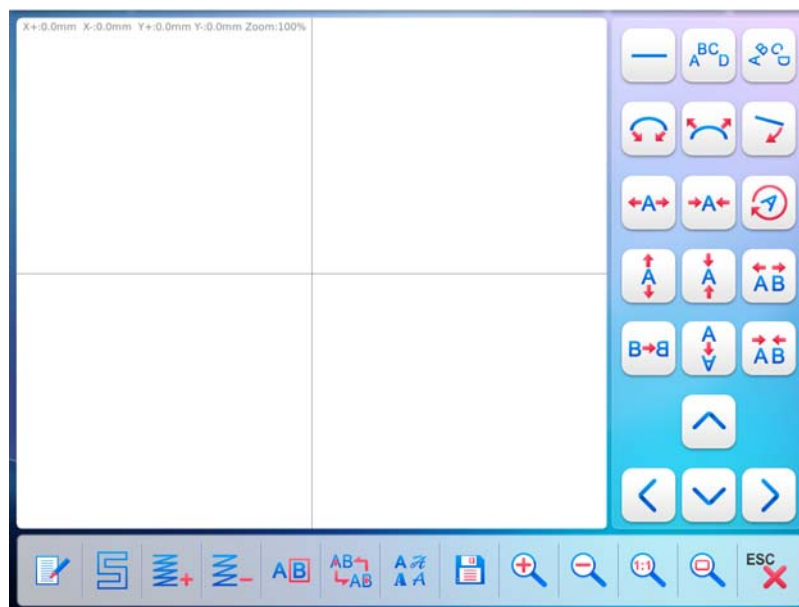
System can generate letter design based on the built-in letter database.

8.1 “Generate letter design”

Click design management key  to enter into design management screen.

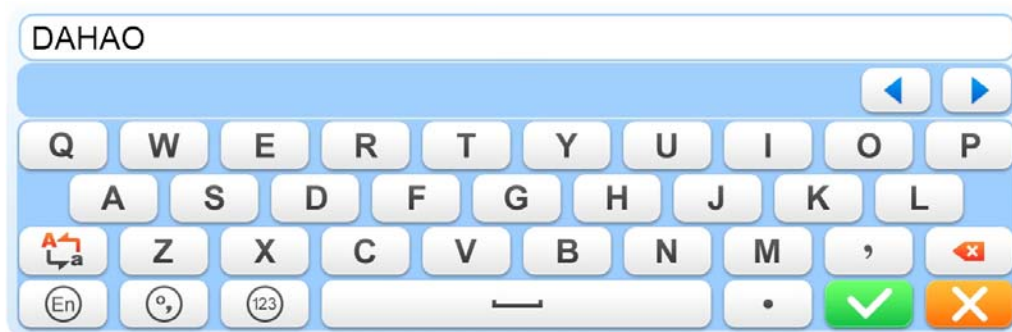


Click  to enter the main interface for letter embroidery.



8.2 Input Letter String for Embroidery

Press  in the main interface for letter embroidery to enter letter string input interface.



The upside of the window is the display area and the downside is the operation area. After inputting the letter string, press  to save.

8.3 Adjust Letter Design

1. Letter Design Adjusting Screen

Letter Design adjusting screen is as following:



The operation key is divided into three parts in the screen, the left side is the article and view function key, under is letter rank adjustment key (for whole rank) , right side is the adjustment key for picked letter. The centre of screen is the area to show letter design.



Under general circumstance, should set whole rank method of letter bound, rotate angle, letter space etc. parameters (key is under operation screen); Pick out again the particular letter, adjust rank parameter of individual letter (key is in right side of operation screen).

Letter design manifestation window: the central cross mean coordinate, intersection is origin (0,0) . The letter rank surrounds origin automatically.

2. View and file operation



“Letter String”: edit letter string.



“Needle trace”: show/hide needle trace, hide needle trace can improve operation speed.



“Density increase”: Increase stain stitch density of the born letter design. Such as:



“Density reduces”: Reduce stain stitch density of the born letter design. Such as:



“Save”: Used for save letter design that just edit. After clicking that key, will appear the window that can input the design number design name. According to the design name and design number that need modification (the serial number does not modification generally), then click confirmation to start keep.



“Enlarge”: enlarge to show the window and to look into the detail part of the letter design.



“Reduce”: reduce the show window of letter design.



“Fact”: Show the letter design with the actual size. At this time, the size of design in screen is equal to actual size.



“Center”: Zoom to see the diagram, show the whole design in order to look into.



“Return” key is use for return the window of letter design input. If you need to change embroidery letter bound, can click this key to return back the previous screen to carry



on the modification. All of adjustment for individual letter in this window will disappear.



“Left”, “Right”, “Up” and “Down”: move letter pattern toward each direction.

3. Pick out letter adjustment key



“Change color switch”: Establish or cancel change the color that was set before selected letter.



“Select switch”: switch selected letter. Must pick out a certain letter and then can carry on the editor for it. When there is a red “+” in the center of letter, meaning the letter to is pick out, such as: **D**. The system default will pick out all letters. After click “select switch” key, pick out the first letter, then click, pick out the second, depend on this kind to push. After picking out the end letter, then click “select switch”, will pick out all letters again.



“Change letterform”: change letterform of selected letter. After clicking this key, will flick the dialog box of select letterform, choose one of letterform that you wished, and confirm.



“Increase width”: increase width of selected letter. Such as: **DAHAQ**



“Reduce width”: reduce width of selected letter. Such as: **DAHAQ**



“Clockwise rotate”: With the letter as centre, (“+” in the centre of letter) rotate selected letter toward anticlockwise direction. Such as: **DAHAQ**



“Increase height”: increase height of selected letter. Such as: **DAHAQ**



“Reduce height”: reduce height of selected letter. Such as: **DAHAQ**



“Level overturns”: Left and right overturn the selected letter.



“Flip vertical”: Up and down overturn the selected letter.

4. Adjust key of whole rank parameter

If after you edit individual letter, then again to adjust whole rank parameter, the editor of



the individual letter will be probably overlay. There are 4 rank modes.



"Level": Rank the letter bound by level method.



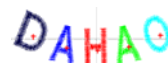
"Vertical": rank letter bound by vertical method.



"Up arc": rank letter bound by round arc method with up bend.



"Down arc": rank letter bound by round arc method with down bend.



"Fix the letter direction": When rank the letter bound by round arc method, the letter angle not change with the position of round arc, but be equal to a certain angle fixedly.



"Angle follow": when rank the letter bound by round arc method, the letter angle change follows behind the position of round arc (perpendicularity in arc)



"Radian increase": When rank the letter bound by round arc, enlarging the radian of reference round arc.



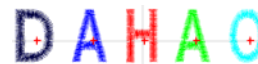
"Radian reduces": When rank the letter bound by round arc, reduce the radian of reference round arc.



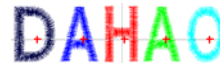
"Whole clockwise rotate": clockwise rotate for whole letter bound.



"Extend letter space": Increase the distance between the letter.

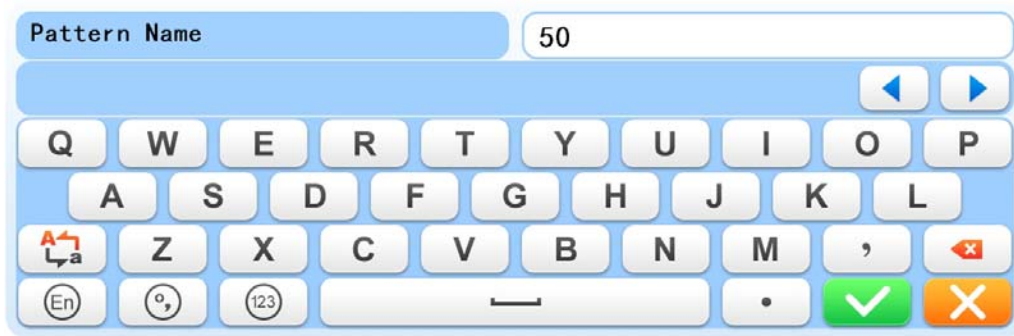


"Reduce letter space": reduce space between letters.



8.4 Save Letter Design

After finish letter design editor, click  key. Appoint the new design number and new design name in the pop-up window, then click  key to keep.



After saving, system will return to the main interface for letter embroidery.

If you don't want to continue to edit letter design, then click  to exit. System will go to “Other design management functions”.

Chapter 9 Assistant Operation Function

These functions are carried out by clicking the keys on the Assistant Operation screen.

Click  to enter Emb helper functions screen.



Those keys are for different functions. Some functions may be unavailable for some machine status.

9.1 Save Design Start Position

If the start position of the frame has been set (refer to “Setting Frame Protection when Power-off”, Chapter 10), the machine can save the start position of the current design at the embroidery preparation status or before embroidering. The start position will be kept in machine memory.

1. Move the frame to start position.
2. Click  in the main screen to enter the assistant operation screen.
3. Click “Save design start point”. System will ask to confirm action.
4. Click  to save the current frame position as the design’s start point. Or click



to cancel the above operation..



9.2 Restore Design Start Position

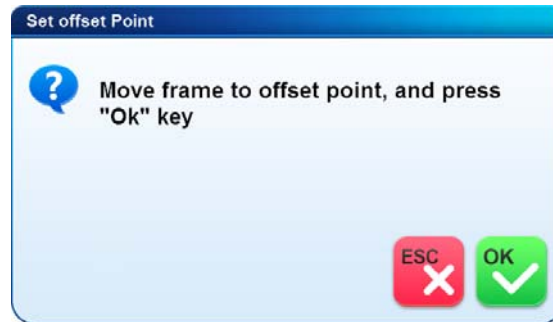
If you have saved the start position of current design, you can use this function to locate that point.

1. Click  in the main screen to enter the assistant operation screen.
2. Click the key “Restore Design Start Position”.
3. Click  to restore start position.
4. Frame moves to the saved start position.

9.3 Set Offset Point

The offset point can be set at any point other than the start point. After setting it and beginning to embroider, the frame will first move from the offset point to the start point and start normal embroidery. After embroidery, the frame will move back to the offset point. Moreover the offset point is also necessary for frame to move out when patching. The function can only be used under the embroidery confirmation status and before embroidering.

1. Click  in the main screen to enter the assistant operation screen.
2. Click the key of set offset point.
3. Move the frame to the offset point



The system will ask the user to confirm and input the coordinates of X and Y. Press the frame-moving key to move the frame to the offset point and click  to confirm. Or click  to cancel the operation.

4. System will save the position of the offset point and return to the main screen.

9.4 Set B Point

This function is selected and the user must customize.

This function is developed to solve the problem of inconvenience of threading when thread break appears on giant machine.

When thread break appears, press the slow switch to let the machine trim, then the frame will move to the point B. After reloading the thread, you can pull bar to the right side to let the frame back to the stop point. Then proceed embroidering.

9.4.1. Setting Course

1. Set the absolute origin, see 10.4 for details.
2. Click the button  in the main screen to enter into assistant operation screen.
3. Click set B point.
4. Press the manual frame moving to move the frame to a proper position, click to let system back to other screen. Setting B point is complete.

If you want to clear the point B, press “clear B point”.

9.4.2. Notes

1. When frame moves to the work-off point, there is only action on Y direction.

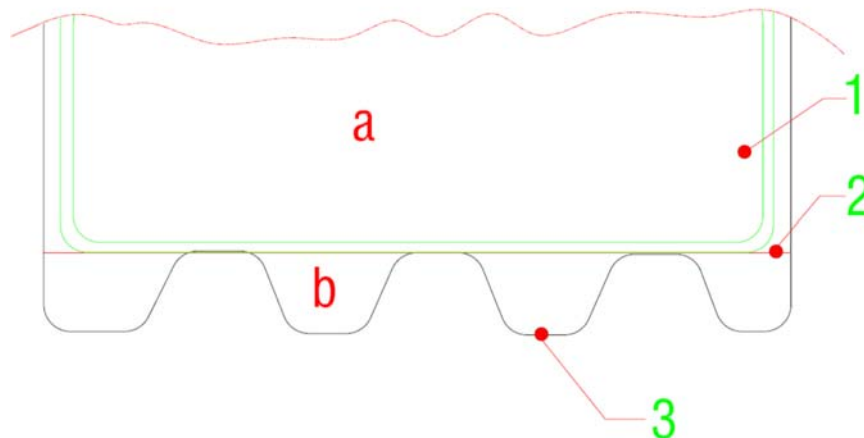
2. Frame will not necessarily move to the B point wherever thread breaks.

If the B point is set as the image below, then frame will be only moving above B (a zone indicates the inner edge of the stand), after thread break, press the slow moving switch, machine trims without letting frame go to B point; when frame is moving under B (b zone indicates the outside of stand), after thread break, press the slow moving switch, frame will move back to B point. If no action, please check the machine.

3. B point setting is as the image shows:

(1) If B point is above the line, then frame will back to B after slow moving. There will be a long distance to go after threading.

(2) If B point is under the line, threading will be greatly influenced.



1. Frame

2. the best line for setting B point

3. edge of the table

9.5 Special Emb Functions

This function is only available for those with special embroidery mechanisms.

1. Click  in the main screen to enter the assistant operation screen.
2. Click “special emb functions”.
3. Click certain keys according to the prompts.

Note: valves V1~V4 are for quilting. See more detailed explanations on sequin and special embroideries in related chapters.

9.6 Reset Total Stitch

Reset total stitch that already embroidered.



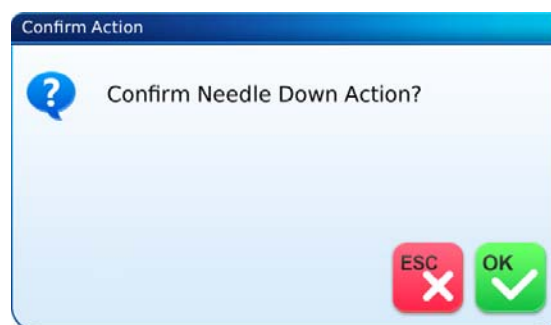
1. Click  in the main screen to enter the assistant operation screen.
2. Click reset total stitch key.
3. System set the current embroidered stitch to 0.

You can see total stitch in machine statistics.

9.7 Needle Down

This function is designed for whole cloth embroidery (quilt embroidery). In embroidering, the needle will stop and prick into the embroidery cloth to fix it. After releasing the cloth, move the frame to the designated position. When the cloth is fixed on the frame again, it is ready for the next operation.

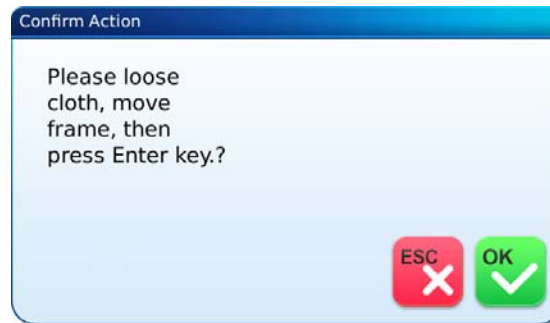
1. Click  in the main screen to enter the assistant operation screen.
2. Click the key of “Needle Down”. Confirm needle down action.



You can click  to confirm operation, and then needle pricks into the cloth. Click  to cancel.

3. Loose cloth, move frame, then press Enter.

Users need to loose the cloth and move frame to designated point, then click  to confirm. Click  to cancel.



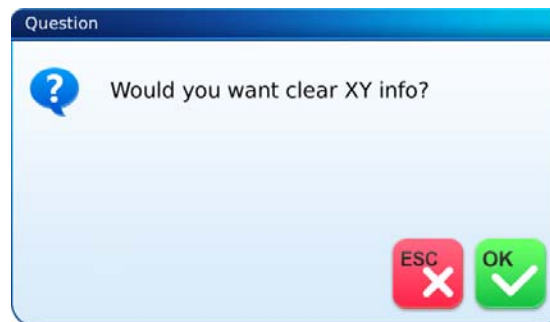
4. After frame moving, system returns to the main screen

Customers need to keep the cloth from moving, then use point set function, after which pull bar to continue embroidering.

9.8 Reset X/Y Displacements

This is to clear the X and Y displacements.

1. When the machine stops, click 



2. System will set current X/Y value to 0.

User can check the current X/Y value on the main interface.



Chapter 10 Other Functions

These functions include machine maintaining, information and some other system setting.

Click  in the main screen to enter the “Other functions” screen, which is a list of function keys.



The screen is similar to that for assistant embroidery. The words on the keys can help to explain their functions.

10.1 Positioning Idling

Operations about positioning idling should be under the status of “”.

According to customers’ requirements, the function can be moved to certain position without embroidering. Customers can choose stitch counts, color-changing stitch or stop stitch to idle forward (backward).

There are two ways to set positioning idling:

1. In the main interface , click “Move Frame To Stitch” to positioning idling screen.
2. In the main screen, press  to positioning idling screen.



10.1.1. Low Speed Idling Forward

1. In the main interface , click “Move Frame To Stitch”.
2.
 - (1) Click  to idle forward continuously.
 - (2) Click  to idle forward by one stitch.

10.1.2. Low Speed Idling Backward

1. In the main interface , click “Move Frame To Stitch”.
2.
 - (1) Click  to idle backward continuously.
 - (2) Click  to idle backward by one stitch.

10.1.3. High Speed Idling Forward

1. In the main interface , click “Move Frame To Stitch”.
2. Click  to idle forward at high speed

Note: the operation method of high speed idling backward is the same with here.

10.1.4. Go to Next Color

1. In the main interface , click “Move Frame To Stitch”.
2. Click  to idle to the next color-changing code

Note: the operation method of “go to previous color” is the same with here.

10.1.5. Forward Idling

1. In the main interface , click “Move Frame To Stitch”.
2. Input the stitch number. 

System will have access to the interface for inputting the forward stitch number. Customers need to click  to confirm the operation, or click  to cancel the operation.



3. System returns to the main interface, click  to have the frame float the pointed position.

10.1.6. Backward Idling

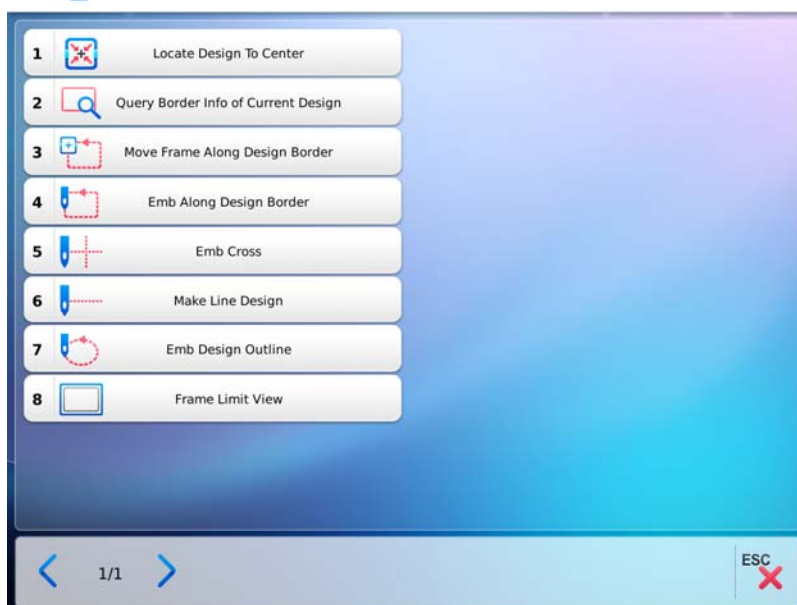
The operations are similar to “Forward Idling”. The only difference lies in is to click “”.

10.2 Design border operation

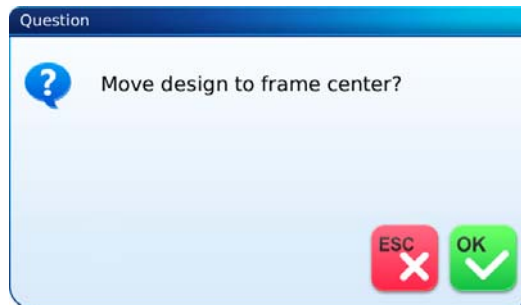
10.2.1. Locate Design to Center

This function is to move frame to position the design at the center of frame software protection, so as to embroider the design at the center of the frame. (See “Setting the Frame’s Software Protection”, Chapter 10)

1. Click  → Design border operation .



2. Click the key of “Locate Design to Center”.
3. System asks users to confirm.



Click  to confirm and the system will calculate the center and move the frame to start position. Click  to cancel the above operation.

4. System returns to the main screen.

10.2.2. Query Border Info of Current Design

With this function, users can check the border info of current design on the screen.

1. Click  → Design border operation .
2. Click the key of “Query Border Info of Current Design”. System will show the border info of current design on the screen.
3. System will display design border info.



Click  to shut the window.

10.2.3. Move Frame along Design Border

This function is to move the frame along the design range to check if the design exceeds the limits. When the frame meets the limits during this process, system will make adjustment itself, so as to avoid damage to the machine frame.

1. Click  → Design border operation .

2. Click the key of “Move Frame along Design Border”.
3. System will ask users to confirm.

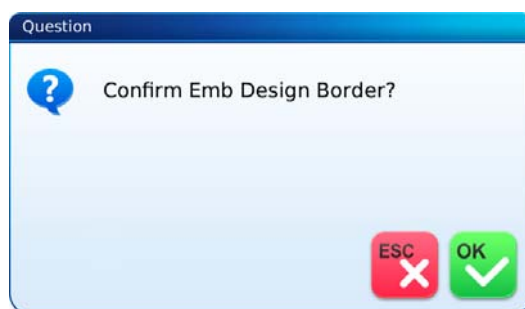


Click  to confirm and the system will move the frame along the design border. Click  to cancel the operation.

10.2.4. Emb along Design Border

System can calculate the design's peripheral data for embroidery. This function should be used in embroidery preparation status.

1. Click  → Design border operation .
2. Click Emb along Design Border.
3. System will ask users to confirm operation.



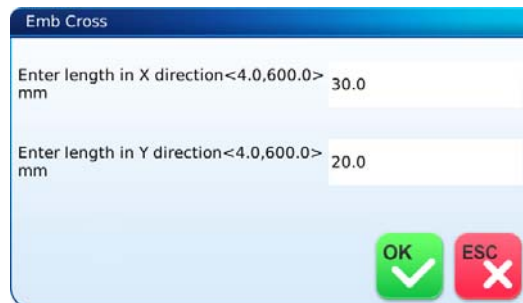
Click  to confirm or click  to cancel the operation.

4. System will calculate the design's temporary data and enter the embroidery confirmation status and the main screen.

10.2.5. Emb Cross

System can embroider a cross at the current position. The size of the cross is adjustable.

1. Click  → Design border operation .
2. Click the key of “Emb Cross”
3. System will enter into parameter setting screen for embroidering cross.



Users can decide X/Y length.

4. Click confirm key .

10.2.6. Emb Line

The system can embroider lines based on the user's needs.

1. Click  → Design border operation .
2. Click “Emb Line”.
3. Input the coordinates of the line's first point.

The system will ask the user to input the coordinates to the pop-up window. You can use the manual frame-moving key on the panel to move the frame to the start point of the line, and clicks  to input the coordinates.

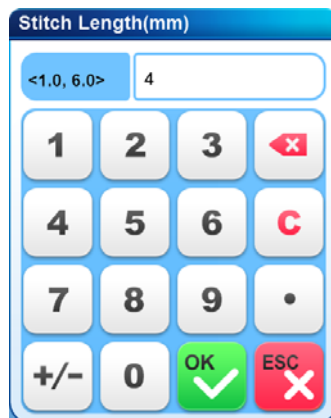
4. Input the line's second point's coordinates.

The system will ask the user to input the coordinates.

The user uses the manual frame-moving key on the panel to move the frame to the end point of the line, and clicks  to input the coordinates.

5. Length

Enter the Length Screen to set length, click .



6. The system will create the necessary data, enter the embroidery confirmation status and return to the main screen.

10.2.7. Emb Design Outline

System will generate temporary outline data according to the current design. Users can pull bar to embroider.

1. Click  → Design border operation .
2. Click the key of “Emb Design Outline”.
3. System then calculates and waits users to confirm.

The system will calculate the outline data and ask the user to confirm the above operation.

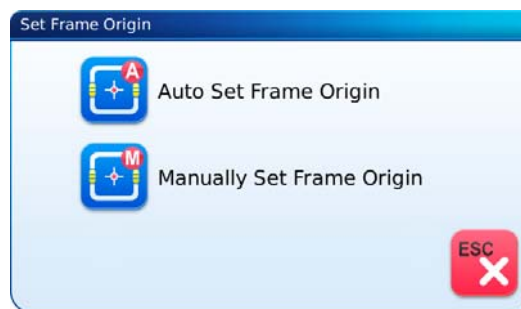
Click  to confirm or click  to cancel the operation.

4. The system will return to the main screen and embroidery confirmation status.

10.3 Set Frame Origin

Setting the frame origin point is the premise for saving the design’s start point and setting frame protection when sudden power-off happens. So after machine installation or maintenance, it’s necessary to set the frame zero point.

1. Click  in the main screen to enter the “Other functions” screen.
2. Click “Set Frame Origin”.
3. Users can decide either use “manually set frame origin” or “auto set frame origin”.



System will ask users to make choice. Users can decide either use “manually set frame origin” or “auto set frame origin”.

Before setting the frame zero point manually, manually move the frame the desired origin point position, and click the key. Then the system will save the current frame as the zero point. When meeting emergency stop because of malfunctions or something unusual such as power off unexpectedly, etc. the machine will cancel the “setting frame origin” function to avoid the mistakes. So, at that time, you should do operation of “manually set frame origin” again at the last frame zero point. If the frame has been moved after power off, or if power on again after maintenance, you should do again the operation of “manually set frame origin”.

If you hope the system automatically set the frame origin point, click “Auto set frame origin”, and the system will move the frame automatically and set the zero point according to the limit switch. So please ensure that the limit switch has been installed into the machine and it's effective.

10.4 Frame Origin Recovery

After power off, if the frame is moved, this operation can be used to restore the frame position when resume power. The proper performance of this operation is based on “Set Frame Origin” (Auto set frame origin). In addition, when sudden power-off takes place in the process of embroidering operation and the frame has not been shifted, users can directly pull bar to continue embroidering after resuming power.

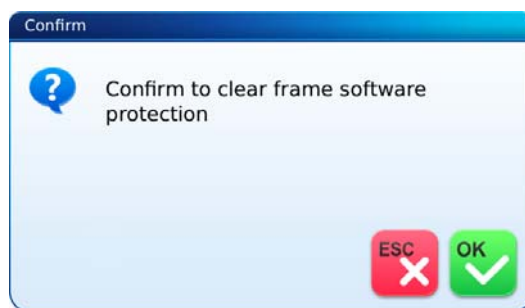
1. Click  in the main screen to enter the “Other functions” screen.
2. Click “Frame Origin Recovery”

If it is “auto set frame origin”, the machine will automatically move to the frame zero point and then back to embroidering position before power-off. It will be invalid if the operation of “manually set frame origin” is done.

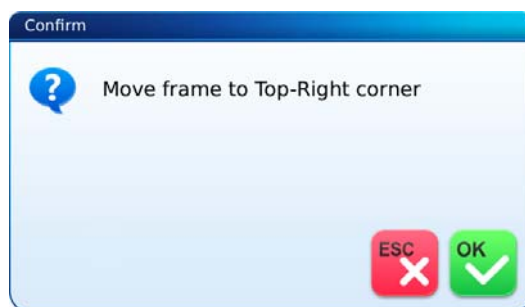
10.5 Set Frame Soft Protection

This function is to set the embroidery range set in the software, and limit the machine embroidering to this range.

1. Click  in the main screen to enter the “Other functions” screen.
2. Click “Set Frame Soft Protection”
3. If have already established the software protect, the system hints the customer to clean original constitution.

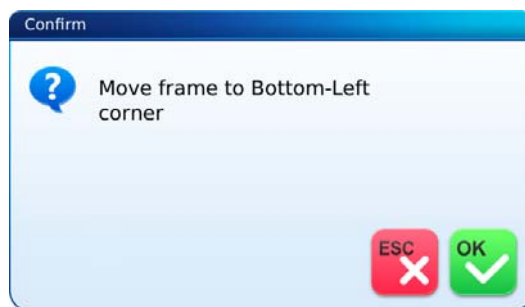


4. After click the confirm key, establish the coordinate in the right-up corner.



Use the move frame key on panel to move the embroidery frame, to confirmed right-up corner point of soft limit position, click  to confirm.

5. Move embroidery frame, input coordinate of right-down corner of soft limit position.



Use the move frame key on panel to move the embroidery frame, to confirmed left-down



corner point of soft limit position, click  to confirm.

6. The system memory embroidery frame software protection.

10.6 Date Time Config

In date and time screens, the customer can look into and modify the system for current date and time.

10.7 Change display language

System supports Chinese English, Turkish , Spanish and so on conversion.

1. Click the “other functions” key  to enter into other functions screen.
2. Click the shift key to change language.



Click the language you want to change; system will go to the language changing screen.

10.8 Machine Information

Specified operations:

1. Click “other functions” 
2. Click “Machine Version Info”



This function will help users to check upper and lower computer software information.

Click  to exit.

10.9 View Statistics Info

1. Click  in the main screen to enter the “Other functions” screen.
2. Click “View Statistics Info”
3. System will display statistics information screen

Power On Time	00:00:00
Emb Time	00:00:00
Stop Time	00:00:00
Power On Counter	80
Overall Works	0
Overall T.B.	0
Mean Time of T.B.	00:00:00
Estimate Finish Time	00:07:26
TotalSTI:	0

index	Design	DesignID	Name	StitchNum	Works	Total Time	Minum Time	Maximum Time
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								

In the above screen, the statistics information is displayed in a chart. The user can click



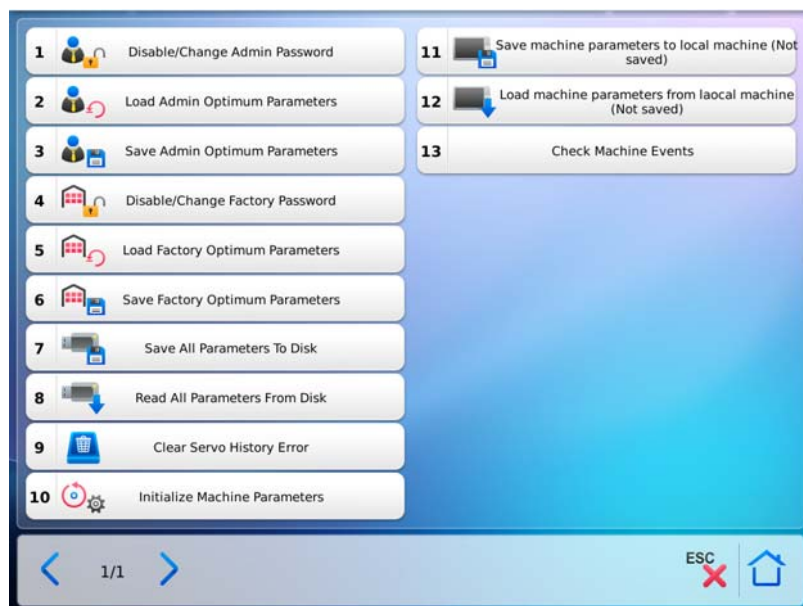
to thread usage stat. the user can click to thread break stat., click to clear completed pieces, click to clear the value , click to return.

10.10 Machine Authorization Management

Note: The section is fit for the machine with password-protected function.

For a convenient machine management, the common user can't access the setting of all parameters; the roles of the customer are divided into the common user, machine administrator and factory customer. The purview of the common user is the lowest, can only modify the embroidery parameter of the machine, machine administrator can also modify managing parameter, but the factory user can modify all parameters.

Click the usage purview management key, the system manifestation usage purview management screen.



If after constitution the password, machine administrator or the factory customer need modifies the parameter, must relieve the password first, then can change, can also change the password, conservancy and instauration parameters here.

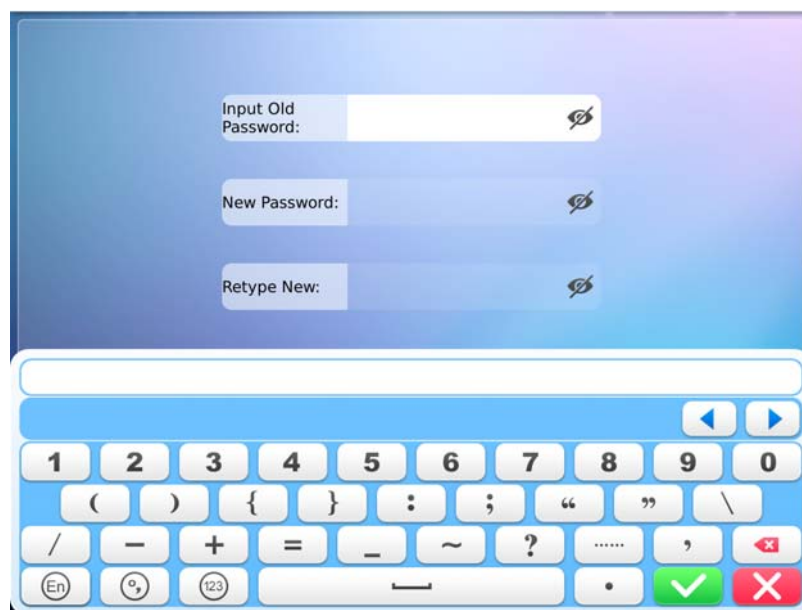
10.10.1. Disable/Change Admin Password

When machine come off the production line, it is unlocked. Users can modify all



parameters while machine administrator can modify the password. After changing the password, general users can't modify the machine application parameters. Administrator must relieve system lock so that he can modify the password.

1. Click other function key  on the main appearance; enter the other functions operation screen.
2. Click “Machine Authorization Management” to enter this management window.
3. Click disable/change admin password.
4. Input old password and then the new one.

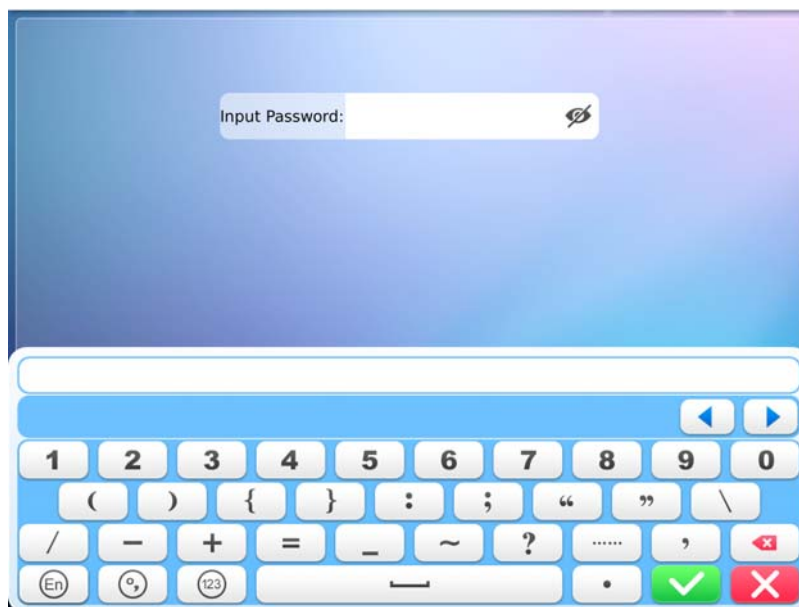


The administrator needs to input the old password and new password that need to be established one by one in order, the factory will tell the administrator of the system default password, constitution of password must be 4-9, for prevent the customer mistake operation, the new password must be input two times and to be input consistently then can be established successfully.

10.10.2. Load Admin Optimum Parameters

After machine administrator modifies the password, the machine is locked. General customers can't modify the machine application parameter at this time, the administrator needs to input password first to relieve system lock before the modification parameter, machine placed in lock appearance after every time up electricity.

1. Click other function key  on the main appearance, enter other functions operation screen.
2. Click “Machine Authorization Management” to enter this management window.
3. Click “Input Admin Password to Unlock”.



System will ask users to input password.

4. Administrator input password

After administrator inputs the password, the system will be unlocked. Then customers can modify the machine application parameters.

10.10.3. Save Admin Optimum Parameters

The machine administrator can save and recover machine parameter. If the customer hopes to keep the parameter which has been established, click "Save Admin Optimum Parameters". System can only keep one set of parameter. When save again, system will overwrite parameter that you saved last time. If you want to recover the optimize parameter that saved last time, just click "machine administrator recover optimize parameter" key, system will ask customers to confirm recovery operation, after that, system will recover the value of saved parameter into the system.

10.10.4. Disable/Change Factory Password

Machine factory customers can modify all the parameters. When machines get off the



production line, they are unlocked. Customers can change the password. Machine will be locked after changing password. If you want to change the parameter, you should first unlock the password. Pay attention that if you resume power, machine will be locked again. The detailed operations are similar to those in “Disable/Change Admin Password”.

10.10.5. Load Factory Optimum Parameters

Operations of this function are similar to “Load Admin Optimum Parameter”.

10.10.6. Save Factory Optimum Parameters

Factory customers can save and recover set parameters. Operations are similar to “Load Admin Optimum Parameters”.

10.10.7. Initialize Machine Parameters

This function can initialize the general embroidery parameter of the machine. In the system saved a group of value of default parameter value, the factory and embroidery factory administrator can save corresponding parameter that they managed. When use this function to do initialize the parameter, the regularity is as follows:

1. When the factory password and embroidery factory administrator password were not established, then do initialize all of general embroidery parameters to the default value that was saved by system.
2. When that factory password has already established and has already decrypt, and then do initialize all of general embroidery parameters to the default value that was saved by system.
3. The factory password has already established and hasn't decrypt, embroidery factory administrator password has already established and has already decrypt, then the machine parameter was managed by factory recover to parameter value was saved by factory, the other parameters were initialized to default value that saved by system.
4. The factory password has already established and hasn't decrypt, embroidery factory administrator password has already established and hasn't decrypt, then the machine parameter was managed by factory recover to parameter value was saved by factory, the machine applications parameter was managed by administrator recover to

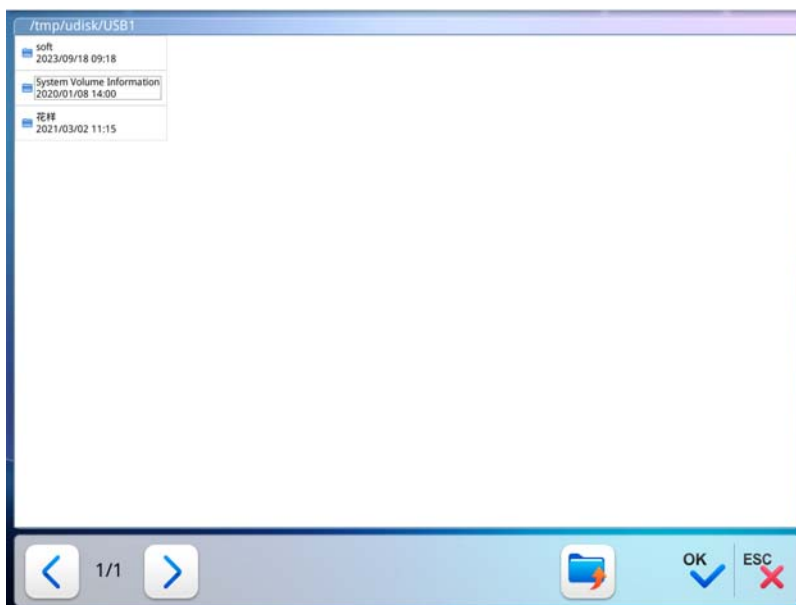
parameter value that saved by administrator, the other parameters were initialized to default value that saved by system.

5. The factory password hasn't establish, embroidery factory administrator password has already established and has decrypt, and then do initialize all of general embroidery parameters to the default value that was saved by system.

6. The factory password hasn't establish, embroidery factory administrator password has already established and hasn't decrypt, then the machine applications parameter was managed by administrator recover to parameter value that saved by administrator, the other parameters were initialized to default value that saved by system.

10.10.8. Save all parameter to disk

1. Click other function key  on the main appearance, enter other functions operation screen.
2. Click "Machine Authorization Management" to enter this management window.
3. Click "Save All Parameters To Disk".
4. Insert the USB and then click  .



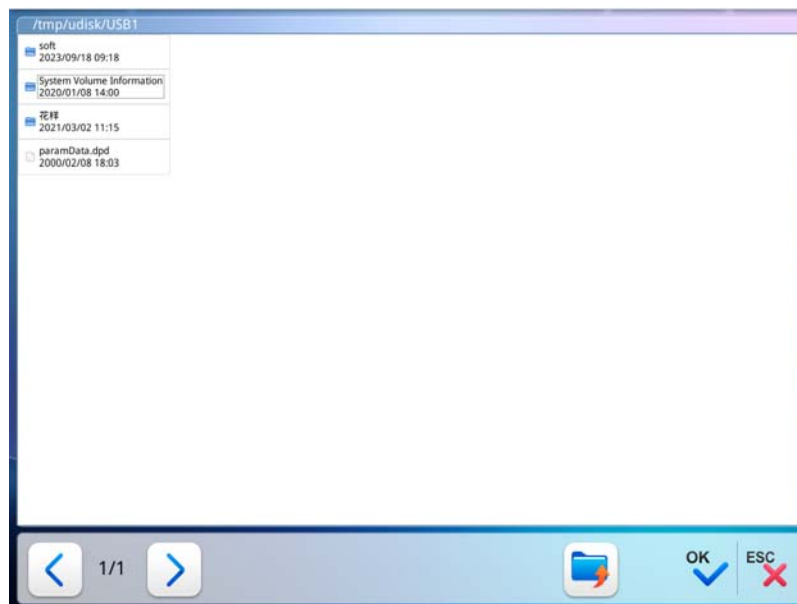
5. "Success to save all parameters to file "DH-PARAM.TXT" means the successful saving of the entire parameters to the USB.



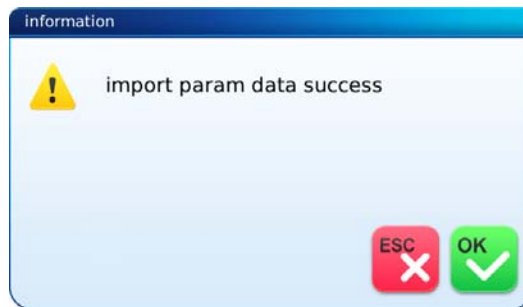
6. After the update, user needs to repower the computer. After the initialization, user can reset the parameters.

10.10.9. Read all parameter from disk

1. Click other function key  on the main appearance, enter other functions operation screen.
2. Click “Machine Authorization Management” to enter this management window.
3. Click “Read All Parameters From Disk
4. Insert the USB and then click  .



5. "Success to read all parameters " will appear.



6. After the above operations, the system parameters will resume to the status before user updates the software. The embroidery machine can be used now.

10.11 Debugging Machine



This operation to provide to maintenance man to use only, the common maintenance man not to use, this operation involves some mechanical works, so the need to notice the human body safety and equipments safeties when use it.

Adjust function to mainly use in the test of the machine, support and check break down, include as follows function:

Number	Machine Test	Sub-items of the Machine Test
1	Test Encoder Parameters	
2	Test main shaft speed	
3	Rotate shaft to one angle	
4	Test the pull bar	
5	Test the limit switches	
6	Test the head solenoids	
7	Test Trim Thread	1、 Test trim solenoids/motor 2、 Test holding solenoids 3、 Test hook solenoids/motor 4、 Trim Motor Find Oringin 5、 Step motor of cutter ON 6、 Step motor of cutter OFF 7、 Manual trimming test
8	Test thread breakage	



Number	Machine Test	Sub-items of the Machine Test
9	Test sequin device on/off	
10	Test sway zig rod	
11	Test lift clamp foot	
12	Test face thread hold function	
13	Sequin device operations	
14	Test Loosing Motor	
15	Step Closed-Loop C.C. Pos. Adj.	
16	CAN Communication Test	
17	Show Needle Position	
18	Touch screen Adjust	
19	Management of Machine I/O Boards	1、 Update PC006 Software 2、 Write Addresses of All PC006 3、 Write Addresses of One PC006 4、 Check Addresses of All PC006 5、 Check Addresses of One PC006 6、 Check Peripheral Board Info.
20	Integrated Multi-Shaft Servo Test	1、 Integrated Multi-Shaft X Servo Debug 2、 Integrated Multi-Shaft Y Servo Debug 3、 Integrated Multi-Shaft Servo Main-shaft Debug 4、 Power Status of System 5、 Integrated Multi- Servo Main-shaft Status
21	Single Foot Needle pos. test	
22	Update Logo	
23	Function Config	In the interface, you can open, close sequin, rope embroidery, auto change under-thread.
24	Special Broidery Authorize	
25	Boot Loader Update	

10.12 Touch Screen Adjust

After working for some time, the touch screen may have the problem of data drift, which



will cause inaccuracy of pressing keys. This can be solved by “touch screen adjust” function. In adjusting you have to touch the exact center point of the crossing in the screen. This function is only available to personnel of management authority.

1. Click  → Debugging Machine.
2. Click touch screen adjust key
3. Input admin password or factory password (Go to the fourth step if the machine has no password-protected function).
4. Click the centre of the cross in adjustment screen step by step.



During the process of adjusting, a lot of crosses will appear on the screen. Users should click the center of those crosses. System receives the data of those points and saves as standard data. Click  to exit.

5. System will make self-adjustments according to the point coordinates clicked by customers.

System will make self-adjustments according to the point clicked by customers, after which system will return “Other Functions” screen.



Chapter 11 Sequin Embroidery

11.1 Brief Introduction on Sequin Embroidery

Sequin embroidery is composed of sequins and threads. We choose those hard materials with smooth surfaces as the sequins. Embroidery works will be shining with these sequins attached. Design with Sequin codes has its own way of designing.

Multi-sequin embroidery is divided into two groups: one is normal multi-sequin design, made by normal design making method. The other one is special multi-sequin design made by normal design software with special making method attached.

For normal one, you should set sequin mode when you modify the color-changing order. Special multi-sequin design can be directly embroidered after modification of color-changing order.

Meanwhile, the machine can automatically change normal design to special design during the process of design import. The special design saves all the sequin of normal design as sequin A. If you want further modification, you can use “sequin edit” to modify.

Note: see appendix 4 for detailed design making rules.

I. Scope

This system applies to sequin embroidering control system which combines normal embroidering mechanism and sequin sending mechanism.

II. Features and Functions

1. Two sending sequin modes: Wheel and Lever;

Wheel: the core part is a wheel-like device in the whole mechanism. Its operating principle is to wheel continuous towards one direction to send sequins into position.

Lever: the core part is staff linkage. Its operating principle is to move back-and-forth to send the sequins into position.

2. Sequin mending and sequin sending mechanism are two independent actions;
3. Delivering a sequin by operating either manual separated head or collective;
4. Display working status separated head;
5. Type of sequin sending and angle can be changed by operating on the control panel.



III. Specifications

1. Sequin diameter range: 3mm,4mm,5mm,6.75mm and 9mm;
2. The maximum speed for sequin embroidery is 850 rpm.

11.2 Embroider sequin

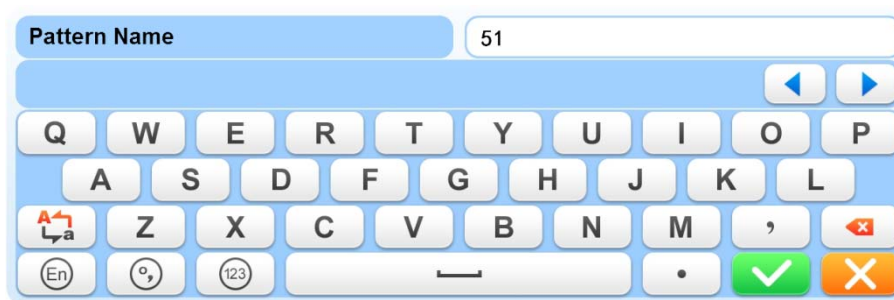
You may follow the steps in sequin embroidery:

1. Input design with sequin code (see 11.3);
2. If you want, you can do design selection and editing (see 11.4);
3. Set sequin parameter (see 11.5);
4. Check and make possible adjustment to the sequin delivery device (11.8);
5. Set color-changing order (see 11.6);
6. Back to main screen and confirm embroider;
7. Pull bar to embroider.

Note: You must not touch valve switch during embroidery, or it will cause damage to the device.

11.3 Input Sequin Design

Press the key  in the main screen to enter into disk selection menu. After selecting design, press “Data Import”.



Setting procedures: You should type in new design number, then press  to confirm.

In the blank of “Is multi-sequin design”, select an import way. Choose “Yes” to save as the special sequin design anyhow .To the normal sequin design, changed sequin design save multi-sequin as “A” type sequin. If you choose “No”, normal sequin design remains as normal sequin design, while special multi-sequin designs will be saved as special multi-sequin design.

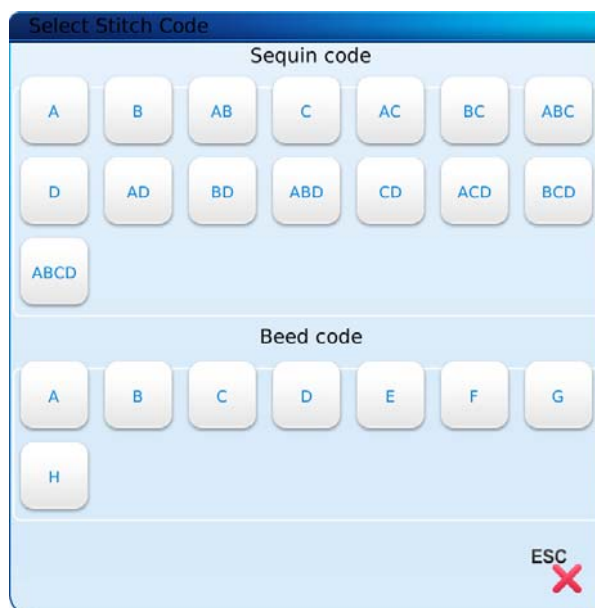
11.4 Sequin Design Edit

This function is to edit sequin design. All the designs will be saved as special multi-sequin design.

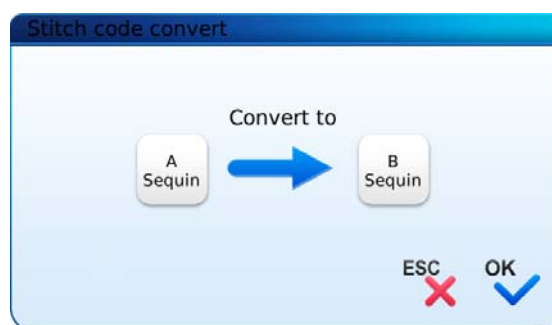
1. Press  in the main screen:
2. Press direction keys to select design with sequin code. Click “Other functions” , “Edit Sequin Setting of Current Design” one by one to enter the “Edit Design” screen.



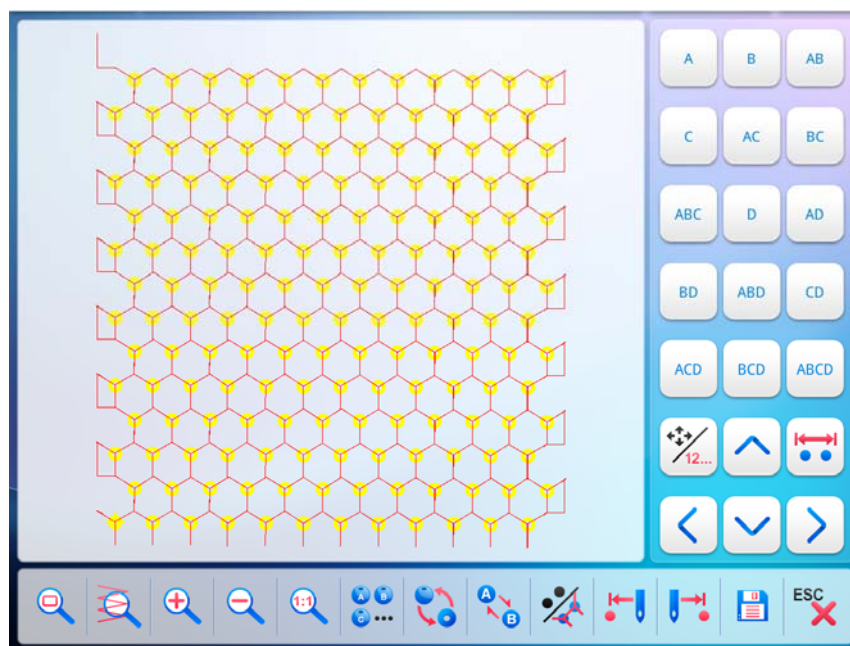
3.  display design 4.5 times as original one;  zoom in sequin design;  zoom out sequin design;  display in original size;  centered.  AB swap.  Sequin start.  Sequin end.
4. Click  to select stitch code



5. Click  to stitch code convert.

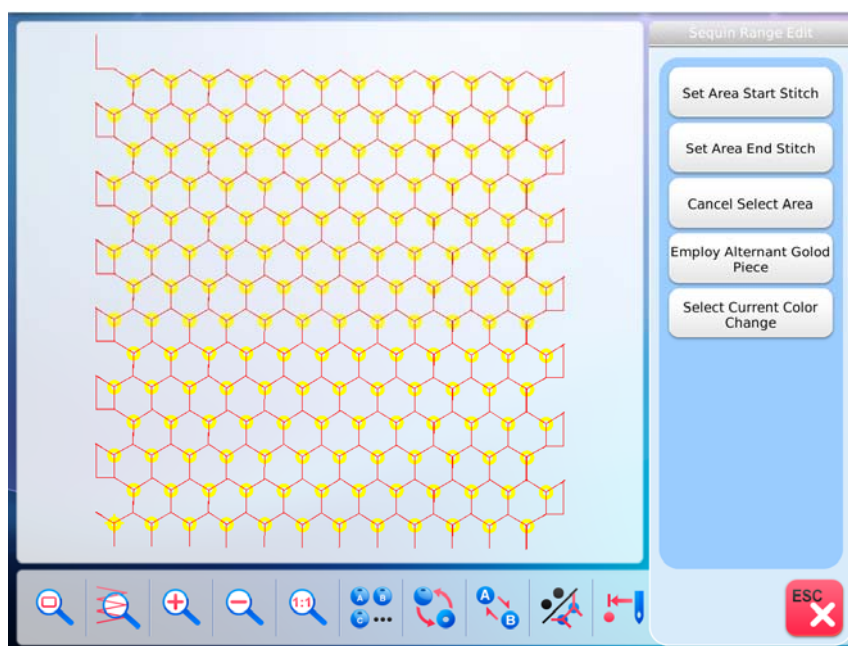


6. Click  to show all stitches of the design as follow image:





7. Click  to shift the current stitch between “navigating by position” and “navigating by stitch number”. “navigating by position”: when you press down direction keys, the next stitch code in that direction will be selected, no matter its stitch number. “navigating by stitch number”: when you press direction keys “leftward” or “upward”, the last sequin stitch code (smaller than the current number) will be selected; when you press “rightward” or “downward”, the next sequin stitch code (bigger than the current number) will be selected.
8. Click  to enter into “Sequin Range Edit”.



- (1) Move the cursor to one stitch position, then click “Set Range Start Stitch” to set the current stitch as the start stitch of this range. Move the cursor to a different stitch position, then click “Set Range End Stitch”. The set range is from the start stitch to end stitch.
 - (2) If you want to cancel the range, click “Cancel Range Def”.
9. Sequin mode select

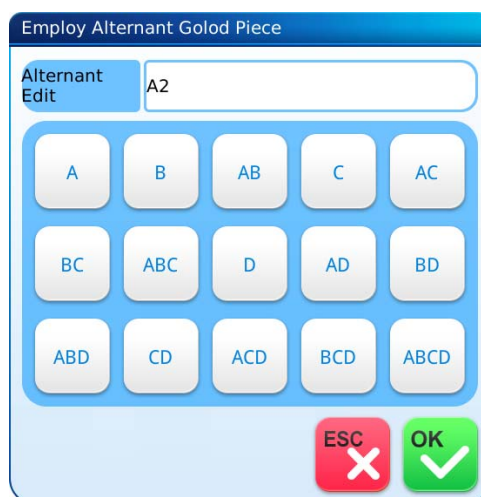
This type machine provides 15 sequin modes for customers: A, B, AB, C, AC, BC, ABC, D, AD, BD, ABD, CD, ACD, BCD and ABCD.

Naming of 4 sequins: A, B, C and D. If 4 sequins are delivered at one time, then A is on the top, then B, C and D.



10. Edit of Alternate Sequin

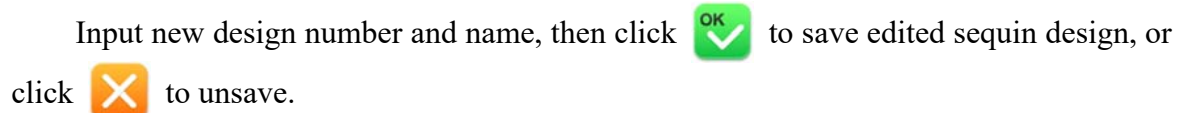
If you want to use alternate sequin, you should first define a range for using alternate sequin. In “”, use “Set Range Start Stitch” and “Set Range End Stitch” or “select current color range” to set sequin range. After that, use “edit of alternate sequin” in “” to set alternate sequin.



Setting method:

- Select sequin mode and click  to confirm. Sequin name are A, B, C and D. If all four sequins are included, A will be on the top, then B, C and D.
- After that, press  and delivery sequin number ranging from 1 to 9999 is desired. If use same sequin mode, import “1” and confirm by pressing .
- Press  to confirm.

For instance, if the current sequin mode is A2ABCD1CD1, then it shows like this:



11.5 Parameter Setting about Multi-Sequin Embroidery

In this chapter, we will introduce how to adjust sequin device and parameter adjusting in multi-sequin embroidery.

Select  in other functions screen to enter parameter management screen, then select parameter setting.

1. Speed for Sequin R(L):

The parameter is to set the max speed during normal embroidering.

Note: the maximum speed of flat embroidery should be higher or equal to speed for



sequin embroidery.

2. Auto start for sequin:

When the setting is “Yes”, system will start embroidering sequin automatically.

When the setting is “No”, machine needs manually start.

3. Time of Sequin Action:

This is to set the time period from sequin device goes down to embroidering (0-15, the default value is 2). If the sequin device is controlled by valve, use the default value; if it is controlled by motor, choose 4-5.

4. Sequin off after T.B.

When the setting is “Yes”, sequin presser foot will be lift up automatically in case of thread break.

When the setting is “No”, the sequin device needs manually lifting the presser foot.

5. Sequin Ind. Up Down

When the setting is “Yes”, it is independent lift up. When the setting is “No”, it is collective lift up.

6. Up Value When Jump&NoCut

7. Motor Number of R (L) Sequin

The parameter setting should be based on actual device number, if there is no sequin device, set to 0.

8. Set 3/4/5/6.75/9mm of R(L) Sequin

This is to set sequin delivery angle. If it is wheel, it should be set to single way; if it is lever, it should be set to double way. The parameter is closely related to “left/right sequin device A/B/C/D size and color”. For example, “A size&color of R sequin” is set to “4mm X color”, and then the angle value should be “Set 4MM of R Sequin”.

9. A/B/C/D size&color of R/L sequin

Setting of this parameter depends on the mechanical structure. The order from A to D is



from front to back.

Note: “Motor Number of R (L) Sequin” is closely related to “A/B/C/D size&color of R/L sequin”. For example, if “Motor Number of R (L) Sequin” is set to 2, then it only displays “A/B size&color of R/L sequin”.

10. Sequin Gap Num of R(L) Sequin

This is to set gap number. If there is no gap, then it should be set to 0.

11. Valve Time of Right Sequin

This parameter is used to change the waiting time of the adjustment on action of interval valve. The larger the value is, the waiting time will be longer; the smaller the value is, the waiting time will be shorter. User needs to adjust this value according to the actual condition of the sequin device. The default value of this parameter is 2.

12. L/R Motor Shift Stroke Base.

13. L/R Motor Shift Stroke Time.

14. With Origin at L/R Motor Shift.

The parameters at above are for the special sequin device which uses the motor of single needle dual-sequin device to shift the travel amounts of large sequin and small sequin. This kind of device contains two types: the one is with shift origin; the other is without that shift origin.

15. L/R Knife Start Angle Adj.

This parameter is for the special sequin device using the motor to cut the sequin, which can adjust the start time of the sequin-cutting motor. The default value of this parameter is 15. The smaller this value is, the earlier the motor will be activated (Min value is 0); the larger this value is, the later the motor will be activated (Max value is 31).

16. Bead-breakage Detection Sensitivity.



This parameter is for the beam embroidery device. “0” means to turn off the sensitivity of the beam-breakage detection. The range of this parameter is 0~10. “1” means the highest sensitivity, while “10” means the lowest sensitivity.

11.6 Manual Operation of Sequin Embroidery

It has two ways of operation, collective operation and separated operation.

1. Collective Operation:

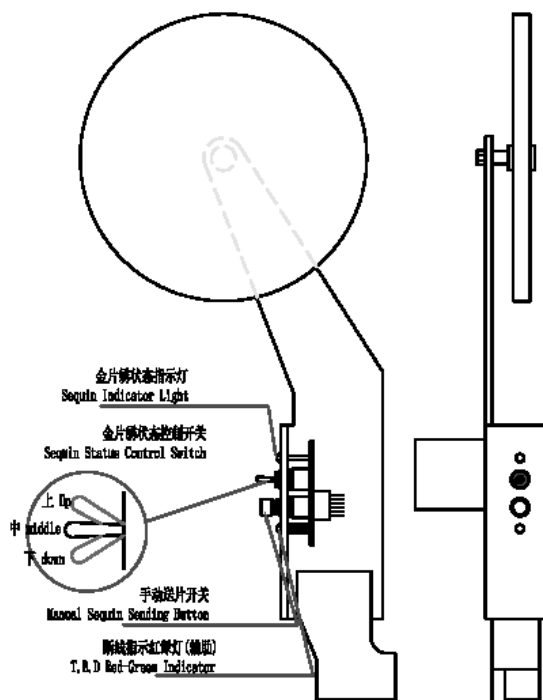
Collective operation can be divided into three parts: “sequin start”, “sequin end” and “send sequin”.

- (1) In the main screen, click , select “sequin start” to let all the clamp feet down;
- (2) In the main screen, click , select “send sequin”, once you make a click, the activated machine heads will all send a sequin (with clamp foot down) ;
- (3) In the main screen, click , select “sequin end” to lift all the clamp feet.

2. Separated operation:

- Thread break switch is embroidery switch. When thread break switch is at the down side, neither flat embroidery nor sequin embroidery is available;
- Thread break warning lamp is mounted on the sequin sending device, which offers the operator with easy view.

Note: when the manual valve control switch is in the middle, blue lamp is on, which indicates a perfect condition of sequin embroidering.



Location of the sequin switch board

11.7 Debugging Multi-Sequin Embroidery

1. Separated debugging

(1) Deliver A sequin of front motor action

Shift the switch to the lower side, thread break detect switch turns green, press manual sequin delivery button.

(2) Deliver B sequin of middle motor action

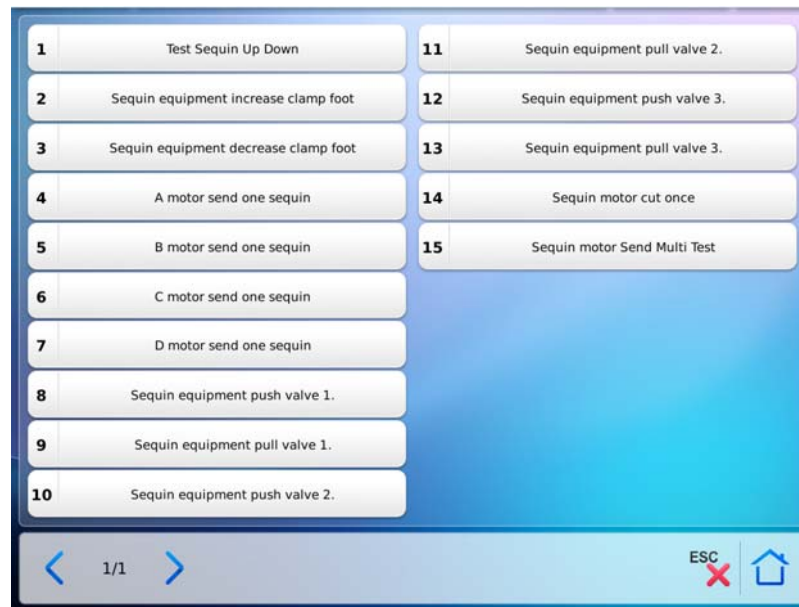
Shift the switch to the lower side, thread break detect switch turns red, press manual sequin delivery button.

(3) Deliver C sequin of rear motor action

Shift the switch to the lower side, thread break detect switch turns to the lower side too, press manual sequin delivery button.

2. Collective Debugging

Press  in the main screen, then press “machine test”. Then press “Sequin Device Operations” to show the following image:



Then you can select related menu to debug.

11.8 Sequin Mending

After thread break or manually turning on the red lamp, pull bar and the machine state is in sequin mending. All the sequin devices will lift up; machine stops when it backs to the stop embroidering point. Pull bar again to let the sequin device (on mending head) down for mending. When it reaches the stop point, machine stops, then other sequin devices will be down to continue normal embroidery. “Patch count” in machine parameter setting is ineffective in sequin mending.

Chapter 12 Operation of Cording Embroidery

12.1 Functions

1. Cording Embroidery (ZIG Embroidery): this function is to make the bobbin thread form the design with certain stitch forms, which have been saved in the computer in advance, the Z4 and Z5. The figures of these two kinds of cording embroidery are shown at below:



Z4 Embroidery



Z5 Embroidery

2. User can set the max speed for flat embroidery and the top speed for cording embroidery respectively.
3. Thread-trimming for cording embroidery (trim bobbin thread only).
4. Before manual frame-moving, the cording device will lift the presser automatically, and it will also lower the presser automatically before starting the embroidery.

12.2 Key Technical Indexes

1. Speed of Cording Embroidery: 400~1000rpm.
2. M Axis Manual/Auto Rotation Angle: 18° /Step.

12.3 Procedure of Cording Embroidery

- (1) Input cording embroidery pattern, and user can select, change and edit the pattern according to needs;
- (2) Change parameter, select color-changing order and decide embroidery mode;
- (3) Check the needle position of cording embroidery, and make sure it works normally; and
- (4) Start Embroidery.

12.4 Related Parameters and Their Setting

Click parameter setting key , and then user can set the parameters relating to the cording embroidery.

1. Test Thread-sending Motor of Cording Device (Y/N): “Y” (Default Value), which means that the thread-sending motor will not rotate until the position of hall component is checked. If it is set as “N”, the thread-sending motor will run as long as the system is at embroidery status, regardless the position of the hall component.
2. Right Cording Device: Y (N) —— Y means the first needle is the cording embroidery position.
3. Left Cording Device: Y (N) —— Y means the last needle is the cording embroidery



position.

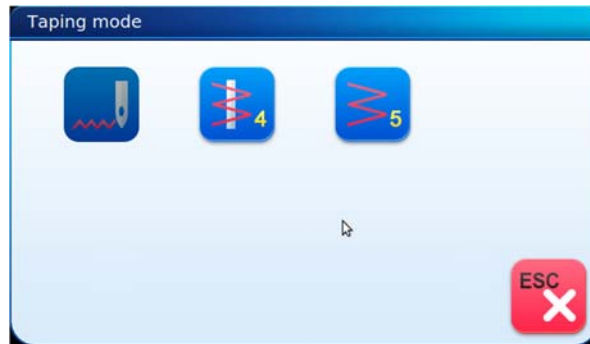
4. Cording Device Move Time: 1 (Default Value) — User should set this value according to the actual action time of the cording embroidery device.
5. Swing Range of Cording Embroidery: 100 (Default Value), which is the rotating angle of the wheel. In case of thread-floating, user can decrease this value to assist the adjustment. Generally, this value should be no less than 80.
6. Top Speed of Cording Embroidery: 600 (Default Value). The top speed can be set as high as 1000 rpm, according to the actual condition of machine.
7. Thread-loosing Motor for Cording Embroidery: Yes. If the cording device is of double-motor type, user should set it as “Y”, otherwise “N”.
8. Frame Swing of Z5 Embroidery: by adjusting the frame, user can change the embroidery range (advisable for senior users).
9. Thread-loosing Adjustment Value for Cording Embroidery: this is to adjust the thread-sending speed of all the thread-loosing motors. The recommended value is 9.
10. Origin of Right Cording Device: 0 (Default Value). This is for the angle between the threading point and the direction of the mechanical origin of cording device at first needle position. Angle = Parameter value * 0.9. For example, if the parameter value is 30, the angle will be $30 * 0.9 = 27^\circ$.
11. Origin of Left Cording Device: 0 (Default Value). This is for the angle between the threading point and the direction of the mechanical origin of cording device at last needle position. Angle = Parameter value * 0.9. For example, if the parameter value is 30, the angle will be $30 * 0.9 = 27^\circ$.
12. Cording Device Movement Detection: detect whether the device moves to the proper position. At present, this parameter is set as “N”.

12.5 Relative Operations of Cording Embroidery

12.5.1. Shift between Flat Embroidery Position and Cording Embroidery Position

1. Manual Shift

In the main interface, click the key  to enter into color-changing interface.



Click the figure corresponding to the operation of corresponding special embroidery, click  to exit.

Definition of Icons:



Normal Embroidery;



Z4 Embroidery: The rod swings once at each stitch.

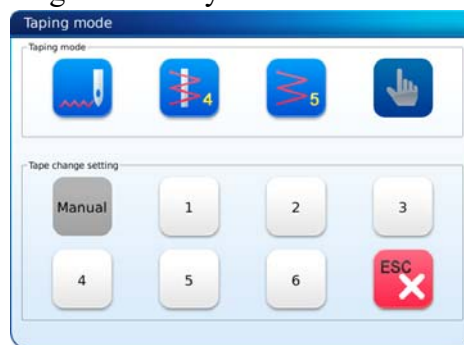


Z5 Embroidery: the same features as Z4, and suitable for thick thread (used in cooperation with the parameter: Swinging scope of frame in ZIG embroidery).

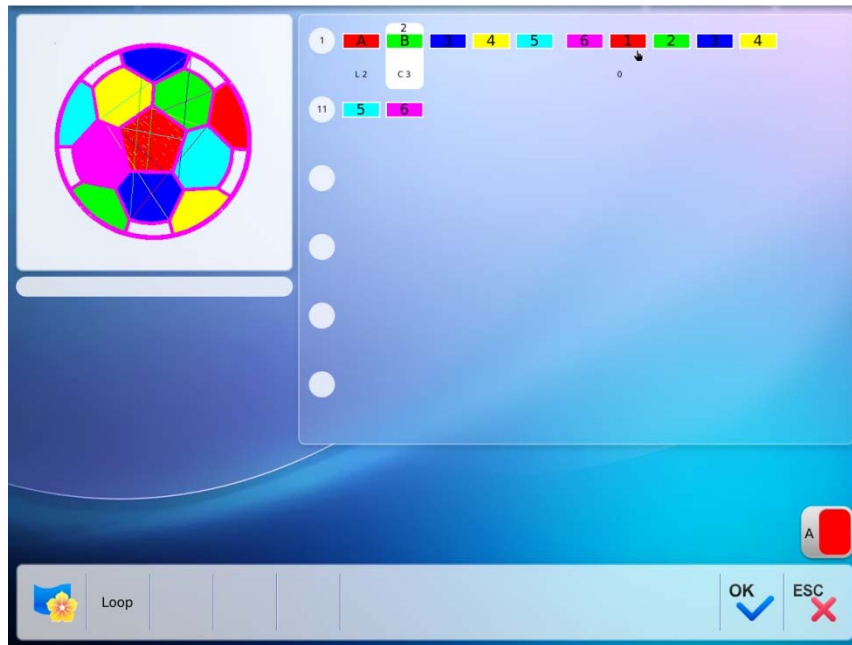
2. Automatic Shift

Before embroidery, automatic shift can be achieved through setting the color-changing position.

In the main interface, press the key  to enter into color changing interface; then move the cursor towards “input and repeat color-changing order” or “change color-changing order” to enter the color-changing order interface; and then press “1” (special embroidery machine head) to change the cording embroidery mode:



Press relative icon to select the embroidery mode you need, otherwise press the key  to exit. After user saves the changes, system will display as follows:



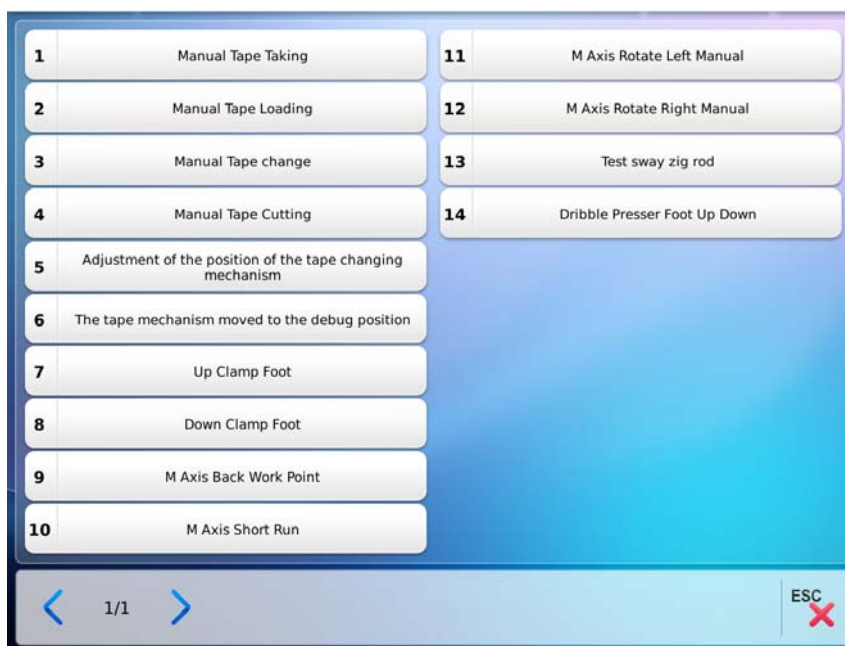
The icon  means that system goes into manual shift state. While will still be in effect when system is in automatic shift state.

During the embroidery process, it is common to shift between normal head and special head. For instance, from special head to normal head, machine will automatically stop at the finishing point; meanwhile, system will give the following dialogue window. After tape operations are completed, users can pull bar to close the window and shift the machine back to normal head to proceed normal embroidering

From lock-stitch to special embroidering, after automatically shift to “1” (special head), machine will stop automatically, after the operation on the tape is completed, pull bar to proceed.

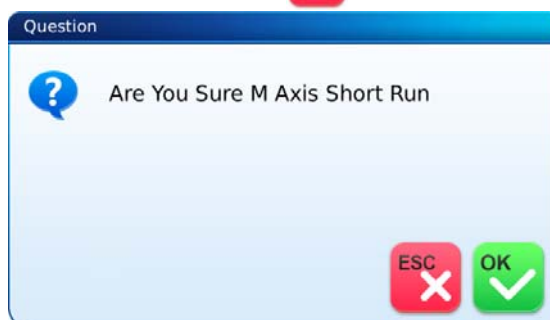
12.5.2. M Axis Operation of Cording Embroidery

This function is only for machines with taping embroidery function and includes “M axis to cycle” and “M axis to turn”. In the main screen, you can click  to select “Taping. emb”, “M axis to cycle”, “turn to left” and “turn to right”.



(1) Step Moving of M Axis

Press the key “M axis to cycle” and click the key  on the dialogue window to let the M axis rotate to the “Zero Point”, or click the key  to cancel the operation.



(2) Rotate M Axis Manually

Click “turn to left” on the dialogue window to let the M axis rotate to the left. It will rotate 18° left once you click the button. After 20 times click, it will return to its origin; while click “turn to right” on the dialogue window to let the M axis rotate to the right. It will rotate 18° right once you click the button. After 20 times click, it will return to its origin. Click the key  to exit.



Chapter 13 Directions on Coiling, Taping and Zigzag Embroidery

13.1 Function Introductions

1. Coiling function: This is a method to wind coiling thread(s) at an equal interval around a core thread in a form of coil. Left Coiling (clockwise) and Right Coiling (counterclockwise) are both available in coiling function, which could be opted in computer parameters.

2. Taping function: Tape can be used as embroidery material. It includes taping 1 and taping 2 (blind embroidery)

3. Zigzag function: Zigzag sewing lever swings to the right or left per stitch in regard to the direction of original stitches. The upper thread forms Zigzag on the embroidered material. There are six special stitches: Z1, Z2, Z3, Z4, Z5 and Z6. Their stitches are as follows:



Z1



Z2



Z3



Z4



Z5



Z6

For convenience, Coiling, Taping and Zigzag-sewing are all called special embroidery in the following.

4. Standard embroidery head and special embroidery head can be switched automatically or manually.

5. Coiling, Taping and Zigzag functions can be switched at will.

6. The nipple of Special embroidery can be raised and lowered automatically or manually. (Only for the machines installed with relevant apparatus)

7. The highest speeds of Standard embroidery head and special embroidery head can be set up respectively.

8. Auto saving of the stop-embroidery point of the M axis: The embroidery work can continue from the stop-embroidery point when the power recovers.

9. The trimming function of the special embroidery head (no trimming\trimming of the bottom thread\trimming of both the upper and bottom threads)

10. The nipple of Special embroidery can be raised and lowered automatically before manual frame shifting or embroidering.

11. Zigzag sewing lever can be tested manually.



13.2 The Key Technical Indexes

1. The sequence of flat embroidery head and special embroidery head: The default setting is that first needle position is for special embroidery, the rest of needles are for flat embroidery.
2. Speed limit for special embroidery: 300-600 rpm, unit: 10rpm.
3. Angle of M-axis rotated manually: 18° per step.

13.3 Embroidery Process

- (1) input special embroidery design, select design, make adjustment and edit.
- (2) change parameter, select color-changing order and decide embroidery mode.
- (3) check special embroidery head, make sure it runs well.
- (4) pull bar to embroider.

13.4 Related Parameter and Setting Mode

Click parameter setting key  → .

1. D28 special embroidery head interval:

Range: 10~600, index value: 150, 162, 166, 185, 200, 216, 225, 230, 240, 250, 270, 290, 300

If the set value is the index value, a “*” will be marked in front of the number.

2. D30 working height of special embroidery clamp foot: 0~90

The clamp foot working height indicates the lift up height of the clamp foot when embroider every stitch.

3. D40 adjust clamp foot limit: 0~250

The clamp foot limit indicates the max height of clamp foot when embroidering.

4. B16 adjust the lowest point of clamp foot : 0~255

This parameter helps to adjust the lowest working point of clamp foot.

5. D31 Rod Pos. of Zigzag: Left/ Right

The rod position indicates where the swing locates (left or right) when M axis is in origin. The setting should be in accordance with mechanical position.

6. C38 Swing range in Zigzag: (-10.0~-0.2, +0.2~+10.0)

The swinging scope of the embroidery frame in Zigzag sewing: -9.0--+9.0; operation ditto. The parameter is for Z5 stitching functions and applies to thick cords. For a thick cord, the Z5



embroidering is to move the frame to add to the swinging scope of the lever. The parameter's absolute value is set according to the cord width. And the "+/-" is decided by the machine structure. The moving directions of the lever and frame should be the same. Otherwise please change the "+/-" setting.

7. D42 Rotary Gap of M Axis: 0~10

The M axis of special embroidery head has mill clearance. So without compensation, the needle will not fall in the right position. Adjust this parameter value to ensure that the needle falls in the center of tape.

During machine debugging, parameter value should be "0" when needle falls in the center of tape. If not, repeat the adjustment to realize the best effect.

Parameter operation is same as above.

Generally, this parameter is managed by professional experts before leaving factory.

8. D44 M Axis Work OFF Angle: 0, 90

In case of normal and sequin embroidery, the M axis stops at the angle of the set value. When the distance between the normal embroidery head and special embroidery head is small, this parameter must be set as 90° to avoid bumping.

9. C52 Spec. Speed-Down Angle: 1~180

The parameter is used to set the lowest rotate angle of M axis for speed reduction. We recommend setting the value to 30.

10. C53 Spec. Speed-Down Ratio: 1~4

The parameter is used to set the speed reduction ratio. The bigger the value is, the faster the speed decrease.

11. D39 Z Shift Control Angle: 0~180

When the rotating angle is larger than the set value, the Z axis will speed faster.

12. D41 Adj Zigzag Rod Angle: 1~3

It is the starting angle of the rod, which indicates the relative position of the needle bar and thread. "1" indicates the swing starts at an early angle; "2" indicates the swing postpones certain angle; "3" indicates the swing postpones certain angle again to start.

13. C36 Ratio of Coil Emb.: The ratio of coiling: "1~4 Sti/L"

The parameter can change the coiling density; e.g. the set value 2 means one coiling every two stitches.

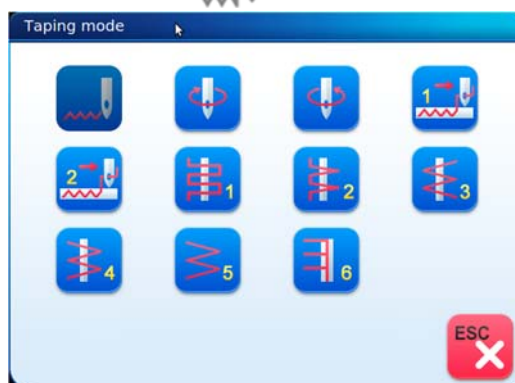


13.5 Relative Operations of Special Embroidery

13.5.1. Shift between Lock Stitch Head and Special Head

(1) Manual Shift

In the main screen, click the key  to enter into color changing screen.



Click the figure corresponding to the operation of corresponding special embroidery, click  to exit. The key  indicates the embroidering pattern, click the key to change other special embroideries. Click  to exit.

Definition of icons:



normal (lock-stitch) ;



left coiling;



right coiling;



taping1;



taping2;



Z1 embroidery, Its feature is that the lever swings once every two stitches.



Z2 embroidery, Its feature is that one lever swing every stitch and one lever every two stitches take place alternately.



Z3 embroidery, Its feature is one lever swing every stitch.



Z4 embroidery, Its feature is one lever swing every stitch and its lever swing direction is opposite to the one of Z3.



Z5 embroidery, Its feature is the same as Z4 and it's desirable for the embroidering of thick cords. (Refer to the parameter: the swinging scope of the embroidery frame in Zigzag sewing).



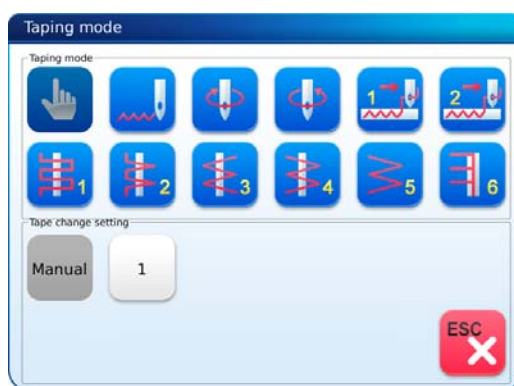
Z6 embroidery, Its feature is three stitches at the same point and one lever swing every stitch.



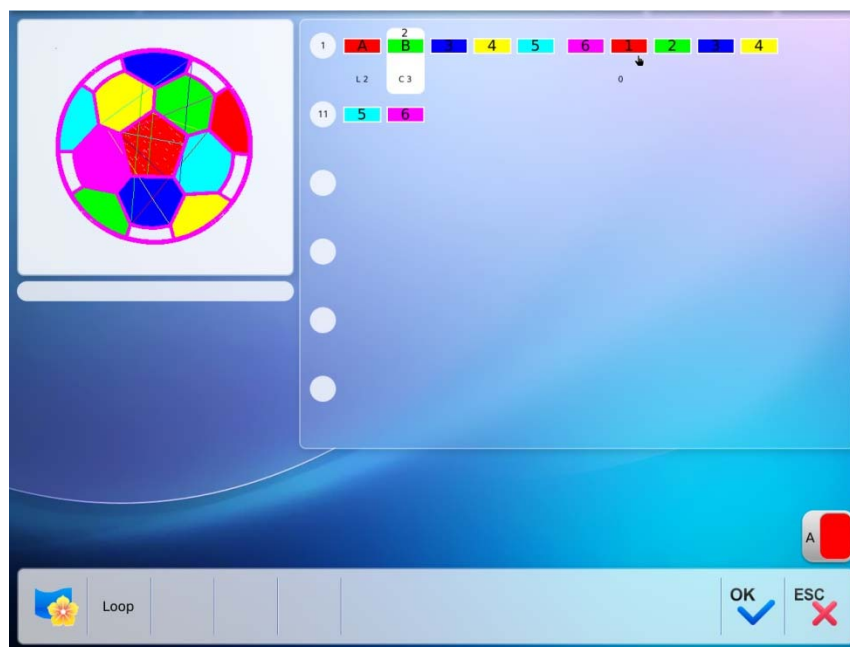
(2) Automatic Shift

Before embroidering, automatic shift can be achieved through setting the color changing position.

In the main screen, click the key  to enter into color changing screen, and then click “input and repeat color-changing order” or “change color-changing order” to enter the color-changing order interface; and then click “1”(special head) to change special embroidery pattern:



Click relative icon to select the pattern you need, if you don't want to change, then click  to exit. After confirm of the pattern, system will display as:



The icon  means that system goes into manual shift state. While will still be in effect when system is in automatic shift state.

During the embroidery process, it is common to shift between normal head and special

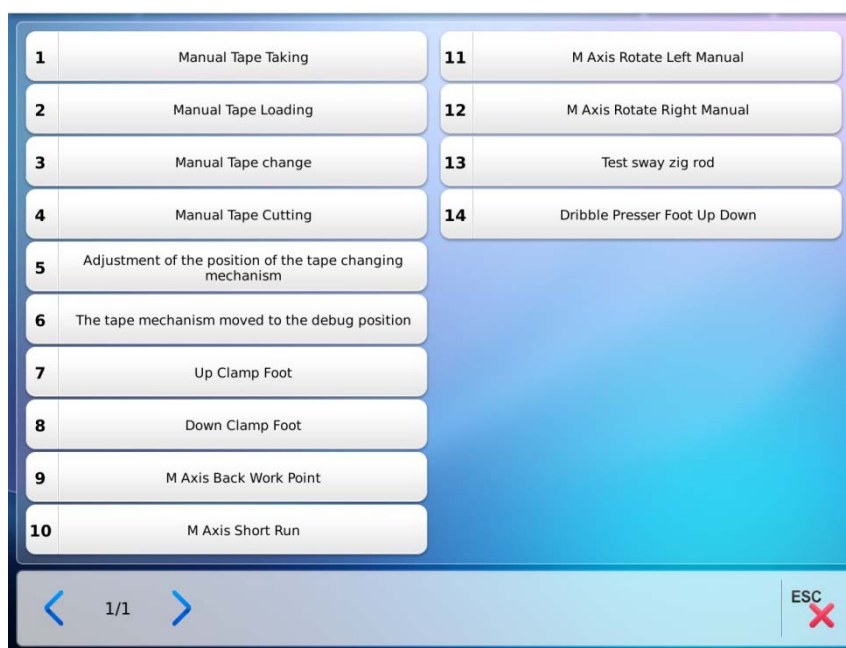


head. For instance, from special head to normal head, machine will automatically stop at the finishing point; meanwhile, system will give the following dialogue window. After tape operations are completed, users can pull bar to close the window and shift the machine back to normal head to proceed normal embroidering

From lock-stitch to special embroidering, after automatically shift to “1” (special head), machine will stop automatically, after the operation on the tape is completed, pull bar to proceed.

13. 5. 2. M Axis Operation of Taping Embroidery

This function is only for machines with taping embroidery function and includes “M axis to be ready”, “M axis to cycle” and “M axis to turn”. In the main screen, you can click  to enter into the “Assistant Operation” screen. Then you select “Operation for special embroidery” to show the special embroidery window, “M axis to be ready”, “M axis to cycle” and “M axis to turn”.



(1) Return the M-axis to the Working Point

Click the key “M axis to be ready” and click  on the dialogue window to let the M axis back to the working point, click  to exit.

(2) Return the M-axis to the Origin Point

Click the key “M axis to cycle” and click  on the dialogue window to let the M axis rotate to the “zero point”, click  to exit.



(3) M-axis rotated manually

Click “turn to left” on the dialogue window to let the M axis rotate to the left. It will rotate 18° left once you click the button. After 20 times click, it will return to its origin; while click “turn to right” on the dialogue window to let the M axis rotate to the right. It will rotate 18° right once you click the button. After 20 times click, it will return to its origin. Click the key  to exit.

13.5.3. Operations of Clamp Foot

In the main screen, you can click  to click the key “lift up clamp foot” and select  to lift the clamp foot, select  to exit.

Click the key “lay down clamp foot” and select  to lift the clamp foot, select  to exit.

13.6 On Debugging Special Embroidery

Debugging special embroidery mainly includes Zigzag swing to its origin and up/ down of clamp foot. In the main screen, click  to enter into “Other Functions” screen, after that, click “test operations for machine”.

1. Sway Zigzag rod

Click the key “Sway Zigzag rod”, after seeing the dialogue window, pull bar to let all the swings act once. Click  to exit. Users can adjust swing angle by using this function.

2. Up/ down of Clamp Foot

Click the key “lift up clamp foot”, after seeing the dialogue window, pull bar to let all the clamp feet act once. Pull again to let them act again. Click  to exit.

13.7 Mechanical Category and Driving Mode Choice of Special Embroidery Machines

Taping machines have three moving parts in the sense of mechanics. We define them as M axis, E axis and clamp foot axis. M axis rotates a certain degrees every stitch to trace the stitch, which ensures cords or tapes always in front of needle movement. E axis swings once every one or two stitch to make the Zigzag embroidery. Clamp foot axis is for lifting and lowering the clamp foot.

1. M axis

The mechanism of M axis can be divided to two types. One is with clutch device, whose action is controlled by electropneumatic valve or by hand. Its advantage is that only the M axis of the mending embroidery is moving and non-mending embroidery heads are still when



mending. This will help raise the quality and efficiency of mending. The other type is without clutch device. Both of the two types are driven by servomotor and the origin of the M axis is positioned by proximity switch.

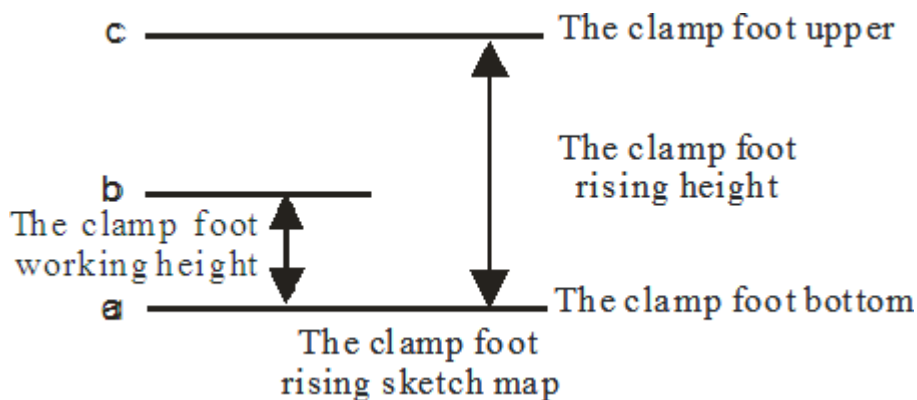
2. E axis

According to the difference in motor and whether to use the proximity switch for positioning, E axis can be divided to the following types:

- (1) Stepping motor, driving heads separately, without proximity switch for positioning
- (2) Stepping motor, driving heads by one motor, with proximity switch for positioning
- (3) Stepping motor, driving heads by one motor, without proximity switch for positioning
- (4) Servomotor driving, with proximity switch for positioning

3. Clamp foot axis

The working diagram of the clamp foot: (The clamp foot working height is the interval of the foot's movement with every stitch. The clamp foot rising height is the foot's moving distance from the bottom to the upper point in non-embroidery mode. And it's also called the clamp foot limited height.)



According to the difference in motor and whether to use the proximity switch for positioning, the clamp foot axis can be divided to the following types:

- (1) Raising the clamp foot manually

In this mode, the clamp foot working height relies on the rotating of the cam and the clamp foot is raised to the limited height by hand.

- (2) 2-phase stepping motor, separately driving the embroidery heads, without the holding force and proximity switch

It uses a 2-phase stepping motor for driving every special embroidery head and controlling its working height and limited height. The power is off and there is no the holding



force when the clamp foot stays at the upper point or bottom point. No proximity switch is taken for positioning. And the contwheel by default takes that the foot is at the bottom position when turning on the machine.

(3) 2-phase stepping motor, separately driving the embroidery heads, with the holding force and without proximity switch

It uses a 2-phase stepping motor for driving every special embroidery head and controlling its working height and limited height. The power is on and there is the holding force when the clamp foot stays at the upper point, but not at the bottom point. No proximity switch is taken for positioning. And the contwheel by default takes that the foot is at the bottom position when turning on the machine.

(4) Mono-phase AC motor, driving the embroidery heads by one motor, 2 proximity switches

In this mode, the clamp foot working height relies on the rotating of the cam and the clamp foot is raised to the limited height by one mono-phase AC motor driving the clamp axis. Both the upper and bottom points are set with a proximity switch to adjust the clamp foot rising height. Neither the upper nor bottom point has the holding force.

(5) (2-phase or 3-phase) stepping motor, driving the embroidery heads by one motor, 1 proximity switch

In this mode, the clamp foot working height relies on the rotating of the cam and the clamp foot is raised to the limited height by stepping motor driving the clamp axis. The upper point is set with a proximity switch to position. The bottom point is set by parameters. Both the upper and bottom points have the holding force.

(6) Pneumatic motor, separately driving the embroidery heads, without proximity switch.

In this mode, the clamp foot working height relies on the rotating of the cam and the clamp foot is raised to the limited height by pneumatic motor driving the heads separately.

4. The composition chart for special embroidery machine cowheel

For different control systems, the E854 board takes different software programs while the E874 board changes the DIP switches.



Chapter 14 Instructions on Loop Embroidery

14.1 Function Introduction

1. Looping embroidery function: looping embroidery is a new kind of embroidery and its stitch form consists of independent thread loops, producing 3D and beautiful effect.
2. Chained embroidery function: chained embroidery is to closely interlock thread loops to form chained stitch form.
3. Thread breakage detection, auto patch and head lock functions.
4. Flat embroidery head and loop embroidery head auto/manual switch.
5. Looping embroidery and chained embroidery auto switch.
6. Needle of loop embroidery head automatic action.
7. Automatic thread trimming function.
8. Needle automatically goes up before manual frame-moving, and needle goes down before embroidery.
9. Automatic switch among shuttles to realize color-changing.
10. Manual function of mechanical parts.

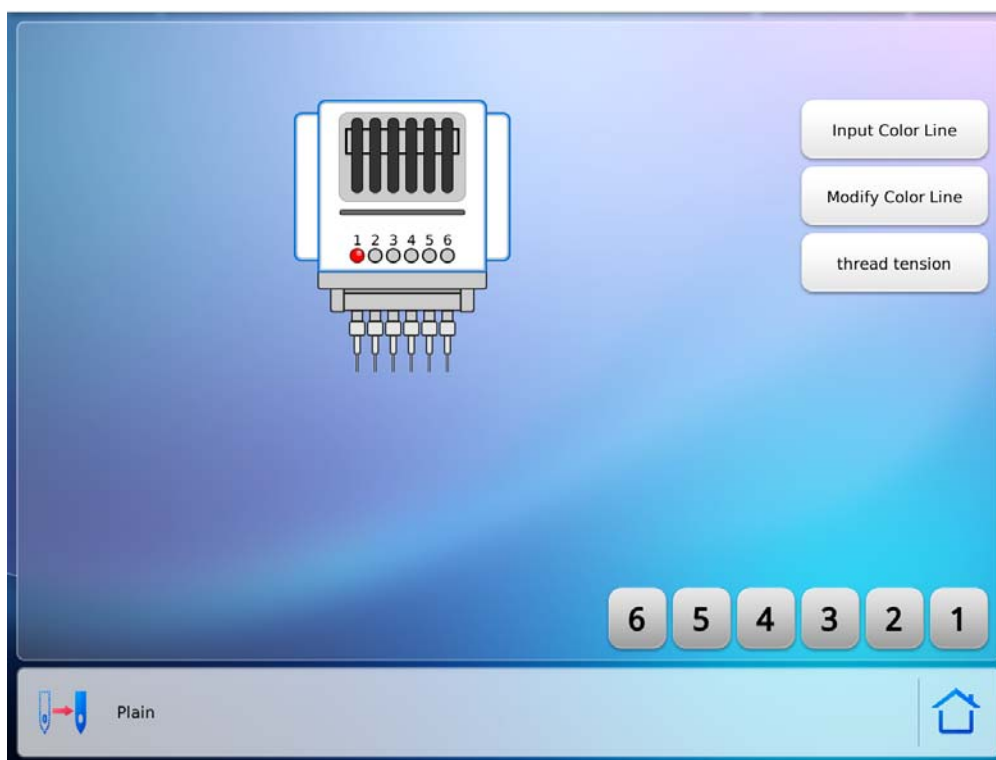
14.2 Shift between Looping Head & Lockstitch Head

14.2.1. Shift of Head

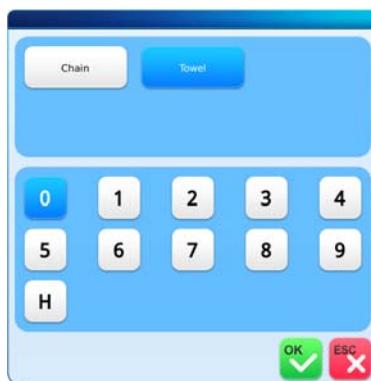
As required by the embroidery work, user can switch between loop embroidery head and flat embroidery head freely, and then make various operations.

Operation Procedure:

1. At the stop status in the main interface, press the key  to enter into color-changing interface.

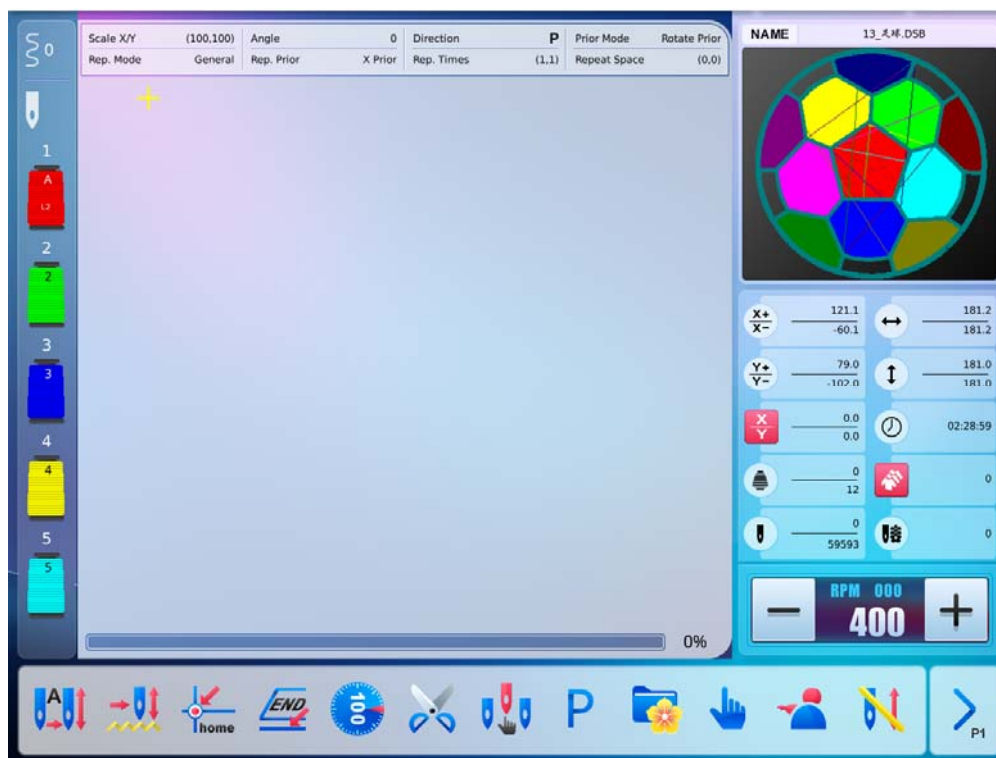


2. Press “**Plain**” key to execute the switch. If in the main interface the head switch key is displayed as **Loop** and the indicator of loop embroidery head is on, the head has changed into looping embroidery head. If **Plain** is displayed, it is flat embroidery head.
3. Press number keys to carry out manual color-changing function. If current head is looping embroidery head, “1” means shuttle position a, “2” position b, “3” position c, and so on.
4. When current head is looping embroidery head, press number keys to display the window of “looping embroidery mode and needle bar height selection”. Press **A** to switch between looping embroidery stitch and chained embroidery stitch. Press number keys on the keyboard to change the needle height and improve the embroidery effect. 0, 1, 2,, 9 represents different needle height, and “H” represents off position, which can be used to shut all heads automatically.

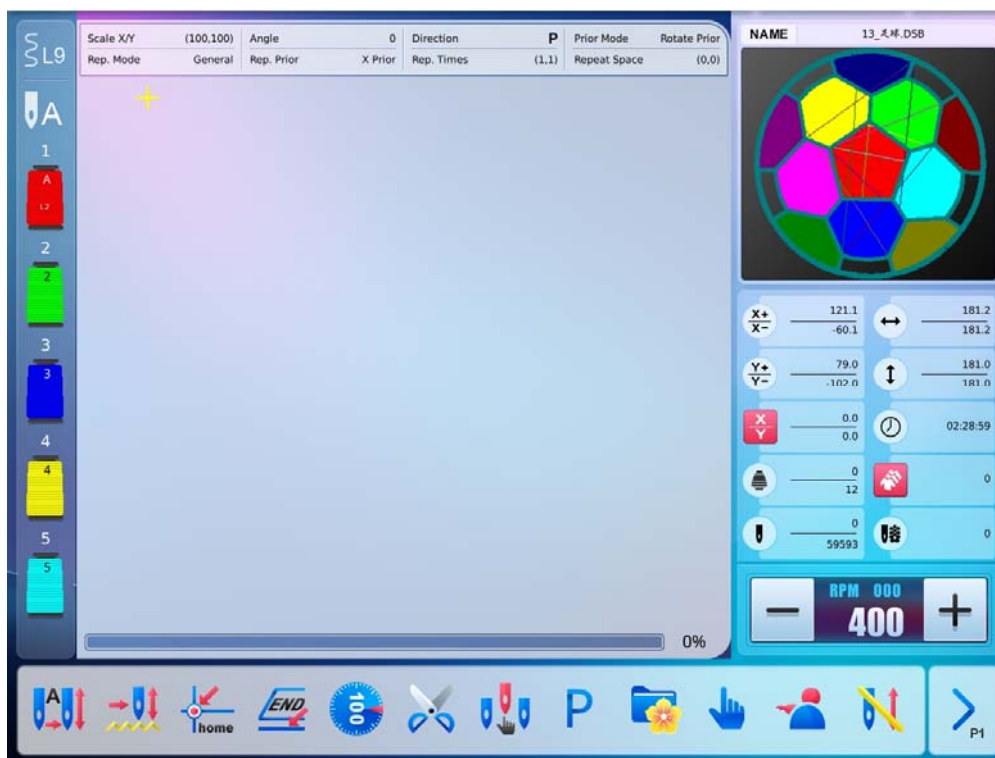


5. Press “Back” to exit. Embroidery machine will make corresponding changes according to the set value of shuttle position, stitch type and looping needle height and display the final results.

14.2.2. Introduce to Main Interface in Looping Status



The above figure is the main interface after shifting to lockstitch head.



The above figure is the main interface after shifting to looping head.

There are some difference between the main interface of looping head and the interface of lockstitch head:

1.  is the existing hook position, A means the existing hook position is “A”;
 L9 is the type of stitch form. The “L” is looping; “9” means the needle you're in ninth grade;
2.  is color-changing sequence table, and there are three items in each group, which are hook position: A; Stitch form type: L and needle height: 9.

14.3 Embroidery Procedure for Looping

1. Input the looping pattern, and then perform the selection, changes and edition of the pattern according to needs;
2. Modify the relating parameter and select the color-changing sequence to set the type of looping stitch form and the needle height; in manual color-changing, please manually



select the hook position, stitch form type (looping or chain-stitch embroidery) and needle height;

3. Check the looping head, and make sure it is working;
4. Pull bar to embroider.

14.4 Relevant Parameters & Their Setting Methods

Press  in the main interface to enter parameter setting interface.

1. F21 Looping head hook number: select the number of hooks on each single head according to the mechanical configuration. The position of hook is displayed with a, b, c, d....
2. F01 Jump Trimming: it could be set as: No, 1~7. For “No”, the jumping code will be handled as skipping stitch, which is the combination of the following actions: automatic stop, thread-loosing, frame-moving and re-starting. For “Yes”, if the continuous skipping stitch number in pattern is below the set value, the system will make the head jump without trimming the thread; if that stitch number is no less than the set value, the system will handle the jumping code as over-frame, which is the combination of the following actions: automatic stop, thread-trimming, frame-moving and re-starting.
3. F08 set stitch number of looping: Range of it is from 0 to 7. At looping embroidery, in order to avoid the thread dropping, the system transfers the last several stitches from looping to chain-stitch. This parameter is set the number of the stitches transferred.
4. F07 Thrum Management after Trimming: this kind management contains: Simple management, management at fabric obverse side and management at fabric reverse side. The management at fabric obverse side is to prevent the thrum from dropping.
5. Types of thread-loosing: They include the md02 Type, e937 Type and 2003 Type. Users can select it according to the types of the thread-loosing driver.
6. Thrum Management at Trimming and Color-changing: this parameter shall be cooperated with the “Thrum Management after Trimming”. If this parameter is set as “Yes”, the system will treat this parameter in the way of the previous one, say F07.

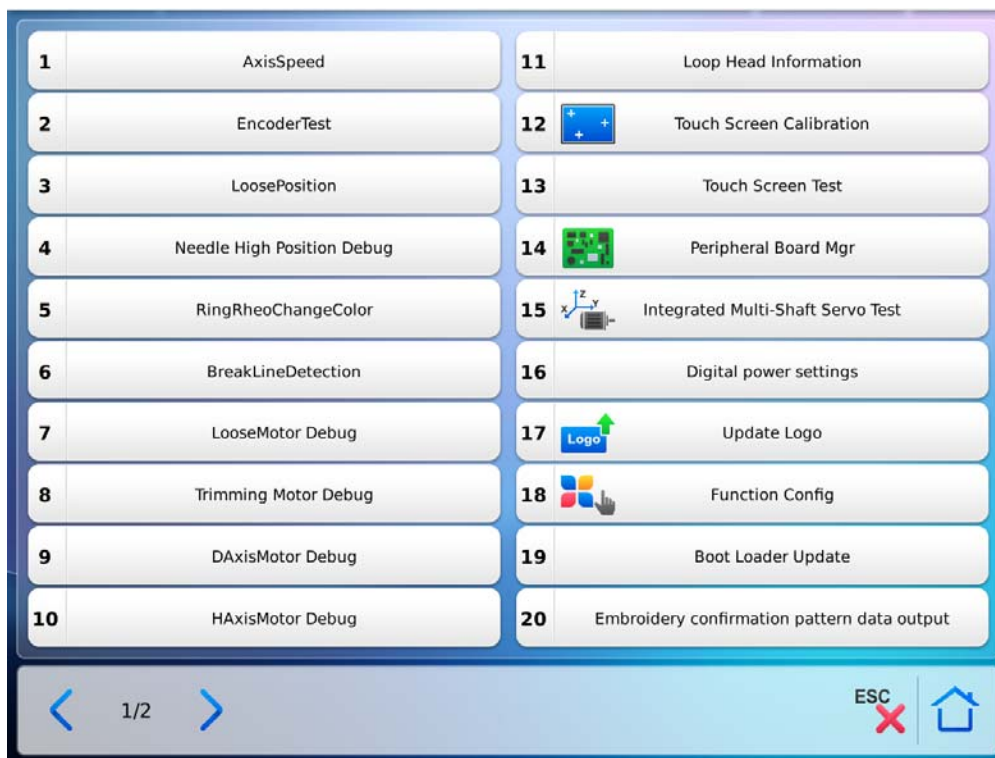


7. F48 Heads Interval between Lockstitch and Looping: The range of it is -6000~6000; and the unit is mm. It shall be set according to the actual head distance of mechanism. If the looping head locates at the left side of the lockstitch head, the system will deem it as negative figure; if the looping head is at the right of the lockstitch head, the system will deem its figure at positive.
8. F19 Stop Position Compensation: The looping main-shaft, a main-shaft system independent from the lockstitch main-shaft, stops at 35°. User can slightly adjust the stop position of the main-shaft by adjusting this parameter so that it could remove the improper stop position caused by the mechanical inertia. When enlarging the compensation value, the system will move the stop angle backwardly. User can select the value from 0 to 6 according to the actual stop position of each machine. 0 is the initial stop position.
9. F25 Looping thread-trimming:
The selectable value: Automatic, Manual, Off. At color-changing, over-frame or other operation at embroidery or upon the end of embroidery, the system will determinate the thread-trimming method for looping according to the setting of user.

◆ **Remarks:** For more, please refer to Appendix IV.

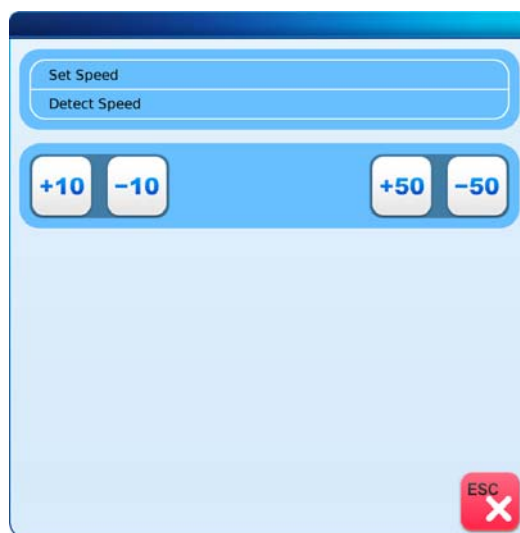
14.5 Machine Test

At the stop status in the main interface, press the key  to enter into manual color-changing interface. Press **Plain** (when existing head is lockstitch head) , and switch the head to looping head **Loop**. Please return to main interface and press . Click the “Relating mechanical test” in the “other assistant management” to activate the items for manual looping debugging, as shown in the picture:



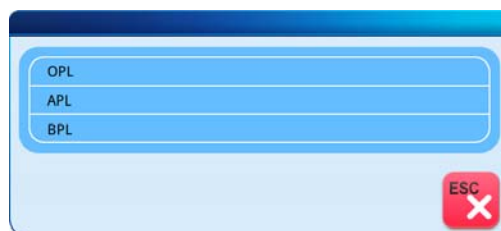
14.5.1. Axis Speed

This operation is to display the set speed and real speed comparatively by turning the main shaft to debug the main shaft board conveniently.



14.5.2. Encoder Test

This operation is to check the OPL, APL and BPL of the encoder and display the value by turning the main shaft.



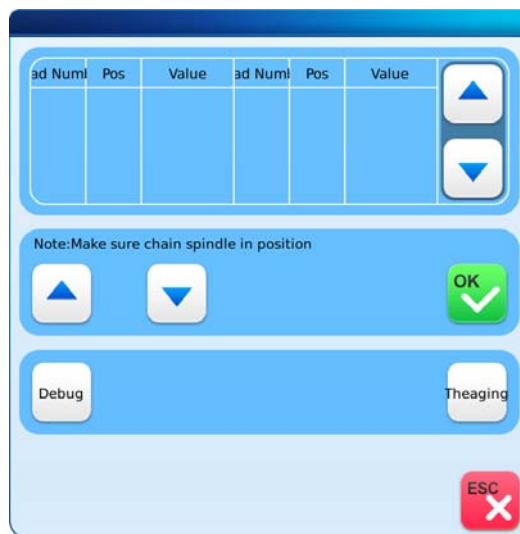
14.5.3. Loose Position

In this item, user can manually adjust the position of thread-loosing motor, as well as thread-loosing speed. When the thread-loosing position is abnormal, press ▲, ▼ keys to adjust the motor slightly so as to meet the requirements of system. This system uses the changes on resistor value of single-round precise rheostat to judge whether the existing thread-loosing position is correct. User needs to adjust the rheostat value to make the thread-loosing motor go down at the right position.



The thread-loosing position divides into 4 levels (0,1,2,3); respectively, they are corresponding to 4 status which are hook down thread-tightening, hook down thread-loosing, hook upper thread-tightening and hook upper thread-loosing. Level 3 is for looping embroidery; level 2 is for chain-stitch; level 1 is for thread-trimming. For color-changing, both level 1 and level 0 will do.

14.5.4. Needle Height Position Debug



Users can use this function to adjust the height of needle according to the standard of embroidery products, while repairmen can use this function to have aging operation on the needle raise mechanism.

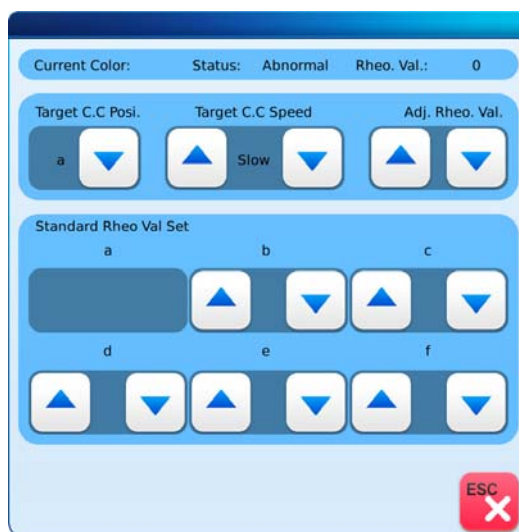
◆ Operation:

1. Press ,  to select the wanted needle height position, press  for performance;
2. The repair person can use “” to start the aging operation of needle raise mechanism;
Press  to quit.

14.5.5. Adjustment of Color Position

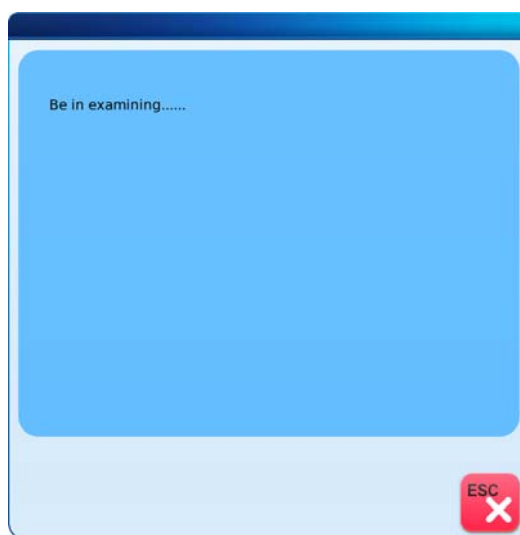
According to the changes on the resister value of the single-round precise rheostat, this system is able to judge whether the existing color-changing position is proper. Press ,  to realize the switch among this three function:

1. Select the expected hook position in the pull-down menu of “Position” to change the color manually;
2. Adjust the color-changing speed;
3. Adjust the value of rheostat so as to make the hook return to the correct position;
4. Adjust the rheostat value corresponding to different hook positions.



14.5.6. Break Line Detection

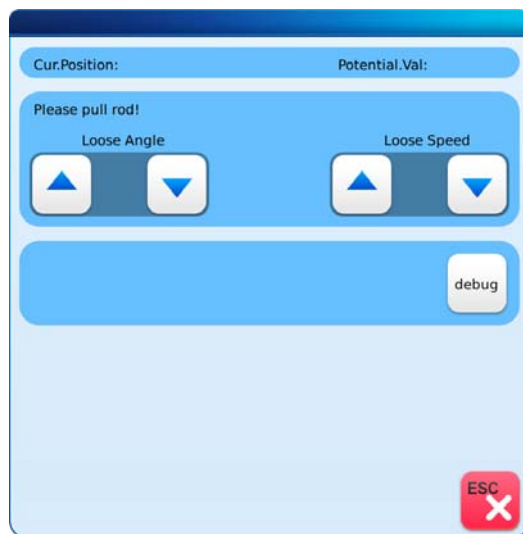
This function is to test whether the thread-breakage detection device for looping head is correctly installed and sensitive.



◆ Operation:

1. In manual operation interface, click “Break Line Detection” to activate the interface for testing thread-breakage detection as shown in above.
2. At this time, looping head indicator shall shift between “Red” and “Green” in certain frequency, or it means that the installations of head thread-breakage detection proximity switch and spring are wrong. The adjustment is required in that circumstance.

14.5.7. Trimming Motor Debug



Operation: Press ,  to adjust the Loose Angle and Loose Speed. After that, pull the bar to right for loosing action

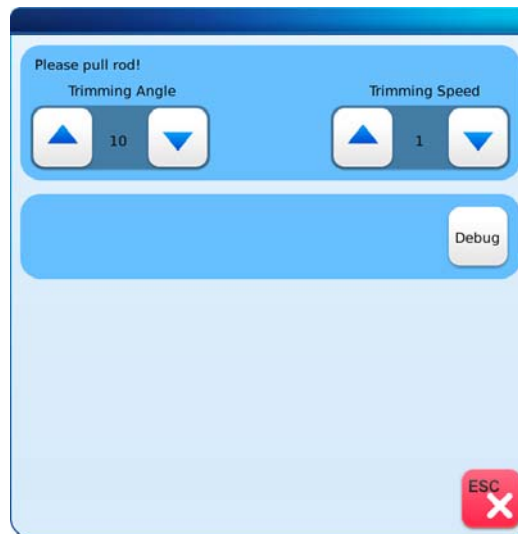
Press  to activate the following interface:



◆ Operation:

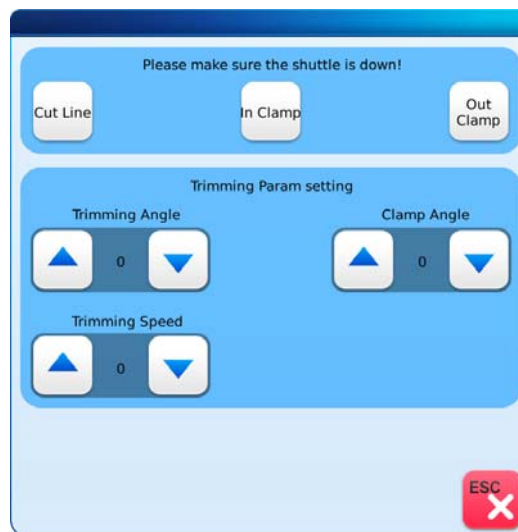
1. Display the Cur. Position and Potential. val;
2. Press ,  to adjust the Loose Pos, Loose Speed, Change Motor and Potential Value in position.

14.5.8. Trimming Motor Debug



Operation: Press ,  to adjust the Trim Angle and Trim Speed. After that, pull the bar to right for trimming action

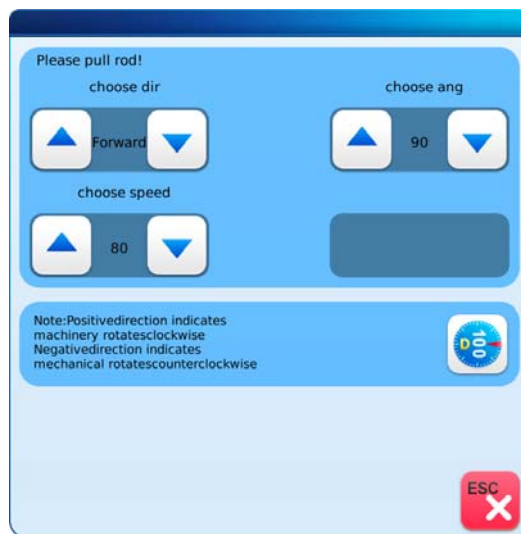
Press  to activate the following interface:



◆ **Operation:**

1. Lower the hook to down position;
2. Press the corresponding figures to test the actions of Trim, Knife into Spring and Knife out Spring;
3. Press ,  to adjust the Trim Angle, Cut Clamp Angle and Trim Speed.

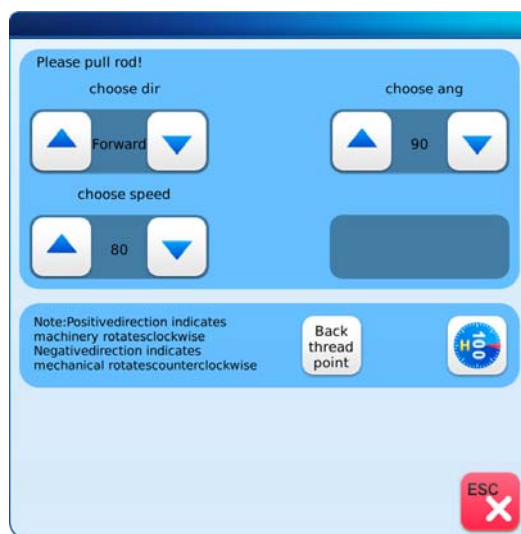
14.5.9. D Axis Motor Debug



◆ Operation:

1. Press ,  to adjust the following values, such as direction, angle and speed. After that, pull the bar to right for testing; Pull bar to start test;
2. Press  to return to origin;
3. Press  to quit.

14.5.10. H Axis Motor Debug



◆ Operation:

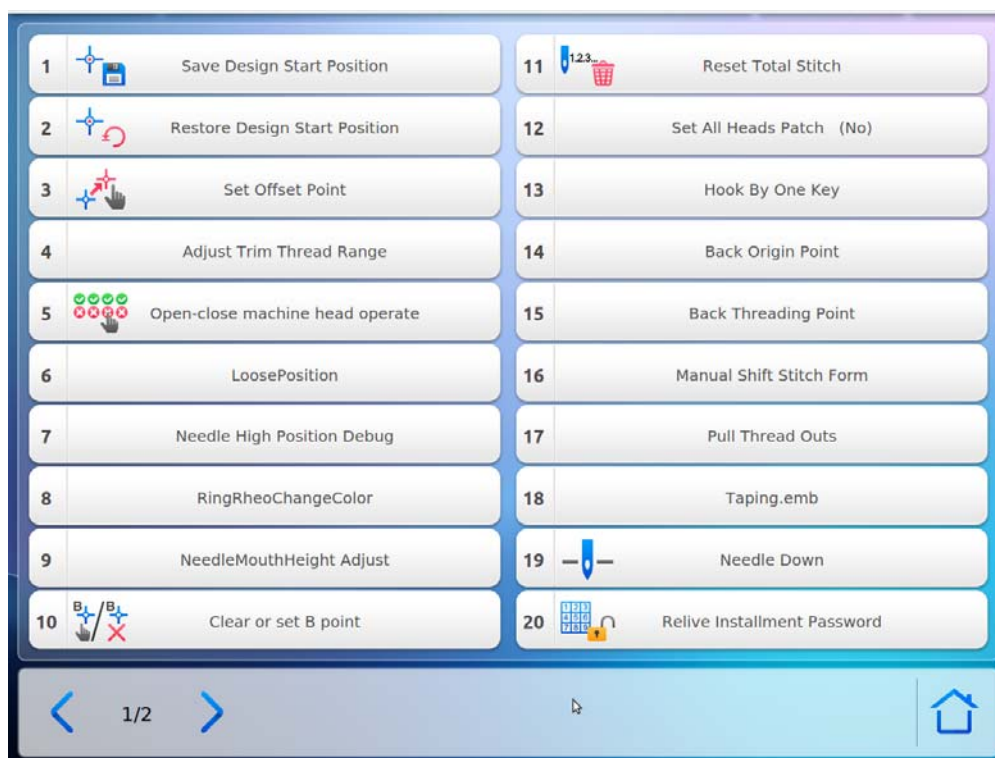
1. Press ,  to adjust the following values, such as direction, angle and speed. After



that, pull the bar to right for testing; Pull bar to start test;

2. Press to return to origin; press to enable H axis return to threading point;
3. Press to quit.

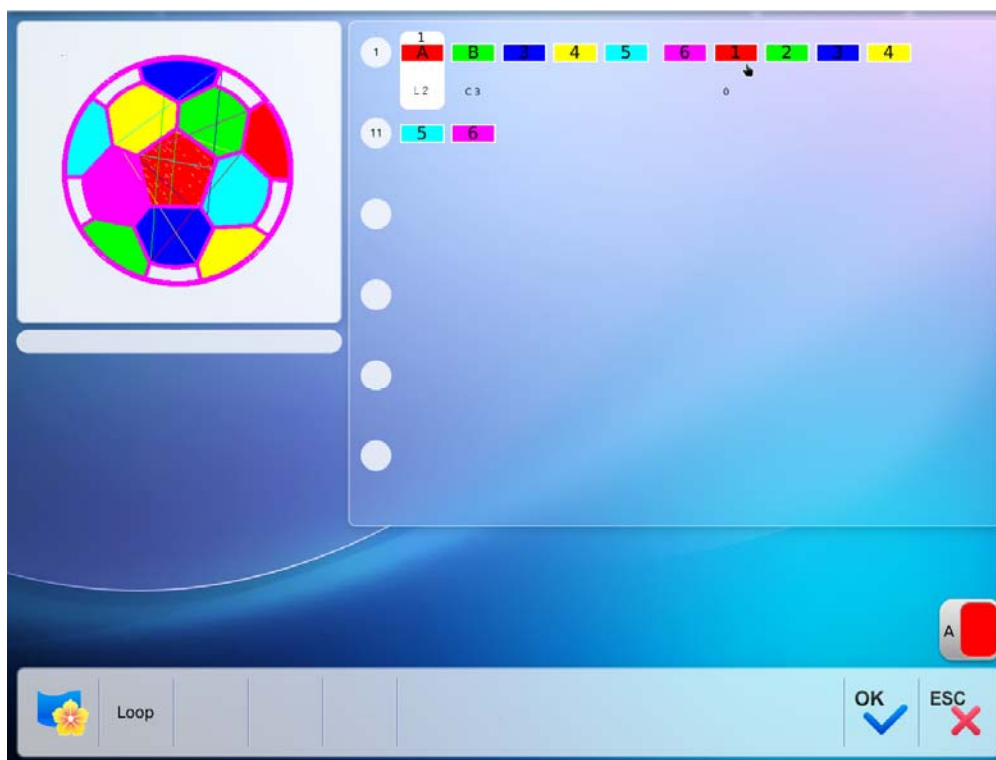
14.6 Loop Manual Operation



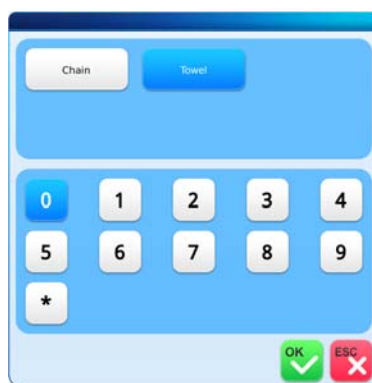
Shift the existing head to looping head, press → . Press to select the corresponding items for manual operation in the interface of “Assistan Emb Operation”. It is easy for user to adjust the mechanical position of looping head during the embroidery and to turn off the troubled heads.

14.7 Modification Color-changing Sequence

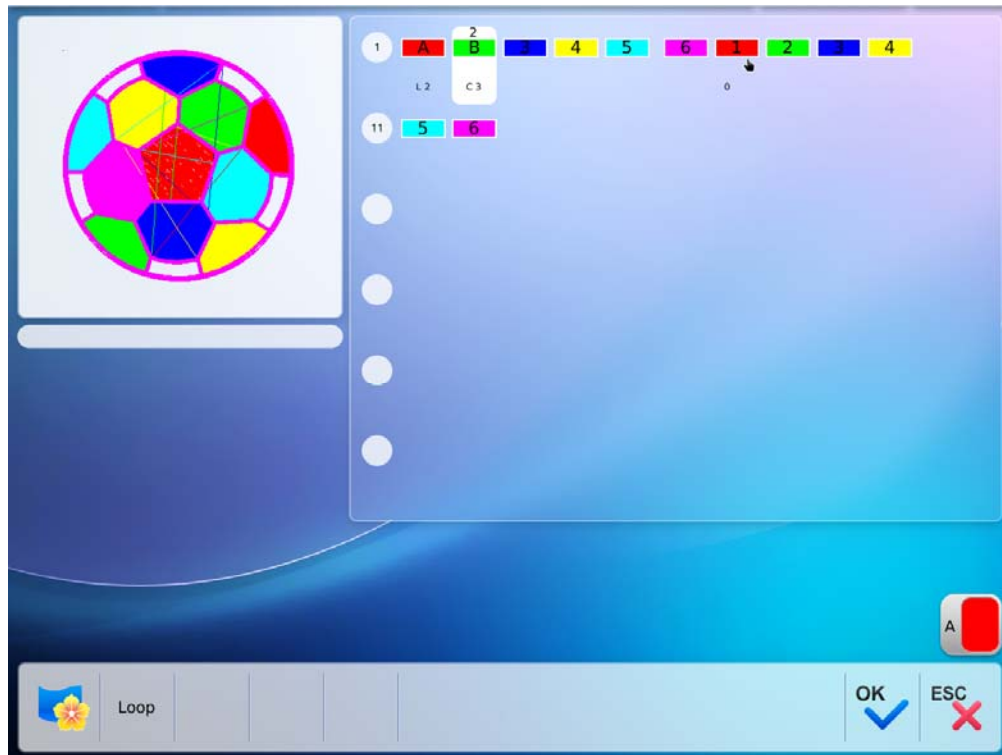
When setting color-changing sequence before embroidery, users can make automatic shift with the function of color-changing needle position setting. Press → to enter color-changing setting interface.



Press **Common**, **Loop** to shift the heads between looping head and lockstitch head corresponding to the existing needle rod. Press **A**, the interface of “Select Looping Mode and Needle Height” is activated so as to select the type of stitch form and needle height. After that setting, press **OK** to finish the color-changing setting on that needle rod.



After setting the color-changing sequence and finishing the looping embroidery mode, the made setting will be displayed, as shown in below:



The automatic color-changing of looping consists of 3 parts: hook position, type of stitch form and needle height. In the above picture, the letter “a” is position of hook; letter “C” is for chain-stitch while “L” is for looping, and the number “2” is the needle height

During the embroidery, system will shift between lockstitch head and looping head according to the setting of Color Line. At the shifting, the system will automatically adjust the head distance, the needed head will be automatically shifted to continue the working.

14.8 Manual Operation of Looping Head Switch

◆ Manual operation looping head switch:

1. Pull the head switch to the middle position, and then the green head indicator is on. At this time, the looping head is in the status of normal embroidery;
2. Pull the head switch to the down position, and then the head indicator is off. At this time, the needle is rising to the escaping position, and the head is off.
3. Pull the head upwardly, and then the red head indicator is on. At this time, the looping head is in the status of mending.

After thread breakage or manually turning the thread breakage detection light into red, pull bar to enter patching status; loop embroidery devices on all heads go up and return to



patching point and stop; pull bar to let the loop embroidery devices go down first, and then start to embroider until the tread breakage point, and stop again; other non-patching heads automatically go down and enter normal embroidery status. The return stitch number can be set in the loop embroidery parameter setting menu.

14.9 Mechanical Action Devices & Their Driving Methods of Looping Models

Except the motors controlling the main-shaft and frame, the looping system also includes various kinds of mechanisms in performing the looping embroidery together, such as Z axis motor for controlling the needle height, thread-trimming motor, H axis motor for looping, D axis motor for controlling the directions of crochet and the thread-loosing motor controlling the position of loosing thread. Among them, except that the thread-loosing motor is collectively controlled by the transfer board, others are independently controlled by the looping drive board. The setting methods of the looping drive board EF297 are shown in the table below:

Definitions of DIP Switch on Looping Drive Board EF297:

Table 1:

DIP1~DIP4	Have no influence on the looping address, please put them at OFF
DIP9~DIP5	Binary System Code, Set Value: N=00001~11111. The control address is $2N-1$, $2N$ is two looping heads. OFF is high electrical level 1; ON is low electrical level 0

Table 2:

DIP10	The definitions are different between upper head board and down head board.
OFF	Upper head board: control needle height position, D axis motor, head indicator and switches.
ON	Down head board: control thread-trimming motor, H axis motor, thread-breakage detection.

Semi-independent models are divided into two types:



1、Except that the H axis motor and trimmer motor are collectively controlled by the transfer board, the D axis and the needle height adjustment devices are controlled by the looping drive board independently. For the setting method of the looping drive board EF297A, please refer to the above table.

2、Except the H axis motor that is controlled by the transfer board collectively, the D axis and needle height adjustment devices are independently controlled by the looping drive board. The method for setting looping drive board EF297 is shown in the above table. And the trimmer part is independently controlled by the board EF298, whose setting method is shown in the following table:

Table 1:

DIP1~DIP4	They have no effect to the address of looping and are set at “OFF”.
DIP9~DIP5	Binary Code Setting: The set value: N = 00001~11111; control address: 2N-1; 2N means two looping head. The “OFF” means high electrical level 1; “ON” means the low electrical level 0.

Table 2:

DIP10	Activate the Upper/ Down head board
OFF	Upper head board, control the needle height position, head light and switches
ON	Down head board, control thread-trimming motor and thread-breakage detection function



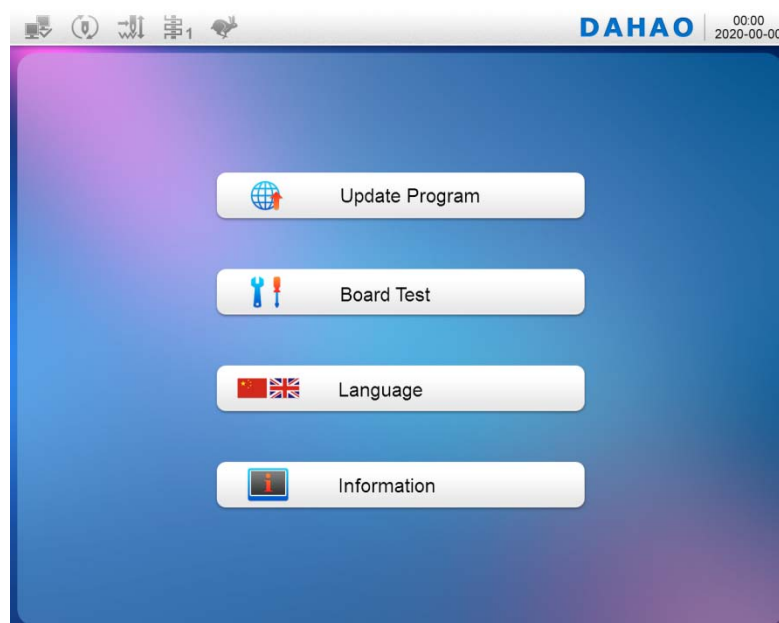
Chapter 15 Updating Control Program

Updating Operation:

1. Hold  key and turn on the machine.



2. The screen will display the following interface, where user should select “update program”



3. Select the update method (via U disk).

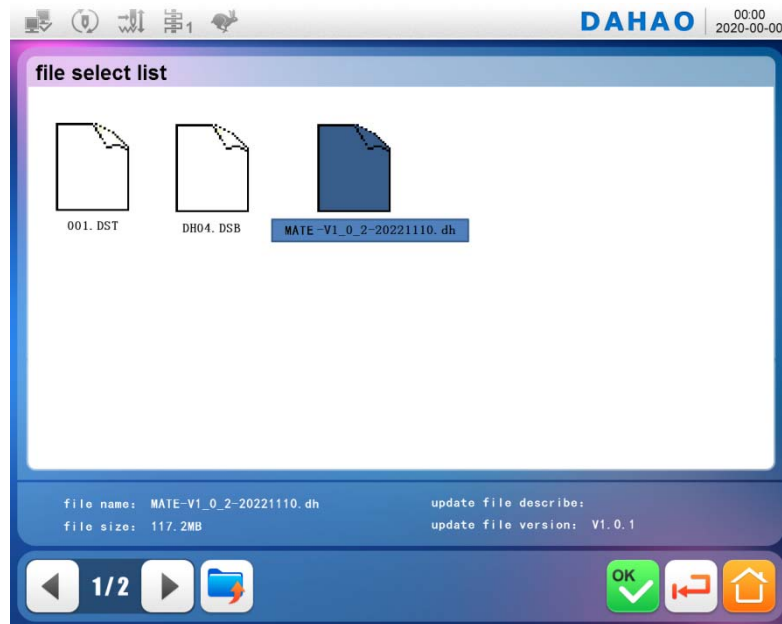


4. System will display the window to “Select U Disk”, and select the target U disk.

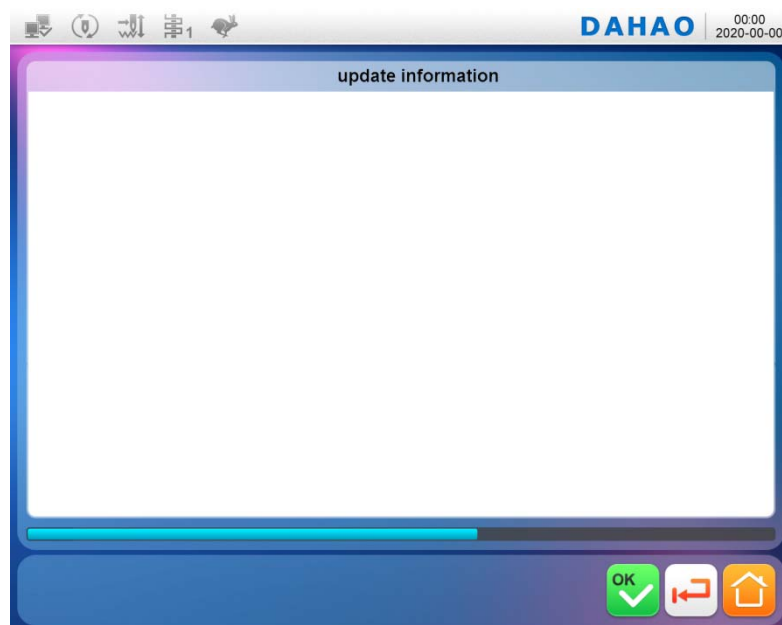




5. After entering the interface of the U disk, select the program to be updated.



6. Click enter key to confirm the updating .



7. The screen will show "Updating Complete , if not others , Pls repower" when finish updating. Please restart the computer.

Chapter 16 Updating Peripheral Equipment Program

Updating Procedure:

1. Click the "  " to enter the interface for other functions.

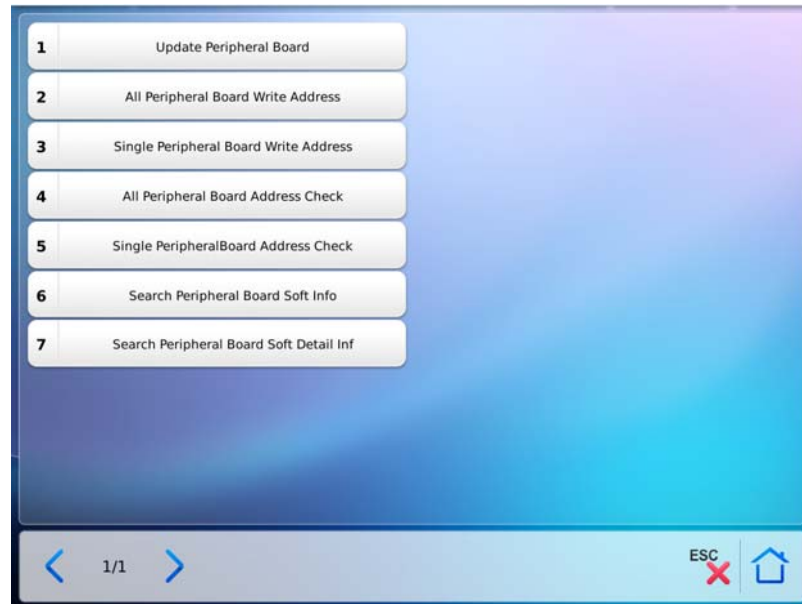


2. Select "Machine Test" to enter the interface of statistics.

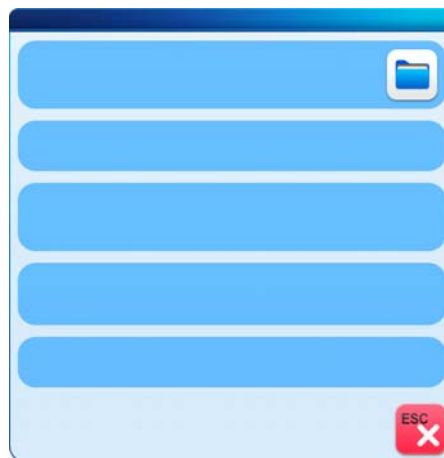




3. Select “peripheral board management” to enter the management interface, where user should select “peripheral board update”.



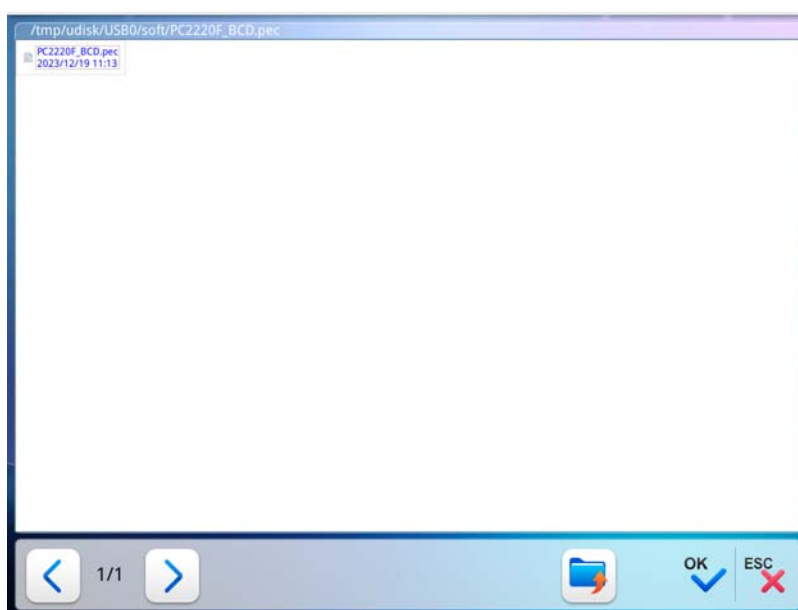
4. Click 



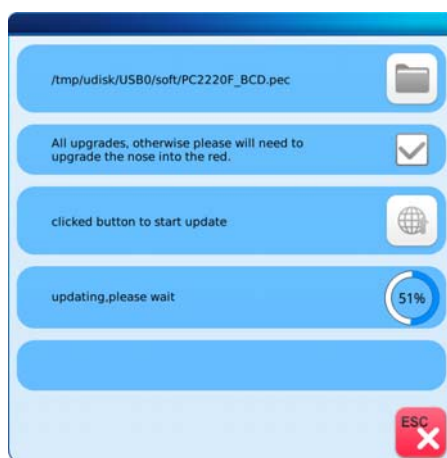
5. Select the U disk



6. Select the program to be updated and press



7. when system hint successful update, the update is completed.





Appendix I Parameter Setting List

Number	Name	Recommend ed Value	Range of Setting	Note
Magnify, Rotate& Repeat Setting Parameters				
A01	Scaling rate of X&Y directions	100/100	50%~200%	Rotating angle of the design
A02	Rotating angle of the design	0	0~89	
A03	Direction	P	☐ P ☐ A ☐ d ☐ r ☐ q ☐ σ ☐ b ☐ A ☐ P	
A04	Prior Mode	Rotate	Rotate, scale	
A05	Rep. Mode	Normal	Normal, part	Not used
A06	Rep. Prior	X Prior	X prior, Y prior	
A07	X&Y Reps	1/1	1~99	
A08	X&Y Interval	0.0/0.0	-999.9~+999.9	
Embroidery Assistant Parameters				
B01	Auto Origin	Yes	No, Yes	
B02	To Do Cyclic Emb.	No	No, Yes	Whether to automatically repeat embroidering the design It often accompanies repetition or special punched design.
B04	Display Sti-Num or Not	Yes	No, Yes	
C02	Sewing Empty Stitch	No	No, Yes	If “Yes”, the machine will omit the empty stitches (needle moving without embroidering). If “No”, the empty stitches won’t be omitted.
B13	Start for Same Colors	Yes	No, Yes	Whether to start in color-changing way when the later needle position is same to the former one
C04	Store Manual Color	No	No, Yes	If “Yes”, manual color changing is stored in the color-changing order. After embroidery, the setting will automatically change into “No”.
D15	Slow STL. After	0	0~9999	



Number	Name	Recommend ed Value	Range of Setting	Note
	Patch			
D16	Speed After Patch	Max. Speed	80~Max. Speed	
B15	Emb Show Background	Yes	No, Yes	
B18	Is Design TrueView Display	No	No, Yes	
C77	Filter Short Stitch	No	No, Yes	It is fit for high-speed machine using dahao servo-motor driver and efficient in embroidery confirm status
C78	Filter Short Stitch Length	0.2mm	0.1mm~0.6mm	The same of above
C79	Automatic Jump	No	No, Yes	The same of above
C80	Auto Jump Stitch Len	8.0mm	6.0mm~12.0mm	The same of above
B20	Satin Sti, Comp. When Import Dsn	No	No, Yes	
B21	Clamp Foot Down Angle	80	80~106	
C80	Auto Jump Sti Len	6	6~12	
U57	Speed of Fast Idling	1	1~10	
B24	Auto back to stop point	No	No, Yes	
B27	Insert Flat Needle as Color-sequin	Yes	No, Yes	
Thread break detecting Parameter				
B05	T. B. Detect	Yes	No, Yes	Thread break detect
B11	Sti. Not T.B. Detect	8 stitch	0 stitch ~15 stitch	
B06	Stop machine after T.B. detect	Yes	No, Yes	
B07	Press key after T. B.	No	No, Yes	Press key (pull bar) after T. B.
B08	T. B. Back Sti.	0 stitch	0 stitch ~7 stitch	It is unavailable to some machine types.



Appendix I Parameter Setting List

Number	Name	Recommend ed Value	Range of Setting	Note
B09	Patch Count	1 stitch	1 stitch ~10 stitch	How many stitches to patch before the thread break point
B10	Speed Down After Patch	Stop	No Change, Down, Stop	
B14	To Set All Heads Patch	No	No, Yes	If “Yes”, all unclosed heads do patching when patching.
B12	T. B. Detect When Jump	No	No, Yes	
C27	Detect T. B. Mode	spring	spring, wheel	
C28	STI. For Filter T.B.	3 stitch	1 stitch ~6 stitch	
C67	Sensitivity of Upper Thread	6	1~10	
C68	Sensitivity of Under Thread	6	1~10	
C69	Filter Sti. For Upper Thread	3 Sti	1~10 Sti.	
C70	Filter Sti. For Under Thread	3 Sti	1~10 Sti.	
C90	T. B. Device Type	spring	spring, spring+ wheel, Winding thread wheel	
C91	Machine Head Motor Angle	0	0~10	
L01	T.B. Sound	3 time	No voice, 1~5 time	
BD01	Machine Head Motor Type When Gtoto 100 Degree	Pre-action	Pre-action, Main Axis Follow-up	
Frame Parameter				
C06	Frame Curve & Angle	F6/230	F1/230,240,250,260,270 F2/230,240,250,260,270 F3/230,240,250,260,270,280,290 F4/230,240,250,260,270,280,290 F5/230,240,250,260,270,280,290 F6/230,240,250,260,270,280,290	F2 and F4 are frame curve. The later values are the angles of frame starting.
Z07	X Frame Angle Adjust	-30	-30~30	
Z06	Y Frame Curve	F1	F1~F6	



Number	Name	Recommended Value	Range of Setting	Note
Z08	Y Frame Angle Adjust	-30	-30~30	
B03	Over frame by Step	No	No, Yes	
C15	High Frame-Shift Speed	16	1,2...30	
C16	Low Frame-Shift Speed	12	1,2...30	
D13	Speed When Over frame	16	1,2...30	
D19	(AFC) Use	No	No, Yes	
D20	(AFC) Interval Time	3	0~15	
C72	Embroidery Mode	Hat embroidery	Hat embroidery, plain embroidery, clothes embroidery	
C73	Frame Weight	0	0,5,10,15.20	
S14	X direction Frame Angle A(0.1~1.9mm)	200	200~280	It is fit for high-speed machine using dahao servo-motor driver
S15	X direction Frame Angle B(2.0~4.9mm)	200	200~280	The same of above
S16	X direction Frame Angle C(5.0~12.7mm)	200	200~280	
S17	Y direction Frame Angle A(0.1~1.9mm)	200	200~280	The same of above
S18	Y direction Frame Angle B(2.0~4.9mm)	200	200~280	The same of above
S19	Y direction Frame Angle C(5.0~12.7mm)	200	200~280	
Main shaft Parameter				
C07	Max. Speed	700-850	250, 300, 350, ...,1200	
C09	Minimum Speed	400	250,300,350...600	
C08	Shift Stitch Length (mm)	8	1.0~10.0(common type machine),3.0~6.0(high-speed machine using dahao servo-motor driver)	When the stitch length is longer than the set value, the machine will lower the speed.



Appendix I Parameter Setting List

Number	Name	Recommend ed Value	Range of Setting	Note
C10	Jump Stitch Speed	500	400~850(common type machine),400~1100(high-speed machine using dahao servo-motor driver)	Set the rotation speed for jump stitch.
C13	Set Run Speed	80	80,90...150	
C12	Startup Stitches	1 stitch	1 stitch~9 stitch	Set the startup stitch number.
D02	Startup Acce.	12	1,2,3...30	Increase the value to bring a quicker speedup after pulling the bar.
C25	Set Break Para.	0	0~30	When the main shaft motor is an electromagnetic motor, the value is usually set as 9. When it is a servomotor, the parameter is usually set as 5-7.
C24	Main Motor Para.	0	0~30	The parameter is invalid when it's a servomotor. When it's an electromagnetic motor, increase this parameter value to avoid main shaft vibration during braking. Usually it's set as 1.
C14	Speed of Slow Emb.	800	80 (rpm), the value of the minimum speed	
D14	Stop Ok bef. Pull Bar	Yes	No, Yes	
D10	Ratio of AC Induction	0	-15% ~ +15%	The parameter is used when the main shaft uses induction motor. If the value is incorrect, the set rotation speed will be different from the virtual speed.
C05	Value for Thick Cloth	0	0~3	
C26	Para. Of Needle Down	15	0~30	
D53	Lock Motor When Stop	No	No, Yes	
M02	Speed Control	High/Low	High/Low Speed Set, Each	



Number	Name	Recommended Value	Range of Setting	Note
	Mode	Speed Set	Needle Length Set	
Thread-trimming Parameter				
C01	Jump & Trim	3 Jump	No Trim, 1Jump~7Jump	
C18	Length of Trim	1	1~8	1 is the minimum length and 8 are the maximum length.
D05	Speed When Trimming	80	80,90,100...250	
C20	Lock Stitch. When Trim	Yes	No, Yes	
D04	Speed after Trim	80	60,70,80...150	The parameter sets the rotation speed for lock stitch.
C11	Stitches After Trim	2 stitch	1 stitch ~7 stitch	
C21	Length of Lock Sti. (mm)	0.6	0.3~1.5	
C19	Lock Num. After Trim	2	0~3	Set the lock stitch number when pulling the bar for embroidery after setting the trimming.
D06	Spin Rounds for Brake	1	1,2	2 for most machines, 1 for miniature type and machines with servo control main shaft motor.
C23	Action after Trim	Frame Y	Frame X, Frame Y, Move Needle	
C22	Frame after Trim	No	No, Yes	
D03	Set Hold Startup Para.	0	-4~3	
D07	Check Trim is OK	No	No, Yes	
D08	Hook Angle by Motor	0	-100~+100	Set the hook angle by motor. When the value is increase, the hook angle is moved backward.
D09	Hook Ratio by Motor	2	1:9,1:10,1:12,1:15,1:18,1:20	
E39	Hook Distance By Motor	0	0~180	
C17	Turn Off	No	No, Yes	



Appendix I Parameter Setting List

Number	Name	Recommended Value	Range of Setting	Note
	Trimming			
D48	Lock Stitch Len Bef Trim	1.0	0.3~2.0	
D49	Lock Stitch Num Bef Trim	2	0~2	
D32	Is cutting Machine	Yes	No, Yes	
C81	Cutting start angle	3	0~20	It is fit for the machine using step-motor for trimming thread.
C82	Cut return angle adj	4	0~30	The same as above.
C83	Cut keeper return angle	5	0~99	The same as above.
C84	Hold voltage adj	1	1~10	The same as above.
C92	Trim angle when stop	100°	86° ,100°	
C95	Speed At 1st Sti. Bef. Trim	400	60~600	
C96	Speed At 2nd Sti. Bef. Trim	80	60~500	
C93	Thread Holder A.M. At Cut	A	A,B,C	
C94	Thread Holder A.M. At Start	A	A,B,C	
E99	Thread holder all on when darn	No	No, Yes	
E100	Darn Cut Line Process	No Cut	No Cut, Cut Down Line, Cut Up Down Line	
C112	Cutter ype	Solenoid cutter	Solenoid cutter, Stepmotor cutter	
C113	Stepping shearing stroke	115	40~180	
C100	Step Cutter Maintain Return Angle	0	0~30	
C102	Step Cutter Speed	0	0~4	
C111	Length of Pull Under Thread	0	0~10	
C104	Trim work	0	0, 1	



Number	Name	Recommended Value	Range of Setting	Note
	mode			
C114	Pull Under Thread Direction	Left	Left, Right	
C115	Step Cutter Adjust Speed Angle	0	0~20	
C116	Cutter Reserve Param1	0	0~255	
C117	Cutter Reserve Param2	0	0~255	
C118	Hook Device Type	No	No, Concentrate 1, Concentrate 2, Step Split	
Sequin Parameter				
C31	Speed for Sequin R	400	300,310,...,the maximum speed	
C32	Speed for Sequin L	400	300,310, ... , the maximum speed	
D25	Sequin R Adj. Angle	0	-15~15	
D26	Sequin L Adj. Angle	0	-15~15	
C33	Auto Start for Sequin	No	No, Yes	
D27	Time of Sequin Action	3	0~15	
C34	Sequin Off after T.B.	No	No, Yes	
C56	Sequin Ind. UpDown	No	No, Yes	
B17	Up Valve When Jump & Nocut	Yes	No, Yes	
D61	Motor Number of L Sequin		No,1~4,1(2~4) , bead (1, 2)	Set the parameter base on sequin device. 2~4 mean motor number by one motor
D54	Motor Number of R Sequin		No,1~4,1(2~4), bead (1, 2)	Set the parameter base on sequin device. 2~4 mean motor number by one motor
D84	L Knife Start	0	0~31	



Appendix I Parameter Setting List

Number	Name	Recommend ed Value	Range of Setting	Note
	Angle Adj			
D83	R Knife Start Angle Adj	0	0~31	
D99	Bead-breakage Detection Sensitivity	0	0~10	
D55	Set 3MM of R Sequin		Lever 6~40 Degree, Wheel 6~40	
D56	Set 4MM of R Sequin		Wheel 6~40 Degree, Lever 6~40 Degree	
D57	Set 5MM of R Sequin		Wheel 6~40 Degree, Lever 6~40 Degree	
D58	Set 6.75MM of R Sequin		Wheel 6~40 Degree, Lever 6~40 Degree	
D59	Set 9MM of R Sequin		Wheel 6~40 Degree, Lever 6~40 Degree	
C57	A Size&Color of R Sequin		3/4/5/6.75/9mm Red/Green/Blue/Purple/Yellow/ Cyan/silver/Golden	
C58	B Size&Color of R Sequin		3/4/5/6.75/9mm Red/Green/Blue/Purple/Yellow/ Cyan/silver/Golden	
C59	C Size&Color of R Sequin		3/4/5/6.75/9mm Red/Green/Blue/Purple/Yellow/ Cyan/silver/Golden	
C60	D Size&Color of R Sequin		3/4/5/6.75/9mm Red/Green/Blue/Purple/Yellow/ Cyan/silver/Golden	
JF09	E Size&Color of R Sequin		3/4/5/6.75/9mm Red/Green/Blue/Purple/Yellow/ Cyan/silver/Golden	
JF10	F Size&Color of R Sequin		3/4/5/6.75/9mm Red/Green/Blue/Purple/Yellow/ Cyan/silver/Golden	
JF11	G Size&Color of R Sequin		3/4/5/6.75/9mm Red/Green/Blue/Purple/Yellow/ Cyan/silver/Golden	
JF12	H Size&Color of R Sequin		3/4/5/6.75/9mm Red/Green/Blue/Purple/Yellow/ Cyan/silver/Golden	
JF13	I Size&Color of		3/4/5/6.75/9mm	



Number	Name	Recommend ed Value	Range of Setting	Note
	R Sequin		Red/Green/Blue/Purple/Yellow/ Cyan/silver/Golden	
JF14	J Size&Color of R Sequin		3/4/5/6.75/9mm Red/Green/Blue/Purple/Yellow/ Cyan/silver/Golden	
JF15	K Size&Color of R Sequin		3/4/5/6.75/9mm Red/Green/Blue/Purple/Yellow/ Cyan/silver/Golden	
JF16	L Size&Color of R Sequin		3/4/5/6.75/9mm Red/Green/Blue/Purple/Yellow/ Cyan/silver/Golden	
D60	Sequin Gap Num of R Sequin	No	No, 1,2	
C65	Valve Time of Right Sequin	0	0~5	
D62	Set 3MM of L Sequin		Wheel 6~40 Degree, Lever 6~40 Degree	
D63	Set 4MM of L Sequin		Wheel 6~40 Degree, Lever 6~40 Degree	
D64	Set 5MM of L Sequin		Wheel 6~40 Degree, Lever 6~40 Degree	
D65	Set 6.75MM of L Sequin		Wheel 6~40 Degree, Lever 6~40 Degree	
D66	Set 9MM of L Sequin		Wheel 6~40 Degree, Lever 6~40 Degree	
C61	A Size&Color of L Sequin		3/4/5/6.75/9mm Red/Green/Blue/Purple/Yellow/ Cyan/silver/Golden	
C62	B Size&Color of L Sequin		3/4/5/6.75/9mm Red/Green/Blue/Purple/Yellow/ Cyan/silver/Golden	
C63	C Size&Color of L Sequin		3/4/5/6.75/9mm Red/Green/Blue/Purple/Yellow/ Cyan/silver/Golden	
C64	D Size&Color of L Sequin		3/4/5/6.75/9mm Red/Green/Blue/Purple/Yellow/ Cyan/silver/Golden	
JF13	E Size&Color of L Sequin		3/4/5/6.75/9mm Red/Green/Blue/Purple/Yellow/ Cyan/silver/Golden	
JF14	F Size&Color of		3/4/5/6.75/9mm Red/Green/Blue/Purple/Yellow/	



Appendix I Parameter Setting List

Number	Name	Recommend ed Value	Range of Setting	Note
	L Sequin		Cyan/silver/Golden	
JF15	G Size&Color of L Sequin		3/4/5/6.75/9mm Red/Green/Blue/Purple/Yellow/ Cyan/silver/Golden	
JF16	H Size&Color of L Sequin		3/4/5/6.75/9mm Red/Green/Blue/Purple/Yellow/ Cyan/silver/Golden	
JF17	I Size&Color of L Sequin		3/4/5/6.75/9mm Red/Green/Blue/Purple/Yellow/ Cyan/silver/Golden	
JF18	J Size&Color of L Sequin		3/4/5/6.75/9mm Red/Green/Blue/Purple/Yellow/ Cyan/silver/Golden	
JF19	K Size&Color of L Sequin		3/4/5/6.75/9mm Red/Green/Blue/Purple/Yellow/ Cyan/silver/Golden	
JF20	L Size&Color of L Sequin		3/4/5/6.75/9mm Red/Green/Blue/Purple/Yellow/ Cyan/silver/Golden	
D67	Sequin Gap Num of L Sequin	No	No, 1,2	
C66	Valve Time of Left Sequin	0	0~5	
D70	R Motor Shift Stroke Base	40	6~40	
D71	R Motor Shift Stroke Time	15	1~30	
D72	With Origin at R Motor Shift	No	No, Yes	
D73	L Sequin Feeding Angle Ad	40	6~40	
D74	L Motor Shift Stroke Time	15	1~30	
D75	With Origin at L Motor Shift	No	No, Yes	
JF01	Right Cutting Range	15	0~31	
JF02	Left Cutting Range	15	0~31	
JF03	Right Sequine Select	All	All, Direct AB, Side CD	
JF04	Left Sequine Select	All	All, Direct AB, Side CD	



Number	Name	Recommended Value	Range of Setting	Note
JF05	Start Angle of Right Cutter	15	0~31	
JF06	Start Angle of Left Cutter	15	0~31	
JF07	Insert Empty Needle Before Sequin	No	Yes, No	
JF08	Sequin Device Life Mode	Independent	Independent, Concentrate	
Taping Parameter				
D86	A-Zig Emb.Right On/Off	Yes	Yes(First Stitch), No	
D87	A-Zig Emb.Left On/Off	Yes	Yes(Last Stitch), No	
D88	A-Zig Emb. On/Off Time	2	0~5	
C35	A-Zig Max Speed	400	300~1200	
D29	A-Zig Swing Angle	0	0~125	
C38	A-Zig 5 Swing Angle	0.2	0.2~10.0	
D95	A-TAPING Emb.righe origin pos.	0	0~100	
D96	A-TAPING Emb.left origin pos.	0	0~100	
D81	A-Zig great efficiency mode	5	1~5	
D92	A-Zig Has Loosing-Motor	Yes	Yes, No	
D93	A-Zig T.L Adj	5	0~10	
D97	A-TAPING Up&Down Detect.	No	No, Yes	
ST01	Work mode	2	1~5	
ST02	Actuation time adj.	1	1~20	
ST03	Looped time	50	30~100	
ST04	Whether cut line	No	Yes, No	



Appendix I Parameter Setting List

Number	Name	Recommended Value	Range of Setting	Note
	when jump			
ST05	Rope Motor Work Enable	No	Yes, No	
Glass Bead Parameters				
E80	Send beads angle for motor L	30	1~100	
E81	Recv beads angle for motor L	50	1~50	
E82	Angle for L clip motor	30	1~50	
E83	Adj speed of L soeed motor	8	0~15	
E84	Adj speed of L conveyor motor	8	0~15	
E85	Adj speed of L add-power motor	8	0~15	
E86	Time para for L bead	24	1~50	
E87	Time para for L sequin	15	1~50	
E88	Count of L bead motor	None	None, Yes	
GB02	Left Bead Turntable Action Time	5	1~10	
E89	Send beads angle for motor R	61	1~100	
E90	Recv beads angle for motor R	10	1~50	
E91	Angle for R clip motor	18	1~50	
E92	Adj speed of R soeed motor	8	0~15	
E93	Adj speed of R conveyor motor	8	0~15	
E94	Adj speed of R add-power motor	8	0~15	
E95	Time para for R bead	24	1~50	
E96	Time para for R sequin	15	1~50	



Number	Name	Recommended Value	Range of Setting	Note
E97	Count of R bead motor	None	None, Yes	
GB03	Right Bead Turntable Action Time	5	1~10	
E98	All head change bead cnt	0	1~2500	
H03	Angle of glass-bead arriving	0	0~359	
H04	Bead more revolutions	8	0~15	
GB04	Whether to insert bead code or not	No	No, Yes	
Special Embroidery Parameter				
C55	M Axis Origin At T.B.	Yes	No, Yes	
C54	Cord Emb. Needle	Yes	No, Yes	
C37	M Axis Stop to Origin	Yes	No, Yes	
D28	Special Head Interval	10	10~600	Destined Value: 150,162,166,185,200,216,225,230,240,250,270,290,300
D30	Clamp Foot Displace	0	0~90	
D40	Adj Clamp Foot Limit	170	0~250	
B16	Clamp Foot Min Height Adj	0	0~255	
D31	Rod Pos. of Zigzag	Left	Left/Right	
D29	Zigzag Swing Angle	90	0~90	
C38	Swing Value of Zigzag	0.2	-10.0~ -0.2,+0.2~+10	
D50	Adj Z Emb Swing	0	0~5	
D42	Rotary Gap of M Axis	0	0~10	



Appendix I Parameter Setting List

Number	Name	Recommended Value	Range of Setting	Note
D44	M Axis Work OFF Angle	0	0,90	
C39	Spec. Emb. Trim Mode	Low	Low, Above & Low, No Trim	
C35	Speed for Sequin L	400	300~850	
C51	Spec Minimum Speed	250	250~400	
C52	Spec. Speed-Down Angle	30	1~180	
C53	Spec. Speed-Down Ratio	2	1~4	
D39	Z Shift Control Angle	0	0~180	
D41	Adj Zigzag Rod Angle	1	1,2,3	
C36	Ratio of Coil Emb.	0 Sti/L	0~3 Sti/L	
D47	Slow Down When Coil Emb	Yes	No, Yes	
D76	Taping2 head space	153.8	-400.0~ -1.0, +1.0~+400.0	
D77	Taping2 foot work height	15	0~90	
D78	Double taping is move head space	No	No, Yes	
Machine & Maintenance Parameter				
D01	Needles		1,2...MAXNEEDLE	Set the value according to the machine situation. E.g. the value should be 9 for 9-needle machine. If the value is different from the machine needles, the color changing will be abnormal.
C29	Needle of Boring		No, 1, N	
C30	Boring Emb. Disp.	0	0mm,12mm	



Number	Name	Recommended Value	Range of Setting	Note
D17	Needle of Cord Emb.	No	No, 1, N	
D18	Speed for Cord Emb.	400	300,310,320...600	
D11	Adjust Head Solenoid	0	0,1,2...30	
D12	Color-Change Speed	12	0,1,2...30	It's valid only when the color-changing motor is stepping motor. The larger the value, the faster the color-changing speed.
D43	CloseBack Light time	10 mins	Never, 2mins, 5mins, 10mins, 15mins	
C40	No Output Design	No	No, Yes	
C71	Thread hold voltage adj.	6	1~10	
C41	Server Port			It is used for setting sever port when it is connected to PC.
C42	MAC Address			It is used for setting the MAC address of embroidery machine network card. The address is different as different machine.
C43	IP Address			It is used for setting machine address when connect to PC. It is not different among different machine.
C44	Server IP			It is used for setting the IP address of sever when connect to PC.
C45	Subnet mask			It is used for setting the subnet mask of IP address when connect to PC.
C46	Gateway			It is used for setting the gateway of machine when connect to PC.
Z02	DNS Server			



Appendix I Parameter Setting List

Number	Name	Recommended Value	Range of Setting	Note
Z03	Start DHCP	No	No, Yes	
C49	X compensation for mechanical gap	0.0	0.0~1.0	
C50	Y compensation for mechanical gap	0.0	0.0~1.0	
E1	DIP1	3	0~255	
E2	DIP2	3	0~255	
E3	DIP3	3	0~255	
E4	DIP4	3	0~255	
D68	Machine Head Num	20	1~80	D68
E45	Machine head space	162.0	1.0~400.0	E45
D98	To Do Machine Head Combine Emb SETTING	No	No, Yes	D98
D89	Frame shift scope head number	3	1~80	D89
H06	Drive failure monitoring	Yes	No, Yes	
H07	Color change device	AC motor	AC motor, Closed-Loop motor, Double Close-Loop	
H08	Query Peripheral Board Error	No	No, Yes	
K4	T.B. Sound	3 time	No voice, 1~5 time	



Appendix II Directions on USB Operations

No.	Operation	Direction	Remark
1	Read & Write USB		
2	Supporting format	FAT16 and FAT32	
3	Long filename	Support but no display	
4	Filename display	DOS 8.3 mode (8 digit prefix is viewable, suffix is 3 digits)	For instance: “清明上河图.DST” will be displayed as “清明上~1.DST”
5	Filename displayed in Chinese	support	
6	Sub-directory operation	support	
7	Sub-directory limit	No limitation	
8	File account in one sub-directory	400	
9	Reading & writing error/ change USB	Back to disk management or design management screen, plug in the disk again.	
10	Multi-logical disks in one USB	support	
11	Formatting USB	support	
12	Installing of the letter base	Not support	
13	Software update	support	
14	Special character in filename	Support, except for “\$”	



Appendix III Error List

Note: for the errors listed below, you may click “Clear”, then check related parts and follow the instructions. The machine with no password-protected function has no the item about password.

Upper monitor mistakes			
No.	Mistakes	No.	Mistakes
01	Operation Fail	29	No floppy disk
02	Operation Break	30	Invalid disk type
03	Machine Communication Error	31	Disk sector error
06	Not set ZERO point	32	File not in disk
07	Fail to set ZERO point	33	Not a file
08	No design start point	34	File corrupt
09	No software range	35	disk write protect
10	Password is wrong!	36	Invalid directory
11	New passwords not same	37	File existed!
12	Emb. design not existed!	38	Directory is full in memory.
13	Dest. design existed!	39	Not enough space
14	Design not existed!	40	Not open media
15	Open design error!	41	Error design data
16	Error type combined design	42	Invalid design type
17	Open FLASH media error	43	Not normal design
18	Design has created!	44	Not combined design
19	No enough design mem.	45	Please wait design operation
20	Directory is invalid.	46	Cannot delete emb. design
21	FLASH media write-protect	47	Stitch number too large
22	Design file not existed	48	Design stitches is over



No.	Mistakes	No.	Mistakes
23	Design name is invalid	49	Error design, or communication fail
24	Design file corrupt	51	Read Design Error
25	Error read/write design	52	Edit Forbid when Emb. Ready
26	Not open design file	53	Design is too big. Can't process.
27	Error read FLASH media	54	Can not format the disk!
28	Device not existed!	55	Unsupport operation!
		56	Disk error
Lower monitor mistakes			
No.	Mistakes	No.	Mistakes
EC05	THE HOOK IS NOT OK	EC22	MAIN MOTOR REVERSE
EC07	HOOKING TIME IS OUT	EC23	CANNOT EMBROIDER
EC08	NOT SET (E. SET)	EC24	CANNOT FRAME BACK
EC09	CANNOT RETURN	EC26	CAN NOT TRIM
EC10	CANNOT RETURN	EC36	SEQUIN IS ON
EC11	DESIGN NOT EXIST	EC37	PULL BAR ERROR
EC12	STOP POSITION ERR	EC38	SPE. EMB. OVERTIME
EC13	FRAME OVER LIMIT	EC41	FILE NOT EXIST
EC14	CONTROL MEMORY LOST	EC42	FILE DIRECTORY FULL
EC16	STEP MOTOR ERR	EC43	MEMORY SPACE FULL
EC17	CHANGE CLR OVERTIME	EC44	FILE FAT ERR
EC18	HALF RETURN ERR	EC45	FILE DIRECTORY ERR
EC19	NEEDLE POSTION ERR	EC46	HAS BAD SECTORS
EC20	MAIN MOTOR OVERTIME	EC95	Thread is broken, press key
EC21	CHANGE CLR OVERLIMIT	EC101	Transfer CRC Error



Appendix IV Loop Embroidery Parameter List

Embroidery Assistant Parameters				
F08	Looping Fixed Stitch Number	3	0~7 stitches	Change the last stitches of looping into chained stitches to prevent thread falling out. This parameter is to set the stitch number of such change.
F10	Cut Line Stitches Num.	0	0~15 stitches	
F11	Long Stitch Division	0	0~11 stitches	If stitch is too long, main shaft rotation speed will slow down. The longer, the slower. Long stitch division will divide stitch longer than set value into two or more stitches.
F12	Return to Origin at Stop	Yes	Yes, No	This parameter is to set whether shuttle returns to origin when pull bar to stop.
F24	Looping Angle at High Speed	3	0~9	Adjust action order, which will influence product quality.
F34	Outline Embroidery Mode	No	Yes, No	This function is to generate outline pattern for normal pattern. User can embroider it. When this function is valid, system will not make thread breakage detection. (This function is set by upper computer.)
F43	Looping Angle at Low Speed	0	0~9	Adjust product quality at low speed.
F49	D-axis Start Angle	7	0~15	Set the start angle of D axis.
F50	H-axis Start Deviation Angle	50	0~90	Adjust start angle of looping.
F60	Shaking Loop Angle	2	0~5	Adjust shaking loop angle.
F61	Shaking Loop Speed	5	0~10	During color-changing process, H-axis will swing a little bit to ensure the lowering of shuttle. This parameter determines the swing range.
Thread Breakage Detection and Related Applications				
F02	Thread Breakage Detection	Yes	No, Yes	When set as “Yes”, embroidery head will auto detect thread breakage; in case of breakage, head light will be on and machine stops automatically.
F85	Under Thr Det. Sensitiv	1	1~9	
F03	Go Back	Yes	No, Yes	When set as “No”, “return stitch number at thread breakage” is invalid, that is, there is no going back.
F04	Return Stitch Number at Thread Breakage	0	0~8 stitches	Convenient for patching



F05	Patching at All Heads	No	No, Yes	When set as “No”, only head with thread breakage will do patching; when set as “Yes”, all working heads will do patching.
F06	Patching Stitch Number	0	0~8 stitches	Only appointed head will do patching. After patching to the set stitch before thread breakage, all heads will start embroidery, in order to ensure product quality.
F09	Back to Threading Position at Thread Breakage	Yes	No, Yes	Threading position is set for re-threading. This parameter is to quickly complete threading by pointing threading point of shuttle to that of the needle.
F15	Stitch Number before Thread Breakage Detection	3	0~15 stitches	This parameter is to set the stitch number before the thread breakage detection is activated after embroidery start.
F41	Thread Breakage Detection Mode	U	Upper head board (U), lower head board (L), EF196, Ef102	Set thread breakage detection mode.
Frame Related Parameters				
F14	Over Frame at Start	No	No, pull all, bar, after	Adjust loop embroidery stitch and flat embroidery stitch.
F23	Chained Embroidery Frame-moving Angle	6	0~10	Adjust action order, which will influence product quality.
F80	Looping Embroidery Frame-moving Angle	6	0~10	Adjust this parameter to improve looping quality.
F47	Loop Embroidery Frame-moving Curve	0	0、1、2	Select loop embroidery frame-moving curve.
F97	Loop Frame Param. 1	0	0~10	
Main Shaft Related Parameters				
F17	Slow Stitches at Start	3	1~9 stitches	Set the slow stitches at embroidery start by “main shaft slow speed”.
F18	Max. Rotation Speed	650 rpm	500~650 rpm	Set the maximum rotation speed of embroidery, by increment of 50 rpm.
F19	Stop Compensation	0	0~30	When set as 0, it is the earliest stop position, and to adjust this parameter is to adjust the stop position of main shaft so as to solve the



Appendix IV Loop Embroidery Parameter List

				problem of not stop in position due to mechanical inertia. The larger the value, the more backwards the stop angle moves. Setting range: 0~6.
F20	Rotation Speed Compensation	0%	-15%~15%	Adjust this parameter by software can make actual rotation speed comply with set rotation speed. Only effective for Dahao servo driver.
F35	Main Shaft Slow Speed	80	80~150	Set the rotation speed of slow action of main shaft when pull bar, by increment of 10 rpm.
F39	Velocity at Start	5	1~10	The larger the value, the faster the speed of main shaft accelerates after start.
F40	Main Shaft Motor Parameter	0	0~30	Whenever value increases by 1, brake more by 50ms.
F42	Pre-brake Angle	0	0~150	Applied to machine with servo at common position. When speed down before stop, default value of main shaft angle is 0, corresponding angle is 335°; each time the value increases by 1, the pre-brake angle returns by 0.18°. The smaller the angle, the more reliable the stop, but the lower efficiency.
F62	H-axis Looping Angle Compensation	2	0~15	Larger value can improve stitch quality, but may increase the probability of motor over-load.
F63	H-axis Looping Action Angle	5	0~10	
F64	H-axis Looping Thread Returning Compensation	5	0~10	
F65	Speed Down at Turning	2	1~9, No	
F66	Loop Stop Rotating Count	1	1~6	
F98	Range Of Long Sti. Spd. Down	0	0~3	
Trimming Related Parameters				
F01	Jump and Trimming	7	1~7 stitches trimming, no trimming	No: jump at jump code, auto stop, losing thread, moving frame, and auto start again; Yes: when jump stitch number is smaller than set value, jump without trimming, otherwise, over frame at jump code, that is, auto stop, trimming, moving frame, and auto start again.
F07	Thread Treatment after Trimming	Front	Front, Back, Simple	Thread residue is at fabric front, which can prevent thread falling out.
F13	Thread	Yes	No, Yes	This parameter is used together with “thread



	Treatment at Color-changing and Trimming			treatment after trimming”. When set as “Yes”, same effect with F07.
F25	Trimming	Auto	Auto, Manual, Shut	In case of color-changing or over-frame and at embroidery end, machine will trim according to user’s setting.
F28	Trim Loose Motor State	loose thread	loose thread, tight thread	
F96	Pull Thread Out When Trimming	Yes	No, Yes	
F99	Auto Pull Thread Out	Yes	No, Yes	
F100	Underside thread out times	Twice	Once, Twice, 3 time	
Sequin Parameters (Chained Sequin for Reserve)				
F79	Sequin Mode	Roller, lever	Roller single sequin, lever single sequin	Select chained sequin mode.
F80	Sequin Start	No	Yes, No	Select auto start of sequin.
F81	Sequin Angle	13.5	5.4~36°	Select chained sequin feeding angle.
Machine Configuration 1				
F21	Shuttle Number	6	1~9	Set the shuttle number for each head according to mechanical configuration.
F22	Head Number	10	1~80	Set head number according to mechanical configuration.
F26	Chained Embroidery Head Board	XXX1	XXX1, XXX2	
F36	Head Adjustment Value	100	0~250	This parameter is to set the reference value to determine the needle height, used for installing and debugging machine.
F37	Head Off Position	138	138~250	Set the off position of head.
F38	Thread Loosing Method	Md02	Md02, e937	It is related to the requirement of drive input signal. BBQ2003 is dual-impulse input, while E937 is single-impulse input.
F48	Loop Embroidery to Flat Embroidery Head Interval	-330.0	-600.0~600.0	This parameter determines the frame moving distance when switch between flat embroidery head and loop embroidery head. It is up to the machine condition.
F90	DIP1	0	0~255	Reserved
F91	DIP2	0	0~255	Reserved
F92	DIP3	0	0~255	Reserved



Appendix IV Loop Embroidery Parameter List

Machine Configuration 2				
F93	DIP4	0	0~255	Reserved
F94	Main Shaft Lock	Yes	Yes, No	Set whether to lock main shaft at stop (for servo main shaft).
F95	AC Color-changing Box Position	Left	Left, Right	Set the position of AC color-changing box for looping embroidery.
Blowing Parameters				
F66	Stop Loops	3	1~6	
F67	Blowing Interval of Looping Valve	15	0~200	
F68	Blowing Time of Looping Valve	15	1~50	
F74	Loose wire transfer ratio	4:1	1:1, 4:1	



Appendix V Loop Embroidery Error List

Error Code	Content
501	D-axis motor over-time
502	D-axis motor cover-current
503	H-axis motor over-time
504	H-axis motor cover-current
505	Trimming motor over-time
506	Needle height motor over-time
507	Needle position error
508	Knift not in position
541	No feedback of D-axis action
542	No feedback of H-axis action
543	No feedback of trimming motor
544	No feedback of thread loosing motor
545	No feedback of color-changing motor
546	No feedback of needle bar action
547	No feedback of upper head board
548	No feedback of lower head board
549	No feedback of shaking loop
551	Color-changing potentiometer inquiry over-time
552	Thread loosing potentiometer inquiry over-time
553	Needle height potentiometer inquiry over-time
554	Knife back to origin over-time
555	Color-changing position abnormal
556	Thread loosing position abnormal
557	Needle height disconformity
558	AC color-changing motor over-time (for AC color-changing machine)
559	Semi-return rotation abnormal (for AC color-changing machine)
600	Non-loop embroidery position