CHAPTER II
Operation section

NA-P3020
INSTRUCTION MANUAL

Foreword

Thank you for using our Computerized Control System for Special Sewing Machine.

It is appreciated that you do read this manual carefully, so that you can operate the machine correctly and effectively. If the user operates the machine contrary to regulations herein, thus causes loss to user or third party, we will not take any responsibility. Besides that, you should keep this manual for future use. For any fault or problem of machine, please ask the professionals or the technicians authorized by us for repair service.

Safety Matters for Attention

1. Signs & Definitions of Safety Marks

This User's Manual and the Safety Marks printed on the products are to enable you to use this product correctly so as to be away from personal injury. The signs and definitions of Marks are shown in below:

⚠ Danger	The incorrect operation due to negligence will cause the serious personal injury or even death.
⚠ Caution	The incorrect operation due to negligence will cause the personal injury and the damage of mechanism.
	This kind of marks is "Matters for Attention", and the figure inside the triangle is the content for attention. (Exp. The left figure is "Watch Your Hand!")
	This kind of mark is "Forbidden".
	This kind of mark (Black Circle) means "Must". The figure in the circle is the contents that have to be done. (Exp. The left figure is "Ground!")

2. Safety Matters for Attention

⚠ Danger	
	For opening the control box, please turn off the power and take away the plug from socket firstly, and then wait for at least 5 minutes before opening the control box. Touching the part with high voltage will cause the personal injury.
⚠ Caution	
Usage Environment	
	Try not to use this sewing machine near the sources of strong disturbance like high-frequency welding machine. The source of strong disturbance will affect the normal operation of the sewing machine.
	The voltage fluctuation shall be within10% of the rated voltage. The large fluctuation of voltage will affect the normal operations of sewing machine, Therefore a voltage regulator is needed in that situation.
	Working temperature: 0℃～45℃. The operation of the sewing machine will be affacted by environment with temperature beyond the above range.
	Relative Humidity: 35%～85%(No dew inside the machine), or the operation of sewing machine will be affected.
	The supply of compressed gas shall be over the consumption required by the sewing machine. The insufficient supply of compressed gas will lead to the abnormal action of sewing machine.
	In case of thunder, lightning or storm, please turn off the power and pull plug out the socket. Because these weather factors will have influence on the operation of sewing machine
Installation	
	Please ask the trained technicians to install the sewing machine.
	Don't connect machine to power supply until the installation is finished. Otherwise the action of sewing machine may cause personal injury once the start switch is pressed at that situation by mistake.
	When you tilt or erect the head of sewing machine, please use both of your hands in that operation. And never press the sewing machine with strength. If the sewing machine loses its balance, it will fall into floor thus causes the personal injury or mechanical damage.

	Grounding is a must. If the grounding cable is not fixed, it may cause the electric-shock and mistake-operation of machine
	The entire cables shall be fixed with a distance at 25mm away from the moving component at least. By the way, don't excessively bend or tightly fixed the cable with nails or clamps, or it may cause the fire or electric shock.
	Please add security cover on the machine head.

Sewing	
	This sewing machine can only be used by the trained staff.
	This sewing machine has no other usages but the sewing.
	When operating the sewing machine, please remember to put on the glasses. Otherwise, the broken needle will cause the personal injury in case the needle is broken.
	At following circumstances, please cut off the power at once so as to avoid the personal injury caused by the mistake operation of start switch: 1.Threading on needles; 2. Replacement of needles; 3. The sewing machine is left unused or beyond supervision
	At working, don't touch or lean anything on the moving components, because both of the above behaviors will cause the personal injury or the damage of the sewing machine.
	During working, if the mistake operation happens or the abnormal noise or smell is found at the sewing machine, user shall cut off the power at once, and then contact the trained technicians or the supplier of that machine for solution.
	For any trouble, please contact the trained technicians or the supplier of that machine.
Maintenance & Inspection	
	Only can the trained technicians perform the repair, maintenance and inspection of this sewing machine.
	For the repair, maintenance and inspection of the electrical component, please contact the professionals at the manufacturer of control system in time.
	At following circumstances, please cut off the power and pull off the plug at once so as to avoid the personal injury caused by the mis-operation of start switch:. 1.Repair, adjustment and inspection ; 2.Replacement of the component like curve needle, knife and so on
	Before the inspection, adjustment or repair of any gas-driven devices, user shall cut off the gas supply till the pressure indicator falls to 0.
	When adjusting the devices needing the power supply and gas supply, users can' t be too careful to follow this Safety Matters for Attention.
	If the sewing machine damages due to the unauthorized modification, our company will not be responsible for it.

CONTENTS

1 General Information

1.1 General

6T40X Series Computerized Control System for Industrial Sewing Machines: 1) Adopt the world leading AC servo control technology on main shaft motor, which features high torque, good efficiency, stable speed and low noise; 2) Diversified design of control panel can meet the special requirements of users on assembling ; 3) System adopts German style structure, which offers easy installation and repair to users; 4) The control software can be updated through remote communication, which helps users to improve the function of products constantly.

1.2 Functions & Specifications

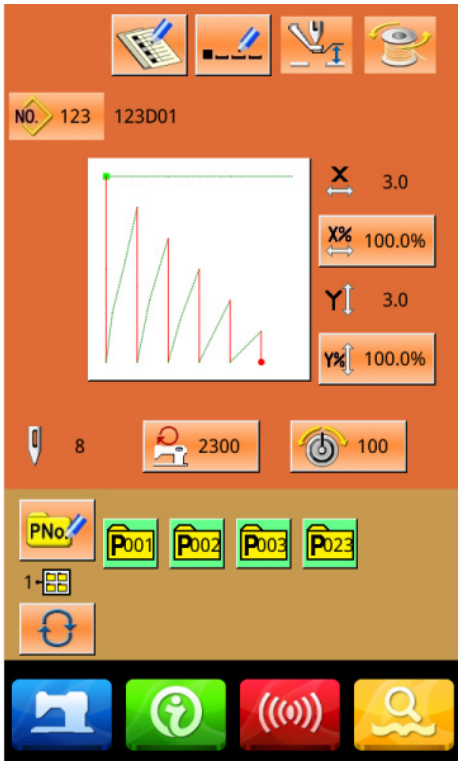
Type of Controller	6T40X
Sewing Range	X(Left/Right) Y（Front/Back） 220 x 100 300 x 200
Max Sewing Speed	2800rpm（when sewing pitch is below 3.5mm）
Stitch Length	0.1～12.7mm（Min. Resolution: 0.1mm）
Presser Feeding Motion	Intermittent Feed (2-shaft drive by stepping motor)
Stroke of Needle Bar	41.2mm
Needles	DP×5、DP×17
Lift of Feeding Frame	Max 25mm（Pneumatic type: Max 30mm）
Intermediate Presser Stroke	Standard 4mm（0～7mm）
Lift of Intermediate Presser	20mm
Shuttle	Double-capacity semi-rotary hook
Memory of Pattern Data	U Disk
Pause Function	Used to stop machine during the sewing
Scale Function	Enable a pattern to be enlarged or reduced in X or Y direction individually when sewing a pattern Scale: 1％～400％（adjust 0.1％ in each step）
Scale Method	Method for changing the length of each sewing stitch
Limitation of Sewing Speed	200～2800rpm（change 100rpm in each step）
Function for Selecting Pattern	Pattern Number Selection Method
Bottom Thread Counter	Down Method（0～65535）
Sewing Counter	Up/Down Method（0～9999）
Piece counter	Up/Down Method（0～9999）
Setting of 2nd Origin	The stitch position can be moved to any position within the sewing range to set as the second origin.
Sewing Motor	Servo Motor
Function of stopping needle at highest position	After the completion of sewing, the needle can be brought up to its highest position.

Controller output power	600W
Line Voltage	AC 220V ± 10%；50/60Hz

Effective standard for product:QCYXDK0004—2022《Computerized Control System for Industrial Sewing Machine》.

1.3 Standarization

The function keys are using the publicly-known figures, which are recognizable to users at every country.



1.4 Operation Method

By adopting the advanced touching operation technology, user-friendly interfaces and easy operation, the panel of 6T40X brings a revolution to the regular usage. Touching the panel with their fingers or other objects, users can finish the corresponding operations. After the system is shut down, you need to wait for about 2s to turn on again, not to turn it on and off in a short time, or by observing the indicator light on the panel, that is, when the indicator light on the operating head is completely off, it can be turned on.However, during their usage, users should avoid touching the screen with the sharp objects so as to prevent the touching screen from suffering permanent damage.

2 Operating Instruction

2.1 General Keys

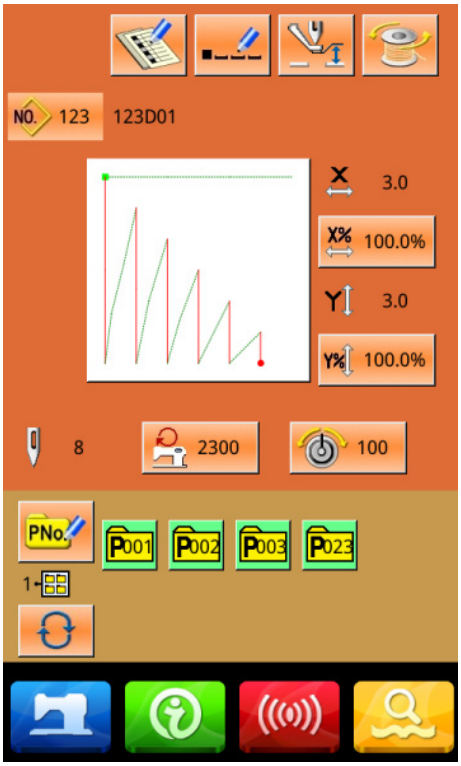
The keys for general operations in each interface of 6T40X controller are shown in below：

No.	Figure	Functions
1		Escape → Quit the existing interface. Can terminate the changing data at data changing interface
2		Enter → Confirm the changed data.
3		Plus → Increase the value.
4		Minus → Decrease the value.
5		Reset → Release the error.
6		Number Input → Activate the number keyboard to input number
7		Ready → Shift between data input interface and sewing interface
8		Information → Shift between data input interface and information interface
9		Communication → Shift between date input interface and communication interface
10		Mode → Shift between data input interface and other detail setting interface

2.2 Basic Operation

① Turn on the Power

Turn on the power to activate the interface for inputting data.



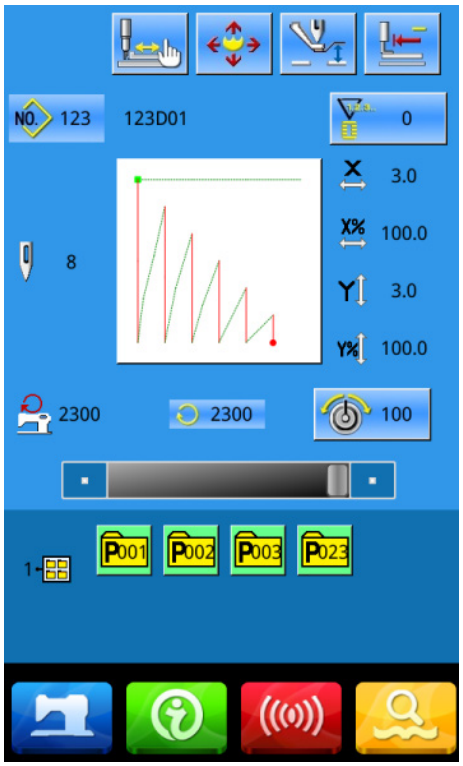
② Select the No. of the Desired Pattern

At the existing interface, the number of the selected pattern will be displayed. Press  to select the pattern number.

For the operations about the pattern selection, please refer to [2.8 Pattern Selection].

③ Enter the Sewing Ready Status

After  is pressed, the background color of LCD screen will be changed to blue, which means the machine enters the “Sewing Ready” status.



④ Start Sewing

Put the material for sewing to the presser. Step on the pedal to lower the presser and to start the machine for sewing.

2.3 Normal Pattern Operation

（1）Interface for Inputting Sewing Data

The data input interface is shown as the figure at right. For the detailed descriptions on functions, please refer to the Table of Function Keys.

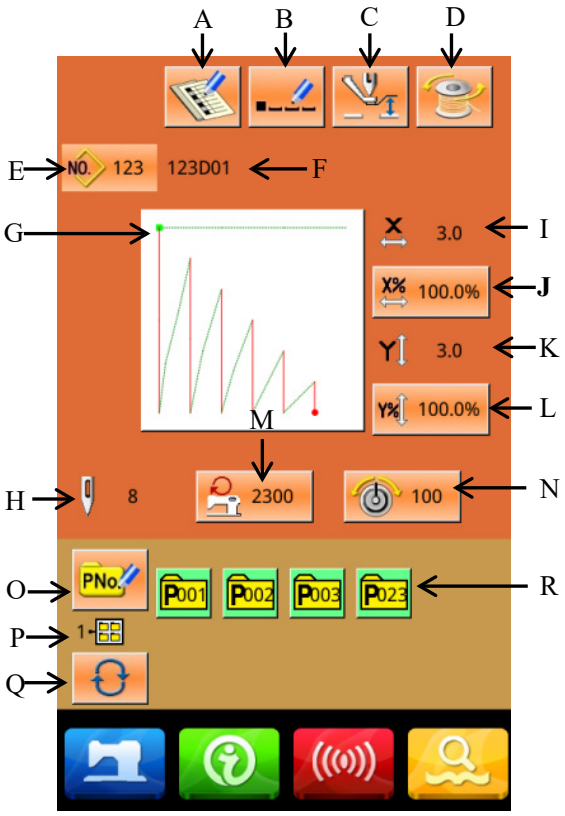


Table of Function Keys：

No.	Functions	Description
A	Pattern registration	999 common patterns can be registered.
B	Pattern naming	You can enter up to 14 characters.
C	Medium pressure foot setting	Enter the medium pressure foot height setting interface.Press the prepare key once  You can only enter after that。
D	Winding	Enter the winding interface. Press the prepare button once  before winding.
E	The pattern number is displayed	Displays the currently selected pattern number.
F	Pattern name	Displays the name of the currently selected pattern
G	Sewing shape selection	The current pattern sewing shape is displayed on the button, and after pressing it, you will enter the pattern selection interface.
H	The number of stitches is displayed	Displays the number of sewing needles for the currently selected pattern.
I	X actual size value is displayed	Displays the actual size value in the X direction of the currently selected pattern.

J	X zoom in and out setting	The parameter U64 selects to enter the actual size, and the X actual size value button is displayed.
K	Y actual size value display	The X direction zoom in and out of the currently selected pattern is displayed on the button, and you can enter the setting interface after pressing it. Affected by parameters U64 and U88.
L	Y zoom in and out setting	The Y direction zoom and zoom in the currently selected pattern is displayed on the button, and you can enter the setting interface after pressing it. Affected by parameters U64 and U88.
M	Maximum speed limit	The maximum speed limit value is displayed and can be set when pressed.
N	Linear tension reference setting	The button displays the line tension reference value setting, and the setting range is 0~200.
O	Quick pattern (abbreviated as P pattern) registration	Used to register P patterns, up to a maximum of 50.
P	P pattern folder number display	Displays the current P pattern folder number.
Q	Ppattern folder selection	Switch the P pattern folder number sequentially.
R	P pattern selection	The registered P pattern is displayed, and after pressing it, enter the P pattern data entry interface.

（2）Sewing Interface

Press  to have access to the sewing interface as shown in right. For detailed descriptions on functions please refer to the Table of Function Keys.

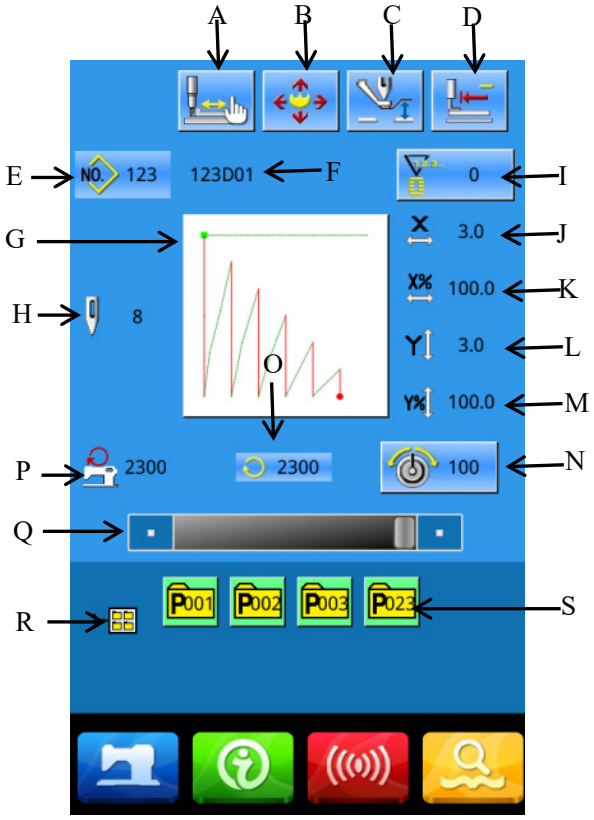


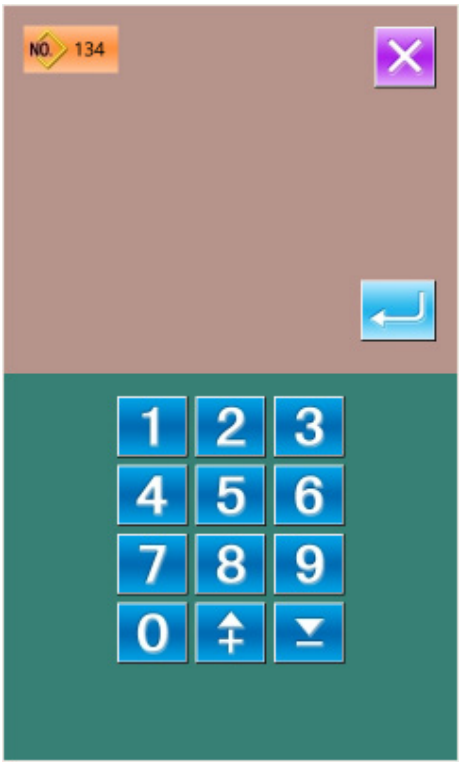
Table of Function Keys：

No.	Functions	Descriptions
A	Test sewing	After pressing, enter the test sewing interface, and the shape of the pattern can be determined.
B	Move frames	Press the external press foot down to enter the pattern movement interface. (Affected by parameter U89.))
C	Medium pressure foot setting	Press to enter the medium presser foot height setting interface.
D	Origin reset	Press the presser foot back to the starting point.
E	The pattern number is displayed	Displays the currently selected pattern number.
F	Pattern name	Displays the name of the currently selected pattern.
G	Pattern shape display	Displays the currently selected pattern shape.
H	The number of stitches is displayed	Displays the number of sewing needles for the currently selected pattern.
I	Counter settings	Press to select the counter type and set the current count value.  ：Sewing counter

		 : Piece counter for pieces  : Bottom line counter(Number of stitches)
J	X actual size value is displayed	Displays the actual size value in the X direction of the currently selected pattern.
K	X zoom in and out setting	
L	Y actual size value display	Displays the X-direction zoom-in and zoom-out ratio of the currently selected pattern.
M	Y zoom in and out setting	Displays the actual size value in the Y direction of the currently selected pattern.
N	Line tension setting	Displays the current line tension setting, range 0~200
O	Sewing speed display	Displays the current sewing speed.
P	Maximum speed limit display	Displays the maximum speed limit value.
Q	Sewing speed setting	The sewing speed can be changed.
R	P pattern folder number display	Displays the current P pattern folder number.
S	P pattern selection	The registered P pattern is displayed, and after pressing it, enter the P pattern data entry interface.

2.4 Pattern Registration

999 normal patterns can be registered at most. Press  to have access to the pattern registration interface (as shown in right figure):



① Input Pattern Number

Use the number keys to input the desired pattern number. If the existed pattern number is inputted, the upper side of the interface will display the shape and relating data of the registered pattern. With  &  , user can find the unregistered pattern number.

② **Register New Pattern**

After the pattern number is set, user can press  to copy the displayed pattern data to the newly registered pattern. The system will return to the interface for inputting the data of the newly registered patterns. If the existed pattern number is inputted, the system will ask user whether to replace the saved pattern.

2.5 Pattern Naming

Press  to have access to the interface for naming pattern (as shown in right figure), and at most 14 figures can be inputted to name a pattern.

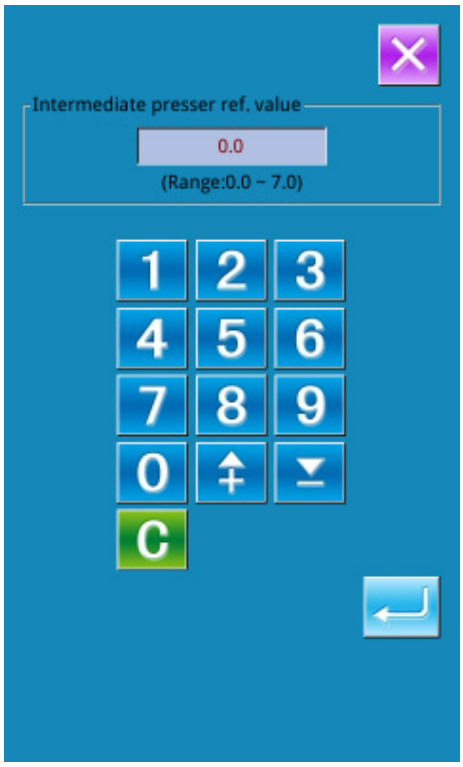
Select the wanted figure; press  to end the operation of naming pattern.

By moving the icon, user can set the position of the figure. The Eraser is used to clear the figure at that position.

2.6 Intermediate Presser Setting

Press  to have access to the interface for setting the intermediate presser.

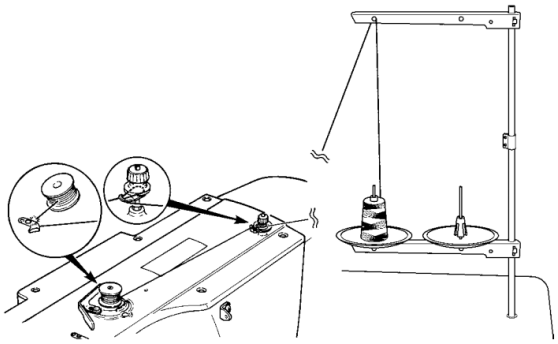
By using the  ~  and number keys or  &  , user can input the wanted figure. The inputted number will be placed in the most right position, following the figures inputted formerly. Press  to finish this operation and return to the data input interface.



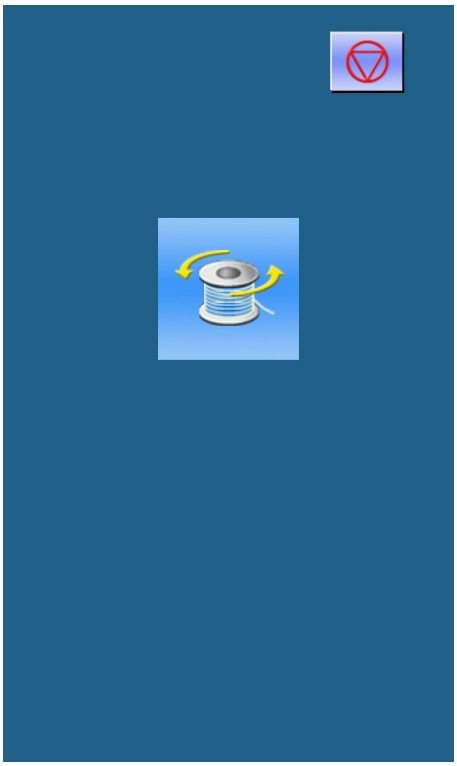
2.7 Winding

① Installation of bobbin

Put the bobbin onto the winding axis, then press the bobbin guide in the direction of arrow (as shown in right picture).



② Display the Interface for Winding Bottom Thread



In the data input interface, user can press  to activate the interface for winding（as shown in right）.

③ Start Winding

Press the start pedal to start sewing machine. At this moment, the machine starts to wind bottom thread.

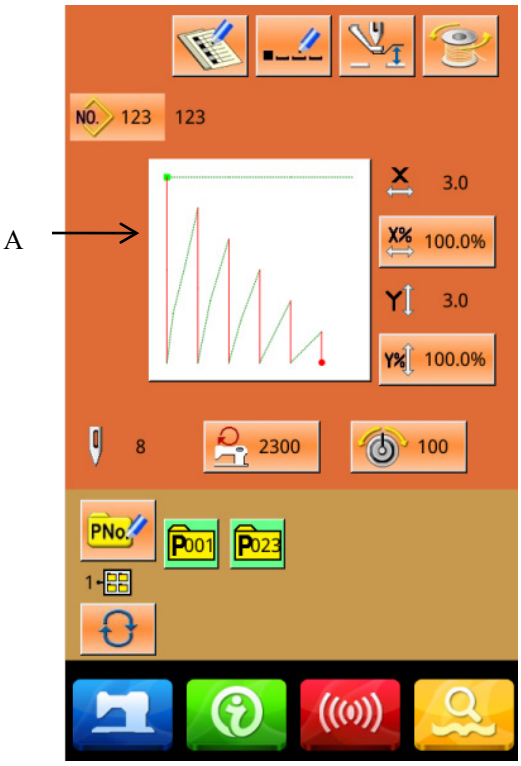
④ Stop Sewing Machine

After user presses  , the sewing machine will stop and return to normal mode. Additionally, if the pedal is pressed in the process of winding bottom thread, the sewing machine will be stopped in winding mode. Therefore, when user steps the pedal again, the sewing machine will continue winding. This function can be used when several bobbins are wound.

2.8 Pattern Selection

① Have Access to Pattern Selection Interface

Press Sewing Shape (A) in the data input interface (the right picture) to have access the Pattern Selection Interface.



In the pattern selection interface, the upper side is the shape of the selected pattern; the lower side is the registered pattern number.

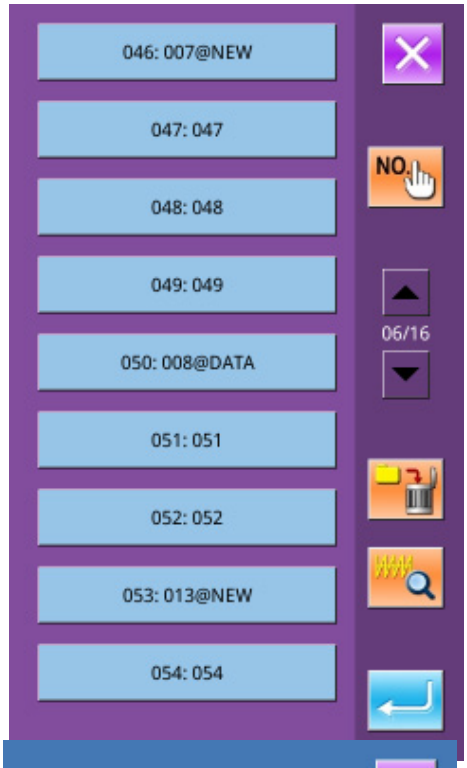
 : Preview Pattern

 : Inquire Pattern by No.

 : Delete Pattern

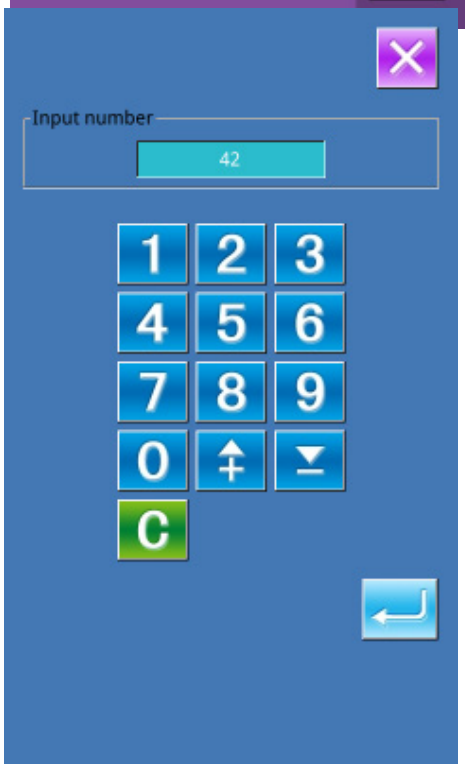
② Pattern Selection

16 pattern codes are displayed in each page. When user selects a registered pattern number, the content of pattern will be displayed at the upper side of screen. Press  to finish the selection



③ Pattern Inquiry

Press  to activate the pattern inquiry interface. Use number keys to input the pattern number directly.

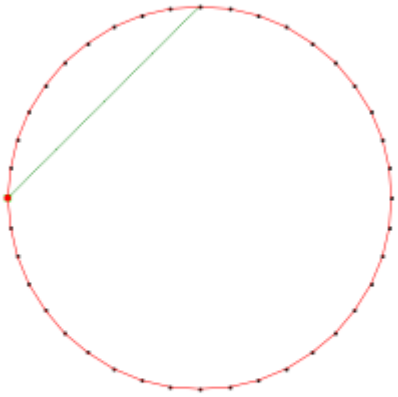


④ Pattern Deletion

Select a registered pattern at first, press  to delete this pattern, however, the patterns registered to P can't be deleted.

⑤ **Pattern Preview**

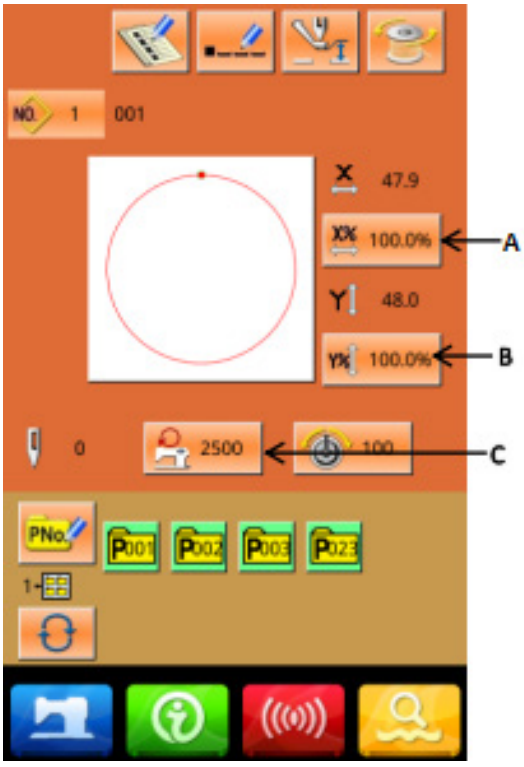
Press  to preview the present pattern in full screen.



2.9 Sewing Data Setting

① **Have Access to Interface for Setting Sewing Data**

Pressing keys A, B or C in the interface of data input to have access to the interface for setting scale rate or the interface for setting the speed limitation respectively



	Item	Input Range	Default
A	X Scale Rate	20~400.0%	100.0%
B	Y Scale Rate	20~400.0%	100.0%
C	Max Speed Limitation	200~2800rpm	2300rpm

Reference 1：Parameter U64 is used to shift the selection between the scaling rate and actual size.

Reference 2：The input range and initial value of Max speed is affected by the parameter U01.

② Scale Rate Setting

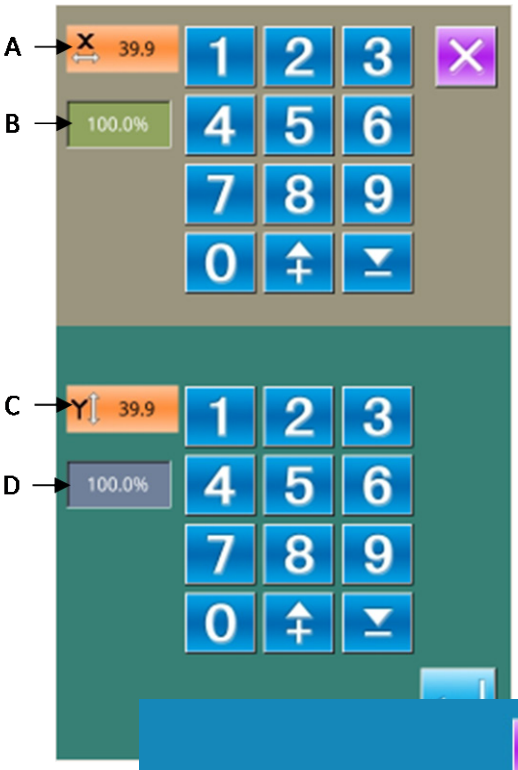
The right figure is the interface for setting the scale rate. The upper side is for setting that in X direction, while the lower side is for Y direction.

A：Actual value in X direction

B：Scale rate in X direction

C：Actual value in Y direction

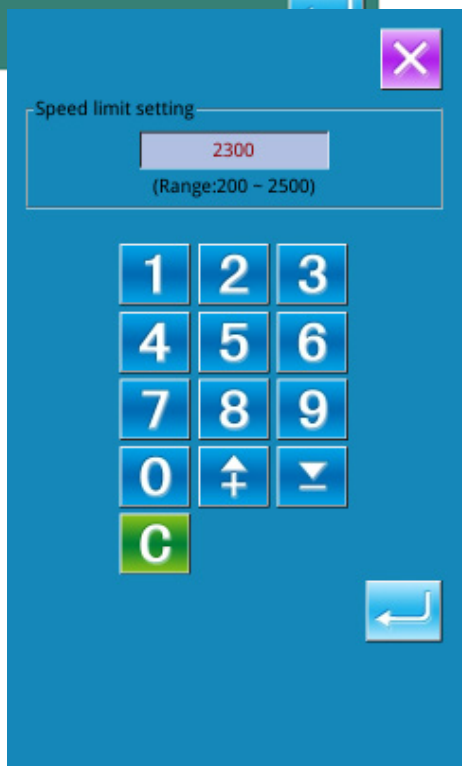
D：Scale rate in Y direction



With 0 ~ 9 and number keyboard or ↑、↓ to input the wanted value. Press ↵ to finish the operation and return to data input interface.

③ Max Speed Limitation Setting

The operation is same to that at above

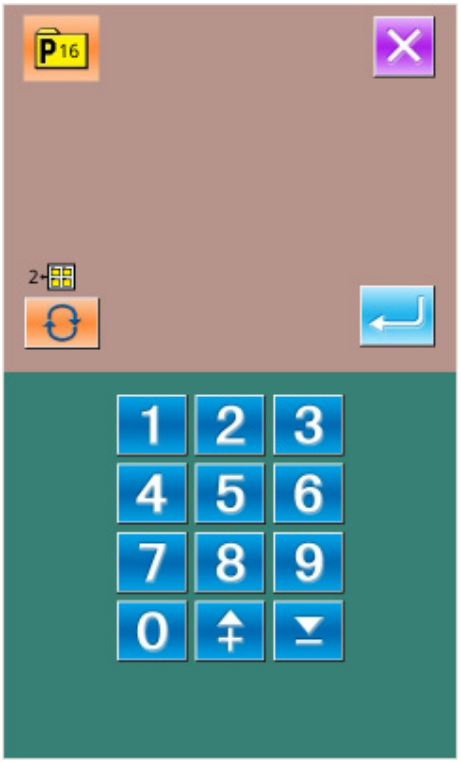


2.10 P Pattern Registration

① Have Access to P Pattern Registration Interface

In the data input interface, press 

to have access to the P pattern registration interface (as shown in right)



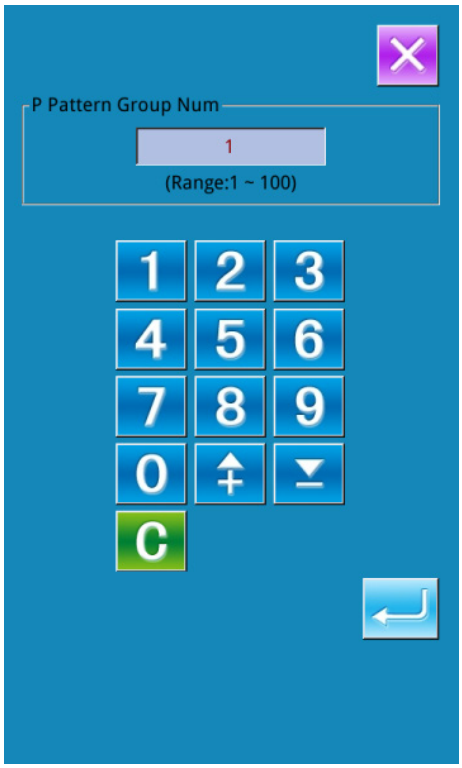
② Input the P Pattern Code

By using the number keyboard, user can input the wanted code. If the inputted pattern code is registered, the upper side of the interface will display the registered sewing shape and relating data. At this moment, no new pattern can be registered

③ Select File Folder Number

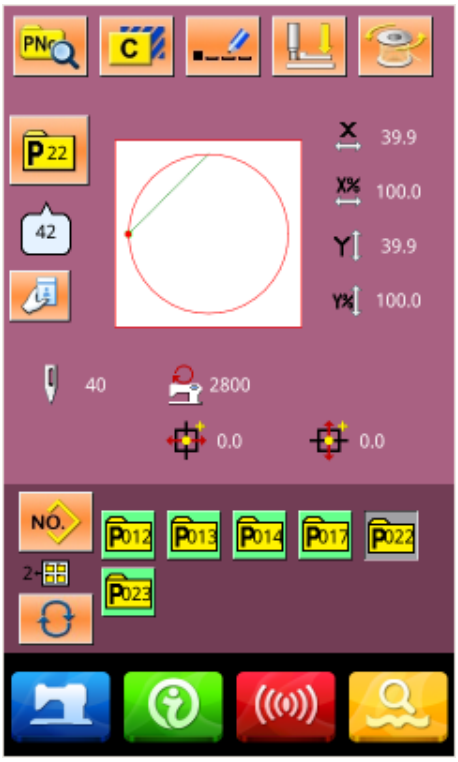
P Pattern number can be registered into five folders, 10 P patterns in each folder at most. Clicking the folder selection button 
will pop up

Press the folder selection key 
will pop up the P pattern group number setting interface, you can manually enter the folder number or folder number add or subtract. You need to add a picture here



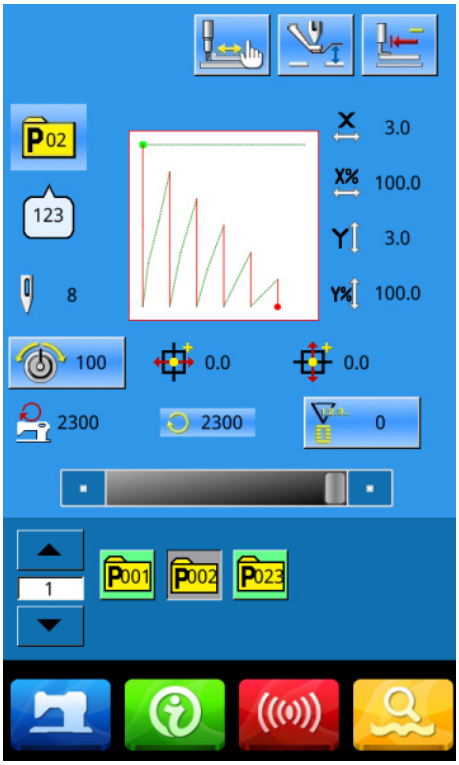
④ Confirm the Pattern Number

Press  to finish the P patter registration, and the system returns to the interface for inputting the P pattern data



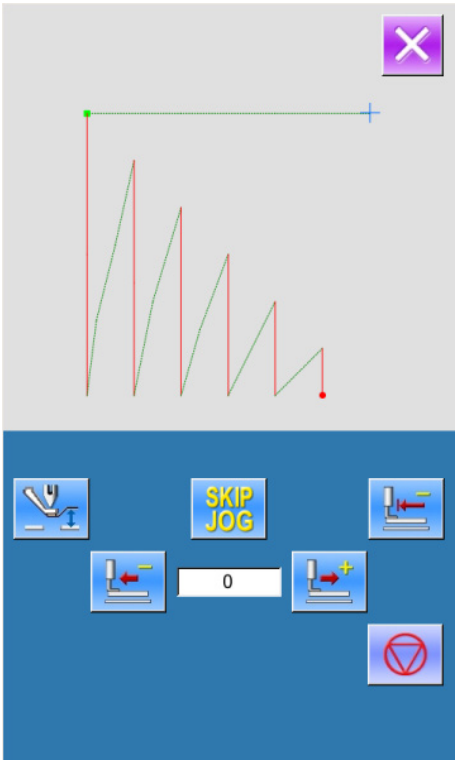
2.11 Trial Sewing

① Display Sewing Interface



In the data input interface, press  to turn the background of LCD to Blue, when the system goes into the sewing interface.

② **Display of Trial Sewing Interface**



In the sewing interface, press  to the interface of trial sewing（as shown in right）:

 :

 : Return to Origin

 : Presser Fallback

 : Presser Forward

 : Stop

③ **Start Trial Sewing**

Press pedal to lower the presser. Use  and  to set the shape. When the button is held for a fixed period of time, the presser will continue to move even when the button is detached. When wanting to stop it, user can press  .

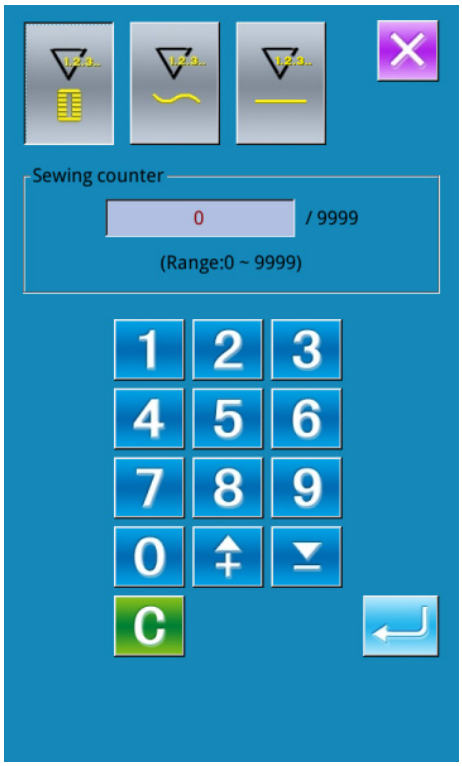
When  is pressed, the needle will return to origin and the system return to sewing Interface.

④ **End Trial Sewing**

User can press  to return to the sewing interface from trial sewing interface. When the pattern is not at the start sewing position or the end position, user can press pedal to start the sewing in the midway.

2.12 Operation of Counter

① Display Counter Interface



In the sewing interface, press  or  to have access to the interface for setting counters.

 : Sewing Counter

 : No. of Pieces Counter

 : Bottom line count Settings (number of stitches)

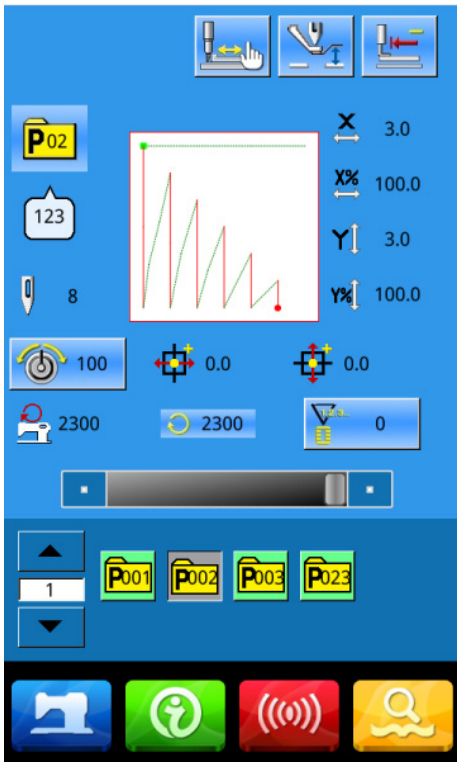
② Counter Selection & Value Setting

With  &  、  , user can set the type and the value of counter.

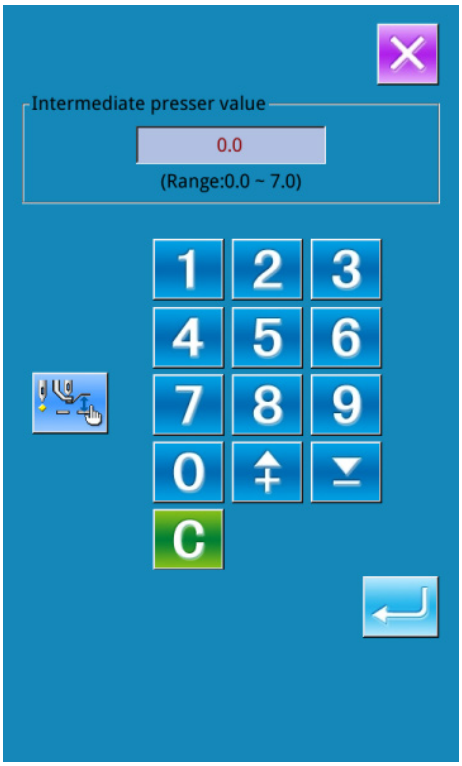
2.13 Single –stitch Intermediate Presser Setting

① Have Access to Interface for Setting Single-stitch Intermediate Presser

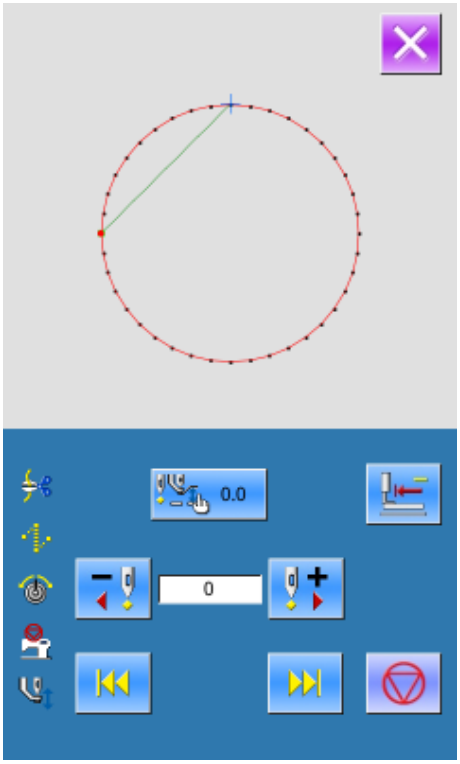
In the sewing interface (the right figure), press Intermediate Presser Setting  to have access to the interface for setting the intermediate presser.



In the interface for setting the intermediate presser (the right figure), press the Single-stitch Intermediate Presser Setting to have access to the interface for setting the single-stitch intermediate presser



② Set Value of Single-stitch Intermediate Presser



Presser  to have access to the interface for setting intermediate presser, the setting method is same to that in 2.6.

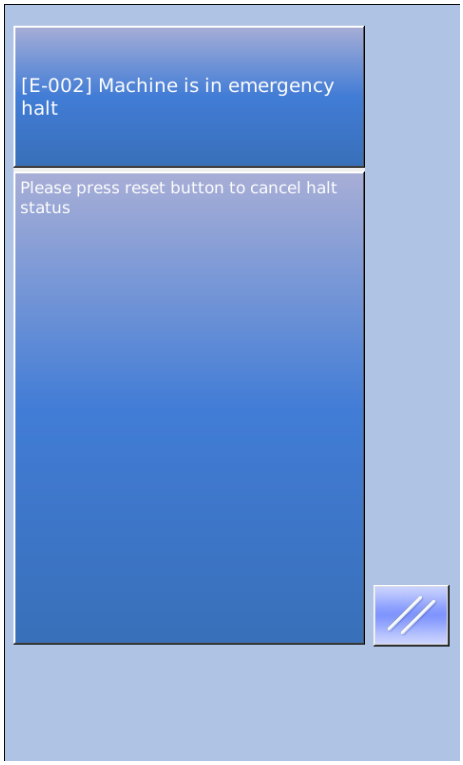
With  or  , the needle moves by one stitch in rear or front when the frame goes down. With  or  , needle moves to the needle entry point where the intermediate presser commend locates in front or rear. For stop, please press  .

Press  to move to origin

The displayed value is the absolute value (intermediate presser height value + intermediate presser increase/ decrease value)

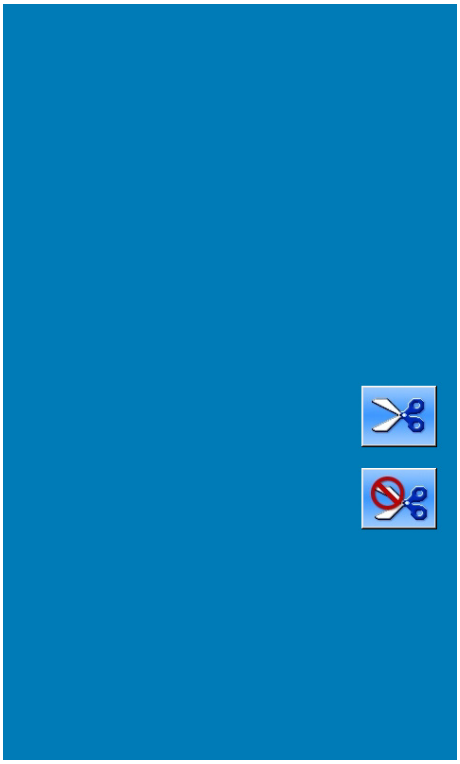
2.14 Emergency Stop

① Release the Error



During the sewing, press the stop switch to stop the machine. And the screen will display the right interface. Press  to release the error, and then activate the interface for setting the emergency stop.

② Trim Thread or Lift Presser

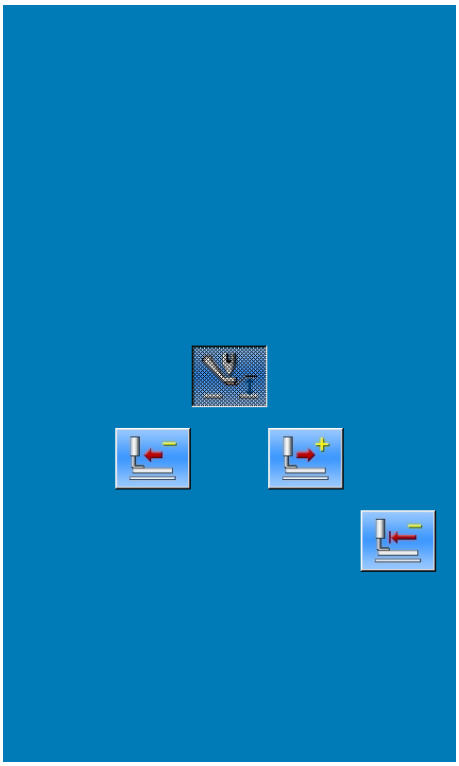


:Cut thread and then enter step setting interface

: Not Cut thread, enter step setting interface directly

Reference： If the parameter U97 is set as "automatic thread-trimming after stop", the system will enter Procedure Setting directly.

③ Set procedure & Adjust Presser to Re-sewing Position



：Intermediate Presser Action

：Feeding Backward

：Feeding Forward

：Return to Origin

Press or to move the presser to the very position for starting re-sewing

Note: no movement when intermediate presser foot is down

④ Re-sewing

Press the pedal to restart the sewing

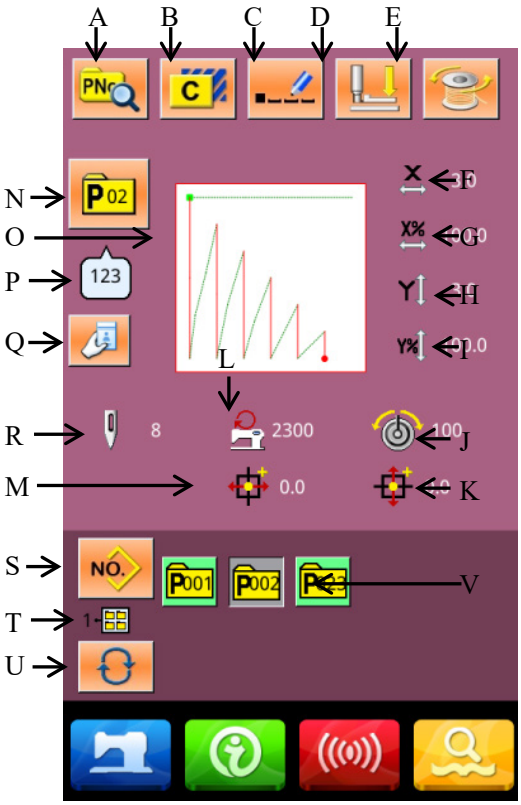
3 Operation of Prompt Pattern (P Pattern)

3.1 P Pattern Data Input

The prompt pattern is called as “P pattern” for short, which consists of a normal pattern and relating sewing parameters (like X Scale Rate, Y Scale Rate, Speed Limitation and so on). User needn’t set the parameter at each time when using P pattern.

Right is the P Pattern Data Input interface

100 P patterns can be registered at most.



Function List:

No.	Functions	Descriptions
A	P Pattern Edition	Edit the content of P pattern.
B	Copy P Pattern	Copy the current P pattern, and save it as a new pattern.
C	Pattern Naming	14 figures can be inputted at most.
D	Threading	Press it to lower the intermediate presser
E	Winding	Enter winding interface Press it and  for winding
F	X Actual Size Display	Display the actual size of the current pattern in X direction.
G	X Scale Rate Setting	Display the scale rate of the current pattern in X direction.
H	Y Actual Size Display	Display the actual size of the current pattern in Y direction.
I	Y Scale Rate Setting	Display the scale rate of the current pattern in Y direction.
J	Line tension reference setting	Key display line tension setting, setting the range is 0 ~ 200.

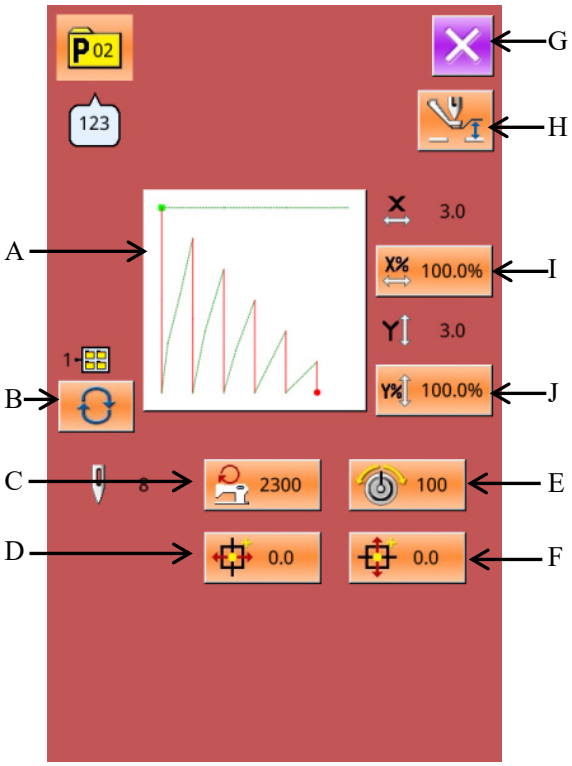
No.	Functions	Descriptions
K	Y Travel Amount Display	Display the Y travel amount of the current pattern
L	Max Speed Limitation	Display the Max speed
M	X Travel Amount Display	Display the X travel amount of the current pattern
N	P Pattern Number Display	Display the number of the selected pattern
O	Sewing Shape Selection	Display the sewing shape of the current pattern
P	Sewing Shape Number Display	Display the number of the normal pattern quoted in the current P pattern.
Q	Clock-in input window	Clock-in input window
R	The number of stitches is displayed	Displays the number of sewing needles for the currently selected pattern.
S	Return to Normal Pattern Data Input	Return to the interface for inputting normal pattern data.
T	P Pattern File Folder Number Display	Display the file folder number of current P pattern
U	P Pattern File Folder Selection	Shift the P pattern file folder number orderly.
V	P Pattern Selection	Display the registered P pattern.

3.2 P Pattern Edition

① Have Access to Interface for Editing P Pattern

Press 

to have access to the interface for editing P pattern（as shown in right）.



② Edition of Data

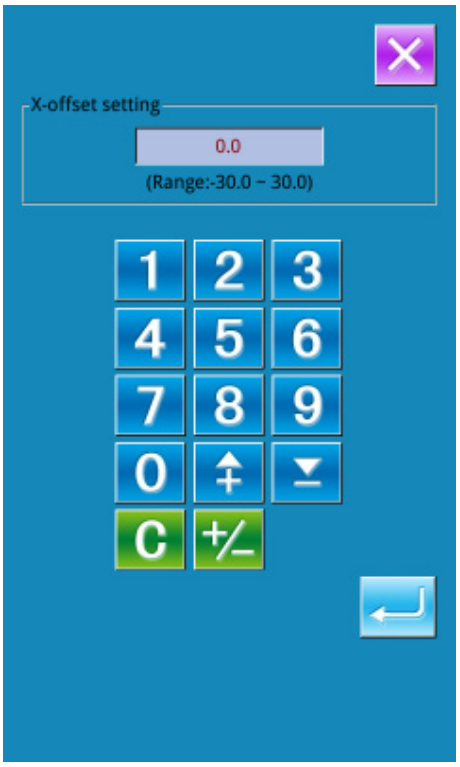
Select the item for change and set the value.

Function List:

	Item	Input Range	Default value
A	Sewing Shape		
B	File Folder Number	1~100	
C	Max Speed	200~2800rpm	2500rpm
D	X Travel Amount	-30.0~30.0mm	0
E	Thread-catching Switch		
F	Intermediate Presser Height	0.0~7.0mm	0
G	X Scale Rate	20~400.0%	100.0%
H	Y Scale Rate	20~400.0%	100.0%
I	Thread Tension Value	0~200	100
J	Y Travel Amount	-30.0~30.0mm	0

③ Confirmation of Data Change

Take “X Travel Amount” as example, user can input the value with number keyboard. Press  to finish the operation.



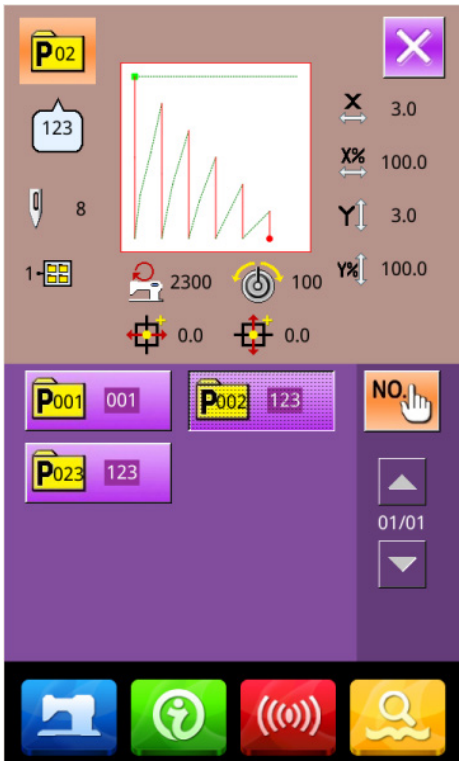
④ Quit the Edition Interface

Press  to close the P pattern edition interface and return to data input interface.

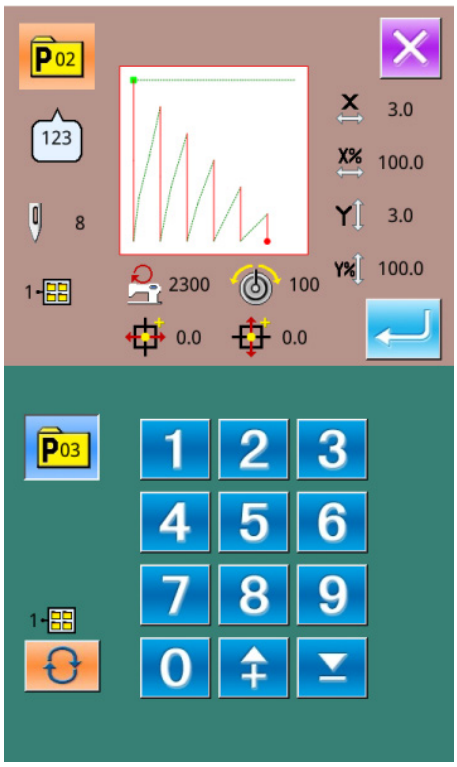
3.3 Copy P Pattern

① Select the Pattern for Copy

Press  to have access to the interface for copying P pattern (as shown in right). Select the copied pattern number among the registered patterns and press  .



② **Input the Number for Newly Registered Pattern**

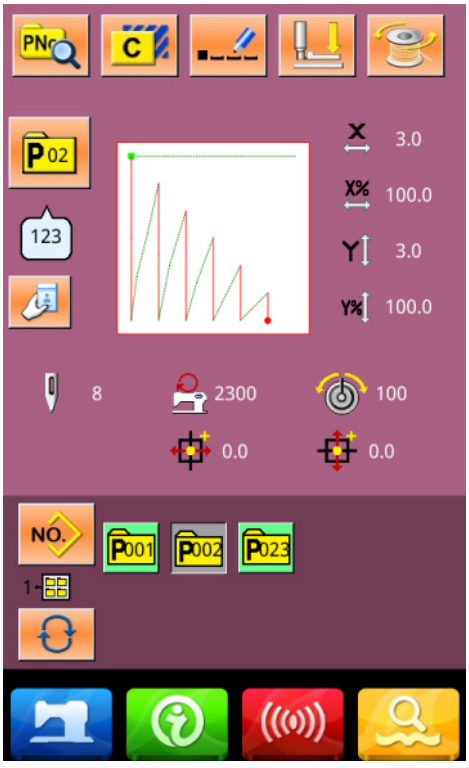


At the upper of the interface, it is the copied pattern. User can select an unregistered pattern number for it with the number keys. The registered pattern number can't be registered repeatedly.

Press  to select the file folder for saving pattern. Press  to finish the operation of copying the pattern and return to the interface for copying the P pattern.

3.4 P pattern Selection

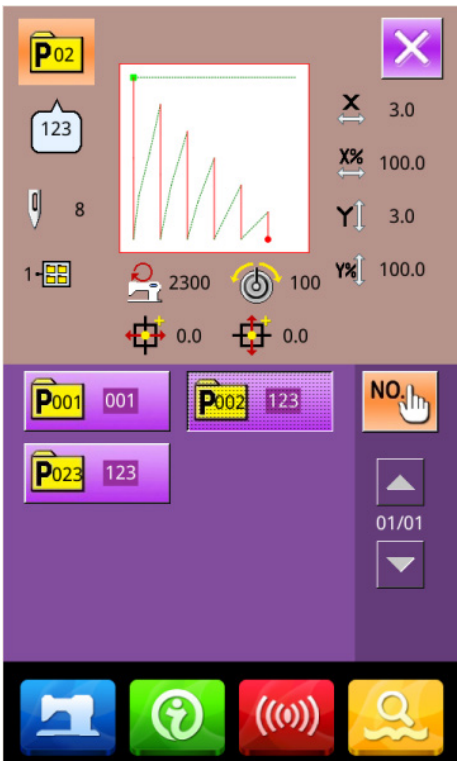
① **Have Access to Interface for Selecting P Pattern.**



As shown in right figure, press button A to have access to the interface for selecting P pattern.

② Selection of Pattern Number

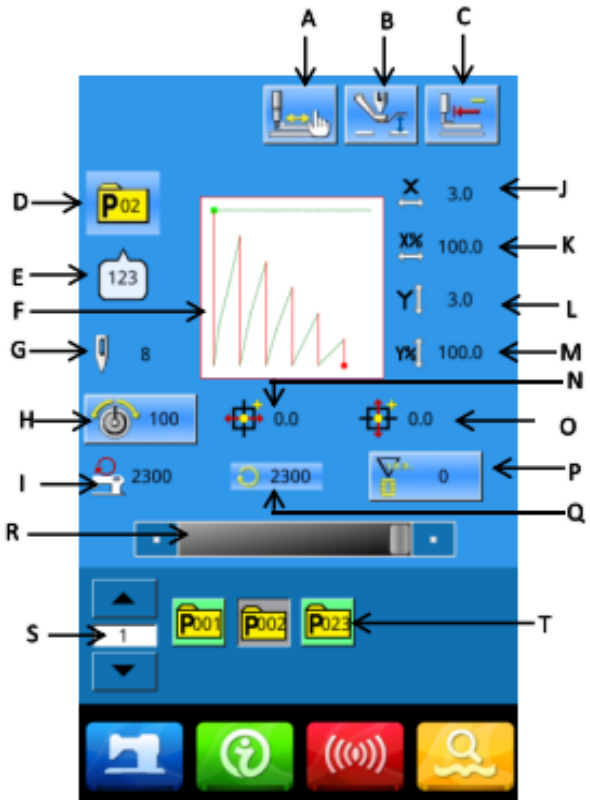
The upper side of the interface is the information of the selected pattern. Press  to hide file folder number. At this moment, the entire registered P pattern will be displayed.



③ Confirm the Pattern Selection

The operation is same to that of the normal pattern selection. Please press  to end the selection.

In the interface for inputting P pattern data, user can press  to have access to the Sewing interface (as shown in right).



3.5 P Pattern Sewing

Function List:

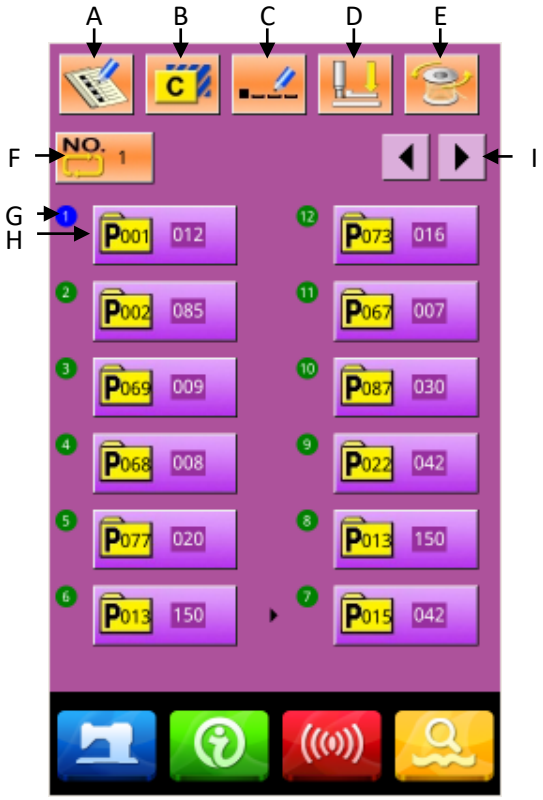
No.	Function	Description
A	Test seam	After pressing, you can enter the test seam interface, and you can determine the pattern shape.
B	Threading	After pressing, the medium pressure foot is lowered
C	Origin reset	Press the foot back to return to the starting point
D	P Pattern No. Display	Display the number of pattern selected at present
E	Sewing Shape No. Display	Display the number of the normal pattern that is quoted by the current P pattern.
F	Pattern Shape Display	Display the shape of selected pattern.
G	Pattern Stitch Number Display	Display the total number of the selected pattern.
H	Line tension setting	Press to enter the line tension setting interface.
I	Maximum speed limit	Displays the maximum speed limit value
J	X Actual Size Display	Display the X actual size of the selected pattern.
K	X Scale Rate Setting	Display the X scale rate of the selected pattern.
L	Y Actual Size Display	Display the Y actual size of the selected pattern.
M	Y Scale Rate Setting	Display the Y scale rate of the selected pattern.
N	X Travel Amount Display	Display the X travel amount of the current pattern
O	Y Travel Amount Display	Display the Y travel amount of the current pattern
P	Counter Setting	Press to select the type of counter and set the value of the counters  : Sewing Counter  : No. of pcs Counter  : Bottom line counter(Number of stitches)
Q	Sewing Speed Display	Display the sewing speed at present.
R	Sewing Speed Setting	Change the sewing speed.
S	P Pattern File Folder Number Display	Display the file folder number of current P pattern
T	P Pattern Selection	Display the registered P pattern.

4 Operation of Combination Pattern (C Pattern)

4.1 C Pattern Data Input

The combination pattern is called as “C Pattern” for short, which consists of a group of P patterns. In a C pattern, 50 P patterns can be inputted at most. And 50 C patterns can be registered in system at most.

Please refer to the content in [8.5 Change Sewing Type] to have access to the interface for inputting C pattern data (as shown in right).



Function List：

No.	Functions	Descriptions
A	C Pattern Registration	Register a new C pattern.
B	Copy C Pattern	Copy the content of current C pattern, and save it as a new pattern
C	Pattern Naming	14 figures can be inputted at most.
D	Threading	Press it to lower the intermediate presser
E	Winding	Enter winding interface. Press it and  for winding
F	C Pattern Number Selection	The number of the selected pattern is displayed on the button. Press it to have access to the interface of C pattern selection.
G	Sewing Sequence Display	Display the sewing sequence of the selected pattern. The one attached the blue number is the initial sewing pattern.
H	Sub-pattern selection	Press the button to have access to the C pattern edition interface. User can select a P pattern to input.

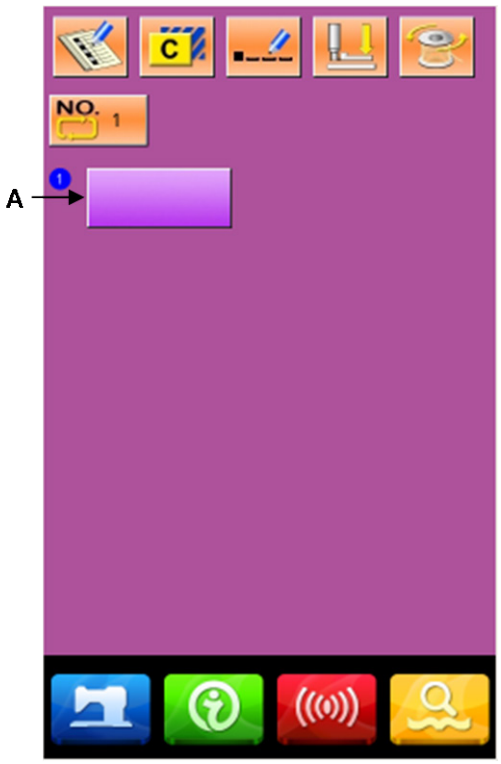
No.	Functions	Descriptions
I	Page Key	50 shapes can be registered in a C pattern at most. 12 shapes can be displayed in each page.
J	C Pattern Name	Display the name of C pattern.

4.2 C Pattern Edition

① Have Access to C Pattern Edition Interface

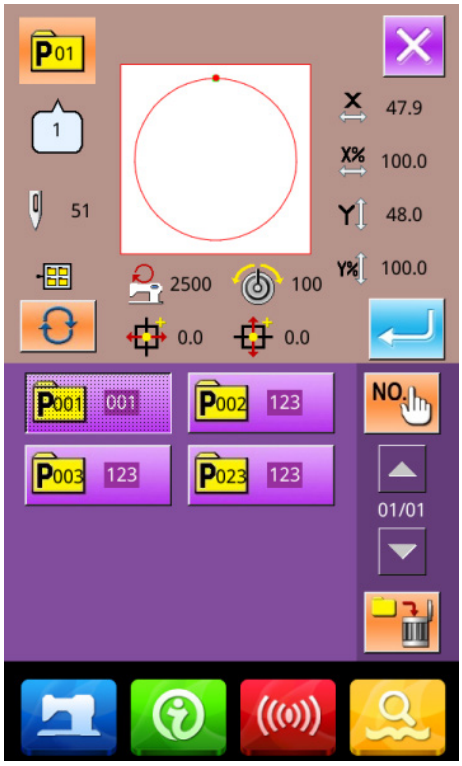
In the interface for inputting C pattern data, user can press button A to have access to the C pattern edition interface.

In the initial status, because no P pattern is registered as the sewing shape, the first shape is displayed as blank.



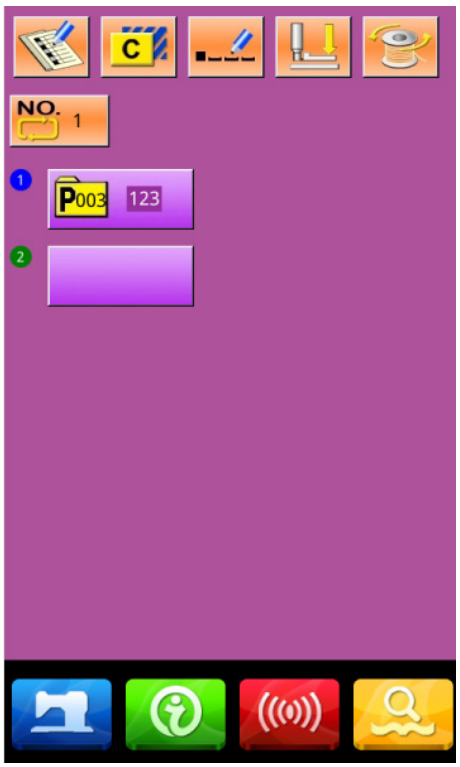
② Select a Shape

The right figure is the interface is C pattern edition. User can select a P pattern (B) which is wanted registering. At last press  to end the selection.



③ Repeat the Registration of the Rest Shapes

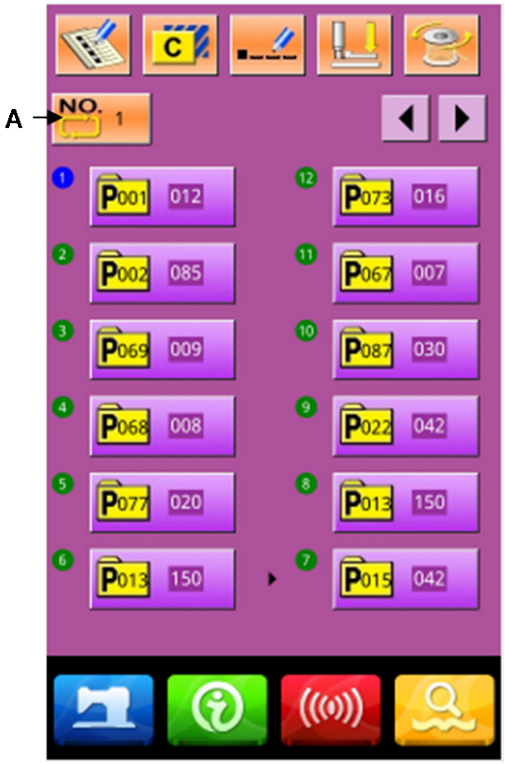
When the first shape is set, the selection key (C) for the second shape is displayed. Repeat the above operation to register the rest shapes.



4.3 C Pattern Selection

① Have Access to Interface for Selecting C Pattern

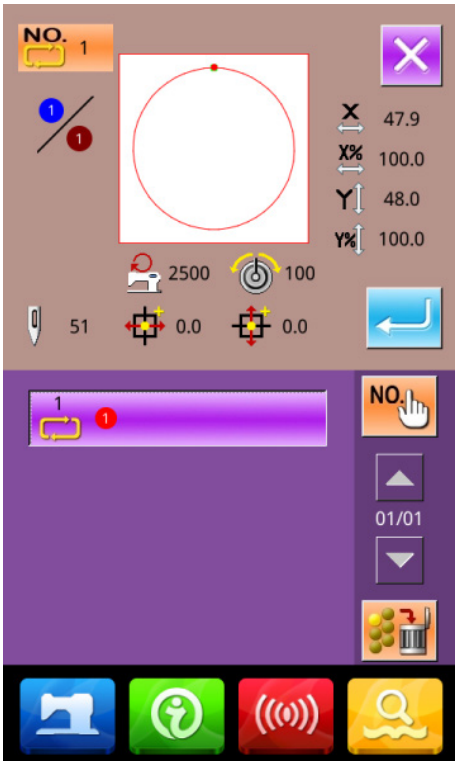
Press the figure A in the right interface to have access to the C pattern selection interface.



② Select the C Pattern Number

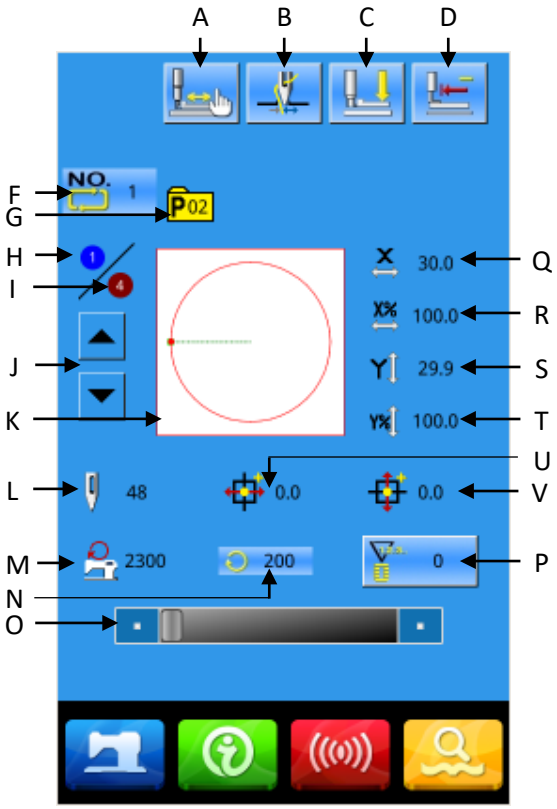
It is the C pattern selection interface at right. After pressing button B, user can orderly change the data of P patterns which are inputted in the current C pattern.

To confirm the selected C pattern number, please press  .



4.4 C Pattern Sewing

In the interface of C pattern data input, press  to have access to the sewing interface (as shown in right).



Function List:

No.	Function	Description
A	Trial Sewing	Press it to have access to the Trial Sewing interface, where user can confirm the shape of pattern.
B	Thread-catching Button	Select the thread-catching function effective/ineffective. This is affected by parameter U35.  : Thread-catching Ineffective  : Thread-catching Effective
C	Threading	Press it to lower the intermediate presser.
D	Return to Origin	This button returns the presser to the start sewing point.
E	C Pattern Name	Display the name of current pattern.
F	C Pattern Number Display	Display the number of the selected pattern.
G	Sewing Shape Number Display	Display the sewing shape number registered under the current C pattern.
H	Sewing Sequence Display	Display sewing sequence number in the current C pattern
I	Total Registration Number	Display the total number of shapes registered in this current pattern

No.	Function	Description
	Display	
J	Sewing Sequence Forward /Backward	The sewing shape can be moved forward/ backward by one.
K	Pattern Shape Display	Display the registered shape that is sewn at present.
L	Pattern Stitch Number Display	Display the stitch number of the current registered sewing shape.
M	Max Speed Limitation Display	Display the Max speed of the current registered sewing shape.
N	Sewing Speed Display	Display the current sewing speed
O	Sewing Speed Setting	Change the sewing speed.
P	Counter Setting	Press to select the type of counter and set the value of the counters.  ：Sewing Counter  ：No. of pcs Counter  ：Bottom line counter(Number of stitches)
Q	X Actual Size Display	Display the X actual size of the registered sewing shape.
R	X Scale Rate Setting	Display the X scale rate of the registered sewing shape.
S	Y Actual Size Display	Display the Y actual size of the registered sewing shape.
T	Y Scale Rate Setting	Display the Y scale rate of the registered sewing shape.
U	X Travel Amount Display	Display the X travel amount of the current registered sewing shape
V	Y Travel Amount Display	Display the Y travel amount of the current registered sewing shape
W	Thread Tension Display	Display the basic value of thread tension.

5 Pattern Edition

5.1 Have Acces to the Pattern Edtion Mode

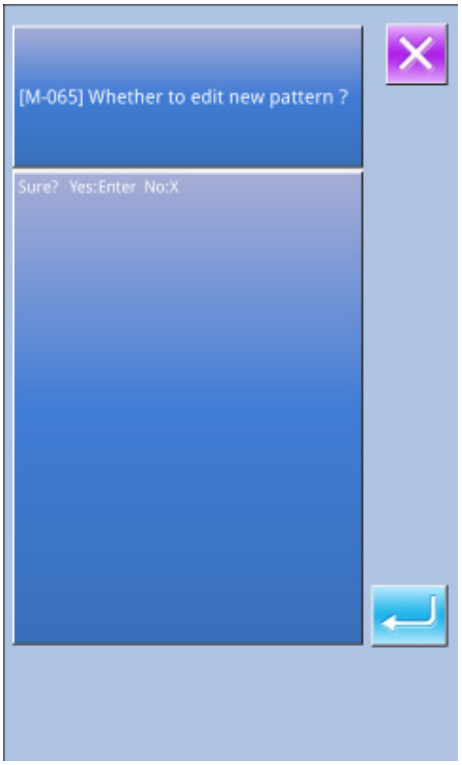
Press  to shift the data input interface and the mode selection interface (shown in right). In the mode selection interface, user can do some detailed settings and editions.

For the detailed operations and setting within the mode selection interface, please refer to [8. Mode& Parameter Setting] .

Press  to have access to the interface for selecting the edit mode or sewing mode, as shown in right

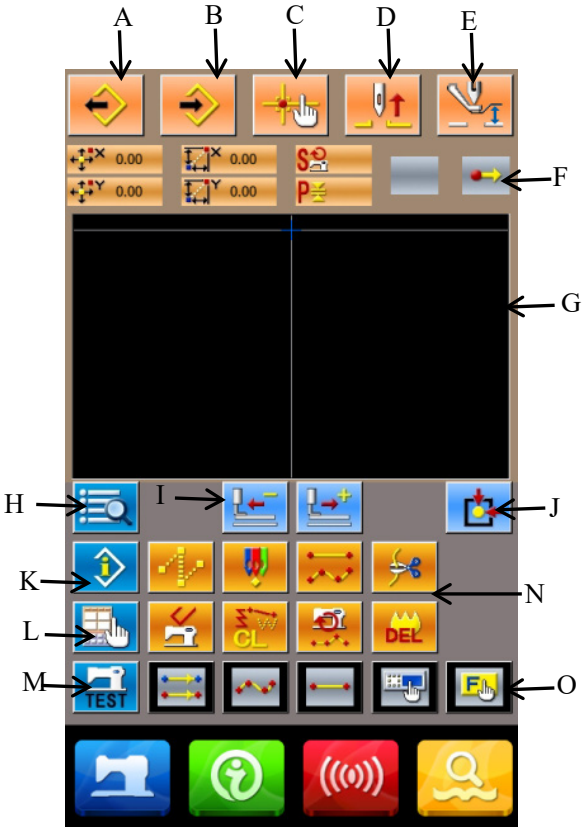
 : Sewing Mode

 : Edit Mode



Select  and then press  again, the system will quit from mode selection interface. At this moment, system will ask user whether to enter the pattern edition interface

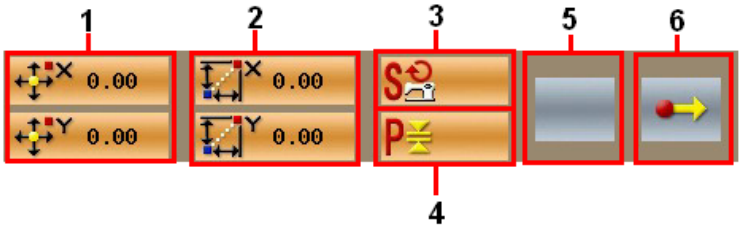
Press  to have access to the pattern edition standard interface, as shown in right:



Function List:

No.	Functions	Descriptions
A	Load Design	Display the interface for loading design
B	Input Design	Display the interface for inputting design
C	Needle Entry Inquiry	Quickly locate the needle entry point; during the pattern edition, user can input the coordinates directly.
D	Needle-lifting	Return the needle to the highest point
E	Intermediate Presser Adjustment	Lift or lower the intermediate presser
F	Current Needle Position Information	This part will show the position information of current needle.
G	Pattern Display Area	Display the pattern.
H	Function selection	Display the entire available functions on edition, please refer to [Editing Function List]

No.	Functions	Descriptions
I	Feeding Forward· Backward	Move one stitch from the current needle position (Forward; Backward)
J	Return to Origin	Return the current needle position to the origin
K	Information Display	Display the detailed information of the pattern edited at present
L	Display Setting	Set wide-angle, display of needle entry point and so on
M	Trial Sewing	Trial sewing on the pattern edited at present
N	Function Buttons	Enable to call the functions on the buttons
		1: Jump Feed
		2: Point Sewing
		3: Normal Sewing
		4: Thread-trimming
		5: Release Mechanical Control Order
		6: Elements Deletion
		7: Modification on Sewing Speed Range
		8: Delete Pattern Edited At Present
O	Function Hot-key	User can use Functional Selection· Setting (Functional code 112) to assign the needed functions to each button, thus uses these buttons as hot keys. After the assignment, the figure standing up for that function will be displayed on that key.

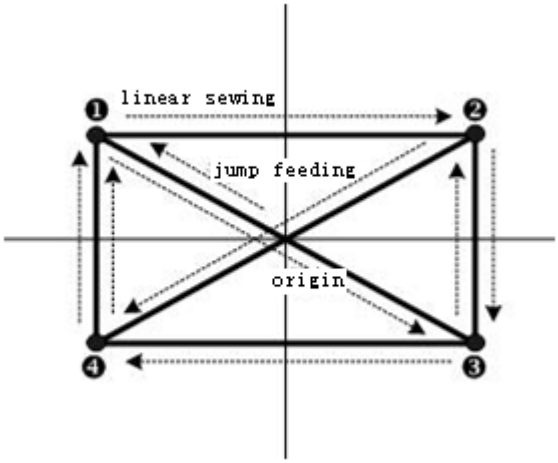


No.	Project	Content
1	Absolute Coordinate	The absolute coordinate of the current needle position
2	Relating Coordinate	The relating coordinate of the current needle position
3	Speed	The sewing speed or jump feed speed of the current point

No.	Project	Content
4	Interval	The length of current element stitch. (If the stitch is scaled, the value before the scaling will be displayed when the value is loaded).
5	Type of Element	Type of present element. For sewing data, the type of element will be displayed (like jump feed  , broken line  , free curve  and so on). For the mechanical orders, the type of the control order will be displayed (like thread-trimming).
6	Type of Needle Entry Position	The types of the needle entry position
		 Start of Design: Start point (origin) of the design
		 Middle Point of Element: the middle point of the element (neither the top point nor the ending point of the element).
		 Top Point: the top point of a broken line.
		 End Point of Element: the ending point of the element
		 End Point of Pattern: the ending of pattern.

5.2 Pattern Edition

By using the pattern editing functions, user can input the following pattern.



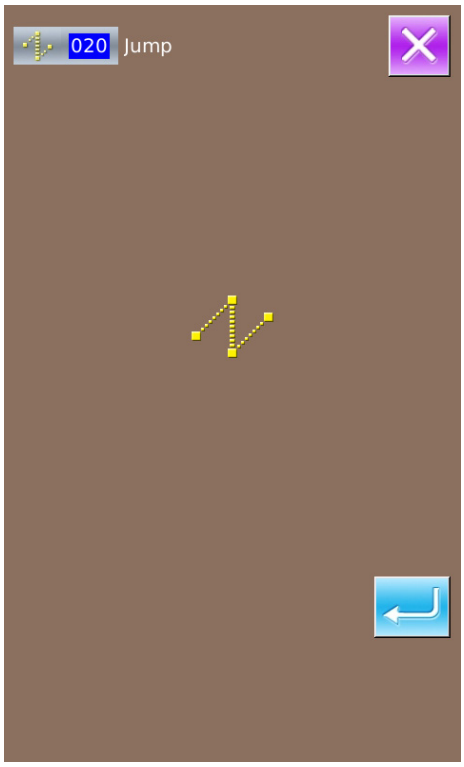
Input Points：

	X (mm)	Y (mm)
❶	-40.00	25.00
❷	40.00	25.00
❸	40.00	-25.00
❹	-40.00	-25.00

Input order：It is shown as the dotted arrow in the left.

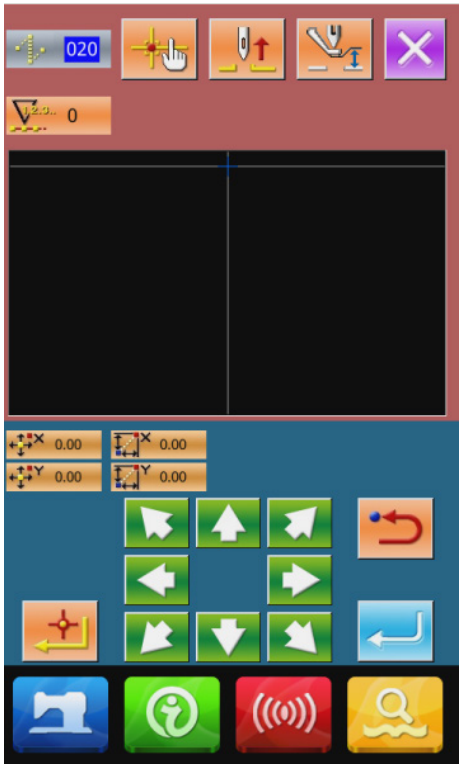
① Input of Jump Feed

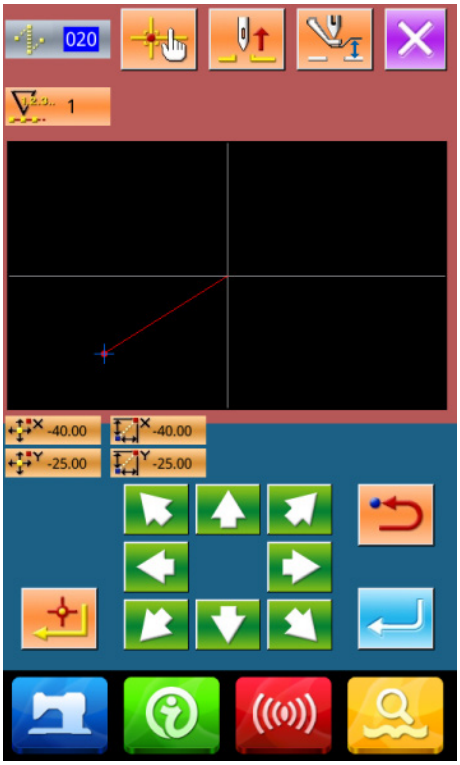
In the standard interface for pattern edition. Press to display the interface for setting the jump feeding.

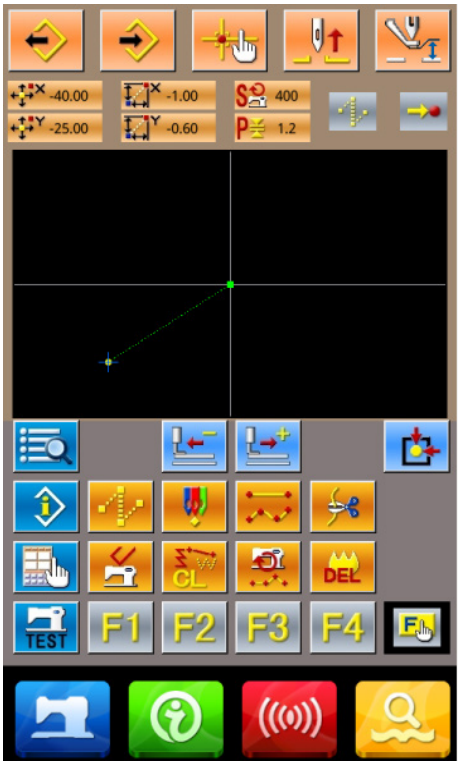


Press to display the interface for locating the jump feed position;

In the jump feed location interface, user can use to move icon (needle position) to (-40, 25). Press for confirmation, and then press for saving. After that the system will return to the standard interface for pattern edition and display the stitch form of jump feed：

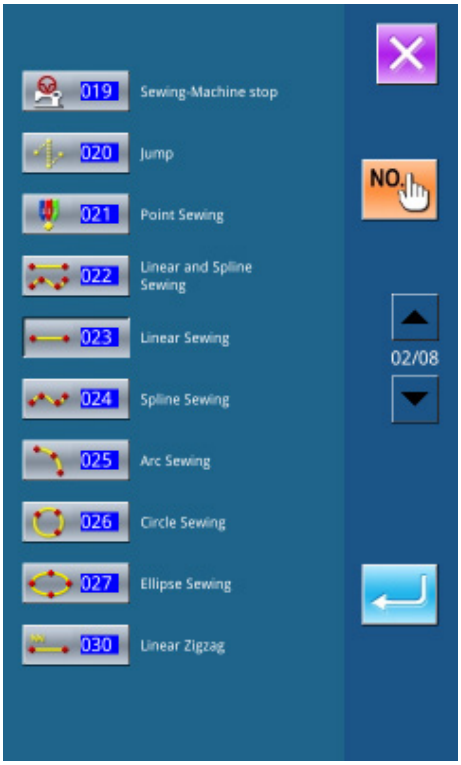


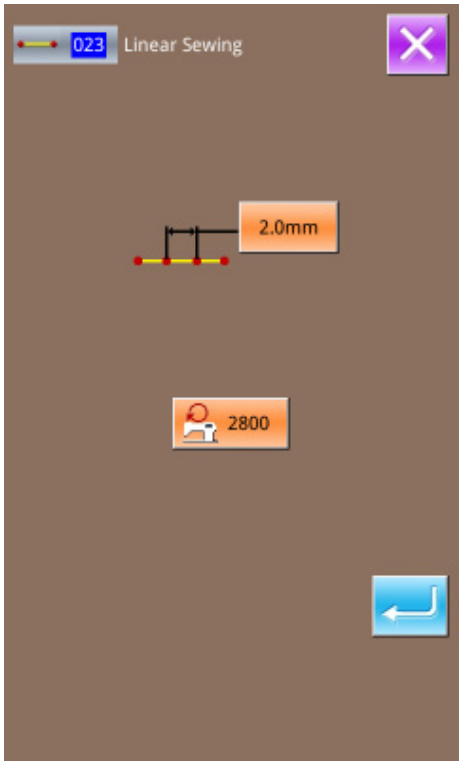




② Input of Linear Normal Sewing

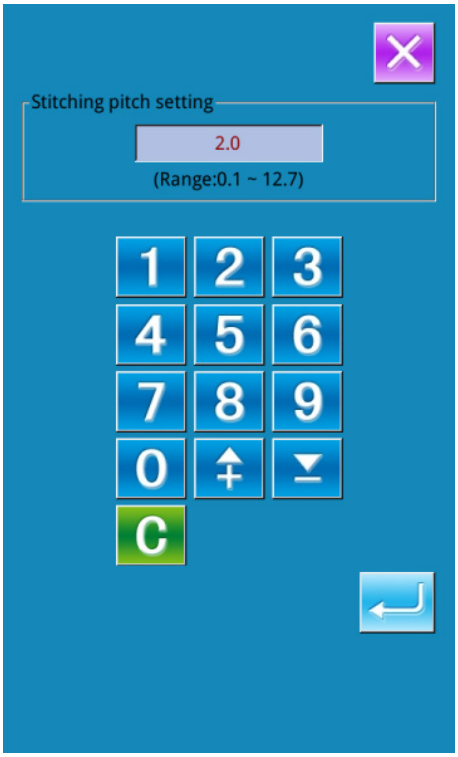
In the “Function Code List”, select the “023 Linear Normal Sewing” and then press  to have access to the interface for setting the linear normal sewing：





In the interface for setting the linear normal sewing, press 

to have access to the interface for setting the stitch length, as shown in right.

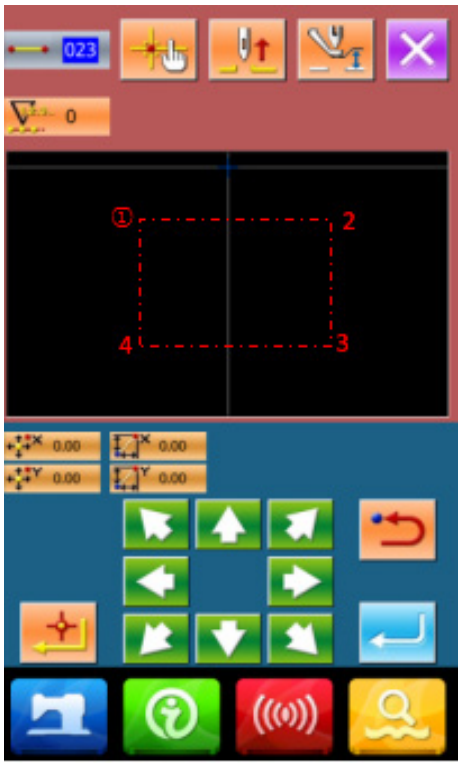


Press 

& 

in sequence, to change the stitch length to “3.0”. Press “Enter” for saving, and system will return to the interface for setting linear normal sewing.

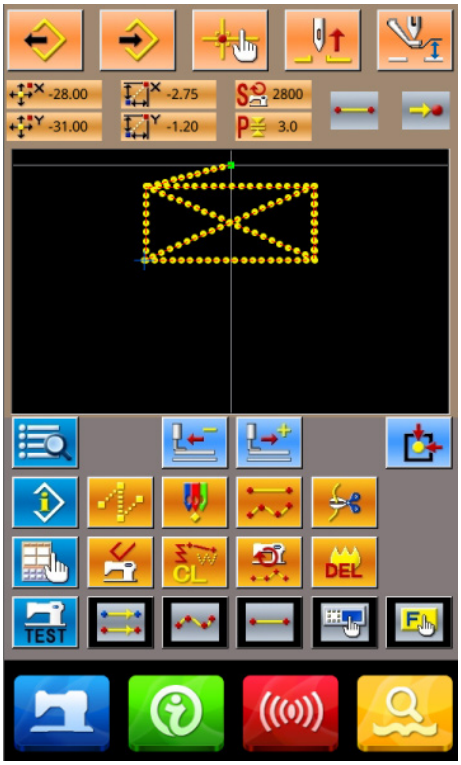
After confirming the value on “Sewing Stitch Length Button” is “3.0mm”, user can press  to have access to the interface for setting the linear normal sewing.



In this interface, press  to move the icon（needle position）from ❶ to ❷, and then press  . Repeat the above operation to move the icon in the order of

❷→❸→❹→❶→❸→❷→❹→❶, which is shown in right figure.

After confirming the pattern, user can press the  to create the pattern data. Then the system will return to the standard interface of the pattern edition and show the shape of pattern

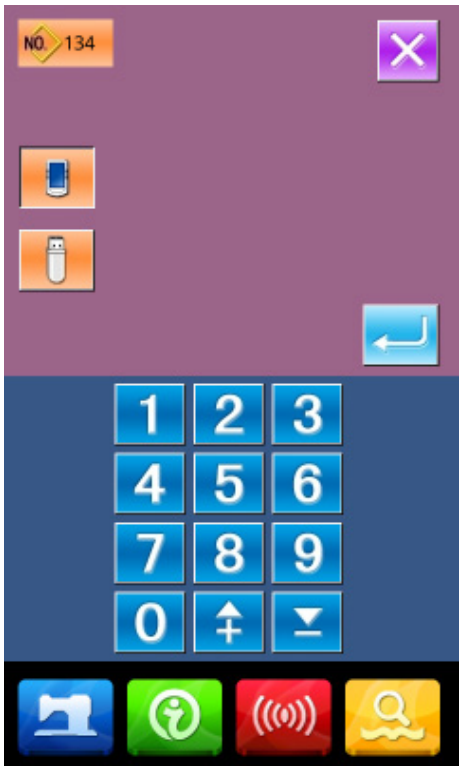


③ Save Pattern

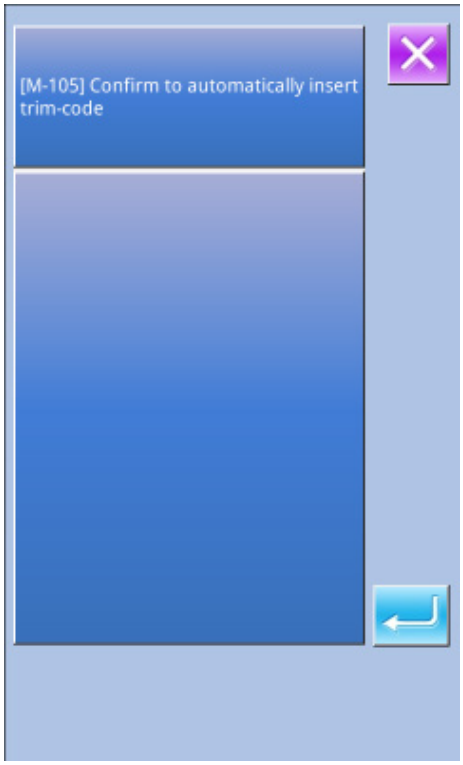
Press  to have access to the interface for saving the pattern, where the edited pattern will be saved, as shown in right .

The system will set the number automatically, the user can also input the wanted number with number keyboard

With  , user can select the storage position of the pattern. User can save the pattern at the storage media on operation panel, or save it at a U disk.



Press  to save the pattern. At the moment, the system will ask the user whether to insert the thread-trimming automatically. The interface at that time is shown as the right picture.



Press  to add the thread-trimming;

Press  to cancel adding the thread-trimming

After the operation, the system will return to the standard interface of pattern edition.

For the specific operations and descriptions on pattern edition, please refer to "SP510 Pattern-making Operation Manual"

5.3 Quit Pattern Edition Mode

In the standard interface for pattern edition, press  to have access to the mode selection interface, as shown in right.

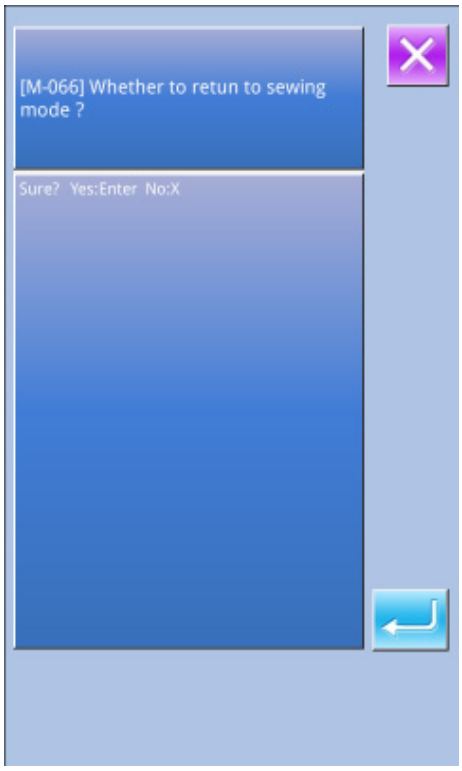
Press  to shift between the sewing mode and edition mode:

 ：Edition Mode

 ：Sewing Mode

Press  again to quit the interface for mode selection. At this time the system will ask user whether to return to the sewing mode.

Press  to return to the sewing mode from the pattern edition mode.



6 Information Function

Information Functions contain the following three functions:

1）The oil replacement (grease-up) time, needle replacement time, cleaning time, etc. can be specified and the warning notice can be performed after the lapse of the specified time。

2）Speed can be checked at a glance and the target achieving consciousness as a line or group is increased as well by the function to display the target output and the actual output.

3）Display the threading figure.

4）Clock-in input window

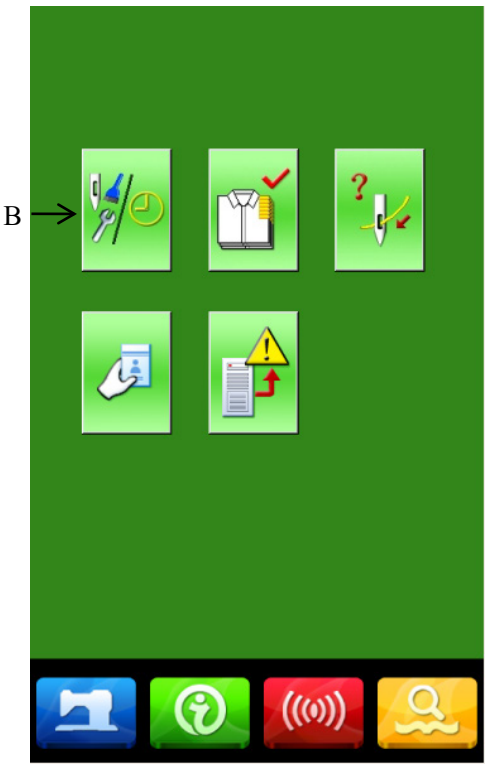
6.1 Information for Maintenance & Repair

① Display of Information Interface

In data input interface, press the Information Key (A) to activate the information interface.

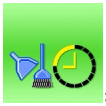
② Display of Maintenance & Repair Interface

Please press the button  (B) to call the maintenance & repair interface

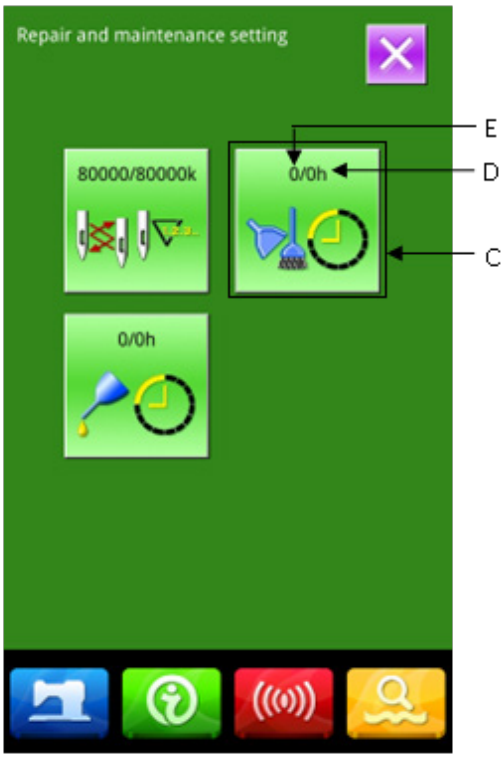


On the interface for maintenance and repair, the following three items are displayed.

 : Needle replacement (thousand stitches)

 : Cleaning time(hour)

 : Oil replacement time (hour)



The displays of the items are at button C. The interval of repair (maintenance) is at D; the left time for replacement is at E.

Additionally, user can clear the left time for replacement.

6.2 Maintenance & Repair Time Input

①Display of Information Interface（Levels of Maintenance）

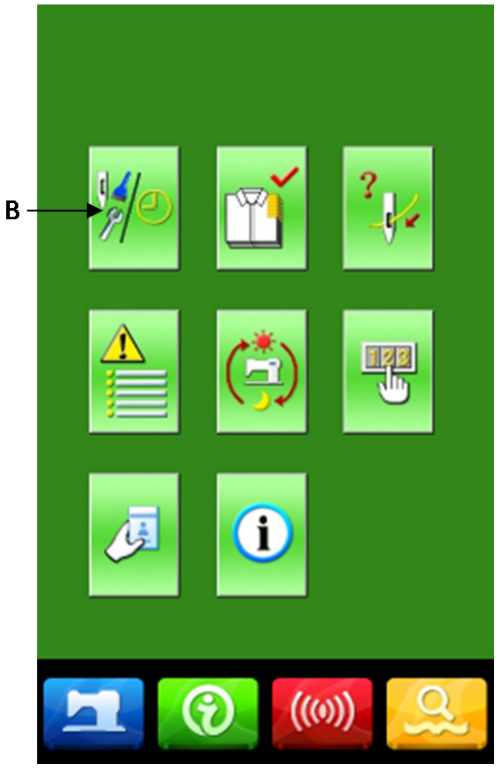
In the interface of data input, hold the Information Key (A) for 3 seconds to activate the interface of information (Maintenance level).

In that interface, there are six keys.

② Display of Interface for Maintenance & Repair

Please press the Maintenance & Repair

Information Key  （B）



Holding pressing Information key for 3 seconds, to display the following 3 buttons.

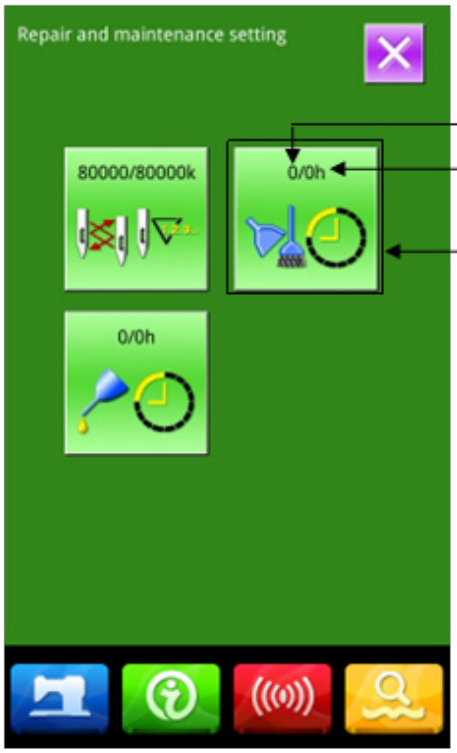
※ The descriptions about the three following buttons on the down part of this interface:

 ：Alarm Record

 ：Running Records

 ：Periodical Password

In the interface of maintenance and repair information, the system displays the content same to that on the ordinary maintenance and repair interface. Press the Item Button C (for changing the repair and maintenance time) to activate the relating input interface.

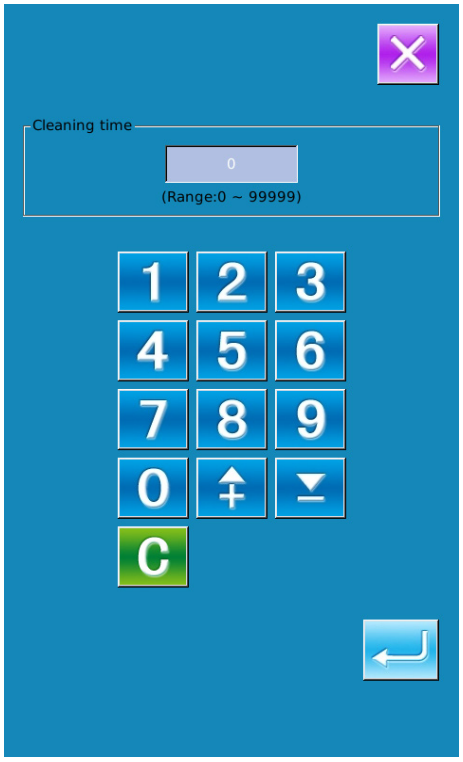


For an example, press  to set the cleaning time.

③ **Set Item for Maintenance & Repair**

If the value of this item is set at 0, the function for maintenance and repair is stopped.

Use the number keyboard to input the set value of this item, press  to confirm the input.



6.3 Alarm Release

When it comes to the pointed time for maintenance or repair, the system will activate the prompt interface. If

user wants to clear the maintenance and repair time, please press Enter. Before the clearance of the maintenance and repair time, the information prompt interface will be displayed after each one sewing task.

The following are the information prompt code for each item:

- •Needle Replacement：M052
- •Clean Time：M053
- •Oil Replacement Time：M054

6.4 Production Control

In the interface of production control, the system will be able to display the amount of products from the beginning to now and the target producing amount. The two methods for displaying the interface of production control are shown at below：

- Via Information Interface
- Via Sewing Interface

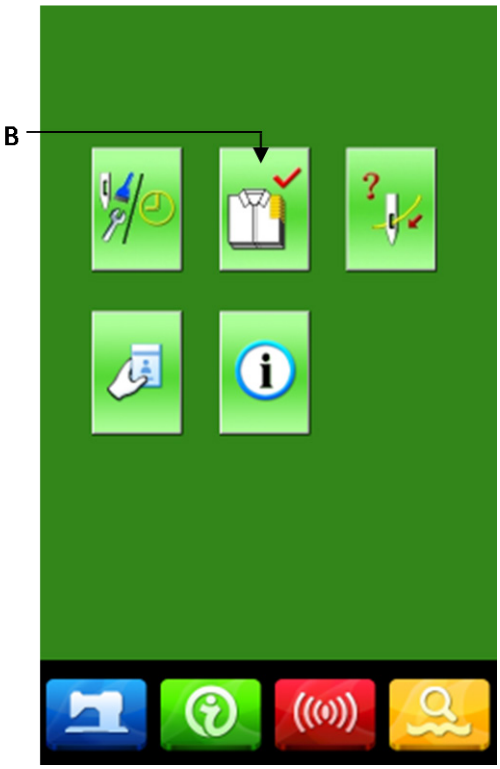
6.4.1 Via Information Interface

①Display of Information Interface

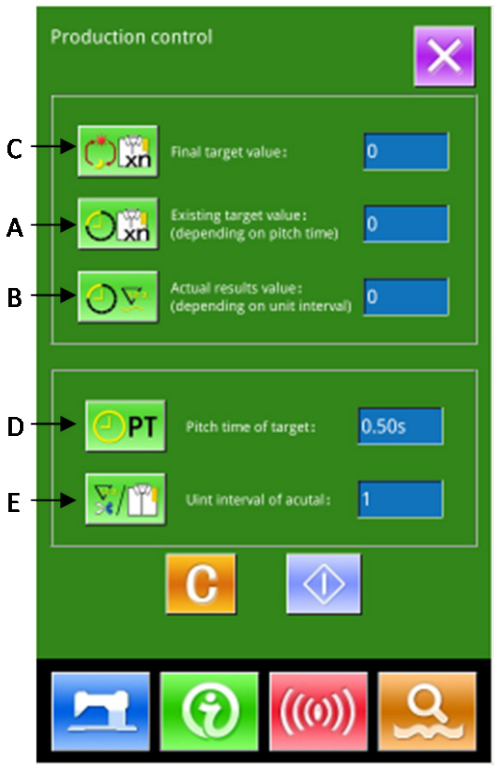
In the interface of data input, please press the information key (A) to activate the interface of information.

② Display of Production Control Interface

Press the key (B) in the interface of information to activate the production control interface (as shown in right).



There are five items displayed on the interface of production control.



A： Existing Target Value

According to the pitch time, the target amount of sewing up to now is displayed automatically.

B： Actual Result Value

Automatically display the amount of pieces sewn

C： Final Target Value

Set the final target amount of production

D： Pitch Time of Target

Set the pitch time (Second) among each working process

E： Unit Interval of Actual

Set the time for completing one process in actual

6.4.2 Via Sewing Interface

①Display of Sewing Interface

After user presses  in the data input interface, the sewing interface is displayed.

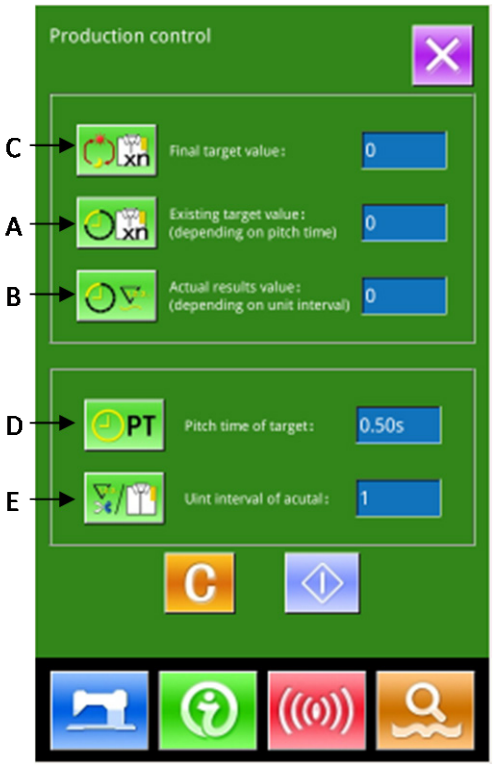
② Display of Production Control Interface

Press Information Key (A) in the sewing interface to activate the production control interface.
The displayed content and the functions are same to the content at above section

6.5 Setting on Production Control

①Display of Production Control Interface

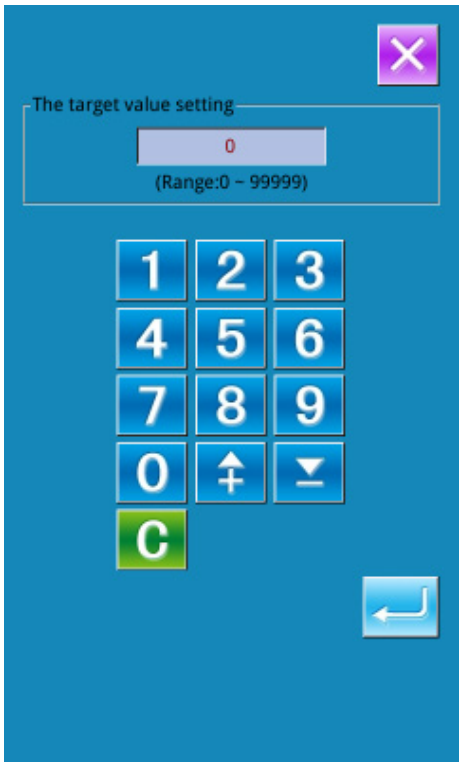
Please refer to the Chapter 6.4 to have access to the interface of production control.



② Input Final Target Value

At first, please input the number of the production target pieces to which the sewing is performed from now on. Press final target value key  (C) to activate the interface of final value input.

After the input of value, please press  for confirmation.



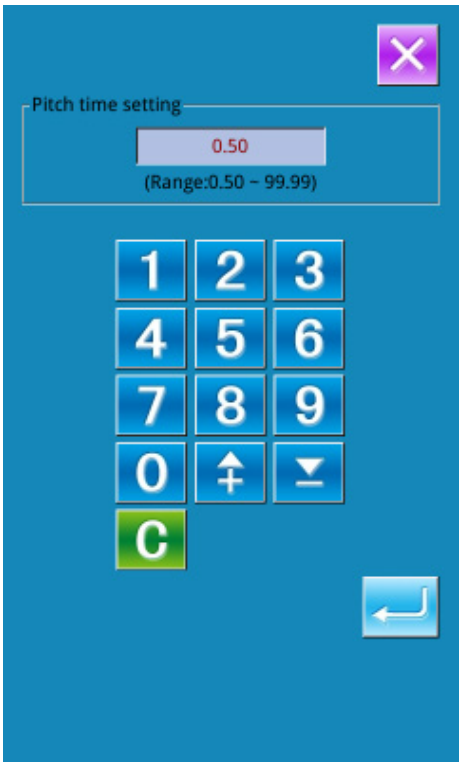
③ Input Pitch Time of Target。

Then, please input the pitch time at each process.

Press the pitch time key 

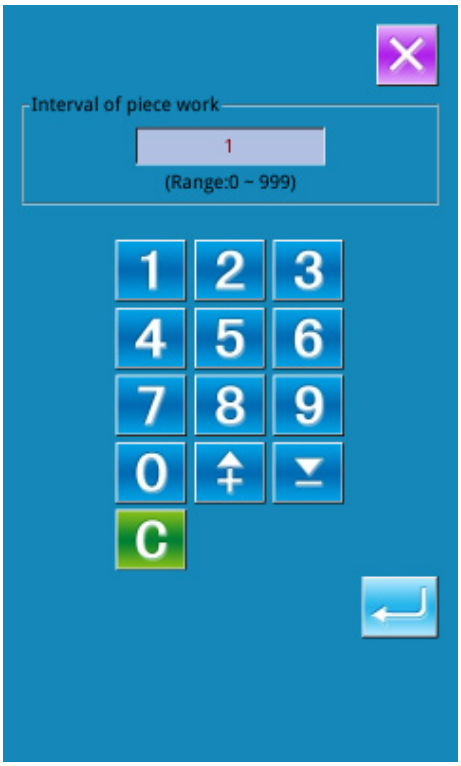
(D) at previous page to activate the interface for inputting the pitch time.

Input the desired figures. After the input, please press  to confirm.



④ Input Unit Interval of Target

Then please input the average times interval of piece work. Press the Unit Interval of Target Key  (E) in previous page to activate the interface for inputting



Start to Count Amount of Production

Press (I) to start counting the number of production amount, the [Final Target Value], [Existing Target Value] and [Actual Result Value] will turns to dark.

Final Target Value： Can be used as the time reference

Existing Target Value： The target value adds 1 after each time pitch set [Pitch Time of Target]

Actual Result Value： According to the value set at [Unit Interval of Actual] the system will start count the actual value by adding 1 at finishing each piece

By setting the Target Value and the Actual Result Value, user can find out the change of productivity.

⑤ **Stop Counting**

In the status of counting, you can see the displayed on the screen. Press to stop counting. After stop, the Counting Key will take the position of . If user wants to continue counting, please press . Without pressing C, the value will be kept.

⑥ **Clear the Data in Counter**

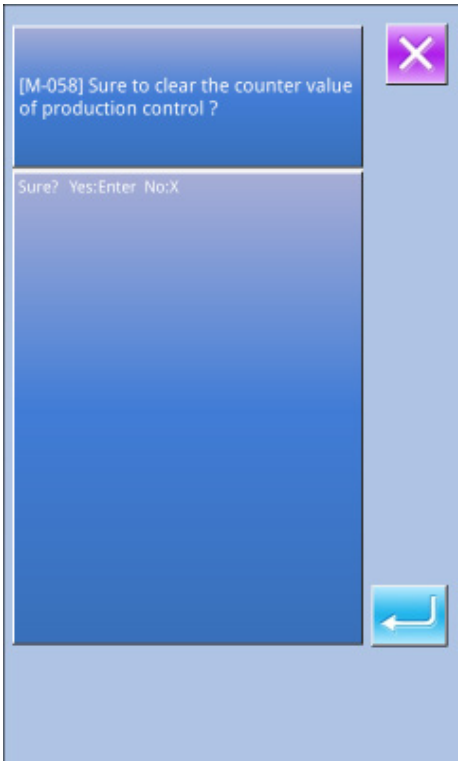
For clearing the value of the counter, the user should stop the counter at first and then press  .

The values of  and  can be cleared both.

(Reference: the clear key can only be displayed when the counter is stopped.)

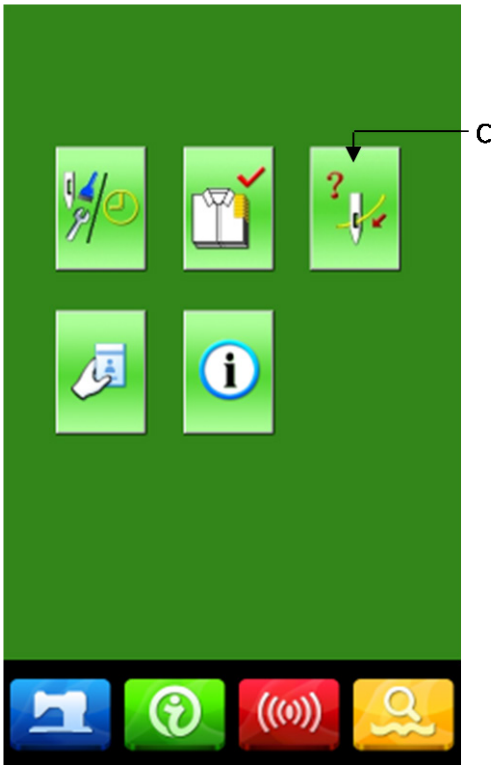
After pressing  , the interface for confirming clearance is activated.

In the interface for confirming clearance, user can press  to confirm the clearance.

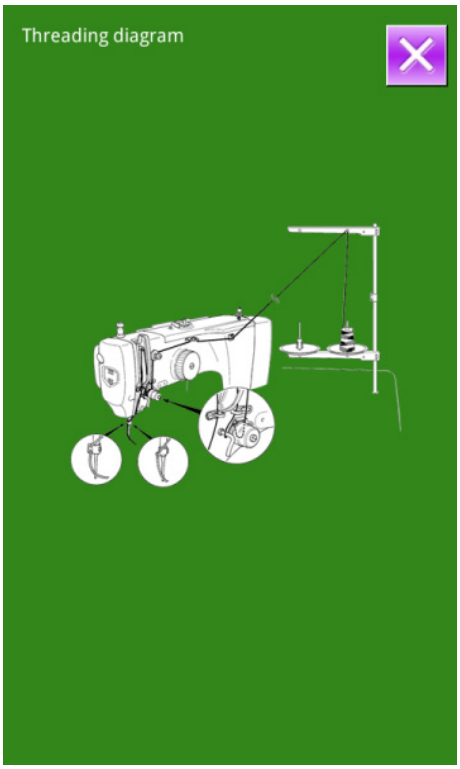


6.6 Display of Threading Figure

Please refer to Section 6.4, Production Management Information to display the Production Management interface.



User can take reference when threading



6.7 Alarm Record

At Maintenance Level, press  to enter the alarm record interface (as shown in right). The interface displays the information of the fault occuring at the system. The smaller number means the later occurance.

Additionally, system also records the production value at each alarm.

User can use  or  to turn the page, so as to check more alarm information.

Press  to clear all the fault record.

6.8 Runnning Records

In the interface of maintenance level, user can press  to inquire the running information of machine.

Total Running Time：accumulated running times (hour)

Total Number: accumulated number of sewn pieces

Total Power-on Time: accumulated time of power-on（hour）

Total Sewing Stitches: accumulated number of stitch (1000 stitches as a unit).

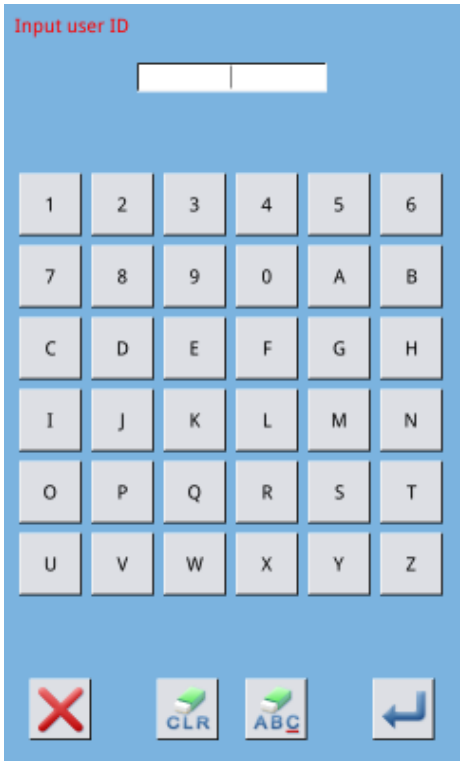
Press “Clear” to clear the record value

6.9 Setting of Periodical Password

1) In maintenance level, Press  to set periodical password

In this interface, the system will ask user to input the User ID. Input the right manufacturer ID to enter the password management mode, where user can set and manage the periodical passwords.

- ◆ At most ten periodical passwords with different activation dates can be set
- ● The system will display the information of passwords set by manufacturer.



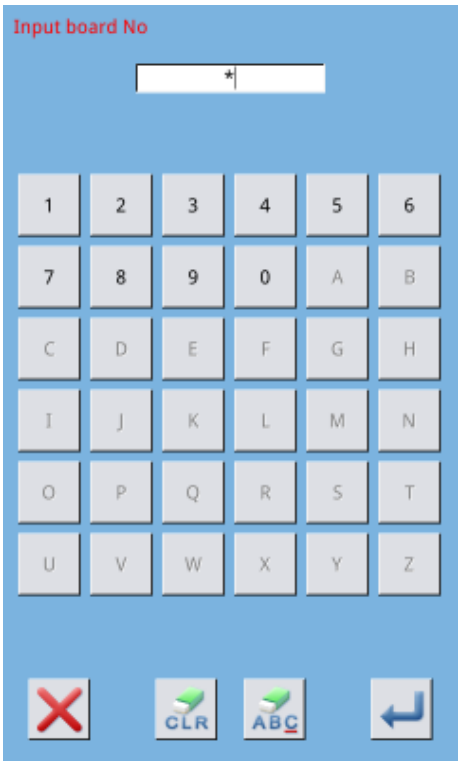
2) Input the Correct Factory ID to enter the password setting interface

Before setting the password, user has to set board number and system clock

3) Input Board Number

Press 【Board Number】 to enter the board number input interface. Input the board number and press  to finish the input

※ The board is a four-figure number, from 0~9999



4) Input System Clock

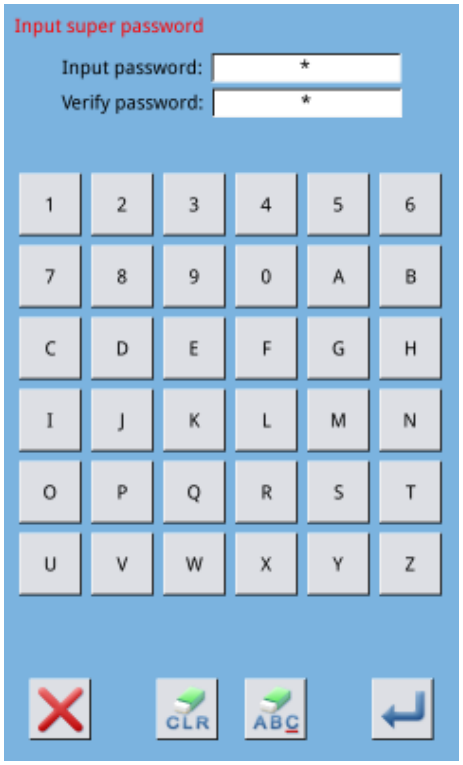
Press【Clock】 to enter the interface for setting the system clock. And set the time.

5) Input the super password

Press the【Super Password】 to enter the interface for setting super password

※ At most, nine-figures super passwords can be input

※ At the password confirmation, make sure the two input passwords are same



6) Input periodical password

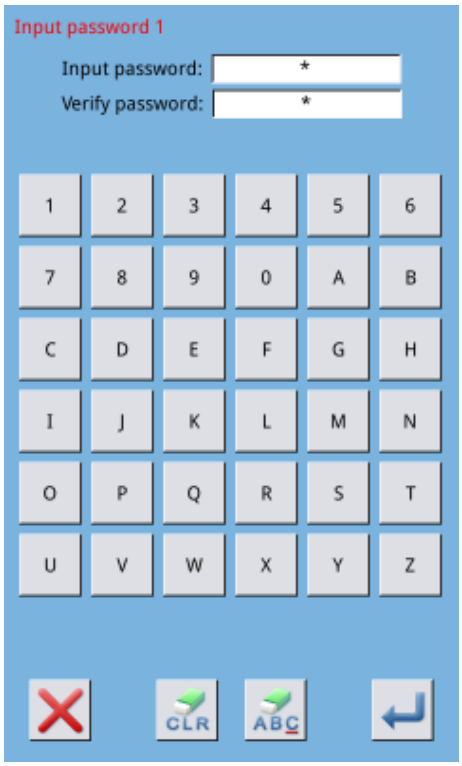
Press 【Password-1】 to enter the first password date, where user can input the first date for activation.

After selecting the proper date, user can press  for confirmation.

Then enter the password setting interface to input the password.

※ **The date should not be earlier than the system date**

※ **At the password confirmation, make sure the two input passwords are same**



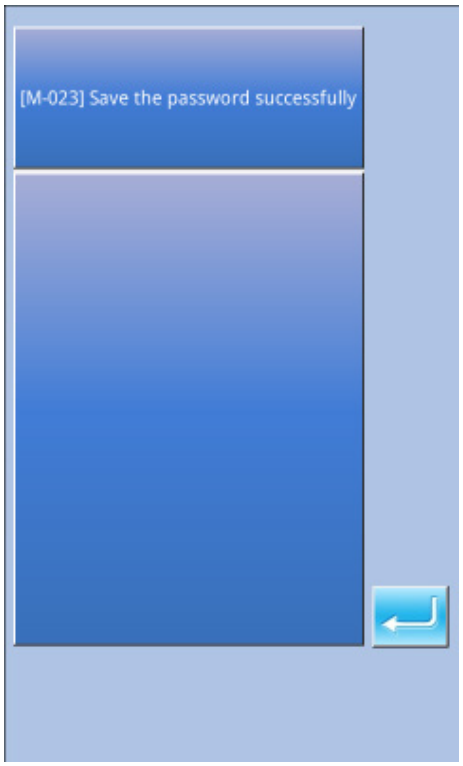
7) Input other periodical passwords

he setting of other periodical password is same to that in step ⑦. Please take the reference to that

※ **The next activation date shall be later than the previous date.**

8) Save Password

After inputting the password, please press  to save it. After the password is saved, the system will display【Save the password successfully】, as shown in right figure.



9) Clear Password before Activation

It is to clear the passwords before its activation.

A、The method for entering the password interface is same to that of the password setting

B、Input the right factory ID to activate the right interface.

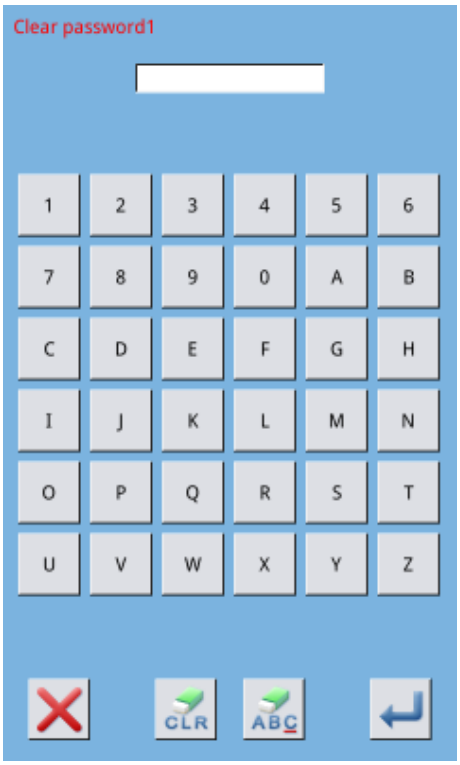
C、The system will display current clock and the activation dates

D、Press  to delete the password orderly

Input the right periodical password to clear the current password. If the super password is input, all passwords will be cleared;

After the deletion of the password, the date of that password will be displayed in red.

If all the passwords are cleared, the system will automatically quit to the main interface of information.



10）Clear Password at Activation

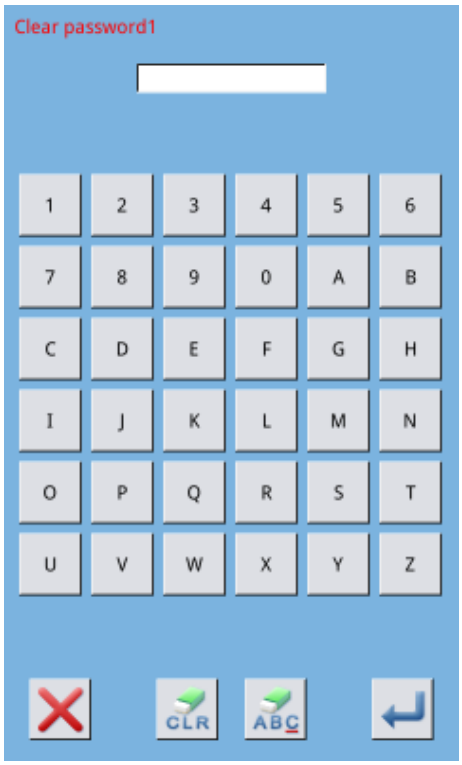
If the system has password and that password is still effective, it will be activated at the activation day.

If user wants to use the machine he should input the right password.

A、The effective passwords include current password and super password

B、If the current password is input, the current password will be deleted. After user clears the current password, if it is the last password in machine, no more activation of password will happen in future.

C、If the super password is input, all the periodical passwords will be deleted.



7 Communication Functions

At Communication, user can perform the following functions:

- Export self-edit pattern or other patterns to U disk.
- Load patterns from U disk to the sewing machine.
- Restore parameters to the sewing machine
- Backup parameters saved in the panel to U disk
- Panel software update

7.1 About the Available Data

The available data is sewn at below, as well as the data type:

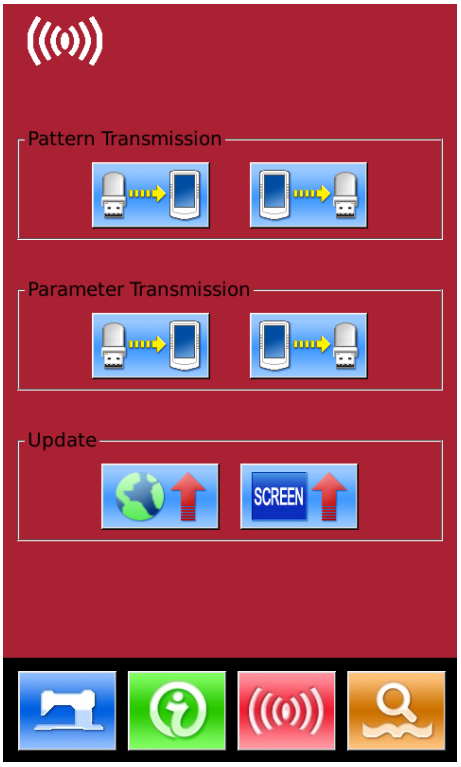
Data Type	Standard Type
VDT	[0-9][0-9][1-9].vdt
DXF	[0-9][0-9][1-9].dxf
DST/DSB	[0-9][0-9][1-9].dst/ [0-9][0-9][1-9].dsb
B/BA	[0-9][0-9][1-9].(1-599)/ [0-9][0-9][1-9].(600-999)
PAT	[0-9][0-9][1-9].pat

When saving data to the U disk, user needs save it to the DH_PAT folder. Otherwise, the file is unable to be read.

7.2 Operations

① Display the Communication Interface

In the data input interface, press  to display the communication interface.



② Select the relating operations

The following three kinds of functions can be selected in this interface：

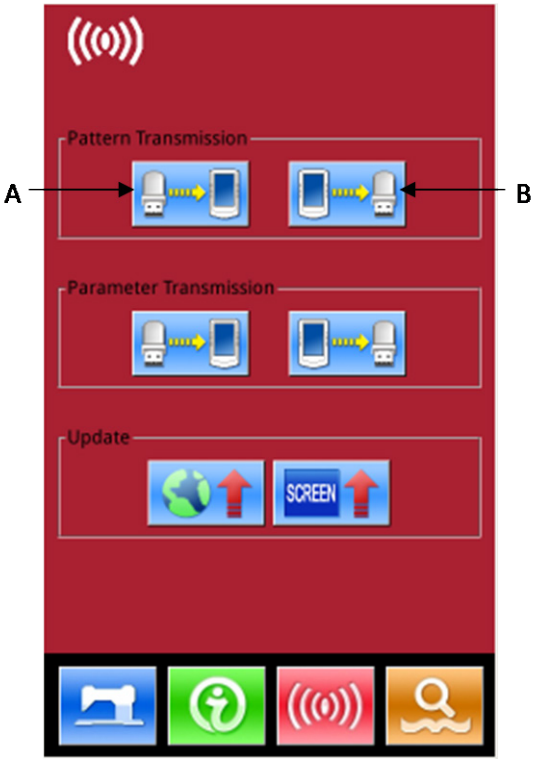
- Pattern Transfer
- Parameter Transfer
- Software Update

Click the corresponding figure to perform the operations.

③ Press  to quit the Communication

7.3 Pattern Transfer

① **Display the Communication Interface**



A: Input patterns from U Disk to Operation Panel
B: Output patterns from Operation Panel to U Disk

※ **When inputting patterns from U disk, user has to save the pattern into the DH_PAT in the U disk.**

※ **When outputting patterns from operation panel, user has to save the pattern into the DH_PAT in the U disk**

Naming Method of Patterns within U Disk:

When importing patterns from a USB flash drive, the standard naming rules are as follows:

Standard naming: 3 figures, 001~999

Example:

Right Names: 100.vdt、102.VDT

Other names are incorrect, or the file format is incorrect, which can not be recognized by machine

In default condition, the file name is the storage position after the file is copied to operation panel.

Note: patterns can be named by numbers, letters or characters.

7.3.1 Input Pattern from U Disk

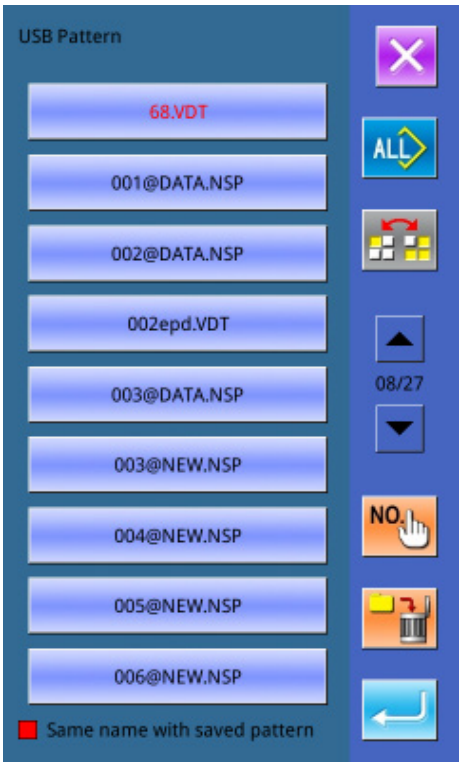
Press  （A） to enter the interface for inputting pattern from U disk to panel

：Select All


：Contrary Selection

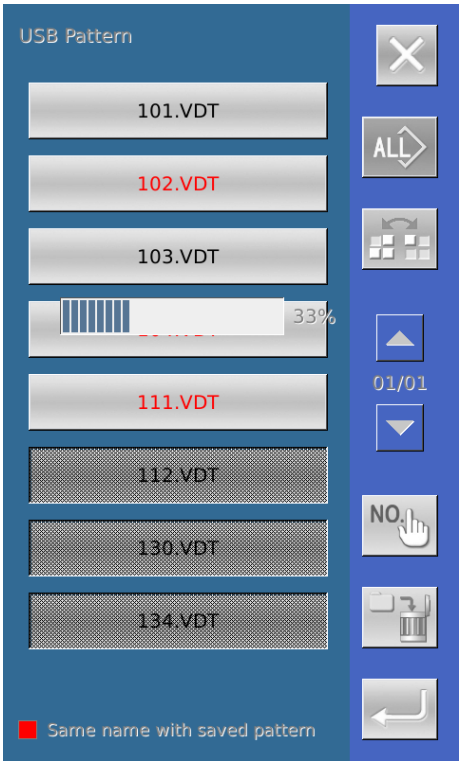
：Input Saved Number（Available at selecting one pattern）


：Delete Pattern

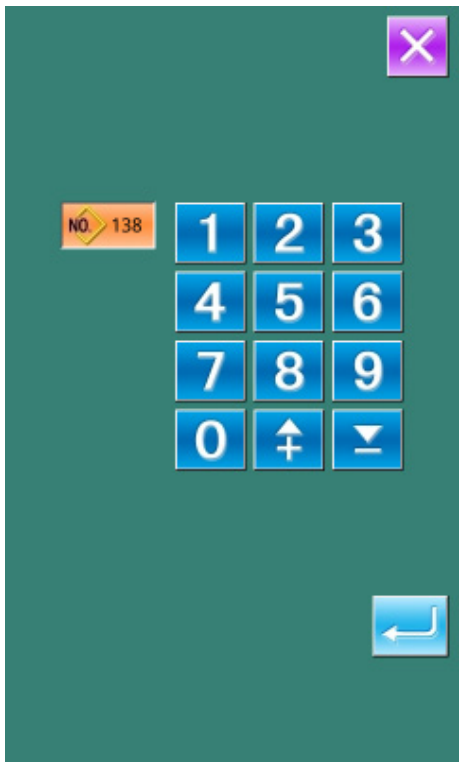


Press  to finish pattern input. At this moment, the saved position in panel is same as the number of the selected pattern.

Note：the saved pattern can not be replaced.



The pattern with red name can not be input, because its name is same to the existing pattern with the panel. User has to input number manually.



Press  to enter the number input interface. The default number is the current empty number. User can also input number manually. Press ENTER to finish the operation.

Note：For the patterns with same name, user has to input it one by one. At selecting several patterns, user can not use  **key.**

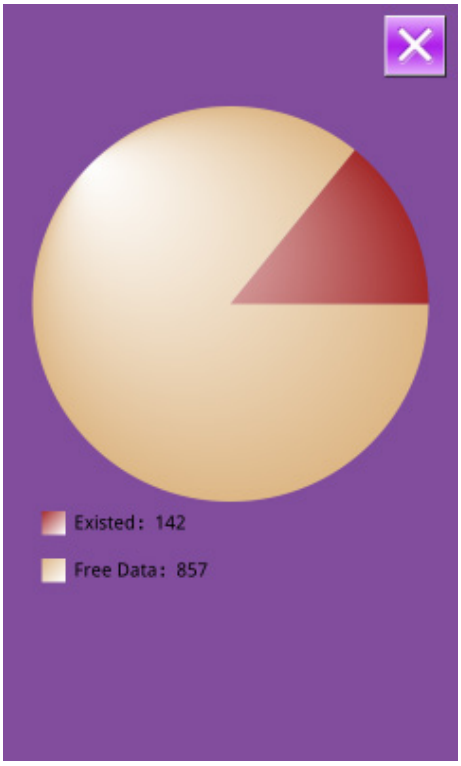
7.3.2 Output Pattern to U Disk

Press  (B) to enter the interface for outputting pattern to U disk.

Select the number and press  to finish the operation.

User can also delete patterns in batch at current interface

In this interface, press  to display the free room of the memory



7.4 Parameter Transfer

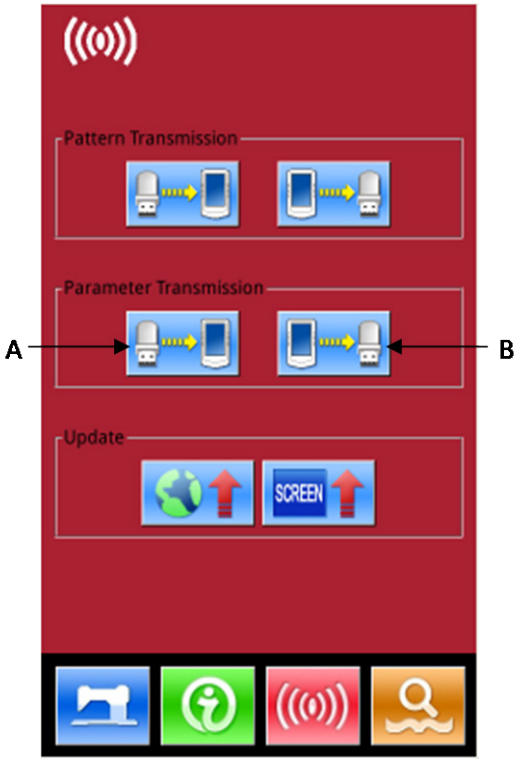
① Display the Communication Interface

A: Input parameters from U Disk to Operation Panel
B: Output parameters from Operation Panel to U Disk

※ **When inputting patterns from U disk, user has to save the parameters into the DH_PARA in the U disk with name ukParam.**

※ **When outputting patterns from operation panel, user has to save the parameters into the DH_PARA in the U disk with name ukParam.**

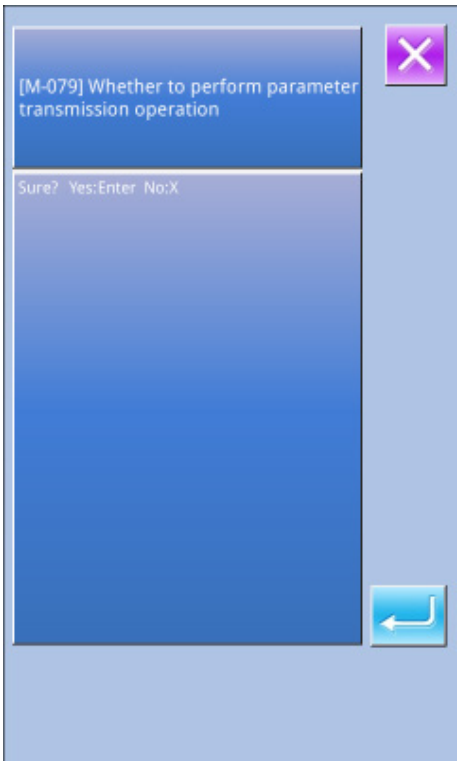
※ **The parameter file is the binary file, which is operated on the control panel. User can not change that file manually on PC, or the file may be damaged**



② **Press Button A to Input Parameters from U Disk to Operation Panel**

A、Press  to input the parameters and quit

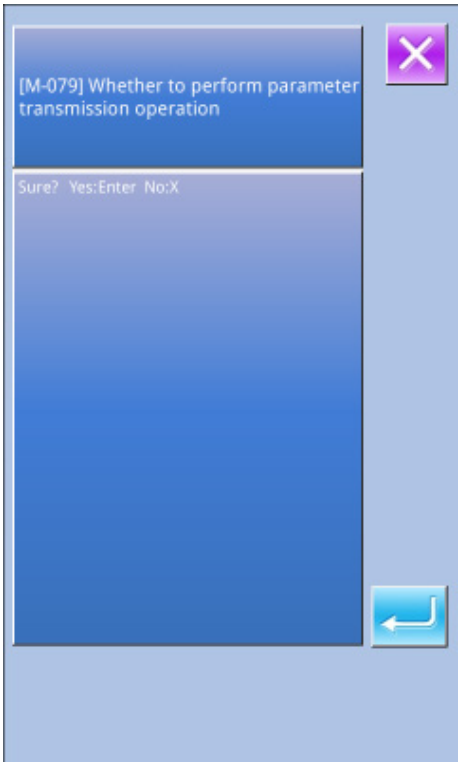
B、Press  to quit directly



③ **Press Button B to Output Parameters to Operation Panel**

A、Press  to output parameters from operation panel to U disk and quit

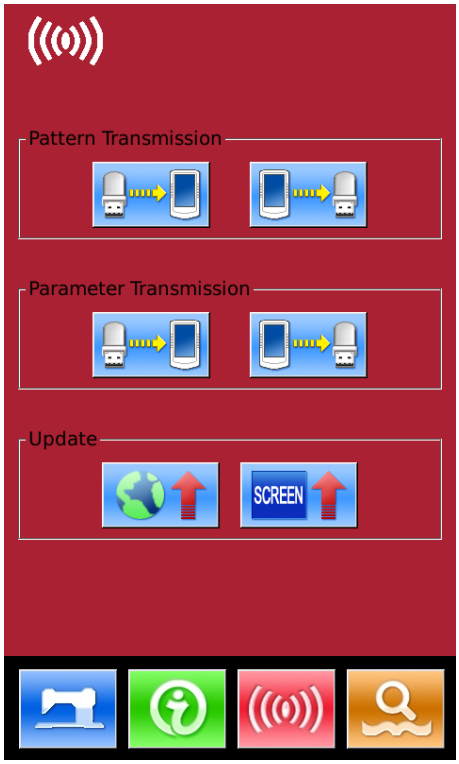
B、Press  to quit directly



7.5 Software Update

1） Display the Interface

In Communication interface, press A to enter Software Update Interface



2） Update Selection

The software update contains：

- Operation Panel Software
- Icon
- Font
- Power-on Screen

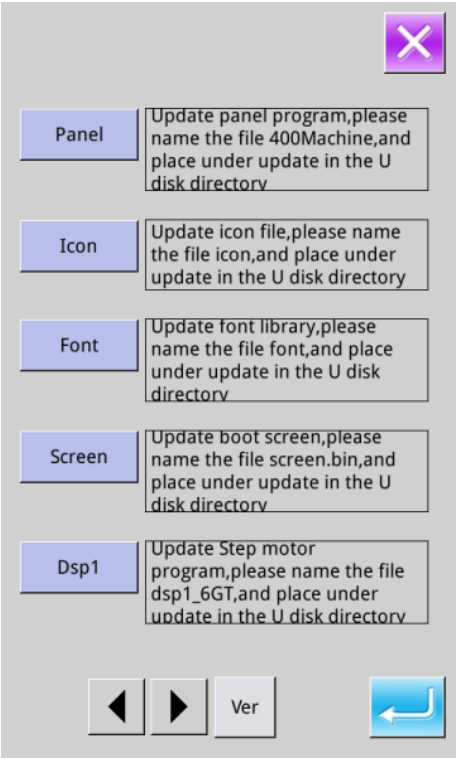
Press  and  to turn thCe page

A、Press  to finish the selected update and quit

B、press  to quit directly

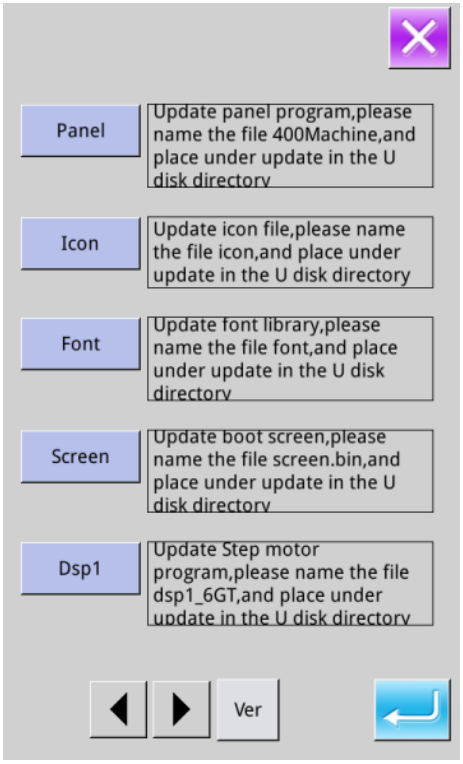
C、User can select several items for update at same time. The system will perform the update according to the order

D、After the update, please restart the machine.



7.6 Parameter upgrade

Upgrade system parameters:Click below the main interface“  ”key→click“  ”key→click“Group flie”key，Upgrade group_1-15 group parameters,Click the bottom right corner“  ”Confirm the key upgrade，Click after the upgrade is successful“  ”key，Return to the previous screen.



8 Mode & Parameter Setting

8.1 Have Access to Mode & Parameter Setting

Press  to shift between the data input interface and the mode interface (as shown in right), where the detailed settings and editions can be performed..

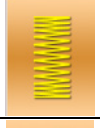
Hold  for 3 second to have access to Mode Setting Level 2 status; hold that key for 6 second to have access to Mode Setting Level 3 status.

Mode Setting Level 1

Mode Setting Level 2

Mode Setting Level 3

Function List:

No.	Figure	Functions	Description
1		Level 1 Parameter Setting	Set parameters in level 1 (U)
2		Counter Setting	Set type of counter, counting value and default value
3		Sewing Type Setting	Shift between the normal pattern sewing and combination pattern sewing.
4		Pattern Edition	Have access to pattern edition status
5		System parameters	System operating parameters can be configured.
6		Reinforcing joint	The herringbone stitch and the number of stitches of various reinforcement stitches can be set.
7		Letter Sewing Edition	Set letter sewing

No.	Figure	Functions	Description
8		Initialization	Initialize the system
9		Software Version Inquiry	Inquire the versions of the current panel
10		Keyboard Lock	Lock some functions that can be set.
11		Test Mode	Set the mechanical devices and LCD
12		Parameter Back-up	Backup or recover the current parameters
13		Activate Parameter Edition	Activate or deactivate the edition of parameters
14		Level 2 Parameters Setting	Set the Level 2 (K) parameters

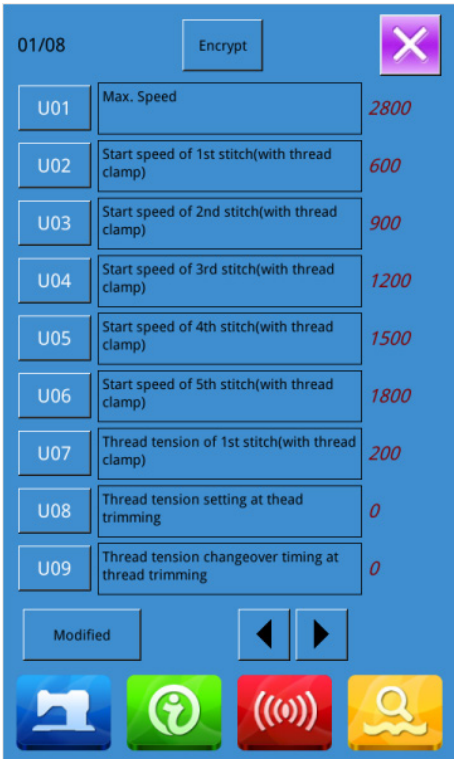
8.2 Level 1 Parameters Setting

① Set Parameter

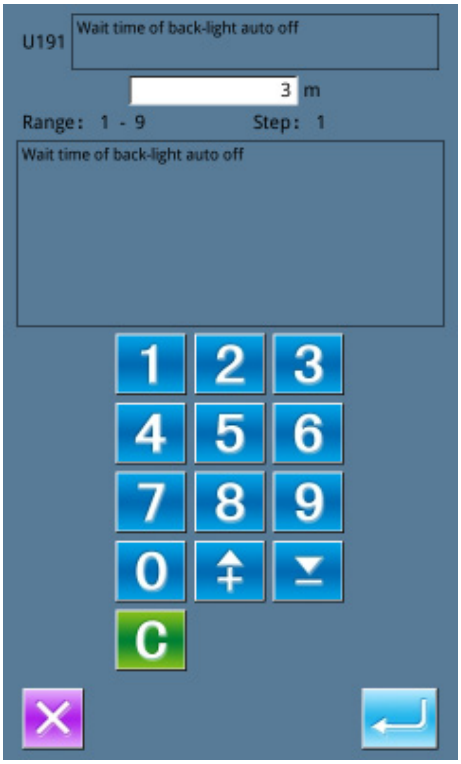
Select  to enter the interface of Level 1 parameter setting (shown as the figure at right).

Press  to quit the setting interface. When some parameters are changed, the system will display the “Modified” in the parameter setting interface.

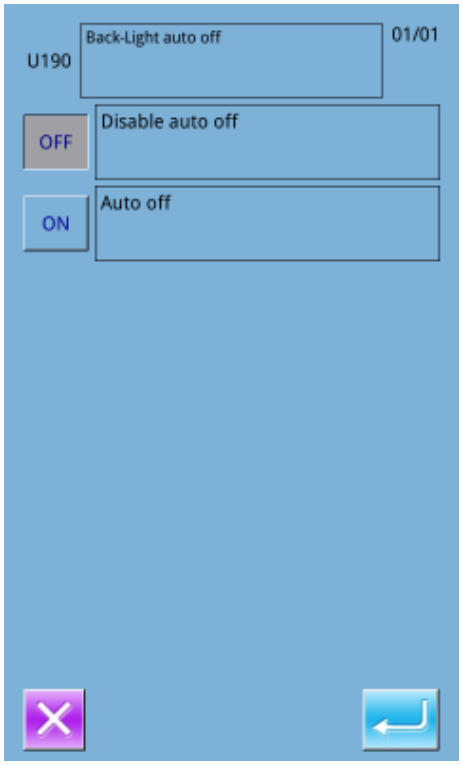
Select the parameter for changing; Then the system will enter the setting status. The parameters are separated as “Data Input Type” and “Selection Type”. Please refer to the example at below:



Select U191 and enter the interface below (Input)

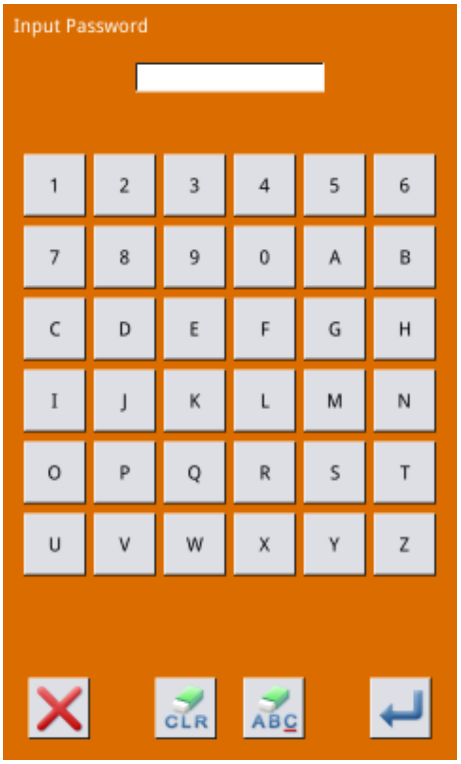


Select U190 and enter the interface below (Selection)



② Parameter Encryption

Press “Encryption” to enter the password input interface.

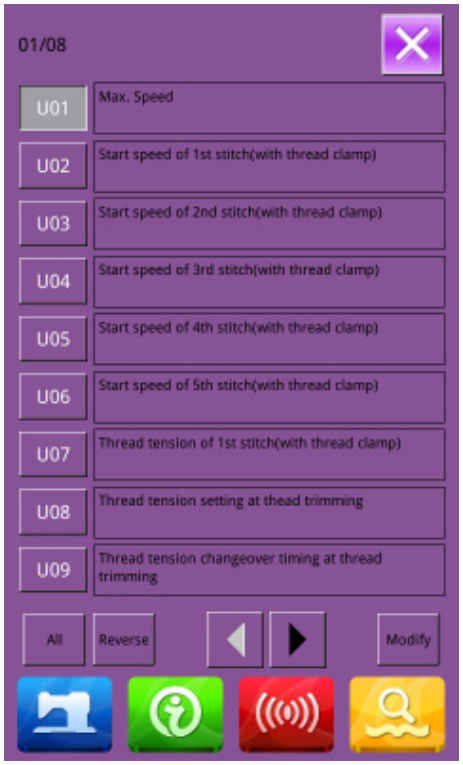


※ Press CLR to clear all the content

※ Press ABC to erase one figure at each pressing

※ the default password is the manufacturer ID

Input the right password to enter the interface for parameter encryption Select the parameter for encryption.



※ Press【Select All】to attach password to all the parameters

※ Press【Reverse】 to select parameter for encryption in reverse way

※ Press【Change】 to change the password, the default is the manufacturer ID

Press  to quit the encrypting function

③ Check the changed parameter

When parameter is changed, the system will display “Modified” key at parameter setting interface.

In the parameter setting interface, press 【Modified】 to check the changed parameters.

A、 At first, the system will ask user to input the password. After inputting the right password, user can enter the interface for inquiring changed parameters

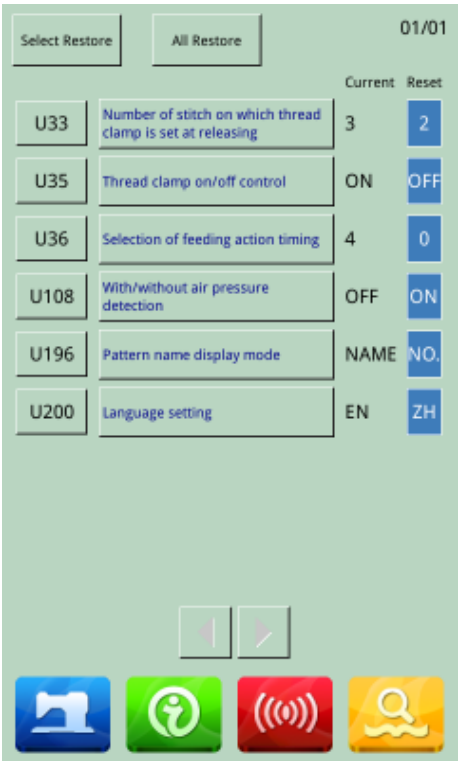
B、Under the interface of changed parameter inquiry, user can find the list containing all the changed parameters. In that interface:

※ Press【All Rest】 will restore all the changed parameters to their default values

※ Click Parameter Name, like【 Back Light Auto Off】 and then press 【Select Rest.】 to restore this parameter to the default value. User can select several parameters’ name in the interface.

※ Press Parameter Number, like【U190】 to enter the parameter setting interface, where user can reset the parameter value.

※ Press  to quit the interface



8.2.1 List of Level 1 Parameters

No.	Parameter	Range	Unit	Default value
U01	Max Speed	200~2800	100rpm	2800rpm
U02	Start Speed of 1st Stitch (with thread-catching function)	200~2800	100rpm	1500rpm
U03	Start Speed of 2nd Stitch (with thread-catching function)	200~2800	100rpm	2700rpm
U04	Start Speed of 3rd Stitch (with thread-catching function)	200~2800	100rpm	2700rpm
U05	Start Speed of 4th Stitch (with thread-catching function)	200~2800	100rpm	2700rpm
U06	Start Speed of 5th Stitch (with thread-catching function)	200~2800	100rpm	2700rpm

No.	Parameter	Range	Unit	Default value
U07	Thread Tension of 1st Stitch (with thread-catching function)	0~200	1	200
U08	Thread-tension at Thread-trimming	0~200	1	0
U09	Thread Tension Changeover Timing at Thread-trimming	-6~4	1(4°)	0
U10	Start Speed of 1st Stitch (No Thread-catching)	200~1500rpm	200~1500rpm	100rpm
U11	Start Speed of 2nd Stitch (No Thread-catching)	200~2700rpm	200~2700rpm	100rpm
U12	Start Speed of 3rd Stitch (No Thread-catching)	200~2700rpm	200~2700rpm	100rpm
U13	Start Speed of 4th Stitch (No Thread-catching)	200~2700rpm	200~2700rpm	100rpm
U14	Start Speed of 5th Stitch (No Thread-catching)	200~2700rpm	200~2700rpm	100rpm
U15	Thread Tension of 1st Stitch (No thread-catching function)	0~200	1	0
U16	Thread Tension Changeover Phase at Sewing Start (No thread-catching function)	-5~2	1	-5
U18	The Sew-Counter type	1：Sewing counter 2：Piece counter for pieces		1
U25	The unit of the Sew-Counter	1~30	1	1
U26	Height of Pressers when 2 step scrolling	50~90	1	70
U32	Buzzer Sound Setting	OFF：No Buzzer PAN：Operating Sound ALL：Operating Sound + Alarm		ALL
U33	Number of stitch on which thread clamp is set at releasing	3~8	1	3
U34	Thread Clamp Delay Timing	-10~0	1	0
U35	Thread clamp on/off control	ON：Permitted OFF：Forbidden		ON
U36	Selection of feeding Action Timing	-8~16	1	0
U37	Outside presser movement mode while sewing finished	0：Presser goes up after sewing starts 1：Presser goes up immediately after sewing ends 2：Pedal goes up after sewing starts.		0

No.	Parameter	Range	Unit	Default value
U38	The outside presser going up action is available after sewing ends	ON：Permitted OFF：Forbidden		ON
U39	Origin retrieval at sewing end(except combination sewing)	OFF：No Origin Retrieval ON：With Origin Retrieval		OFF
U40	Set origin reteieval at combination sewing.	OFF：Without Origin Search PAT：At Each Pattern Ending CLC：At Each Circle Ending		OFF
U41	The presser going up mode while stopping on the middle way	Presser goes up automatically Presser goes up with pedal pressed.		0
U42	Needle Position in pause	UP：Up Position DEAD：Highest Position		UP
U46	Trimming forbidden	ON：Permitted OFF：Forbidden		ON
U48	Set Route for Returning Start Sewing Point	0：Linear Return 1：Reverse Return of Pattern 2：Original Retrieval		0
U49	The robinning speed setting	200~2800	100rpm	1600rpm
U51	Motion-wipper forbidden	OFF：Off ON：On		ON
U64	Select Unit in Changing Size	%：Input Percentage SIZ：Input Actual Size		%
U68	Thread Tension Output Time at Setting Thread Tension	0~20 (0：No Tension Output)	1	0
U69	Bend Position for Thread Clamp	S：S Type H1：H Type Thin Thread (#50~#8) H2：H Type Intermediate H3：H Type Thick Thread (#5~#2)		H1
U70	Thread-catching position	0：Standard (Front Position) 1：Rear Position		0
U71	Thread –breakage detection	OFF：Invalid		ON

No.	Parameter	Range	Unit	Default value
		ON：Valid		
U72	Invalid stitches st thread breakage detection start	0~15	1	8
U73	The number of stitch without thread-breakage detecting at midway of sewing	0~15	1	5
U81	Presser control pedal on/off	0:1 segment 1: 2-stage stroke (the presser foot is lowered most through the presser foot SW) 2: 2-stage stroke (start by starting the SW presser foot to descend most) 3: 2-stage stroke (through presser foot SW1, the middle, the lowest and the highest of presser foot) 4~99:1 section Pneumatic presser foot: 0: integrated presser foot 1: Left and right separation presser foot, no left and right priority 2: Separate the presser foot left and right, in order from right to left 3: Separate the presser foot from left to right, from left to right 4: Integrated presser foot 5: Left and right separation left travel, no left and right priority 6: Separate the left stroke from the left and right, in the order from right to left; 7: The left and right are	1	0

No.	Parameter	Range	Unit	Default value
		separated to make the journey, in the order from left to right; 8~99: integrated presser foot		
U82	Presser control-on/off at midway stop	0:1 segment 1: 2-stage stroke (the presser foot is lowered most through the presser foot SW) 2: 2-stage stroke (start by starting the SW presser foot to descend most) 3: 2-stage stroke (through presser foot SW1, the middle, the lowest and the highest of presser foot) 4~99:1 section Pneumatic presser foot: 0: integrated presser foot 1: Left and right separation presser foot, no left and right priority 2: Separate the presser foot left and right, in order from right to left 3: Separate the presser foot from left to right, from left to right 4: Integrated presser foot 5: Left and right separation left travel, no left and right priority 6: Separate the left stroke from the left and right, in the order from right to left;	1	1

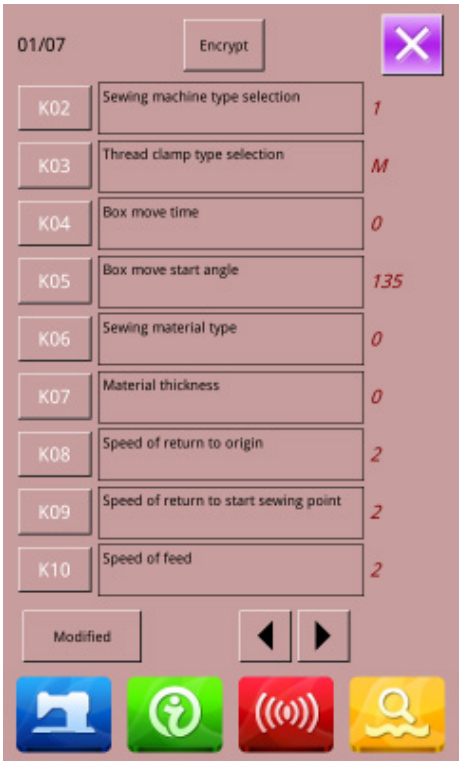
No.	Parameter	Range	Unit	Default value
		7: The left and right are separated to make the journey, in the order from left to right; 8~99: integrated presser foot		
U83	Pedal Type Selection	S：Single Pedal D：Double Pedal		D
U84	Pedal SW1 with/without latch	OFF：No ON：Yes		ON
U85	Pedal SW2 with/without latch	OFF：No ON：Yes		ON
U86	Pedal SW3 with/without latch	OFF：No ON：Yes		ON
U87	Pedal SW4 with/without latch	OFF：No ON：Yes		ON
U88	Zoom Mode	OFF：Forbidden PIT：Change at Interval STI：Change at Stitch Number		PIT
U89	Motion Mode	Forbidden Parallel Motion Set 2nd Origin		2
U91	Retainer Compensation Motion Selection Of Motion	OFF: No ON：Yes		OFF
U94	Select the up dead point at origin retrieval	OFF：No ON：Yes		OFF
U97	Trimming thread mode in pause	AUT：Auto Thread-trimming MAN：Manual (Thread-trimming by turning Stop SW ON again)		MAN
U101	Main Motor X/Y Feeding Synchronized Control	0：2800rpm/3.5mm 1：2200rpm/4.0mm 2：1800rpm/3.0mm 3：1400rpm/3.0mm		0

No.	Parameter	Range	Unit	Default value
U103	Middle presser control	0：No（Lowering is fixed） 1：Yes（Lowering with sewing data during the operation） 2：Yes（Lowering even at the time of feeding forward/backward）		1
U104	Middle presser lowering Timing	0：Before the start of the sewing machine head 1：Synchronized with the last frame		0
U105	Middle presser/thread wipper device sweeping position	0：Sweeping above 1：Sweeping above (get to the lowest position). 2：Sweeping below		0
U108	With/ without Air Pressure Detection	OFF：No ON：Yes		OFF
U112	Middle presser lowering position	0~7.0mm	0.1	3.5
U129	With/without Needle Cooler Control	OFF：No ON：Yes		OFF
U190	Back Light Auto Off	OFF：Not Auto Off ON： Auto Off		OFF
U191	Wait time of back light auto off	1~9 min	1	3
U192	Back light brightness control	20~100	1	100
U193	Profibit to change counter	OFF：Permit ON：Forbid		OFF
U194	Operation of sewing machine after counter reach setting value	OFF：Stop Sewing ON：Continue Sewing		OFF
U195	Volume	30~63	1	50
U196	Pattern name dieplay method	NO. ： By pattern number NAME ： By pattern name		NO
U197	Pattern zoom mode	ORI ： Based on the origin CEN：Take the pattern center as the reference		ORI

No.	Parameter	Range	Unit	Default value
		point (ignore the first blank feeding)		
U200	Language setting	ZH：中文 EN：English TU：Türk VIE:Tiếng Việt GER：Deutsch RU:Русский язык FRA:Français KR:한국어 PUR:Português JAP:日本语 SPA:Español ITA:Italiano INDO:Indonesia Name		ZH
U201	Whether to select language when power on	OFF：No ON：Yes		ON

8.3 Level 2 Parameters Setting

In the interface of Mode Setting Level 3, press  to have access to the interface for setting parameters of Level 2 (as shown in right). For the operation, please take the description in Level 1 Parameter Setting for reference.



8.3.1 List of Level 2 Parameters

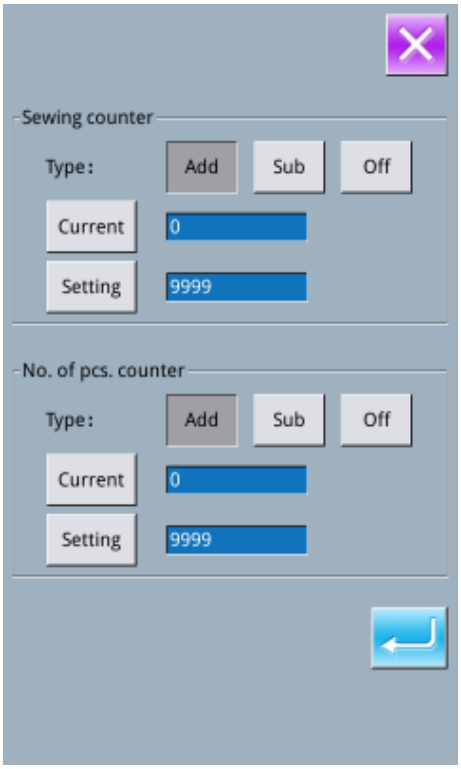
No.	Parameter	Range	Unit	Default value
K01	Range protection	ON：ON OFF：OFF		ON
K02	Sewing Machine Type Selection	0~3	1	3
K03	Thread clamp type Selection	0：M：Mechanical 1：E：Electronic	1	1
K06	Sewing Material Type	0：Thin； 1：Middle； 2：Thick	1	0
K07	Middle material time compensation	0~45	1	0
K11	Speed of frame moving	1~3	1	2
K14	Thread clamp switch of start sewing	OFF ON		OFF
K15	Thread clamp start angle of start sewing	60~120	1	60
K16	Thread clamp end angle of start sewing	250~330	1	280
K27	Setting the outside presser failing speed	100~1500	100	1500
K28	Setting the outside presser raising speed	100~3000	100	3000
K29	Setting motor speed while trimming	100~1500	100	1500
K31	Selection of Pause Inputting	0：Ineffective 1：Effective 2：Use Pause Switch to trim thread or start machine when the machine is paused		1
K43	Thread-trimming speed	400rpm 800rpm		800rpm
K44	The trimming empty feed control	NO YES		YES
K45	Setting the oriented hole dia of empty feeding control	1.6~4.0	0.1	2.0
K47	The trim device driver avaliable	NO YES		YES
K52	Solenoid wipper time for turing on	1~50ms	1ms	5ms
K53	Solenoid wipper time for turing off	1~50ms	1ms	30ms
K54	Time phase of thread wipper at up dead	UP：Upper Position DEAD：Highest Position		UP
K56	Positive limit of dorection X	0~255mm	1	152
K57	Negative limit of dorection X	0~255mm	1	66
K58	Positive limit of dorection Y	0~255mm	1	31
K59	Negative limit of dorection Y	0~255mm	1	31
K60	Three step pedal enable	OFF：Invalid ON：Valid		OFF
K61	Main Motor Stop Angle	30~80	1	53

No.	Parameter	Range	Unit	Default value
K62	The auto-ready action of power on	ON：Invalid YES：Valid		NO
K63	Selection of needle is up or down mode	OFF：Invalid ON：Valid		NO
K67	Thread Tension Output of Thread wipper	OFF：No Output（Keep the tension at thread-trimming） MAX：Max Output		OFF
K74	Solenoid/ Air-control Presser Selection	MAG：Solenoid Presser AIR：Air-control Presser		AIR
K75	Time Postponement at Lowering the Air-control Presser	0~100ms	1	10
K80	The auto up-down sequence of outside presser	0~99	1	0
K83	The outside presser raising position while sewing end	0~99	1	0
K90	The fixed dodge position available	NO YES		NO
K92	Selection of Path for Origin Retrieval/ Origin Search at Normal	STD：Standard REV：Reverse 2Y2X：Y Axis→X Axis X2Y：X Axis→Y Axis		STD
K93	Selection of Path for Origin Retrieval/ Origin Search at Reverse	0：STD：Standard 1：REV：Reverse 2：Y2X：Y Axis→X Axis 3：X2Y：X Axis→Y Axis		STD
K95	Positive time phase of trimming	-10~10	1	0
K96	Negative time phase of trimming	-10~10	1	0
K98	Empty Feeding order sleep time in peak	0~10ms	1	2
K99	The overtime of inputing command	0~10000	100	3000
K100	End Order – Stop Controlling	OFF：No ON：Yes		OFF
K101	X-axis rigidity adjustment	-20~20	1	0
K102	Y-axis rigidity adjustment	-20~20	1	0

No.	Parameter	Range	Unit	Default value
K103	Spindle penetration strategy	OFF ON		OFF
K106	The falling speed of middle presser	100~3000	100	3000
K107	The raising speed of middle presser	100~3000	100	3000
K109	The deceting edge device available	NO YES		NO
K110	Reverse Device and Stretching Presser Setting	OFF：No ON1：Yes ON2：Stretch Presser Out		OFF
K111	Y-corrdinate of auto reverse	0~100.0mm	0.1	17.0
K112	Delay of Stretch Presser extend	0~255ms	1	0
K113	Delay of Stretch Presser up	0~255 ms	1	0
K114	Delay of Stretch Presser down	100~10000	100	400
K117	Laser X axis offset	-800~800	1	0
K118	Laser Y axis offset	-800~800	1	0
K119	Airfeed speed gear	0~9	1	3
K120	Laser head fall delay	100~10000	100	100
K121	Laser blowing off delay	100~10000	100	10000
K122	Laser cutting speed gear value	0~9	1	3
K123	Laser blowing on delay	100~10000	100	2000
K129	Template identity device	SEN:sensor BAR:Barcode scanning equipment RF：RF scanning		SEN
K130	Brightness of light setting	0~100	1	0
K150	Machine security switch is effective or not	OFF ON		OFF
K176	Templet Identify Setting	OFF ON		ON
K200	Restore to original parameters			

8.4 Counter Setting

Press  to have access to the Counter Setting Interface (as shown in right picture).



Sewing Counter: The counter adds/ decreases 1 at sewing one piece.

No.of Pcs Counter：The counter adds/ decreases 1 ar sewing one cycle.

Bottom line counter： The counter decreases the number of stitches per stitch

The No. of Pcs Counter is mainly for counting the C Pattern. For any other sewing types, the function of sewing counter and No. of Pcs counter are same.

1）Counter Setting

Current：Press it to set the Current Value of counter.

Setting：Press it to set the Setting Value of counter. When the Setting Value is 0, the counter can not be used.

1） Counter Type Setting

Add：Set the counter as Up Counter. When current value reaches the setting value, the system will give alarm.

Sub：Set the counter as the Down Counter. When the current value is 0, the system will give alarm.

Off：Turn off Counter

Note 1：When parameter【U193】is set at “Forbid”, user can not enter this interface.

Note 2: When parameter 【U194】is set at “Continue Sewing”, the system will not give alarm when the current value is over the setting value. The current value will return to the target value automatically (Up Counter will return to 0

while down counter will return to the set value).

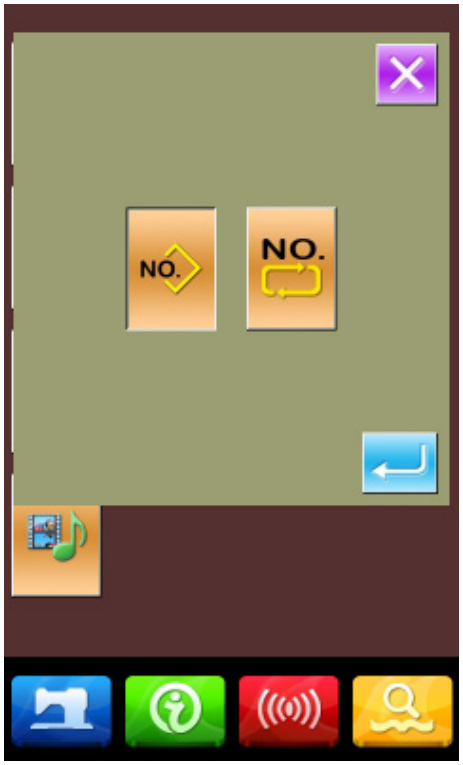
8.5Change Sewing Type

Press  to have access to the interface of sewing type selection (as shown in right).

 : Normal Sewing

 : Combination Sewing

After confirming the sewing type, user can press  to end the operation. And then press  to activate the interface for inputting data of the selected sewing type.



8.6 Entry to Pattern Edition

Press  to shift between the following two figures. Select the corresponding mode and then press  to enter the pattern edition mode.

For the specific operation, please refer to 【5 Pattern Edition】

 : Sewing Mode

 : Edition Mode

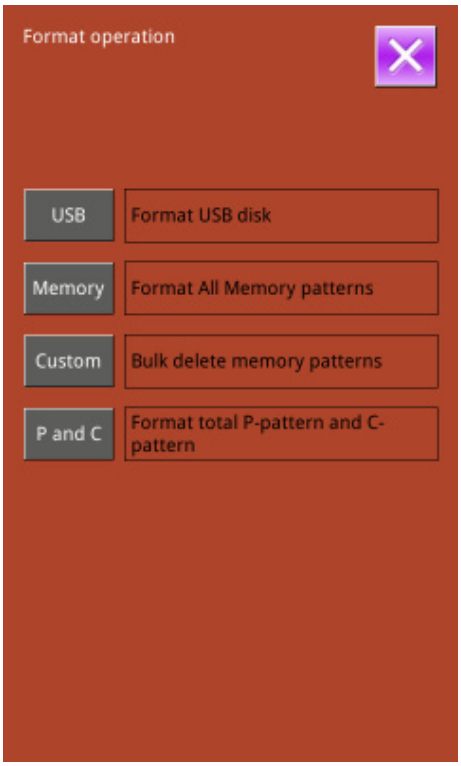
8.7 Initialization

Press  to enter the interface for setting the initialization, where user can do the following operations.

In this interface, user can operate：

- U Disk Initialization
- Memory Initialization
- Customized Initialization
- P and C Pattern Initialization

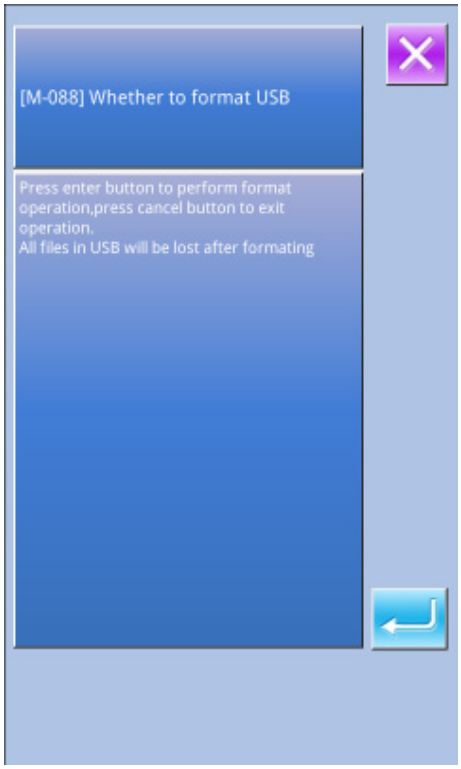
Press the relating functions keys and enter the corresponding interface.



1）Press “USB” to Initialize U Disk File

Press  to initialize all the U disk files

Press  to quit U disk initialization

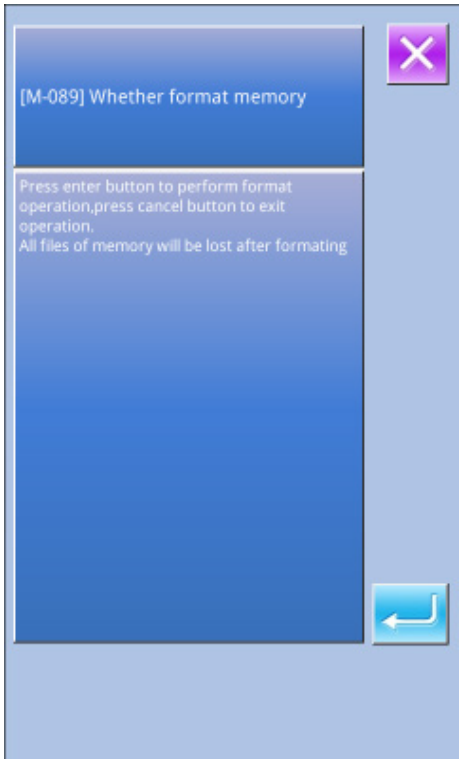


2）Press “Memory” to initialize memory patterns

Press  to initilize memory; Press  to quit

After the initialization of memory, the entire patterns will be deleted, including the C patterns and P patterns. Then the system will load the default patterns again.

※Caution! This operation will delete all the patterns within the memory!

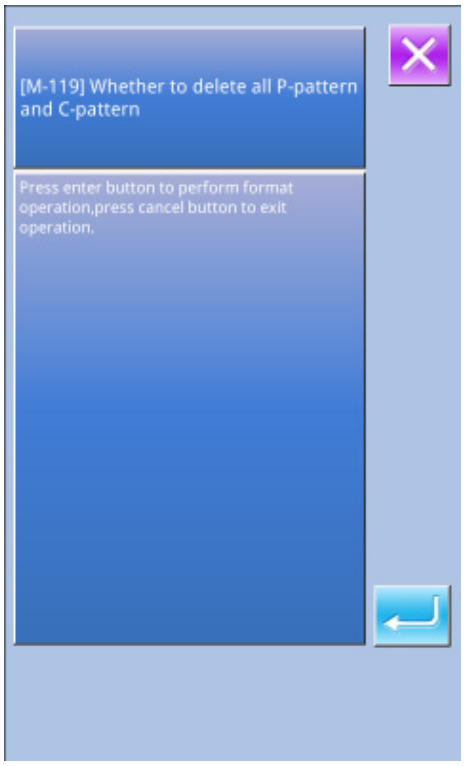


3） Press “Custom” to perform the batch deletion

In this interface, the system will display all the pattern files within the memory. Click the corresponding button to perform the batch deletion.

4） Press “P & C” to delete the entire P patterns and C patterns

Press  to delete the entire P patterns and C patterns. Press  to quit.

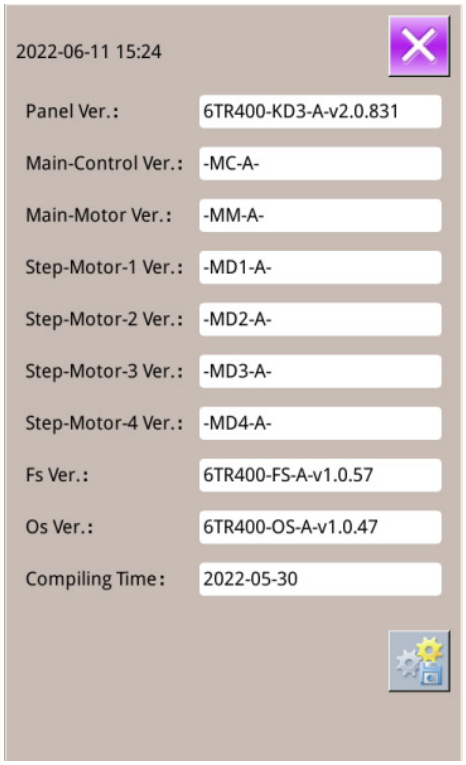


8.8 Software Version Inquiry

At Mode Setting Level 2 Interface, user can press 

to check the software version of system.

 ：Save the Current version information to the root directory of U disk.



8.9 Keyboard Lock

In the interface of setting mode level 2, press 
to have access to the interface of keyboard lock setting.

1）Operation for Locking Keyboard

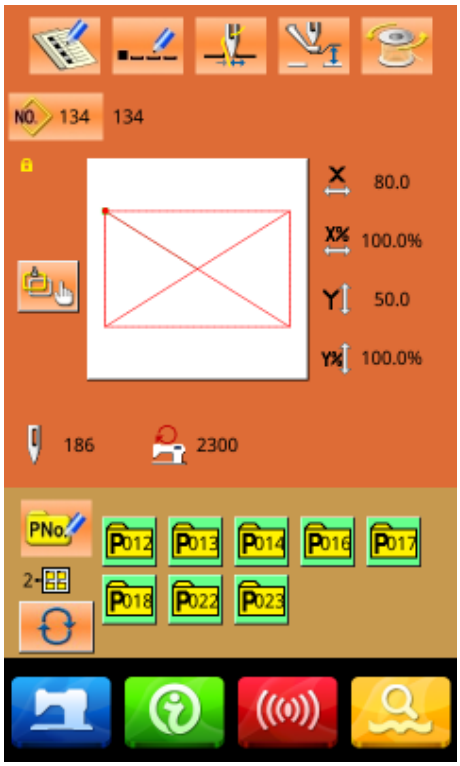
 ：Keyboard Unlocked

 ：Keyboard Locked

Select  and press  to lock keyboard.

2）Display of Keyboard Lock Status

Close parameter setting mode interface and return to data input interface (as shown in right). We can see a small figure “ ” under the pattern number, which means the keyboard is locked.



③ Range of Keyboard Lock

1、Interface of Normal Sewing Data Input：
- Pattern Registration
- Pattern Naming
- Scale Rate Setting
- Max Speed Limitation
- P Pattern Registration

2、Normal Sewing Interface：
- Counter Setting
- Thread-tension Setting

3、P Pattern Input Interface：
- P Pattern Edition
- P Pattern Copy
- P Pattern Naming

4、P Pattern Sewing Interface：
- Counter Setting

5、C Pattern Data Input Interface：
- C Pattern Registration
- C Pattern Copy
- C Pattern Naming
- C Pattern Edition

6、C Pattern Sewing Interface：
- Counter Setting

7、Parameter Setting Mode：
- Parameter Level 1
- Parameter Level 2
- Counter Edition
- Test Mode

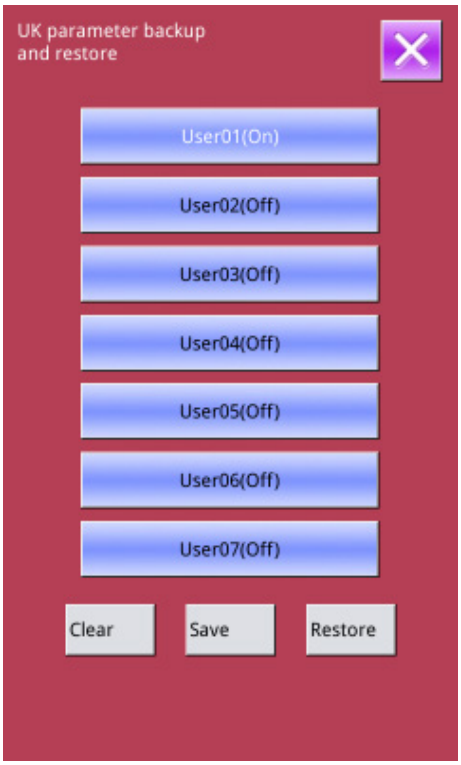
8.10 Parameter Back-up & Recovery

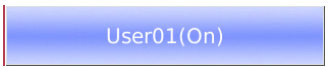
In setting mode level 3, press  to enter the interface of parameter back-up & restoration, as shown in right:

Clear：Clear all the customized parameters that are saved.

Save：Save current parameters

Restore：Restore the current parameters



① Click any key among 

~ 

o set the position for saving the parameter. And then press「Save」to save that parameter.

② Check the content on「Custom xx（On/Off）」. If「On」 is displayed in bracket, that means this position has the user parameter, for an example 

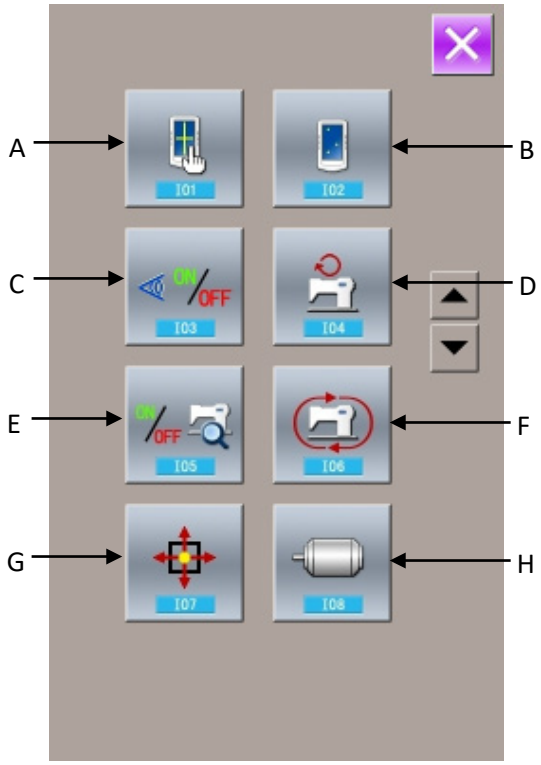
.

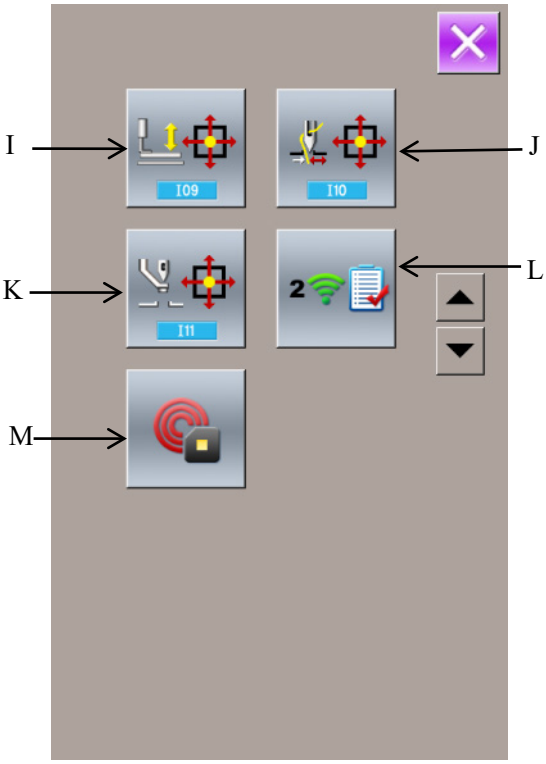
③Select the button with parameters, press「Restore」to reload the corresponding parameter values

④Press「Clear」to delete all the saved parameters

8.11 Test Mode

In the interface of Setting Mode Level 2, press  to have access to the interface of testing mode (as shown in the right figure).by using  &  to turn the page.



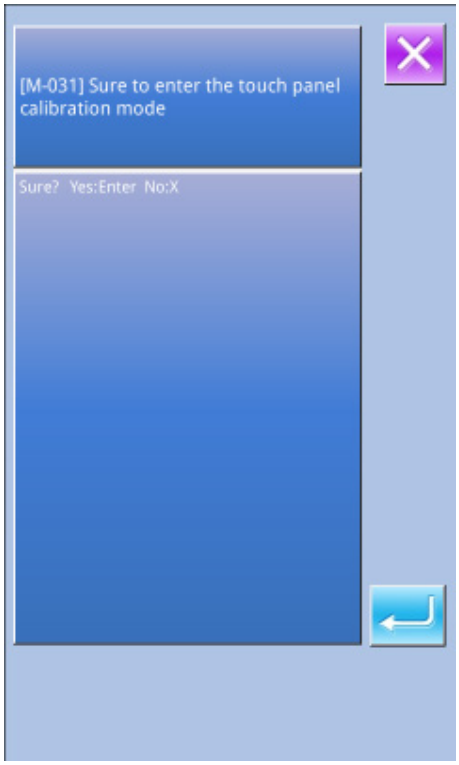


No.	Name
A	I01 Touching Panel Correction
B	I02 LCD Test
C	I03 Input Test
D	I04 Speed Measurement
E	I05 Output Test
F	I06 Continuous Running
G	I07 XY Motor Origin Test
H	I08 Main-shaft Motor Correction
I	I09 Presser· Thread-trimming Motor/ Origin Sensor Test
J	I10 Thread-holder Motor/ Origin Sensor Test
K	I11 Intermediate Presser Motor/ Origin Sensor Test
L	Network settings
M	RFID settings

1）Touching Panel Correction

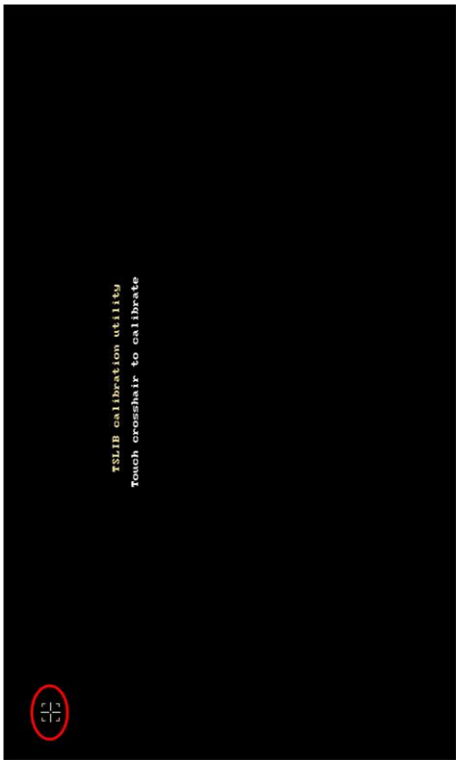
In the interface of test mode, press 

(I01Touching Panel Correction). At this moment, the system will display “Sure to enter the touch panel calibration mode?”. Press  to enter the touching panel correction interface.



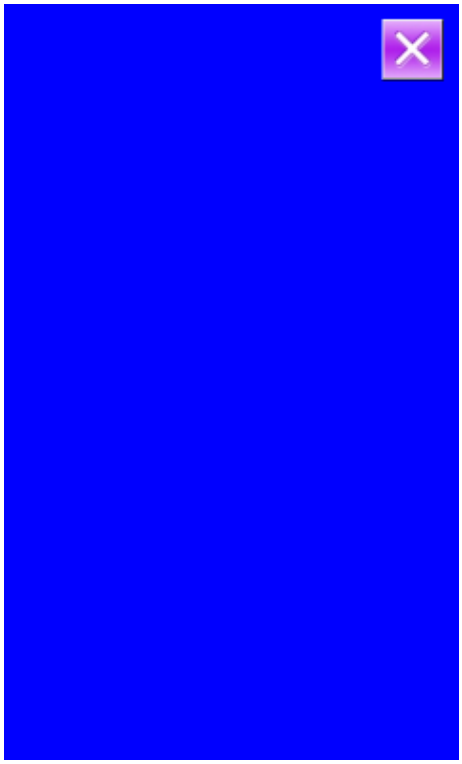
Because the corrections for five spots are needed, the user had better click the cross icon on the screen with tools like touching pen. After the correction, the system will tell user that this operation is successful or not.

【Note】During the correction, please do perform the operation according to the positions of crosses. Otherwise, the touching panel will be unable to work normally after the correction.



2）LCD Test

In the interface of testing mode, press  (I02 LCD Test) to have access to the interface for testing LCD (as shown in right), where user can test whether the LCD is OK.



3）Test Method on Inputted Signal

In the interface of testing mode, press  (I03 Input Test) to enter the interface of input test (as shown in right). User can confirm the input status of the various sensors and switches in that interface.

ON：Turn On

OFF：Turn Off

（1）Start Switch（Pedal）

（2）Presser Switch（Pedal）

（3）Pause Switch

（4）Thread-breakage Detection

（5）X Motor Sensor

（6）Y Motor Sensor

（7）Presser Motor Origin Sensor

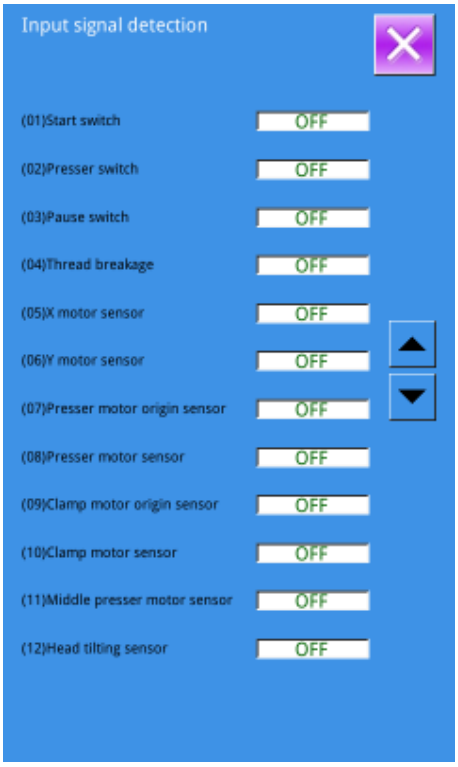
（8）Presser Motor Sensor

（9）Thread-catching Motor Origin Sensor

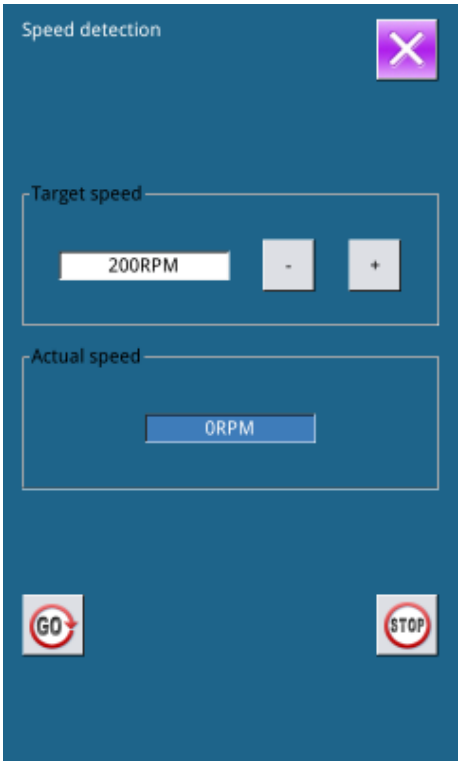
（10）Thread-catching Motor Sensor

（11）Intermediate Presser Motor Origin Sensor

（12）Head Tilting Switch



4）Speed Measurement



①Display of Speed Measurement Interface

In the interface of testing mode, press  (I04 Speed Measurement) to have access to the interface of speed measurement (as shown in right). Users can test the main motor speed in this interface.

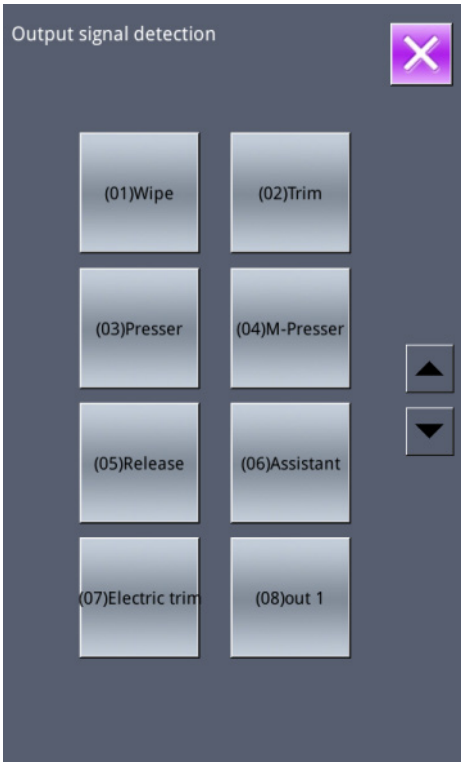
② Speed Measurement Setting

By using  &  , user can set the main motor speed. After user presses  , main motor will run in the set speed. At this moment, the actually measured speed will be displayed at the input column.

Press  to stop the machine.

Press  to return to the upper interface.

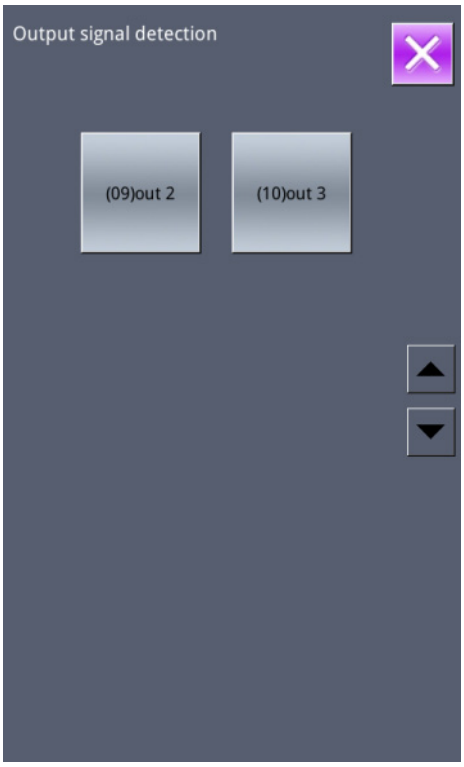
5）Output Test



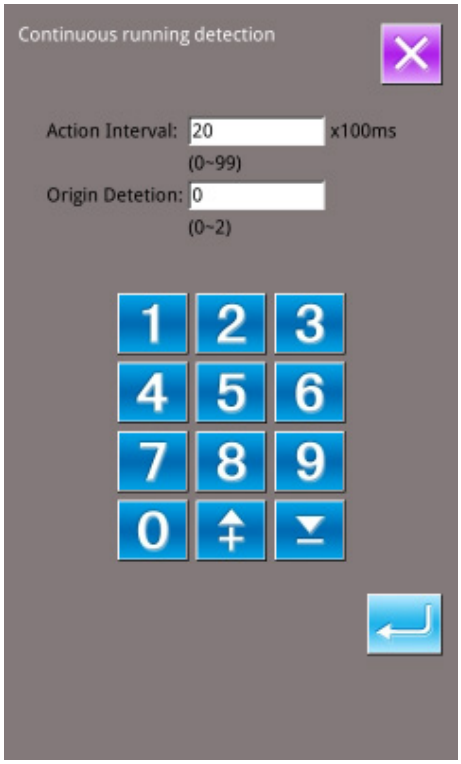
In the interface of testing mode, press  (I05 Output Test) to have access to the interface of Output Test (as shown in right). In that interface, the output status of the solenoid can be tested.

（1）Thread-stirring
（2）Thread-trimming
（3）Presser
（4）Middle Presser
（5）Thread-releasing
（6）Reverse Presser
（7）Electric wire shear
（8）Output 1
（9）Output 2
（10）Output 3

Press the corresponding figures to test the output of each external device.



6）Continuous Running



① Display of Continuous Running Interface

In the interface of testing mode, press  (I06 Continuous Running) to have access to the continuous running interface (as shown in right).

② Continuous Running Setting

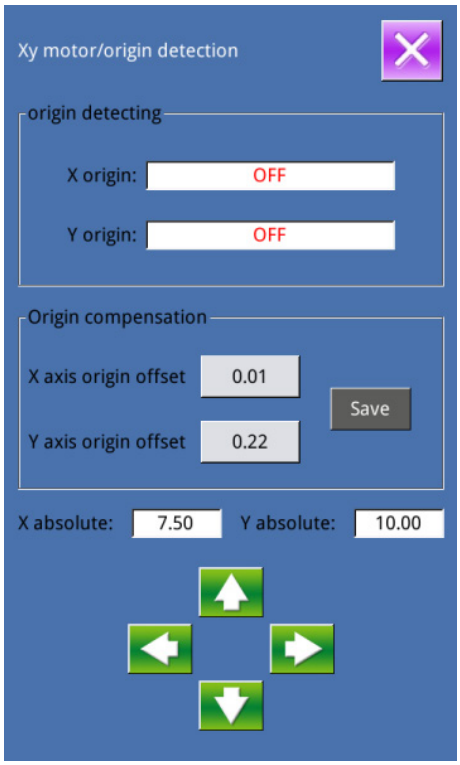
In the interface of continuous running, press the setting figure to set the action interval and gusseting origin test. Press  to return to the interface for inputting data. Then press  and step the pedal to allow machine to run continuously.

7）XY Motor Origin Sensor Test

Origin detection:

In the interface of testing mode, press 

(I07XY Motor Origin Test) to have access to the output test interface (as shown in right). In that interface, user can drive motor to move by using the direction keys, and the ON/OFF status of sensor can be displayed.

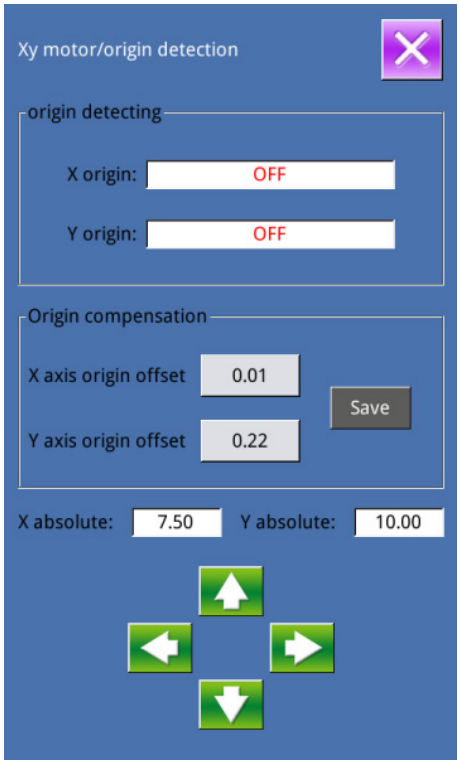


Origin compensation:

1. When powering on the screen for the first time, you need to step on the start pedal to find the origin. At this time, the X absolute coordinate and the Y absolute coordinate become 0.00.

2. After finding the origin point, the motor can be driven by the arrow key to move. At this time, the XY absolute coordinate displays the offset value of the current origin coordinate in the XY direction.Click Save button 

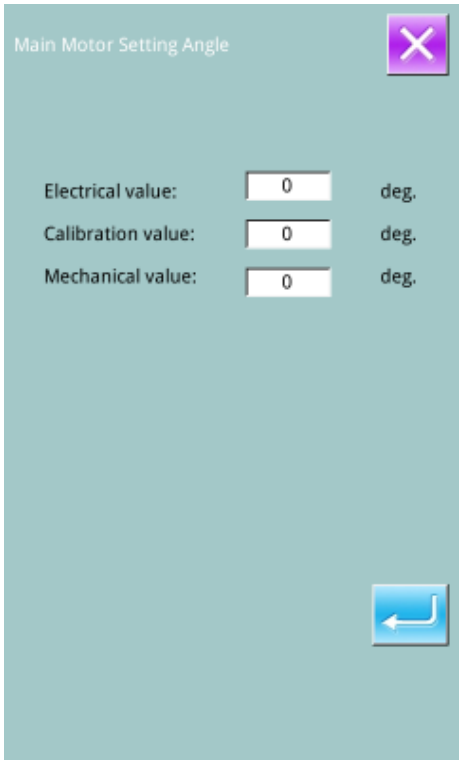
,XY axis origin offset value set successfully, click the exit  key to take effect.



3. you can also directly click the offset value 

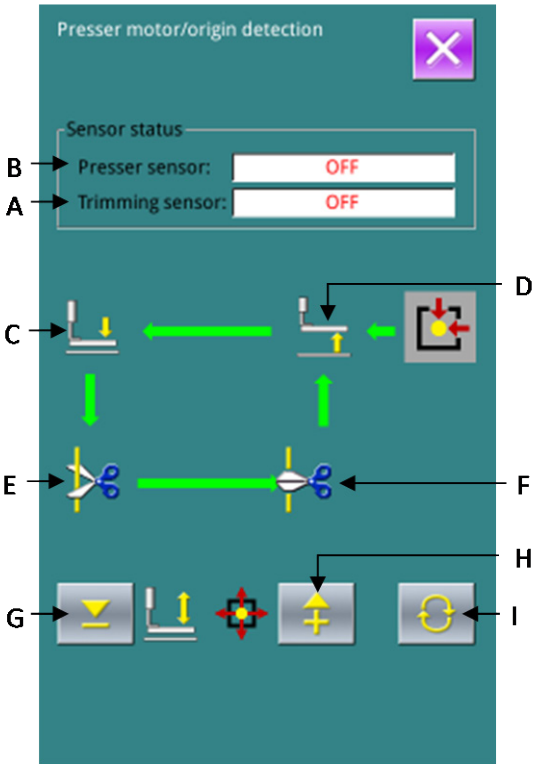
button to enter the X (Y) origin offset setting interface. Enter the set value and click the OK button to return to the detection interface. At this time, there is no need to click the save button and exit the interface directly to take effect.

8）Main-shaft Motor Correction



In the interface of testing mode, press  to have access to the interface of main-shaft motor correction (as shown in right).

In this interface, remove the main motor. Turn the hand wheel on the machine to move the needle bar to the highest position. Then turn the joint linkage of the main shaft to have the electronic angle displayed within 30 degree. Install the main motor again and press  .



In the status of thread-trimming sensor, the ON/OFF status of thread-trimming sensor will be displayed at Position A.

According to the status of presser origin sensor, button B will display the ON or OFF of it.

With  &  , presser/thread-trimming motor can be driven by each single pulse. In addition, by pressing the  , user can drive the presser /thread-trimming motor to the positions at below. The figure of the selected position will be in shadow.

C：Presser Down Position（Lowering position at pedal operation）

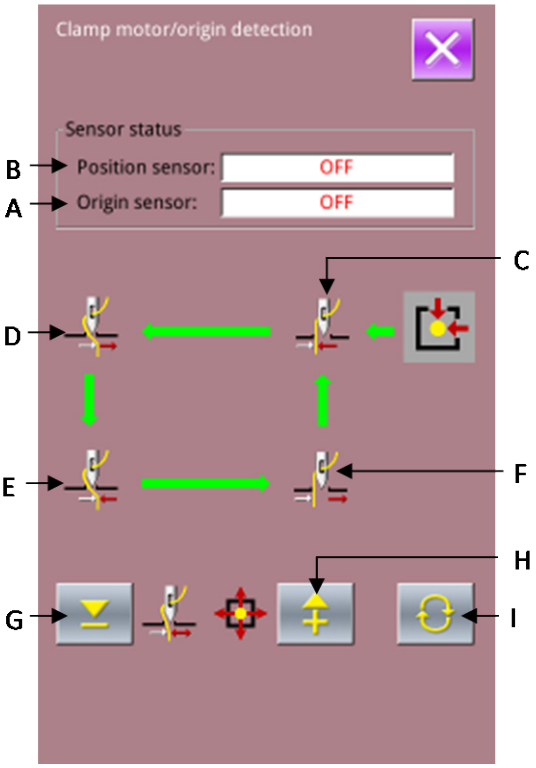
D：Presser Up Position

E：Thread-trimming position

F：Thread-trimming Lowering Position (down position after thread-trimming)

Note: Perform the origin search of the presser · thread-trimming motor with start switch, so as to make it effective.

10）Thread-catching Motor/ Origin Sensor Test



According to the status of thread-catching origin sensor, button A will display ON/ OFF of it.

According to the status of thread-catching sensor, button B will display ON/OFF of it.

With  &  , presser/ thread-trimming motor can be driven in each single pulse. In addition, by pressing the  , user can drive the presser /thread-trimming motor to the positions at below. The figure of the selected position will turn dark.

C：Ready Position（Front）

D：Thread-bending position

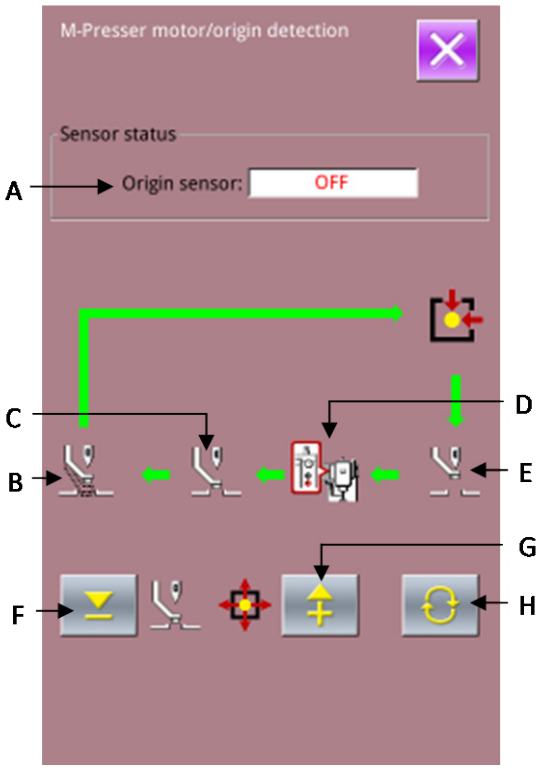
E：Thread-holding position

F：Retreating position（Inner side）

With start Switch, user can search the origin of thread-catching motor.

Note ： Perform the origin search of the thread-catching with start switch, so as to make it effective.

11 ） Intermediate Presser Motor/ Origin Sensor Test



According to the status of intermediate presser origin sensor, button A will display ON/ OFF of it.

With  &  , presser/ thread-trimming motor can be driven in each single pulse. In addition, by pressing the  user can drive the presser /thread-trimming motor to the positions at below. The figure of the selected position will turn dark.

B： Adjusted Position of Intermediate Presser Rod

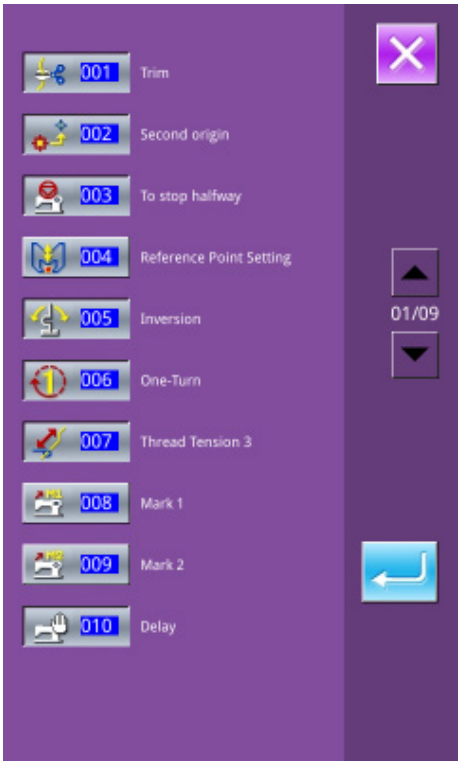
C： Position that down position height is 0 at lowering

D： Position for Phase Confirmation

E：Position that down position height is 7mm at lowering

Use start switch to search the origin of intermediate presser motor.

8.12 Pattern Edition Parameter Setting



In the interface of Setting Mode Level 3, press  to have access to the interface for setting pattern edition parameters.

The figures in dark are the available functions, while the figures in bright are the functions forbidden.

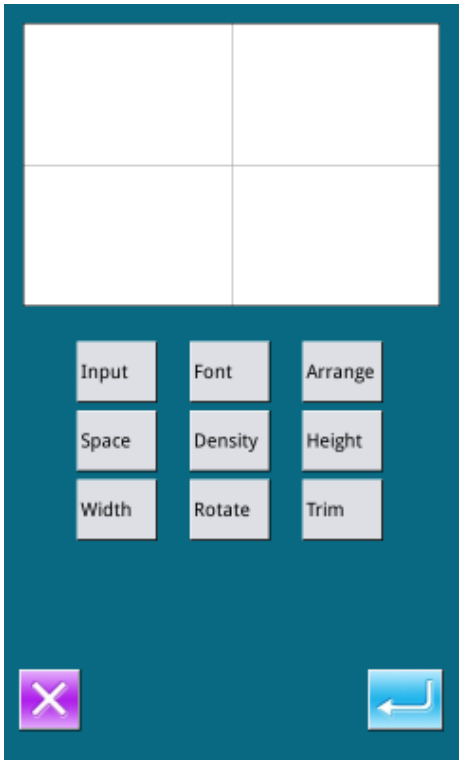
Set the edition parameters according to the needs, press  to finish the settings.

8.13 Letter Embroidery Editions

8.13.1 Parameter Setting

Press 

to have access to the interface for setting letter embroidery parameters (as figure 1 at right).

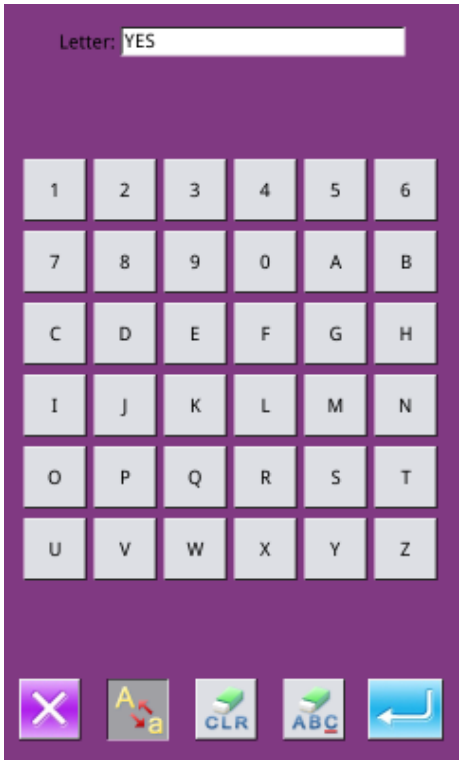


Function List:

Name	Function	Content
Input	Input figure	Input figure. At most, 20 figures can be input.
Font	Select Font	Support 28 kinds of font
Arrange	Method of Array	Four kinds of array method: Horizontal Line, Vertical Line, Convex Arc and Concave Arc
Space	Letter Interval	Set the interval between neighboring letters
Density	Satin Density	Set the density of satin. The larger the set value is, the denser the satin will be.
Height	Height Scaling	Scale the height of letter, range from 50~200.
Width	Width Scaling	Scale the width of letter, range from 50~200.
Rotation	Rotation/Follow （ not Follow）	When the array method is line (Horizontal or Vertical), this button will be displayed as Rotation, so that user can use it to set rotating angle of letters; When the array method is arc (Convex Arc or Concave arc), this button will be displayed as Follow (Not Follow), so that user can use it to set whether the figure rotates along with arc.
Thread-trimming	Trim/ No Trim	Make sure whether to insert thread-trimming automatically.

1、Figure Input

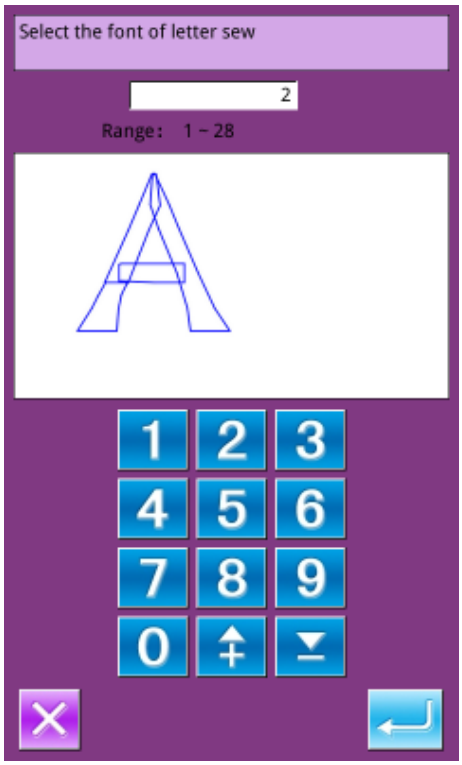
Press「Input」to enter the figure input interface. User needs at least input 1 figure, while 20 figures can be input at most. Press  to save it and quit.



2、Select Font

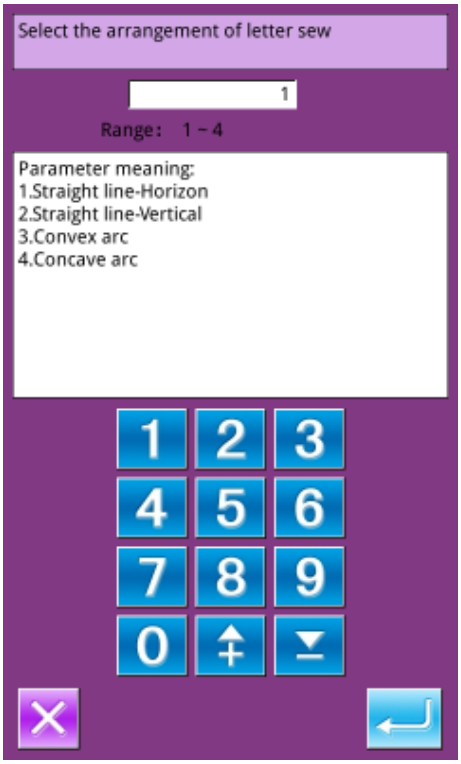
Press「Font」to enter the font selection interface. The system provides 28 kinds of font. User can input figure from 1 to 28 to select it. Press  to save it and quit.

In this interface, the shape of font will be displayed.



3、Arrangement Method

Press「Array」to enter the interface for setting the array method. In this interface, user can select Horizontal Line, Vertical Line, Convex Arc or Concave Arc. Press  to save it and quit.



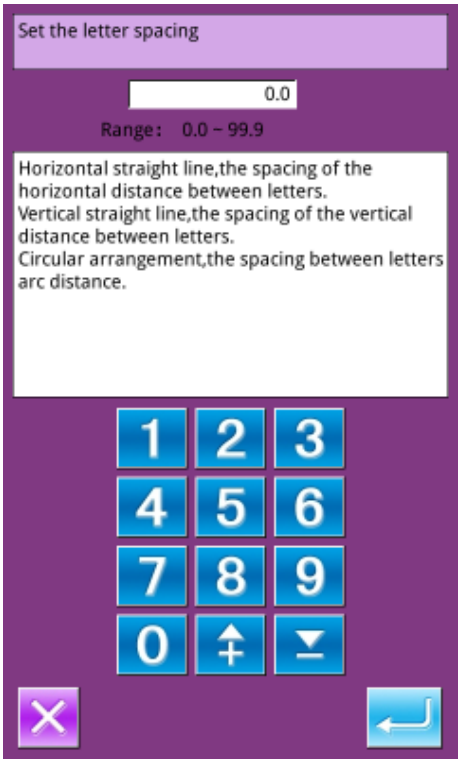
4、Letter Interval

Press「Interval」to enter the interface for setting. At horizontal arrangement, the interval is the horizontal distance.

At vertical arrangement, the interval is the vertical distance.

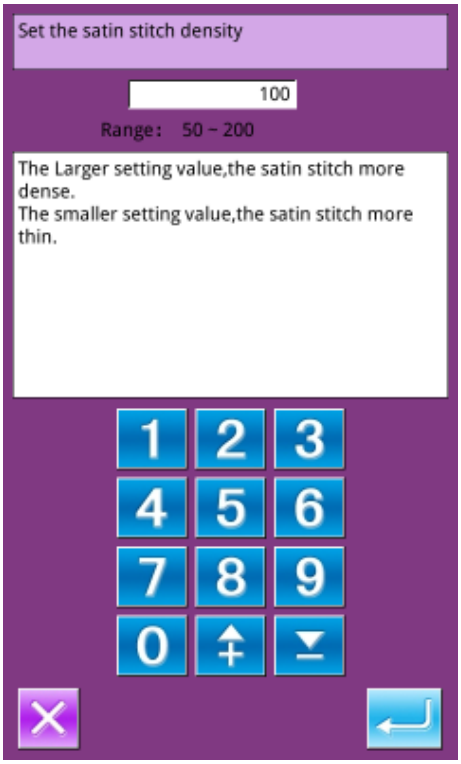
At arc arrangement, the interval is the distance between the letters on the arc.

Range is 0~99.9mm。



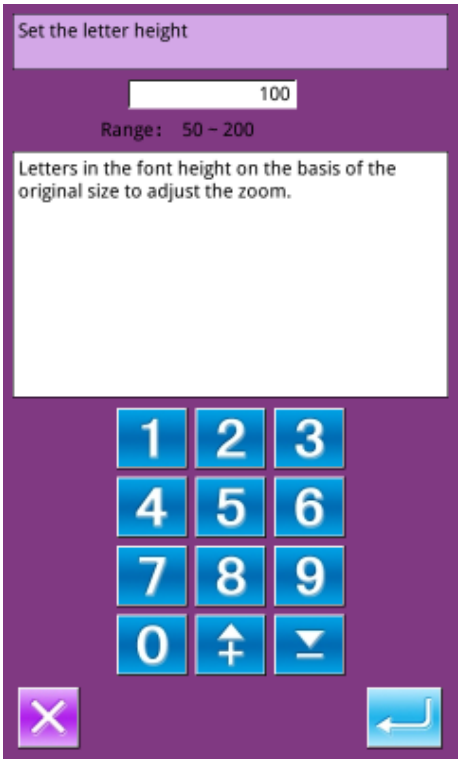
5、Satin Density

Press「Density」to enter the interface for setting the satin density. The range of satin density is 50~200.



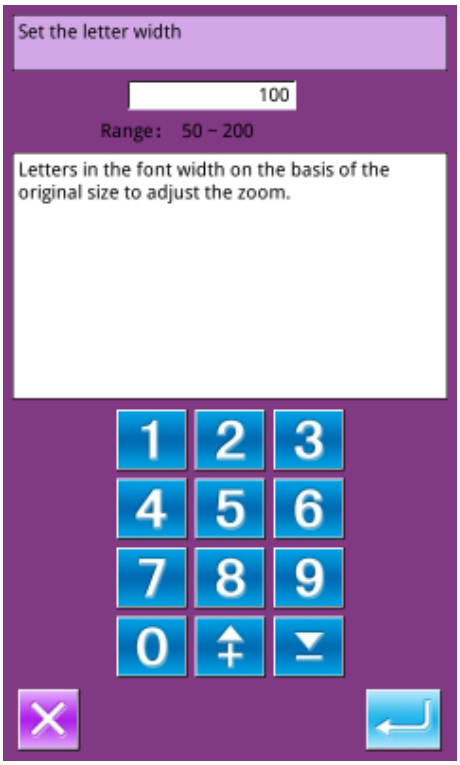
6、Height Scale

Press「Height」to enter the interface for setting the letter height. The scale rate of letter height is 50~200.



7、Width Scale

Press「Width」to enter the interface for setting the letter height. The scale rate of letter width is 50~200.

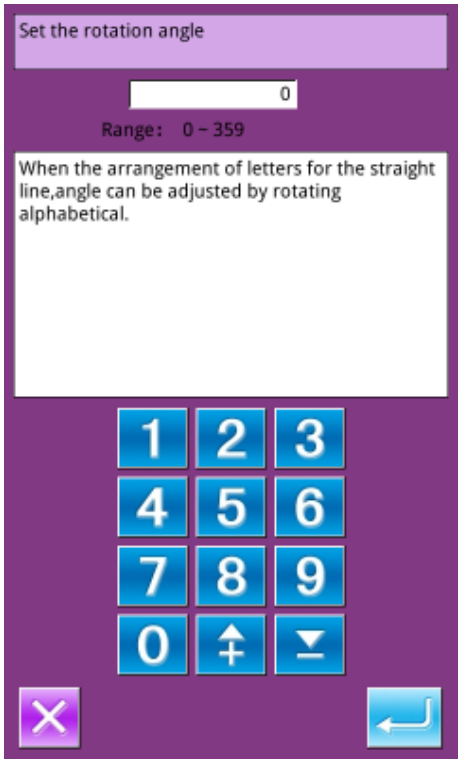


8、Rotation Angle

When the array method is horizontal or vertical arrangement, this button is the rotating angle of letter. Press “Rotation” to enter the interface for setting the rotating angle.

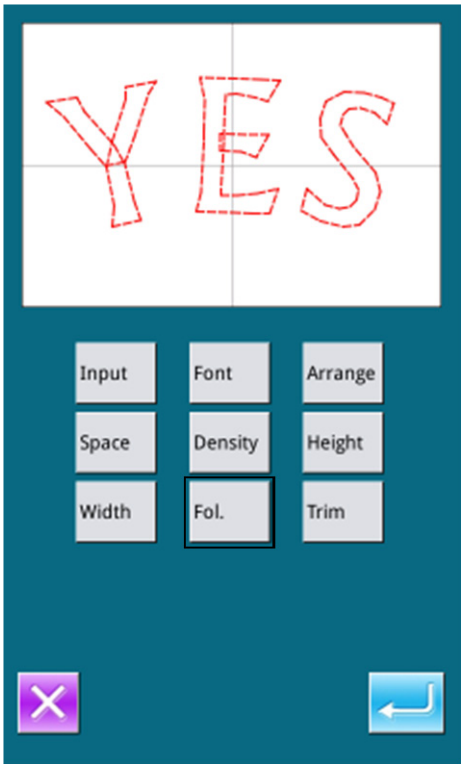
The rotating direction is anti-clockwise, ranging at 0°~359°。

Note: When the arrangement method is convex arc or concave arc, this button will be used to set whether the letter rotates with arc.



9、Follow/ Not Follow

When the arrangement method is convex arc or the concave arc, this button will be used to set whether the letter rotates along with the arc. Press this button to shift between “Follow” and “Not Follow”.

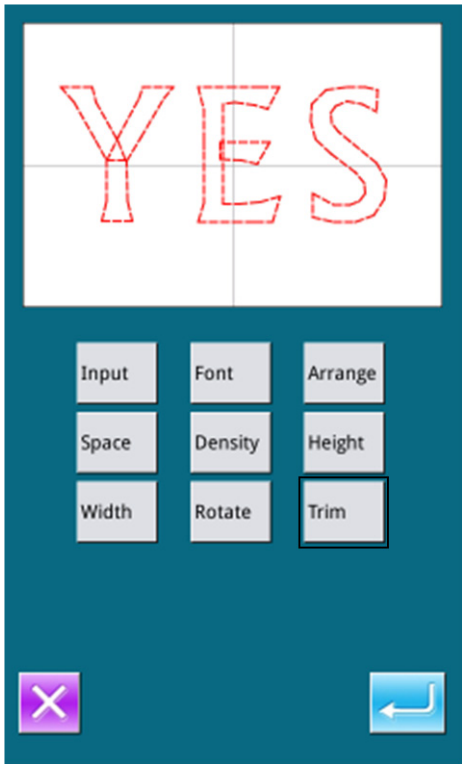


【Note】: When the arrangement method is horizontal line or vertical line, this button is used to set rotating angle.

10、Auto Insert Trimming

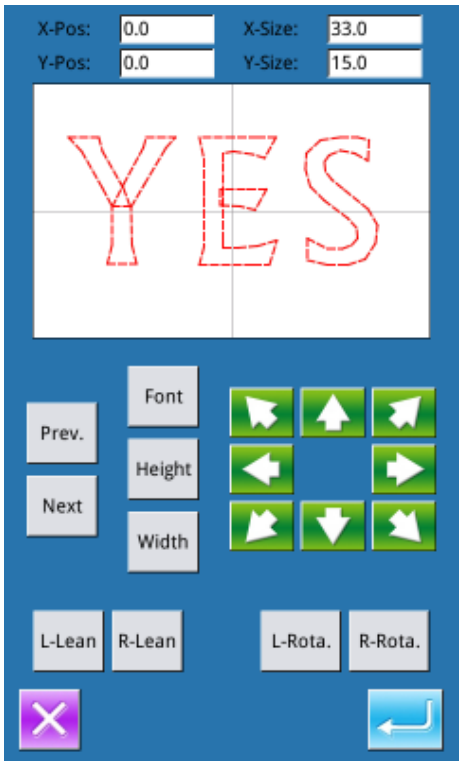
In default condition, the system will add trimming code automatically, which is to add trimming code at the joint between linear sewing and empty feeding at letter sewing, as well as the sewing end.

Press this button to shift between “Trim” and “Not Trim”. “Not Trim” means the system deactivates the functions for adding trimming code automatically.



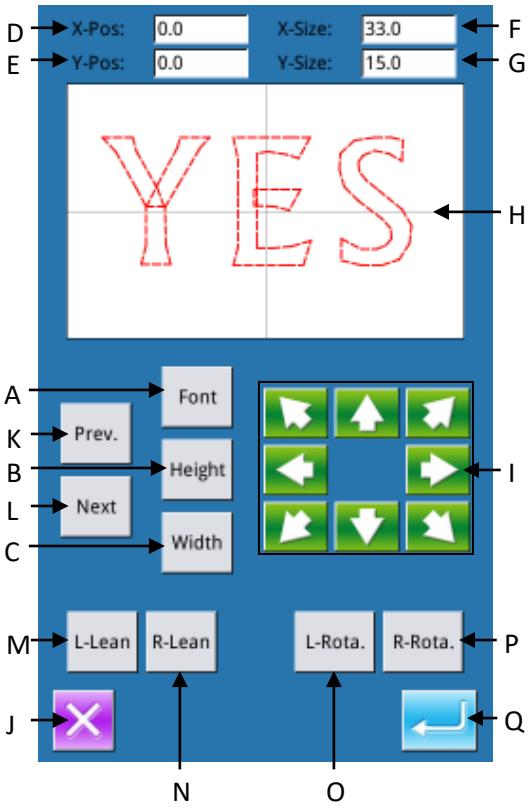
11、Confirm the Pattern

Set the pattern for sewing and press  to enter the interface for adjusting the letter sewing pattern.



8.13.2 Adjustment of Pattern at Letter Sewing

In the interface for setting the parameter of letter sewing, user can set each parameter. Then user can press  to enter the adjustment interface, where user can have the further adjustmetn on the pattern.



Function List：

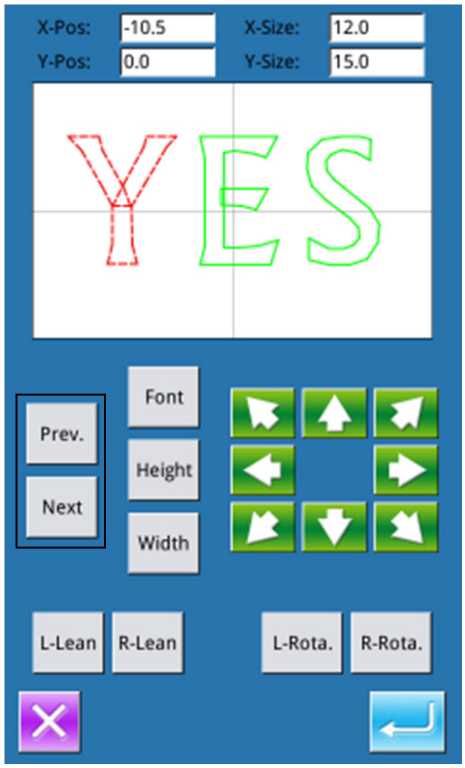
No.	Function	Content
A	Font Selection	Change the font of the selected letter. The setting method is same as setting the parameters.
B	Height Scaling	Change the scale rate of the height of the selected letter. The setting method is same as setting the parameters.
C	Width Scaling	Change the scale rate of the width of the selected letter. The setting method is same as setting the parameters.
D	X Position	Display the X coordinate of the center of the selected Letter
E	Y Position	Display the Y coordinate of the center of the selected Letter
F	X Size	Display the width of the selected letter
G	Y Size	Display the height of the selected letter
H	Pattern	Display the shape of the current pattern. The selected letter is displayed in red, while the unselected letters are displayed in green.
I	Direction Key	Change the position of the selected letter.
J	ESC	Return to the upper interface.
K	Figure Selection (Right to Left)	Select the previous letter for adjustment, the selected letter is displayed in red. If user presses it at selecting the last letter, all the letters will be selected.
L	Figure Selection (Left to Right)	Select the next letter for adjustment, the selected letter is displayed in red. If user presses it at selecting the last letter, all the letters will be selected.
M	Left Lean/ Radian Down	When the arrangement method is set as horizontal line or vertical line, this button will be displayed as “Left Lean”. Press it to turn the pattern in counterclockwise as a whole. The origin for the rotation is the circle center. When the arrangement method is the convex arc or concave arc, this button will be displayed as “Radian Down”, press it to decrease the radian of the arc. 【Note】This operation is for the entire pattern.
N	Right Lean/ Radian Up	When the arrangement method is set as horizontal line or vertical line, this button will be displayed as “Right Lean”. Press it to turn the pattern in counterclockwise as a whole. The origin for the rotation is the circle center. When the arrangement method is the convex arc or concave arc, this button will be displayed as “Radian Up”, press it to increase the radian of the arc. 【Note】This operation is for the entire pattern.
O	Left Rotation	Adjust the rotating angle of the selected letter in counterclockwise direction. The rotation center is the center of the letter.
P	Right Rotation	Adjust the rotating angle of the selected letter in clockwise direction. The rotation center is the center of the letter.

Q	ENTER	Press it to enter the pattern saving interface.

Example：

1、 Select one Letter for Adjustment

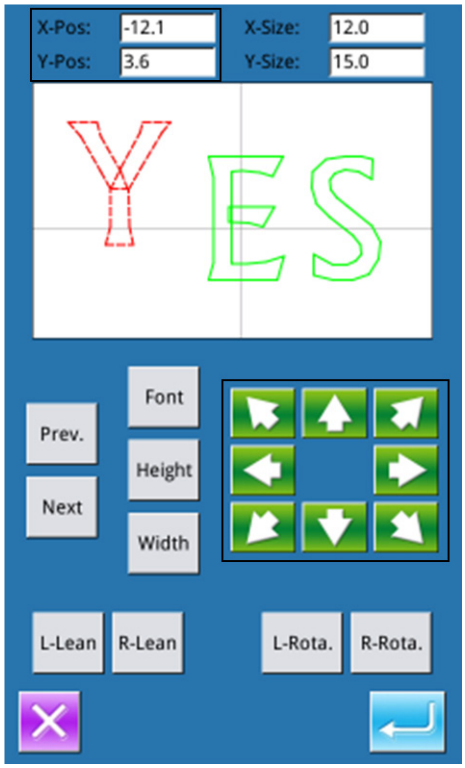
Press「Previous」or「Next」to select one letter for edition. The selected letter is in red, while the unselected letter is in green.



2、 Letter Position Adjustment

Press the direction key to adjust the position of the selected letter. User can use the Y Position and the X Position to check the coordinates.

With the same operation, user can continue adjusting the position of other letters.

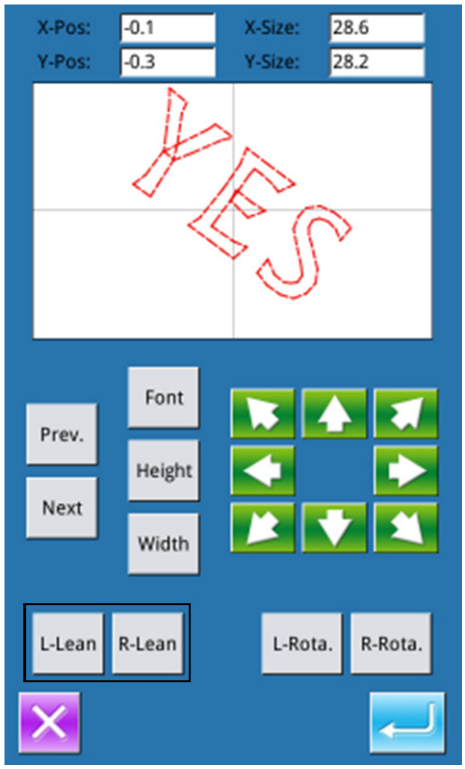


3、 Rotating Angle Adjustment of Entire Pattern

Press「Left Lean」or「Right Lean」 to adjust the rotating angle of the entire pattern.

「Left Lean」： Counterclockwise Rotation

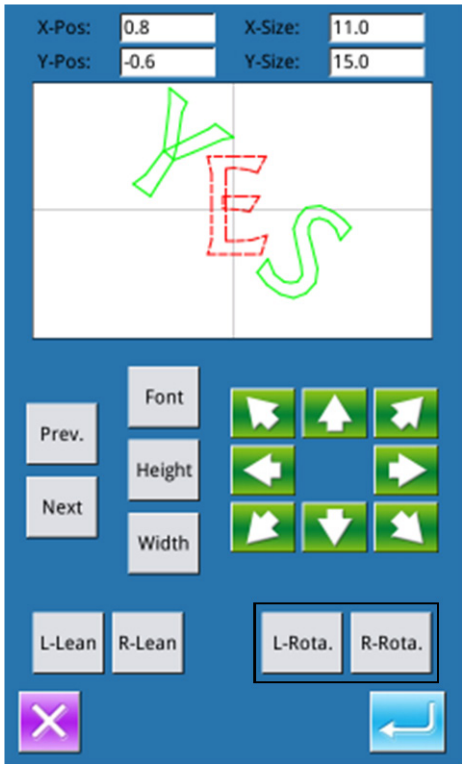
「Right Lean」： Clockwise Rotation



【Note】: When the arrangement method is convex arc or the concave arc, this button will be turned to "Radian Up"/ "Radian Down", so as to adjust the radian of the entire pattern.

4、 Rotating Angle Adjustment of Single Letter

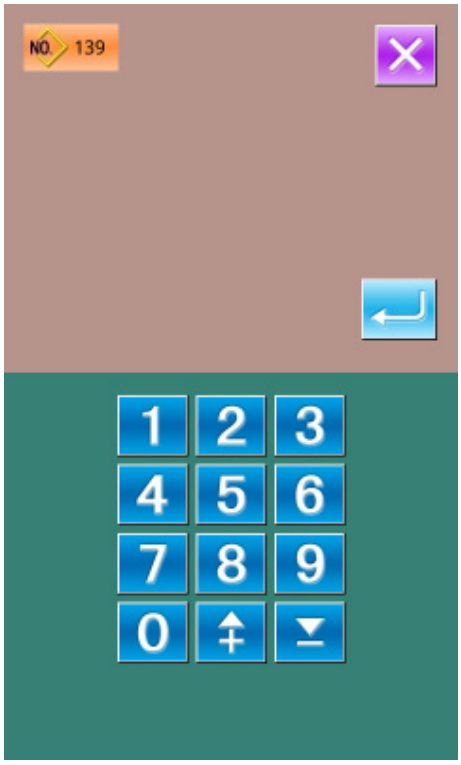
Select a letter then press "Left Rotation" or "Right Rotation" to adjust the rotating angle of the selected letter.



【Note】: When user needs to adjust the rotating angle, user had better to perform the rotation of the entire pattern, and then adjust the single letter. If user adjust the single letter at first then the entire pattern, the adjustment of the single letter will be cancelled.

5、 Save Pattern

After the adjustment, please press  to enter the saving interface. After user inputs the number, the pattern is saved.



9 Appendix 1

9.1 Warning List

No.	Name	Method of Release
E002	The machine enters an emergency stop state	Check the emergency stop switch status
E003	Confirm that the nose is down	Check the machine head
E008	Auxiliary equipment voltage (24V) overload	Turn off the power and check the system hardware
E010	The air valve (fan) is faulty	Turn off the power and check the system hardware
E013	The encoder is faulty or not connected	Turn off the power and check the system hardware
E014	The motor is running abnormally	Turn off the power and check the system hardware
E015	Out of the sewing range during movement	Press OK to resolve the fault
E016	Needle bar upper position abnormal	
E017	Broken wire detection is abnormal	Press OK to resolve the fault
E019	The emergency stop switch is not in the normal position	Please check the emergency stop switch
E020	Software version of step-motor error	Please turn off the power
E023	The grab line position is abnormal	Please turn off the power
E025	X origin detects anomalies	Please turn off the power
E026	Origin Y detects anomalies	Please turn off the power
E027	The press foot origin is detected abnormally	Please turn off the power
E028	Catch the line origin to detect abnormalities	Please turn off the power
E029	Medium pressure foot origin detection abnormality	Please turn off the power
E032	The stepper drive power supply is abnormal	Please turn off the power
E034	Abnormal current	Please turn off the power
E039	Motor overspeed	Please turn off the power
E041	The motor is overloaded	Please turn off the power
E051	X motor overcurrent	
E052	Y motor overcurrent	
E053	Medium voltage foot motor overcurrent	
E054	Cord-cutting motor overcurrent	
E055	Wire grab motor overcurrent	
E056	Auxiliary motor overcurrent	
E057	X motor block run	
E058	Y motor block run	
E059	The medium voltage foot motor is running abnormally	
E060	The cord-cutting motor is running abnormally	
E061	The wire grab motor is running abnormally	

No.	Name	Method of Release
E062	The auxiliary motor is running abnormally	
E063	Step 1 checks for errors	
E064	Step 2 checks for errors	
E065	Step 1 is not an invalid command	
E066	Step 2 is not an invalid command	
E067	Step 1 instruction coverage	
E068	Step 2 instruction coverage	
E069	Step 1 communication is not connected	
E070	Step 2 communication is not connected	
E071	Step illegal instructions	
E072	The bottom line is inadequate	
E074	The RFID reader module is abnormal	
E254	Undefined error	

9.2 Hint List

No.	Name	Content
M-001	Pattern data does not exist	Please re-read or typeset the input
M-002	The setting value is too large	Please enter a range of values
M-003	The setting value is too small	Please enter a range of values
M-004	Storage parameter exception	Press OK to restore factory settings
M-005	Communication error	The operation head communicates with the control box abnormally
M-006	Letter embroidery library file failed to read	
M-007	The operating head does not match the control box type	Check the model and software version
M-008	Maximum stitch pitch exceeded	
M-009	The password is incorrect	Please re-enter
M-010	Hardware clock failure	If the hardware clock is found to be faulty, please contact the manufacturer for repair
M-011	The letter embroidery pattern is saved successfully	Please enter the pattern selection interface and select the newly generated letter embroidery pattern
M-012	SRAM initialization	Clear all data in SRAM, power off and restore the DIP switch position
M-013	Shut down, goodbye	
M-014	The USB drive is unplugged	The USB drive has been unplugged
M-015	No pattern data was found on the USB flash drive	
M-016	Enter at least one letter	Letter embroidery requires at least one letter to be entered!
M-017	No alarm logged	
M-018	Incorrect user ID was entered	Please re-enter

M-019	Failed to confirm password	Please re-enter your password
M-020	Modification of the system time is prohibited	The installment password is set and the system time cannot be modified
M-021	Password file write failed	
M-022	Password file read failed	
M-023	The password is saved successfully	
M-024	Failed to clear all passwords	Password files cannot be deleted
M-025	Failed to clear password	After clearing the password, the file is written abnormally
M-026	The password file was maliciously deleted	The installment password set by the user is maliciously deleted, please shut down
M-027	User ID file corruption	
M-028	The input cannot be empty	Please enter a password
M-029	The current password does not match	Please re-enter your current password
M-030	The new password is inconsistent	Please re-enter your new password and confirm again
M-031	Make sure to enter touchscreen correction mode	Is it sure? Yes: Enter No: X
M-032	The touch screen correction is successful	The correction is successful, please turn off the power and restart
M-033	Touch screen correction failed	Please recalibrate
M-034	Make sure the alarm record is cleared	Is it sure? Yes: Enter No: X
M-035	The installment password cannot be the same as the total password	Please re-enter your password
M-036	Trick data error	The current pattern data is wrong and will be replaced by the factory pattern!
M-037	Pattern information file failed to open	Factory reset the pattern!
M-038	The number of tricks is full	Please delete the tricks you don't use before you do it!
M-039	Whether to cover the pattern	Is it sure? Yes: Enter No: X
M-040	P pattern opening failed	Pattern file errors will be deleted
M-041	C pattern opening failed	Pattern file errors will be deleted
M-042	The pattern already exists	The overwrite operation cannot be performed
M-043	Whether to delete pattern data	Press the OK key to perform the delete operation, and press the Cancel key to exit the current operation.
M-044	Whether to delete the selected files	Is it sure? Yes: Enter No: X
M-045	Patterns are referenced and cannot be deleted!	Please dequote in the P pattern or C pattern
M-046	Please keep at least one trick!	The last trick cannot be deleted
M-047	Load factory patterns	There are no tricks in the memory, you need to load the factory tricks
M-048	There are no tricks in memory	Press OK to load the factory pattern
M-049	The input number does not exist	Please re-enter
M-050	P tricks do not exist	Please create a P pattern first

M-051	Save the software version successfully	The software version has been successfully saved to the root directory of the USB flash drive
M-052	Replace the needle	The replacement needle setting has arrived, please replace the needle
M-053	Change the oil	The oil change time setting has arrived, please change the oil
M-054	Sweep the machine	The cleaning machine time setting has arrived, please clean the machine
M-055	Determine the clearance replacement needle count value	Is it sure? Yes: Enter No: X
M-056	Determine the clearance replacement oil count value	Is it sure? Yes: Enter No: X
M-057	Determine the purge time count value	Is it sure? Yes: Enter No: X
M-058	Determine the Clear Production Management count value	Is it sure? Yes: Enter No: X
M-059	Determine the purge cumulative running time?	Is it sure? Yes: Enter No: X
M-060	Determine the number of accumulated sewing pieces cleared?	Is it sure? Yes: Enter No: X
M-061	Are you sure you clear the accumulated power-up time?	其否确定？是：enter　否：X
M-062	Determine the number of accumulated sewing needles removed?	其否确定？是：enter　否：X
M-063	Determine the number of times to clear accumulated overcurrent?	其否确定？是：enter　否：X
M-064	Are you sure how many times to clear accumulated parking errors?	其否确定？是：enter　否：X
M-065	Do you want to edit new tricks?	Is it sure? Yes: Enter No: X
M-066	Do you want to return to sewing mode?	Is it sure? Yes: Enter No: X
M-067	Whether to restore all settings	Is it sure? Yes: Enter No: X
M-068	Whether to restore selected items	Is it sure? Yes: Enter No: X
M-069	No item selected	Select one or more parameter items
M-070	Sew counter to reach the set value	Press OK to clear
M-071	The piece counter reaches the set value	Press OK to clear
M-072	succeed	The current operation was successfully performed
M-073	fail	The current operation failed to execute
M-074	Failed to copy file	Check if the disk space is full
M-075	Failed to copy file	Please check if the USB stick is unplugged
M-076	File read and write errors	File read and write errors
M-077	Validation failed when upgrading the master	
M-078	Pattern data cannot be deleted	The selected sewing data is in use
M-079	Whether to perform a parameter transfer operation	Is it sure? Yes: Enter No: X
M-080	The conversion pattern cannot be opened	Please check the pattern file
M-081	The conversion pattern format is incorrect	Please check the pattern file

M-082	Converting pattern data is super long	Please check the pattern file
M-083	The upgrade was successful	The upgrade is successful, please restart the machine
M-084	Failed to open file	Failed to open file in USB flash drive
M-085	The recovery parameter was successful	The recovery parameters are successful, please restart the machine
M-086	The upgrade entry is not selected	Check the entries you want to upgrade, and at least one entry
M-087	Some of the selected upgrade entries are not present	Entries that do not exist for upgrade files will be unchecked when returned, so please check again if you want to upgrade the remaining entries
M-088	Whether to format the USB flash drive	Press OK to perform the format operation, and press the Cancel key to exit the current operation. After formatting, all USB stick files will be deleted!
M-089	Whether to format memory	Press OK to perform the format operation, and press the Cancel key to exit the current operation. After formatting, all memory trick data will be deleted!
M-090	Insufficient memory space	
M-091	This feature cannot be selected	
M-092	The formulated shape point repeats	
M-093	The rollback operation cannot be performed	
M-094	There is no data for the next stitch	
M-095	There is no data for the last stitch	
M-096	The trick data is too large	
M-097	Abnormal operation	
M-098	Typography common error	
M-099	The pattern does not exist	
M-100	Movement range exceeded	
M-101	Out of the sewing range	Please make sure that the pattern data is within the sewing range
M-102	The number of pins is out of range	Please reduce the number of stitches
M-103	Pattern file data error	
M-104	The confirmation point changes	
M-105	Confirm that the cord cut is inserted automatically	
M-106	Delete the new edit pattern	The OK key confirms and the Exit key cancels
M-107	Delete features	The OK key confirms and the Exit key cancels
M-108	Execution, confirmation?	The OK key confirms and the Exit key cancels
M-109	Remove a mechanical control command?	The OK key confirms and the Exit key

		cancels
M-110	Delete the drop point	The OK key confirms and the Exit key cancels
M-111	Move the presser feet, confirm?	The OK key confirms and the Exit key cancels
M-112	Delete a shape point	The OK key confirms and the Exit key cancels
M-113	Warning: Formatting will delete all data on the disk!	The OK key confirms and the Exit key cancels
M-114	Please shut down	At the end of the current operation, restart the machine
M-115	Disable modification of the counter	When modifying, close the settings
M-116	Whether to factory reset	The OK key performs the operation, and the Cancel key exits the operation
M-117	Whether to clear all custom parameters	Are you sure? Yes: Enter No: X
M-118	Tricks miscalculated	
M-119	Whether to delete all P patterns and C patterns	Press OK to perform the format operation, and press the Cancel key to exit the current operation.
M-120	Out of the setpoint range	
M-121	External pressure foot on top	The current operation needs to be performed after dropping the external pressure foot!
M-122	Incorrect operation is not possible	
M-123	The USB stick does not exist	Please insert the USB drive containing the mp3 file
M-124	There are no video files vid.avi	Please store the vid.avi file in the PDAT directory of the disk and enter the upgrade interface to upgrade the video file
M-125	Replace the bottom line	The replacement bottom line setting has arrived, please replace the bottom line!
M-126	Determine the Clear Bottom Line Count value?	Are you sure? Yes: Enter No: X
M-127	The bottom line is inadequate	Please replace the bottom line, press the OK button and recount
M-128	Template tricks do not exist	After exiting, press the back to origin key and change the template pattern
M-129	The upgrade file length is incorrect	OK key exits
M-130	Upgrade master erasing check errors	OK key exits
M-131	Upgrade master write check error	OK key exits
M-132	Upgrade master to end the validation error	OK key exits
M-133	Upgrade step end validation error	Exit key to exit
M-134	Upgrade step end validation error	
M-135	Network connection failed	
M-136	Punch in successfully	
M-137	Punch failed	

M-138	To confirm the modification of the network function, please turn off the power and restart it	
M-139	The QR code shows failure	
M-140	The group number is invalid	
M-141	The current operation is rejected	
M-142	The receive parameter is empty	
M-143	The parameters have not changed	
M-144	The panel does not match the master	The current system has an installment password, you need to contact the manufacturer to unlock it
M-145	The current panel has a password that needs to be synchronized	The panel has a password, and the master does not have a password
M-146	The current master has a password and needs to be synchronized	The master has a password, and the panel does not have a password
M-147	The motherboard ID does not exist	
M-148	The panel is not encrypted, the master is encrypted	The system will lock the computer
M-149	The panel is encrypted, the master is not encrypted	Determines the key synchronization encryption status
M-150	Remote staging settings already exist on the system	The OK key continues and the Cancel key exits the operation
M-151	Connection to wireless module 1 failed	The system speed is reduced to a minimum, please contact the manufacturer
M-152	The system is already set to off-network mode	Detection is available when the networking feature is turned on
M-153	Join failed	
M-165	The network is down	
M-166	Please perform OK key saving first	
M-167	No hotspot selected	

10 Appendix 2

10.1 Installation Size of Control Box

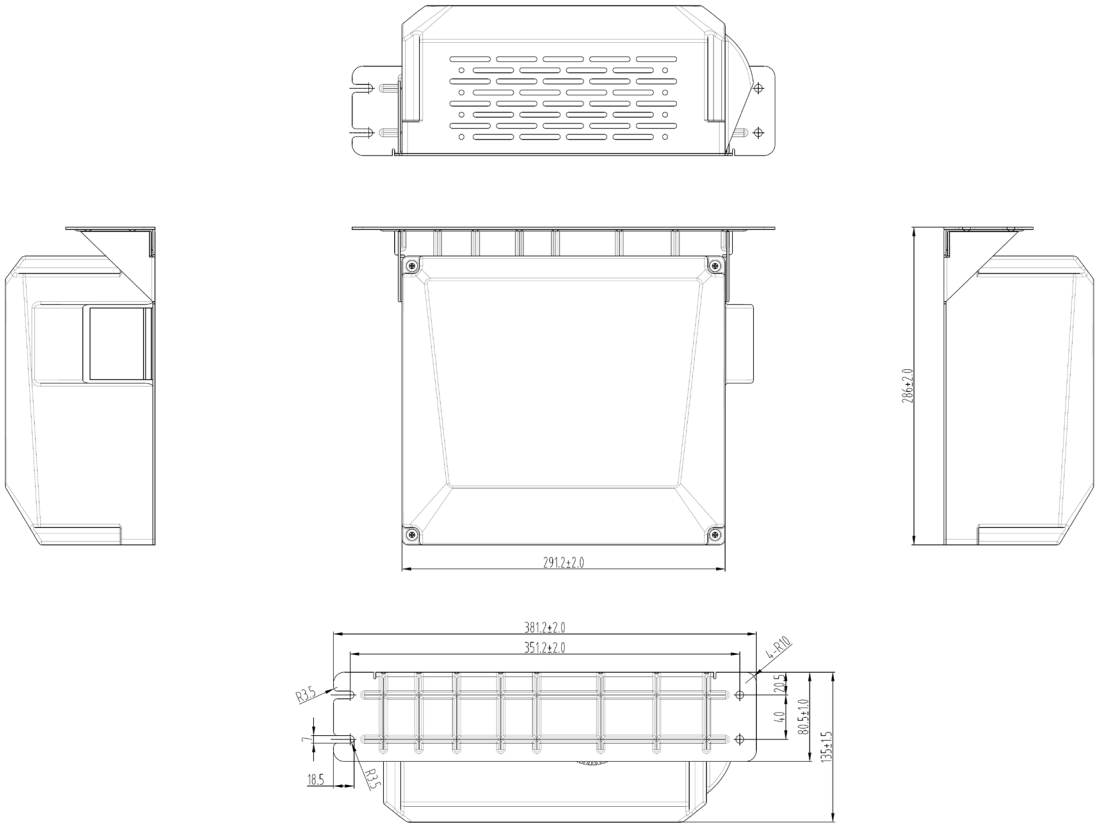


Figure 1 4-hole Installation

10.2 Installation Size of Operation Panel

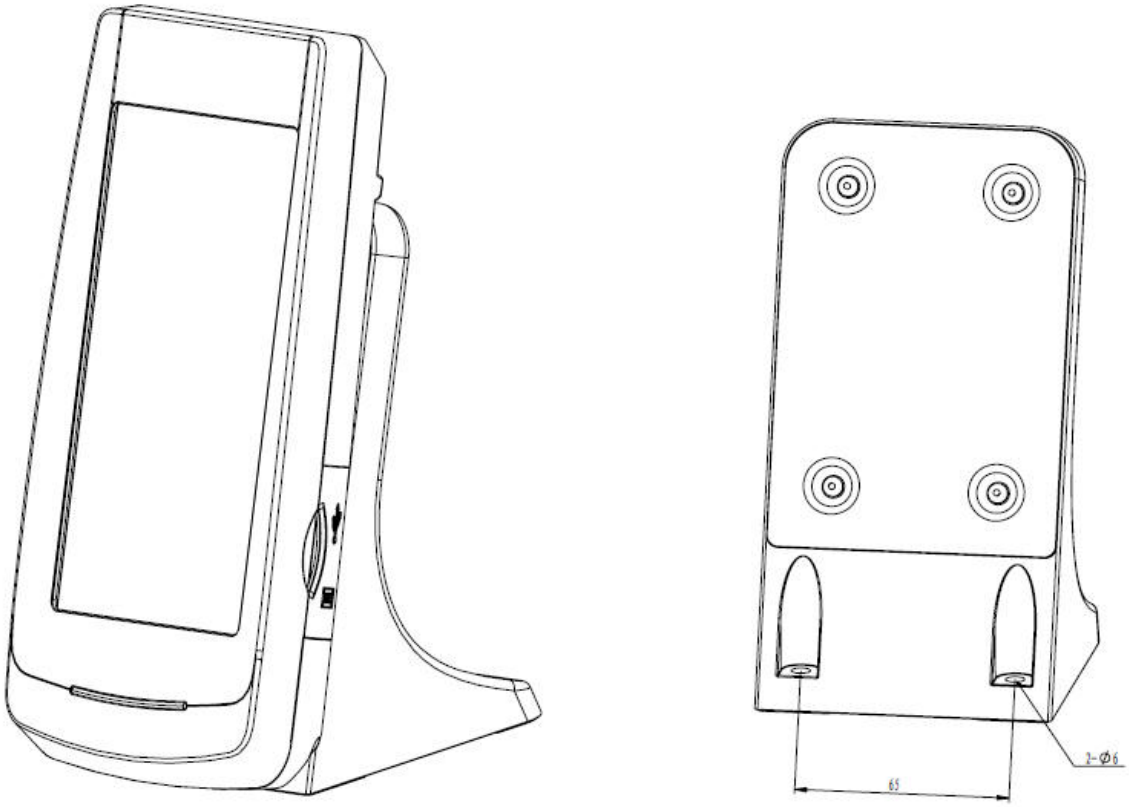
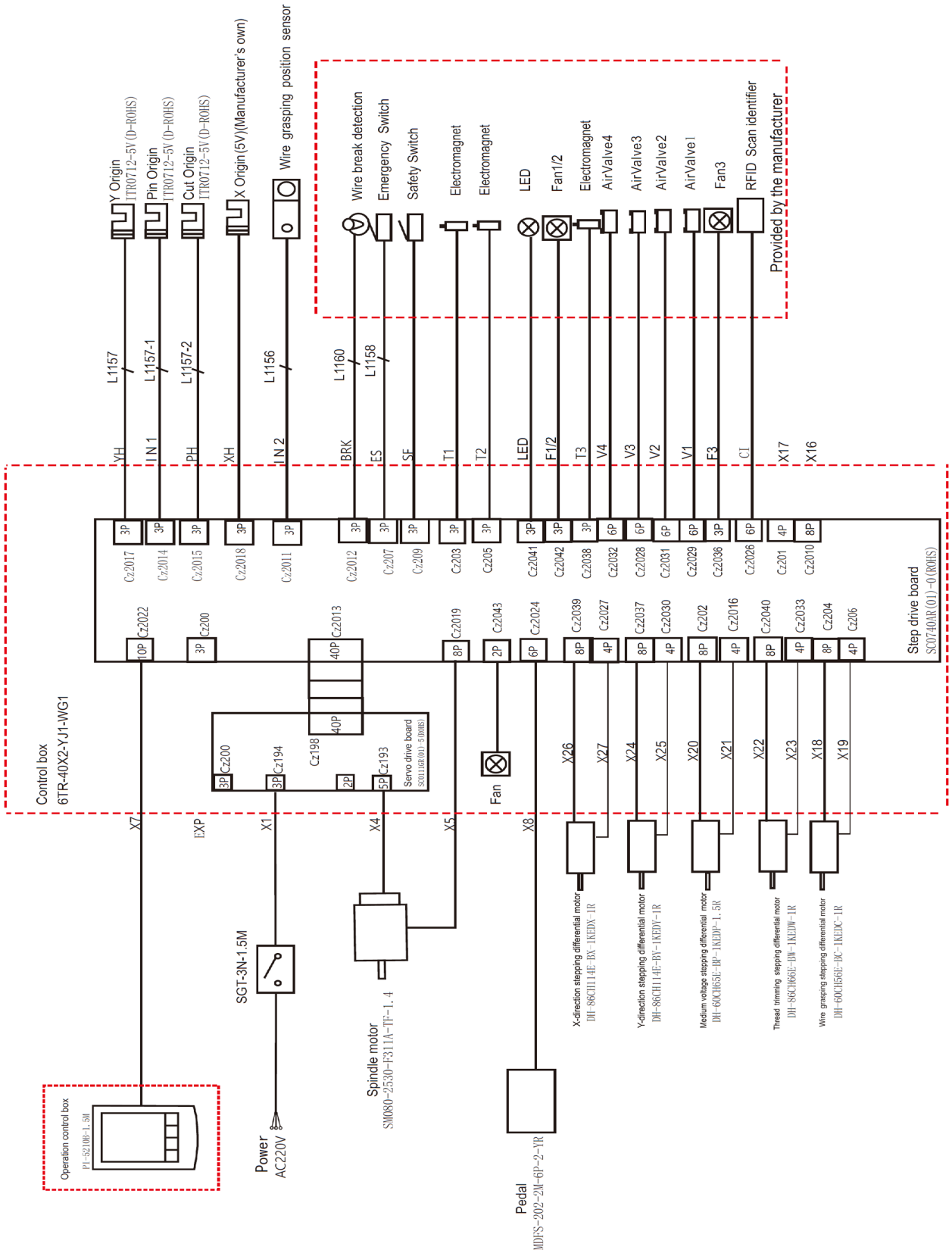


Figure 2 Installation Size of Operation Panel

10.3 Diagram


Control box
6TR-40X2-YJ1-WG1
Step drive board
SC0740AR(01)-0(ROHS)
Operation control box
PJ-82100-1.5M
Power
AC220V
SGT-3N-1.5M
Spindle motor
SM080-2530-F311A-TF-1.4
Servo drive board
SC0111GR(01)-5(ROHS)
Fan
Pedal
MDFS-202-2M-6P-2-YR
X-direction stepping differential motor
DH-86CH114E-BX-1KEDX-1R
Y-direction stepping differential motor
DH-86CH114E-BY-1KEDY-1R
Medium voltage stepping differential motor
DH-60CH165E-BM-1KEDM-1.5R
Thread trimming stepping differential motor
DH-86CH86E-BW-1KEDW-1R
Wire grasping stepping differential motor
DH-60CH165E-BC-1KEDC-1R
Provided by the manufacturer
Y Origin
ITR0712-5V(D-ROHS)
Pin Origin
ITR0712-5V(D-ROHS)
Cut Origin
ITR0712-5V(D-ROHS)
X Origin(5V)(Manufacturer's own)
Wire grasping position sensor
Wire break detection
Emergency Switch
Safety Switch
Electromagnet
Electromagnet
LED
Fan1/2
Electromagnet
AirValve4
AirValve3
AirValve2
AirValve1
Fan3
RFID Scan identifier
L1157
L1157-1
L1157-2
L1156
L1160
L1158
YH
IN 1
PH
XH
IN 2
BRK
ES
SF
T1
T2
LED
F1/2
T3
V4
V3
V2
V1
F3
CI
X17
X16
Cz2017
Cz2014
Cz2015
Cz2018
Cz2011
Cz2012
Cz207
Cz209
Cz203
Cz205
Cz2041
Cz2042
Cz2038
Cz2032
Cz2028
Cz2031
Cz2029
Cz2036
Cz2026
Cz201
Cz2010
Cz2022
Cz200
Cz2013
Cz2019
Cz2043
Cz2024
Cz2039
Cz2027
Cz2037
Cz2030
Cz202
Cz2016
Cz2040
Cz2033
Cz204
Cz206
Cz198
Cz194
Cz193
X7
EXP
X1
X4
X5
X8
X26
X27
X24
X25
X20
X21
X22
X23
X18
X19