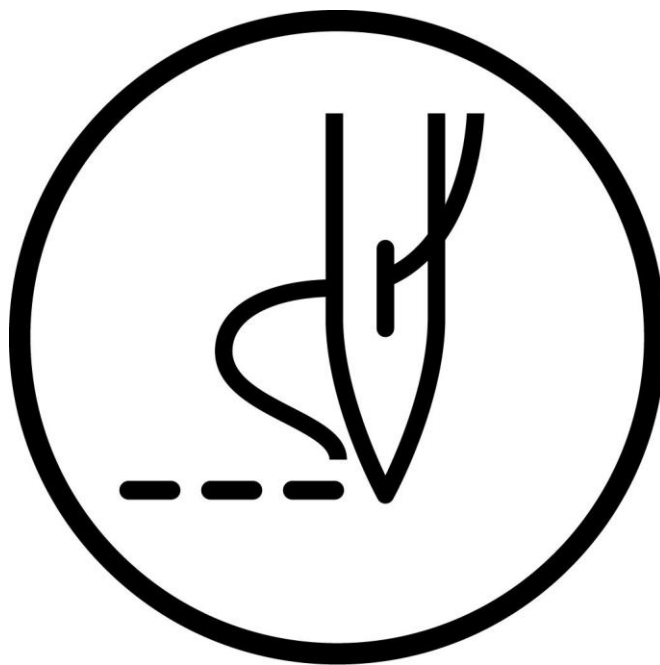


Instruction manual

High-speed zigzag



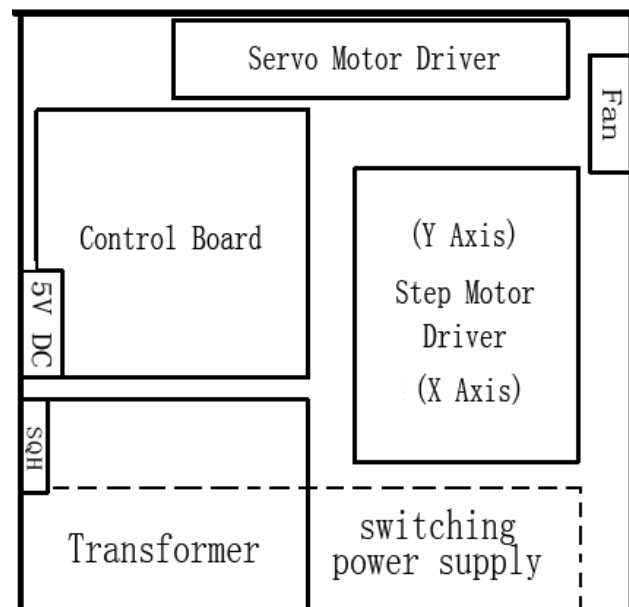
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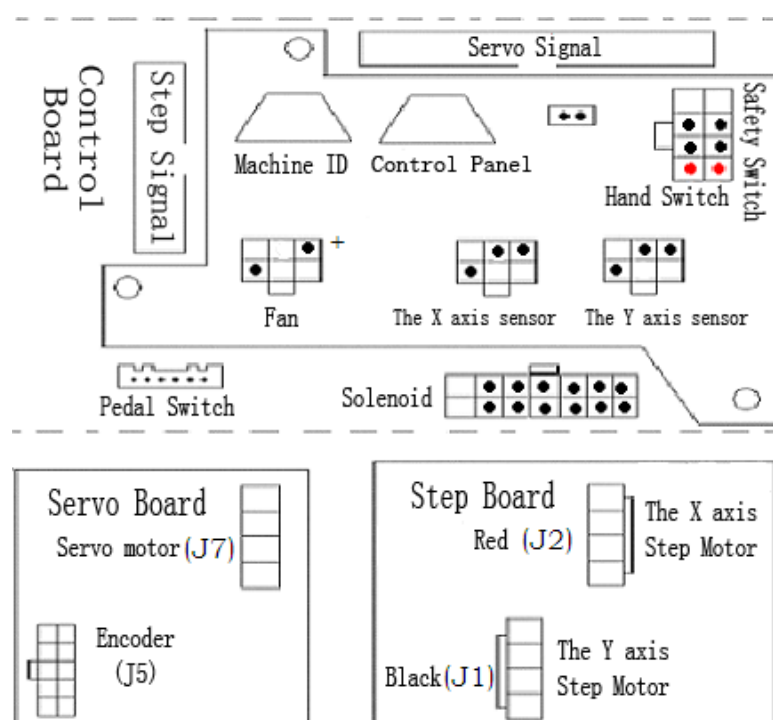
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1 Control Box Hardware

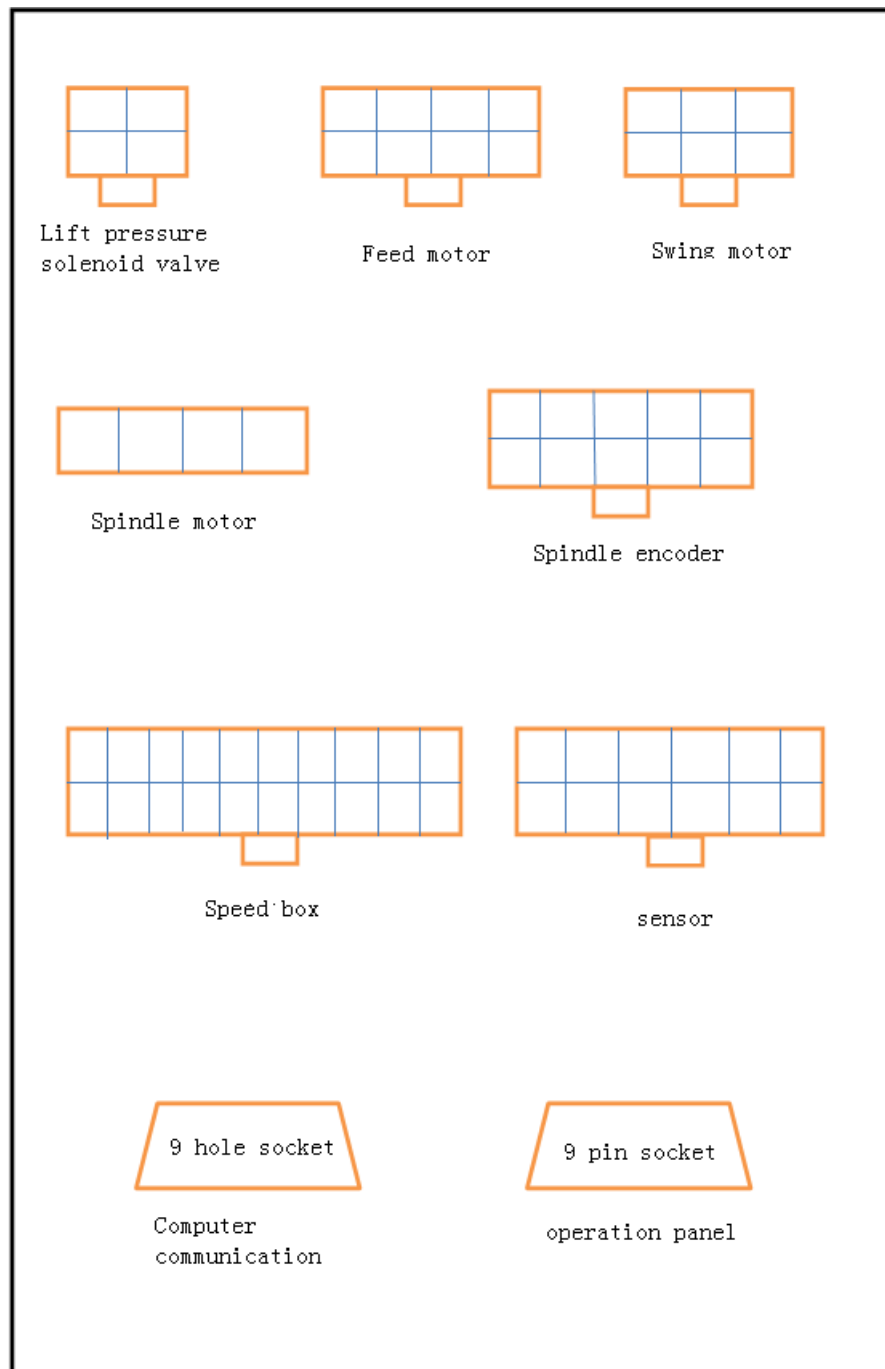
1.1 Inner structure of the Control Box



1.2 External Interface of the Control Box



1.3 Control box external interface



1.4 Power Specification

Power Voltage: Signal Phase 220V $\pm$ 20%

Supply Current: Average Current is lower than 3 A. Peak Current is lower than 7 A

1.5 Change the Fuse

There are 3 piece fuses on the main control board.

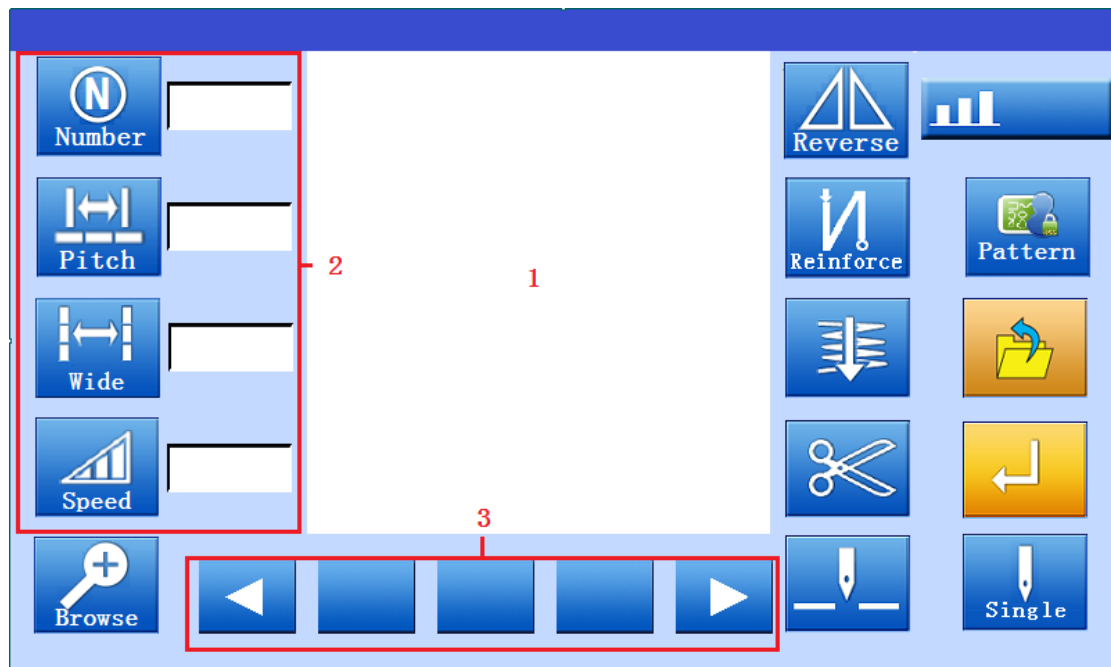
The Capacity and the Usage of the Fuse:

No.	Capacity	Usage
FP1	10A	Protect the Main AC Power
FP2	10A	Protect the step motor driver
FP4	10A	Protect the Solenoids
F1	10A	Protect the servo motor driver

In order to avoid the electric shock, When you open the chassis cover, please make sure to cut off the power and wait 3 minutes at least.

2 The operation of the sewing

2.1 Operation Interface



1. Pattern display area, Information display;
2. Pattern parameter, Click on the 4 icons can be followed by the choice of pattern number, pitch, wide, and sewing speed;
3. Pattern selection key; Flip through the left and right to choose pattern;



4. **Reverse** Flip the pattern, Press one time to open, and then close again;



5. **Reinforce** Click on the icon to enter Condensation Stitch Operation, to Condensation the pattern of the design;



6. **Wide** Set the base line for the pattern, default in the middle, can be switched left or right;

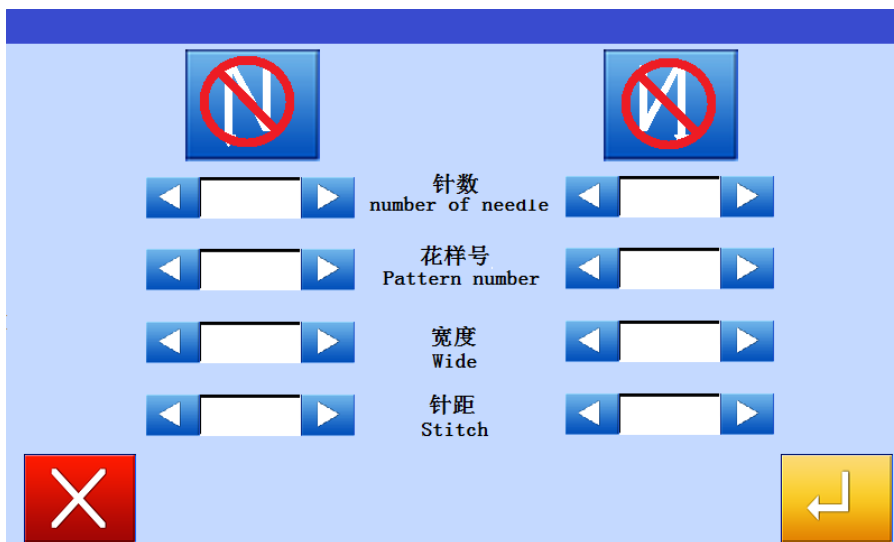


7. **Pitch** Cut line switch, click once to close, and then click open.;

8.  Half needle switch, click once to close, and then click open.;
9.  The length of the bottom line, Click to set the current bottom line length, when reaching the bottom line alarm length (P-54), the alarm will automatically jump back to the set value.
10.  Click to enter the USB operation interface;
11.  Click to enter the settings interface;
12.  Back to zero;
13.  Single and double needles.
14.  browse; Click to view the big picture, and select the pattern.

2.2 Condensation Stitch Operation

Click on the  key in the main interface to enter Condensation Stitch Operation.



				
		针数		
		number of needle		
				
		花样号		
		Pattern number		
				
		宽度		
		Wide		
				
		针距		
		Stitch		







is ban Start Condensation Stitch, Click  open Start Condensation Stitch;



is ban End Condensation Stitch Operation, Click  open End Condensation Stitch Operation;

After open Start or End Condensation Stitch, can modify the number of stitches, the pattern number, the width and pitch, After the modification is completed,

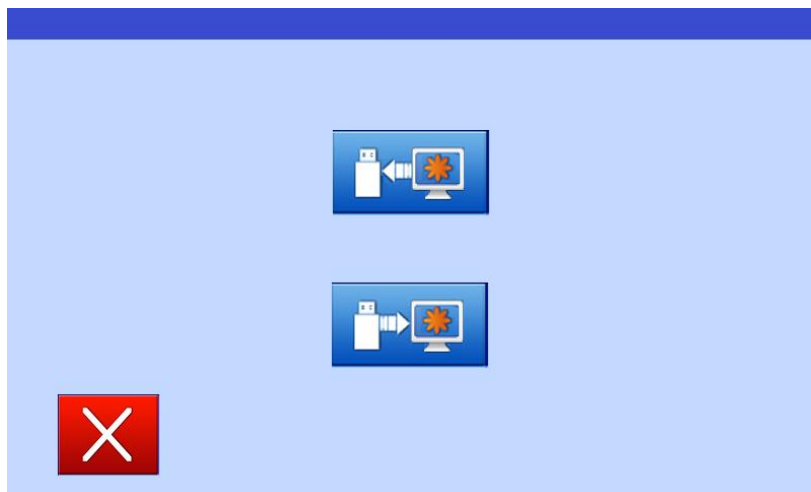


click on the key to save.

2.3 pattern management



In the main interface, click on the button to enter the pattern management interface.



Save system pattern to USB;



Save USB pattern to system;

Click on any of the above icon will enter the following interface:



Select single pattern;



Select all patterns;



Rename the selected pattern;



Delete the selected pattern;



Save the selected pattern to USB (or system)。

2.4 Sewing Base line

In the main interface, click on the  button to switch the base line. The default value for this parameter is in the middle , Click one time to switch to the left , Click again to switch to the right .

2.5 Reverse Function

In the main interface, click on the  button to open or close the reverse function,  means close the reverse function,  means open the reverse function.

2.6 Half Stitch Control

When the machine at rest, press  key open or close half stitch control,  the default is closed, Click  to switch to open, Now you can start low speed half stitch sewing.

- ★ The speed of the half stitch is setting by the system parameter P-03, the default value is 200 rpm. The position of the half stitch is setting by the system parameter P-60.

2.7 Single or double needle

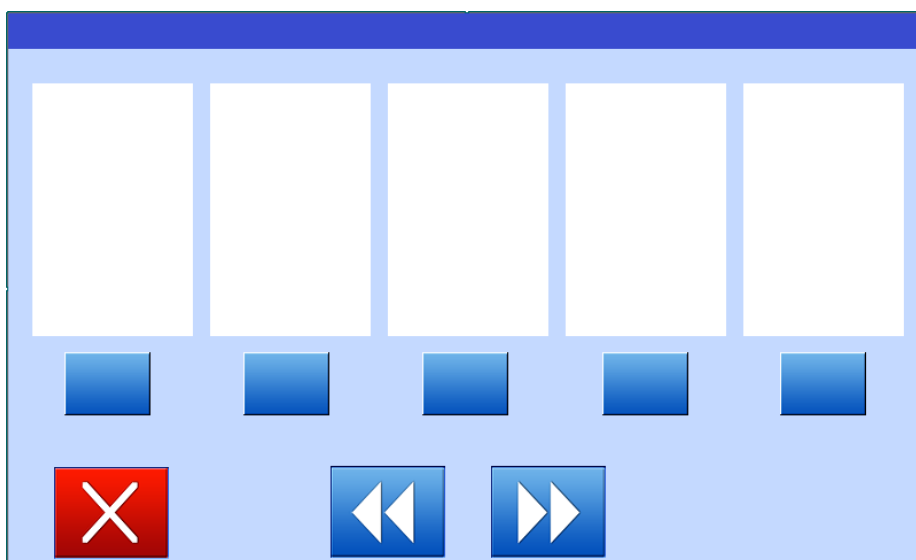
When the machine at rest, Display  key in the main interface, which means that the current is a single needle., Pattern display areas will also be transformed into a single pattern; Display  key in the main interface, which means that the current is a double needle, Pattern display areas will also be transformed into a double pattern.

- ★ Switching single or double needle, controlled by the P-48 system parameters, 1 means single needle, 2 means double needle.

2.8 Browse mode



In the main interface Click  key to view the big picture, and select the pattern



Press  key to select the pattern and return to the main interface., 按

Press  butto tno turn the page.

3 Pattern editing

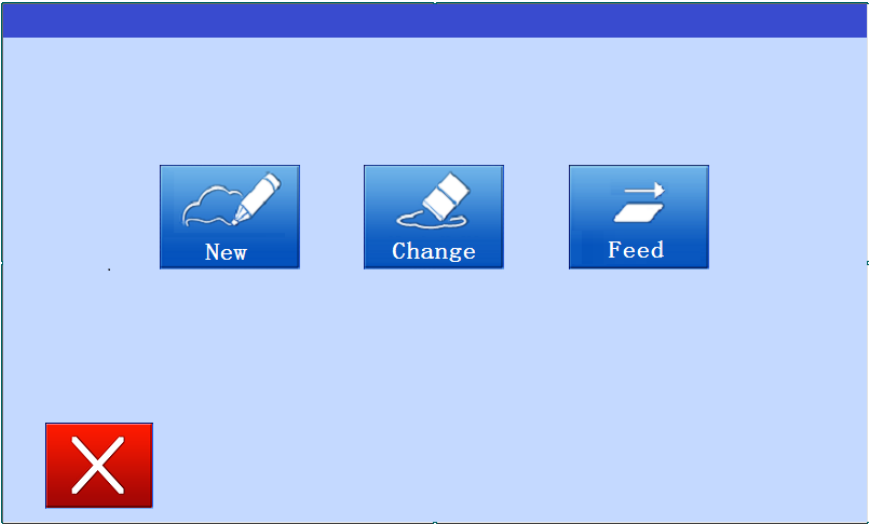
3.1 Pattern editing



In the main interface, press  key to enter the setup interface. And



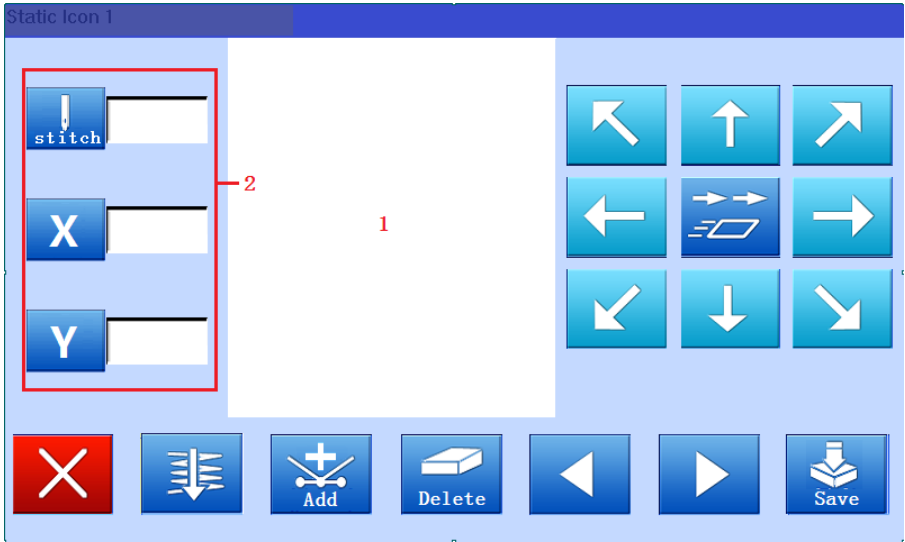
then press  to enter the edit pattern interface;



In this interface, users can create new patterns . Modify the current pattern . And to compensate for the pattern .

3.2 New pattern

In the edit pattern interface, Press  key to enter the new pattern interface;



1. Pattern display area

2. Pattern information display area; Show the pattern of the total needle number, X coordinate and Y coordinate;



3. Sewing base line, Operation mode is the same as the main interface;



4. add, After adjusting the current position by the direction key, click this function to add a needle point.;



5. Delete needle, Select a needle point and click the function key to delete the current point.;



6. Back key, Select one of the following points;



7. Forward key, Select the previous point of the needle;



8. Save key, Save pattern;

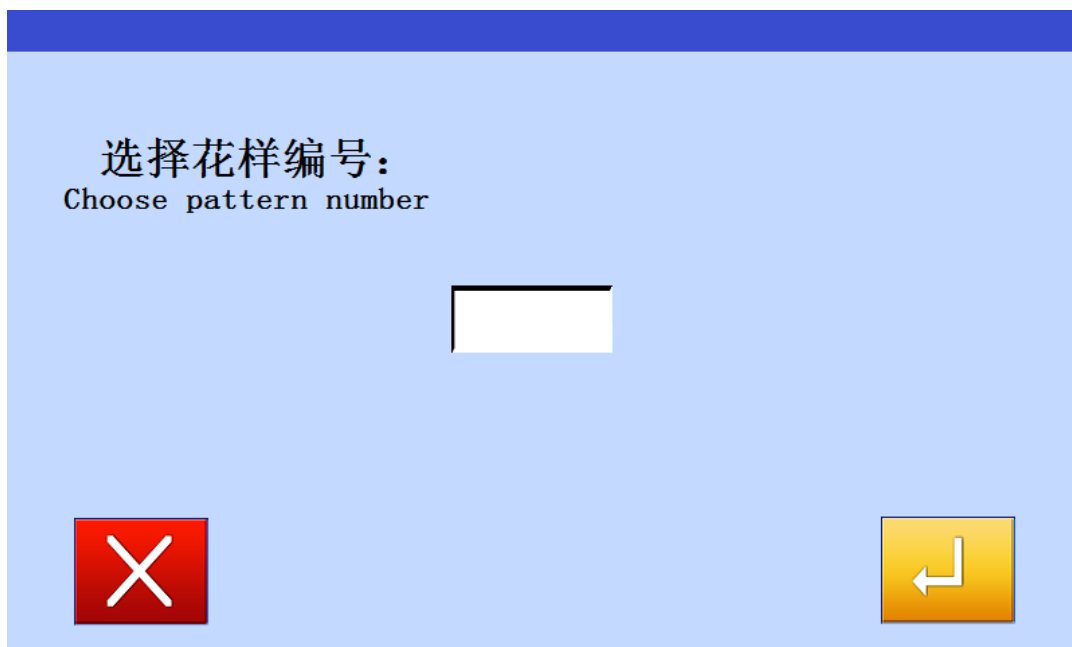


9. Mobile speed switch, Press this button to speed up or slow down the movement speed, After press, This icon will be changed to add needle



key , When this icon is displayed, you can quickly add a needle through the direction key.

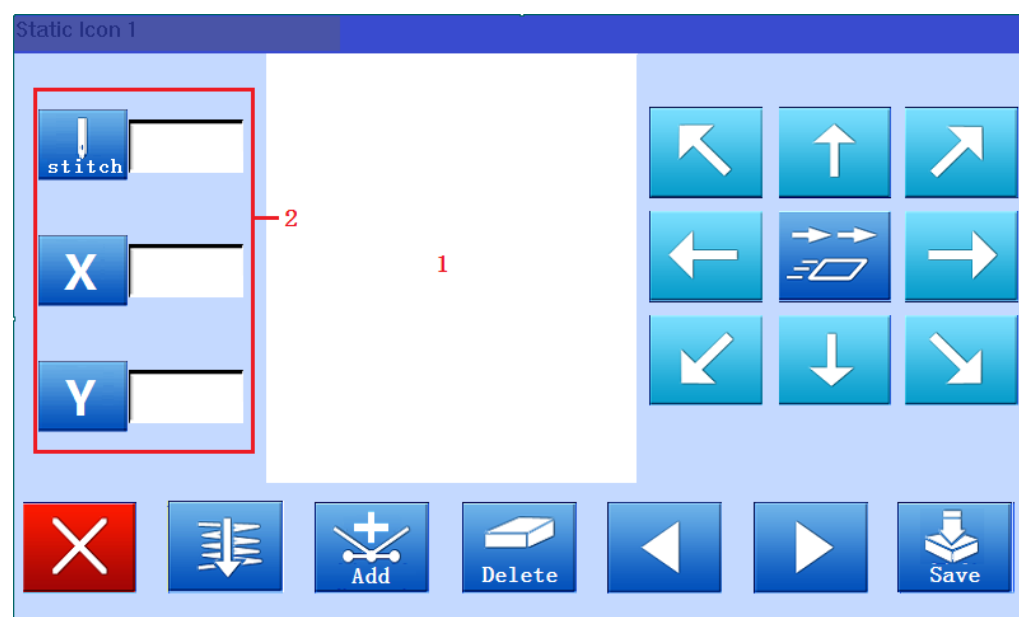
- After the completion of new pattern in the editor, press the Save button to save the current pattern, and then enter the following interface:



Select the pattern number at this interface to press  keys to save .

3.3 Modify pattern

In the edit pattern interface, press  to enter the modified pattern interface;

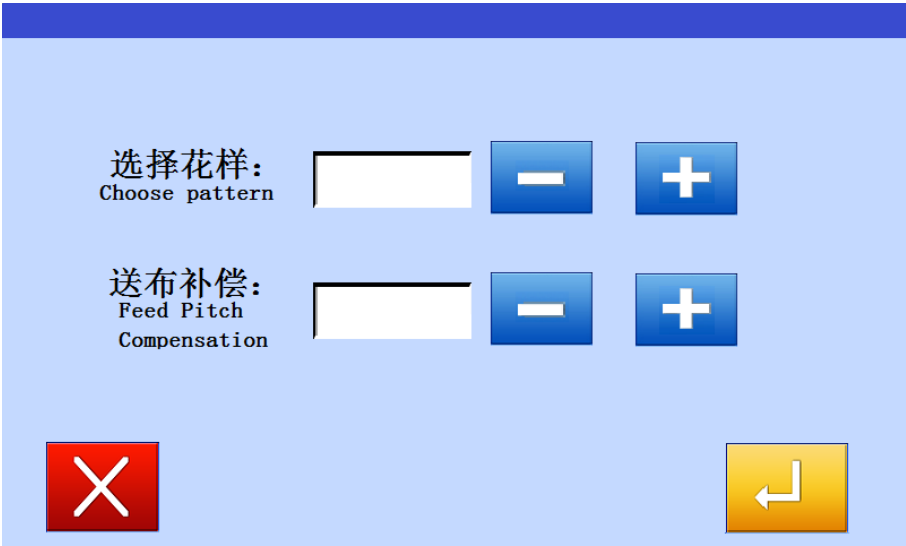


Modify the pattern interface is similar to the new pattern interface.

3.4 Feed Pitch Compensation



In the edit pattern interface, press  to enter the Feed Pitch Compensation;



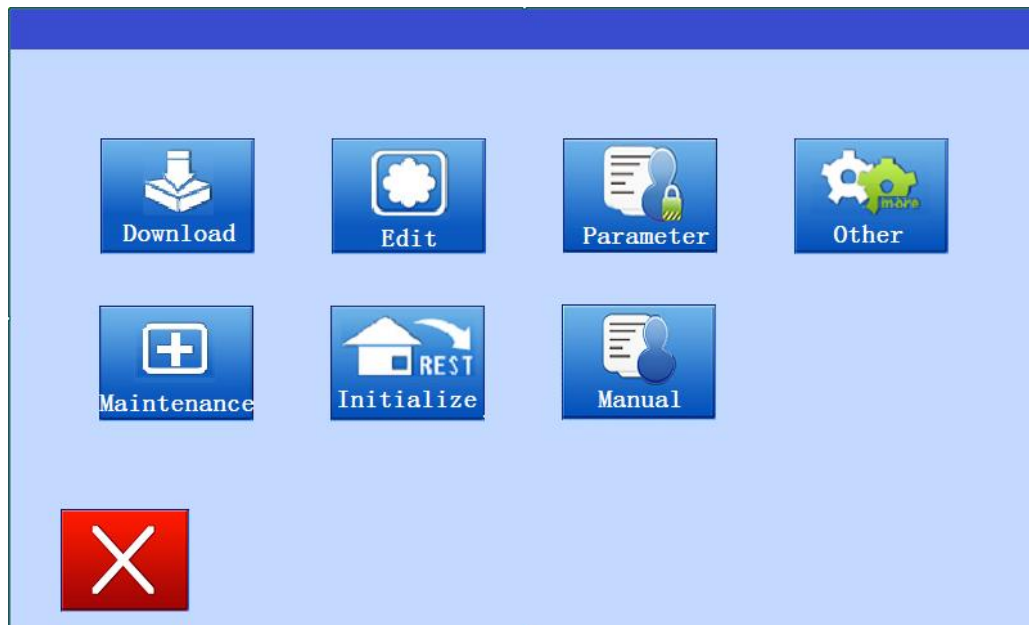
Choose pattern. Press 、 keys to increase or decrease the number in the box., Can also be directly by the box  to enter the desired value.

4 Setting interface

4.1 Set directory



Press  key to enter setup interface in the main interface:



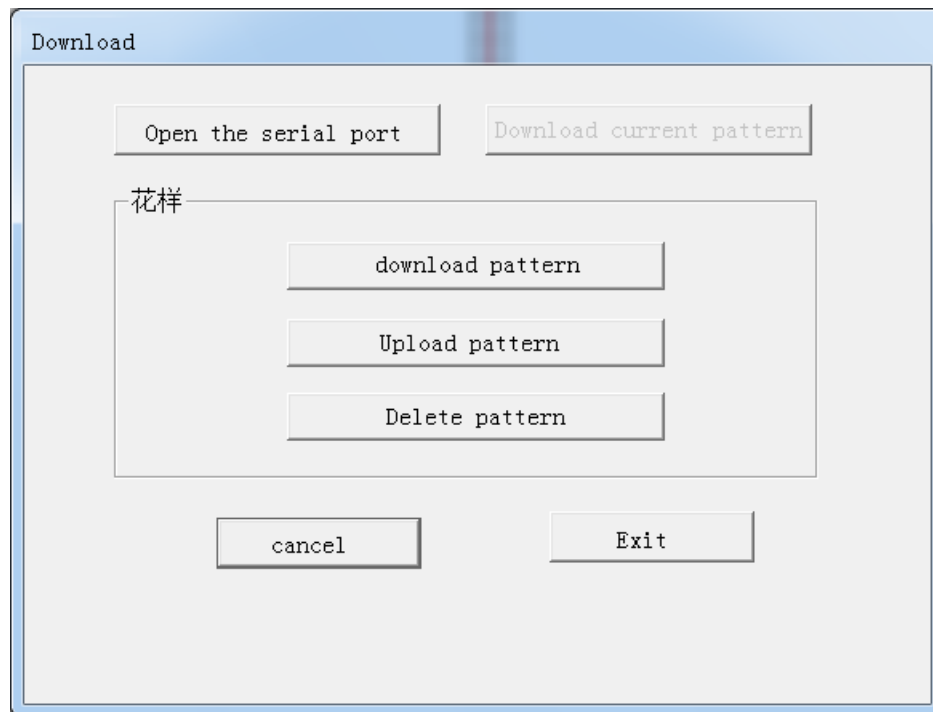
1.  Directly download the pattern to the system through the PC terminal;
2.  Into the pattern editing interface;
3.  Enter system parameter interface;
4.  Enter the other settings interface, can set the version information, the use of the term, modify the password;
5.  Enter the equipment maintenance interface;
6.  Initialize system parameters;
7.  Instructions;

4.2 Download pattern

Touch screen connected at the PC end after the open pattern download tool



, then press download .



Click to open the serial port, Click download, Then select the need to download the system into the system, click OK to start downloading. After the download is completed, After download, click exit Online.

4.3 System parameter

User can solve some sewing faults or adjust the sewing to the optimum condition by use system parameter setting.

4.3.1 The Operating Steps of the Parameter Setting



In the setup interface press  keys to enter the password to enter the system parameters interface:



This interface in the press   page, Press  key to return to the settings page. , Set the current parameter value in the box

 , Press  to save the current settings.



4.3.2The list of the System Parameter

ID	Function and instruction	Range	Remark
P-01	Up stop position	1-7199	
P-02	Max. sewing speed	100-1000	
P-03	Half stitch speed	100-600	
P-04	Max. stitch width	0-160	
P-05	Max feed pitch	0-140	
P-06	Time adjust for zigzag motion	1-7199	
P-07	Delivery position	1-7199	
P-08	Reverse delivery position	1-7199	
P-09	Zigzag zero fine tuning	-800-800	
P-10	Feed zero fine tuning	-150-150	
P-11	The polarity of the origin sensor for zigzag motor	0-1	

P-12	X transmission ratio	80-800	
P-13	X initial speed calibration	20-500	
P-14	X axis speed test	20-500	
P-15	X acceleration time verification	20-500	
P-16	The polarity of the origin sensor for feed motor	0-1	
P-17	Y transmission ratio	80-800	
P-18	Y initial speed calibration	20-500	
P-19	Y axis speed test	20-500	
P-20	Y acceleration time verification	20-500	
P-21	Limit speed	100-1000	
P-22	Sewing speed while trimming	100-500	
P-23	Spindle polarity	0-1	
P-24	Spindle drive ratio	3-5	
P-25	Switch for soft-start sewing	0-1	
P-26	Speed of 1 st stitch	100-600	
P-27	Speed of 2 nd stitch	100-800	
P-28	Speed of 3 rd stitch	100-1000	
P-29	Speed of 4 th stitch	100-1000	
P-30	Whether the pattern speed limit	0close 1open	
P-31	Ageing 1 produce 0	0-1	
P-32	Latency time after trimming	20-250	
P-33	Open angle of the thread trimmer	10-180	
P-34	Close angle of the thread trimmer	1-360	
P-35	Open angle of the thread wiper	1-360	
P-36	Close angle of the thread wiper	1-360	
P-37	Presser foot rise time	4-500	
P-38	Press foot fall time	4-2000	
P-39	Foot lift solenoid duty cycle	1-100	
P-40	PWM time	100-10000	
P-41	Open angle of the thread nipper	210-340	
P-42	Close angle of the thread nipper	1-360	
P-43	PWM period	5000-30000	
P-44	Working time on the test	1-60	
P-45	Pause time on the test	0-60	
P-46	The presser foot lift time	1-120	
P-47	Whether allow the servo motor to working or not	0-1	
P-48	Single/double needle selection	1-2	
P-49	Double needle distance is fixed length or change length	0-1	
P-50	Maximum speed of reinforcement	100-800	
P-51	Start angle for decrease speed in last cycle	180-340	
P-52	Up stop position calibration value	-120-120	
P-53	Stitches for loose thread when sewing start	0-3	

P-54	Bottom line alarm length	0-45000	
P-55	Total length of the bottom line	0-45000	
P-56	Cut line needle position calibration	-120-120	
P-57	Up the stop position after the reverse pedal	0-7199	
P-58	Spindle direction	0-1	
P-59	Serial number	0-999999	
P-60	Down stop position	1-7199	

4.4 Initialization

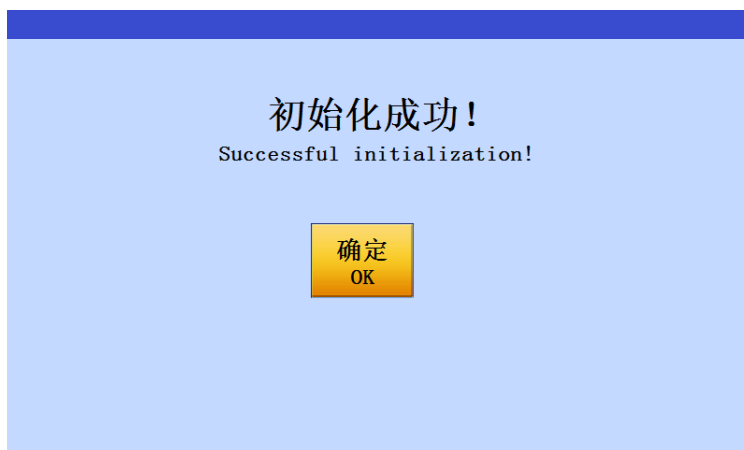


Press **Initialize** keys in the setup interface, enter the password, can initialize the system parameters.

If the password input error, then the display:



If the password is entered correctly will display:



4.5 Other setting



In the settings interface, press  to enter the other functional interface:



4.5.1. Version information



In the other functional interface, press  button:



The serial number of the machine is the same as the system parameter P-59.

4.5.2.Period of use



In the other functional interface, press key, enter the correct password to enter the use of the interface :

机箱序列号 The serial number	
总使用时间 Total of using time	
剩余时间 Time remaining	

The serial number of the machine is the same as the system parameter P-59.

4.5.3.Logo management



In the other functional interface, press key, enter the correct password to enter Logo management interface:



In this interface, select the required logo as the boot logo, Press to exit。

4.5.4.Restore / save the factory settings



In the other functional interface, Click the  key to enter the correct password to restore the factory settings.

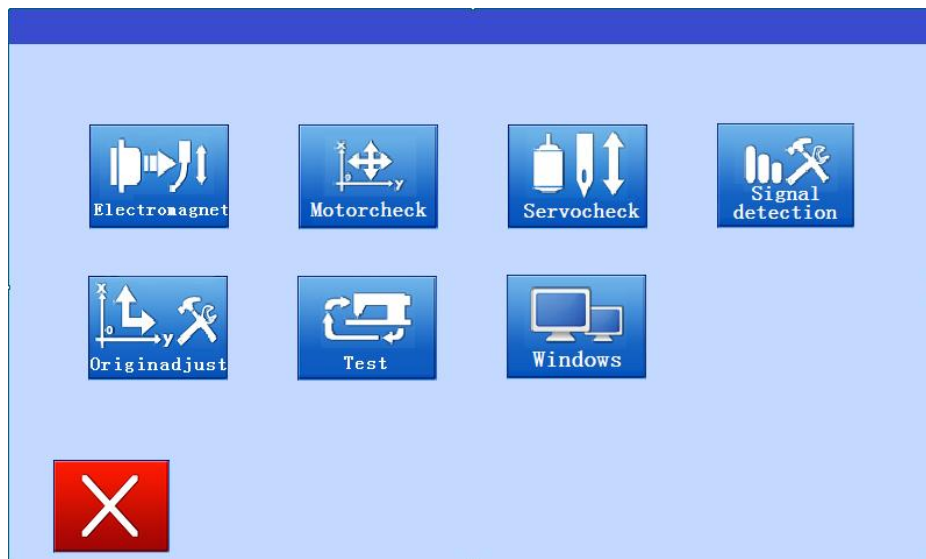


In the other functional interface, Click the  key to enter the correct password to save the factory settings.

5 Equipment maintenance



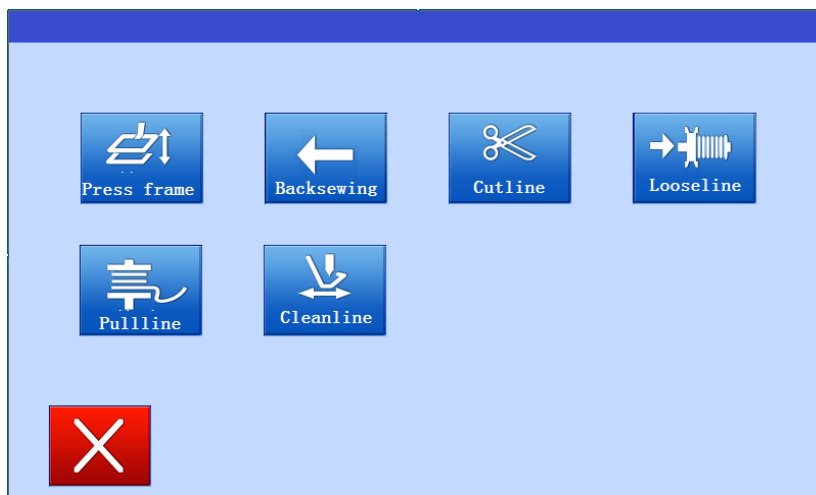
Press  key to enter the equipment maintenance interface in the setup interface:



5.1 Electromagnet detection



In the equipment maintenance interface, press  key, enter the Electromagnet detection interface:

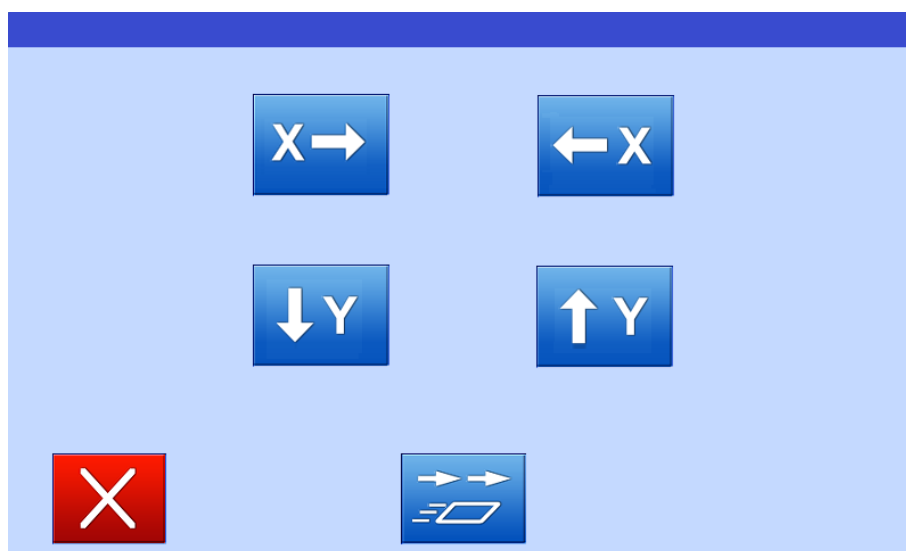


the corresponding electrical Electromagnet valve keys or touch will pull and release action.

5.2 Stepper Motor test



In the equipment maintenance interface, press **Motorcheck** key, enter the Stepper Motor test interface:

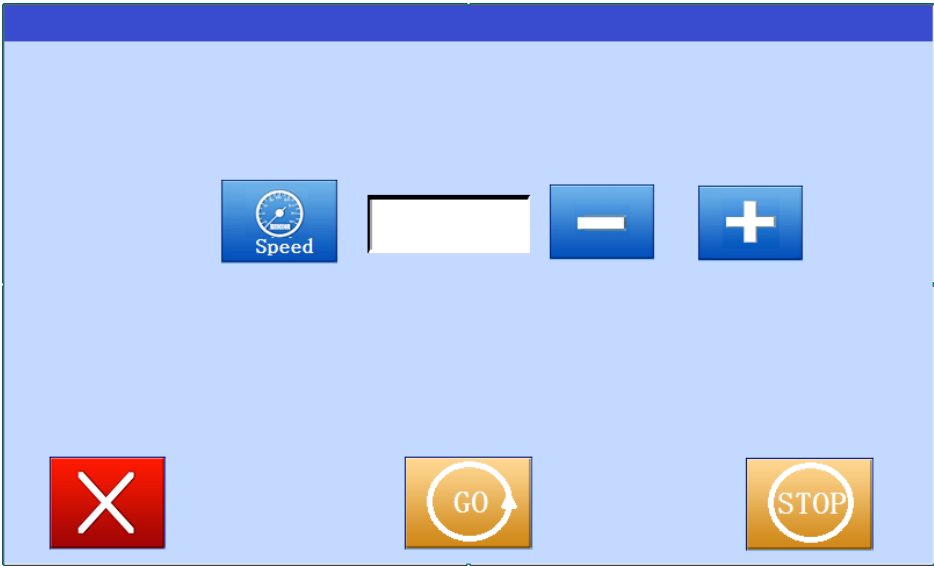


Press  to speed up or slow down the speed of movement.。

5.3 Spindle motor testing



In the equipment maintenance interface, press  key, enter the Spindle Motor test interface:



Press ,  key to increase or reduce the number of boxes, Can also



be directly set by  key, Range of 100–1000. And then press 



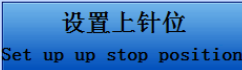
button to start, Press  key to end, Press  to return to the equipment maintenance interface.



5.4 Signal detection



In the equipment maintenance interface, press  key, enter the signal detection interface:

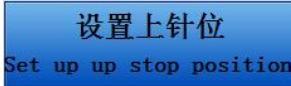
X轴信号 X-signal		反向键 Reverse key	
Y轴信号 Y-signal		安全键 Security key	
上针位编码 Up stop position coding		脚踏板编码 The pedals coding	
上针位 Up stop position			
			

Press  display signal:

When the XY-axis sensor is blocked, L for low, H for high;

Reverse key, security key, pedal encoding will appear on to off ;

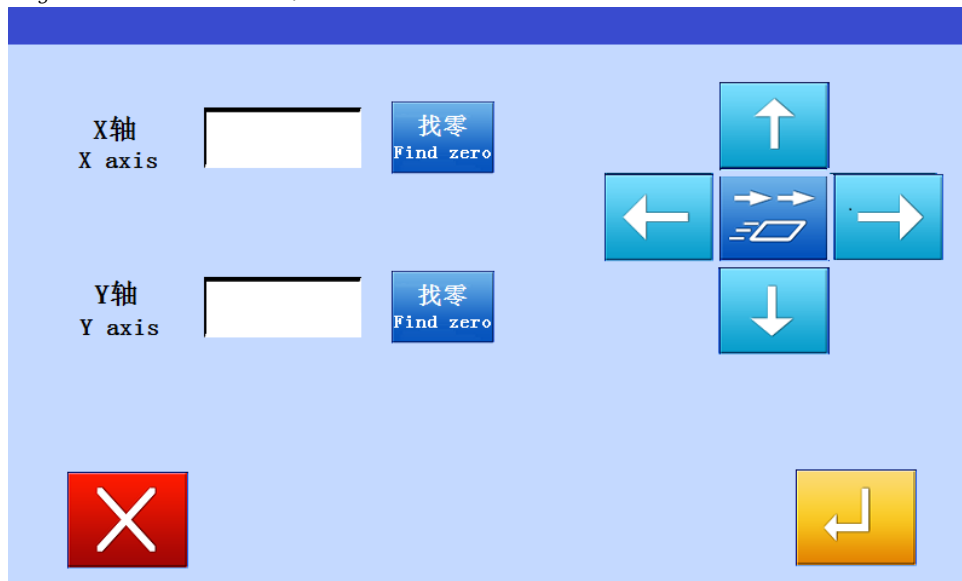
Up stop position coding with the same system parameters P-01, Spindle

rotation up stop position will appear on to off, Press  to set the current up stop position as the starting up stop position.

5.5 Origin adjustment



In the equipment maintenance interface, press  key, enter the Origin adjustment interface:

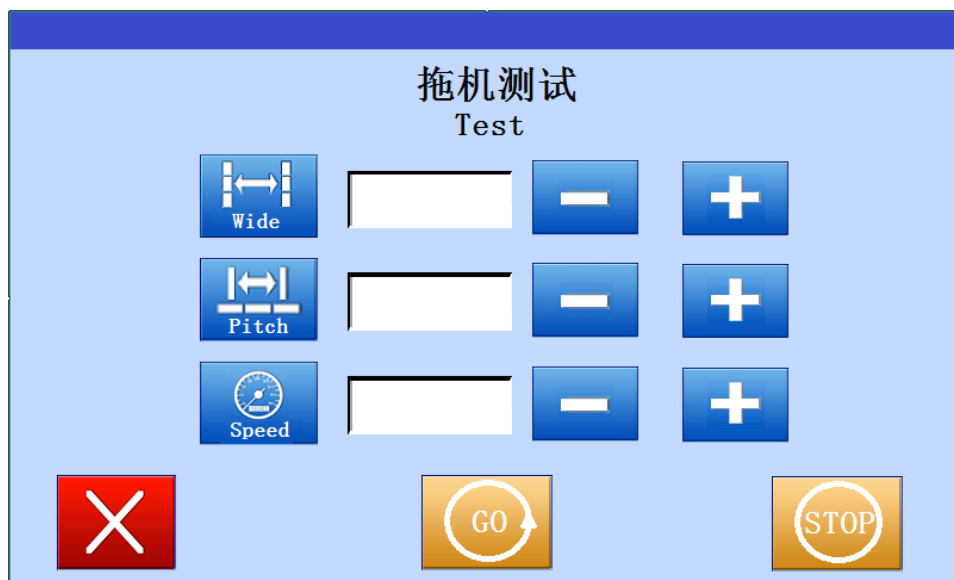


On the origin of the x-axis y-axis fine-tune the effect after the adjustment, making pinhole clamp on the left, right, front, in the middle of the four directions.

5.6 Testing

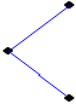
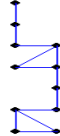
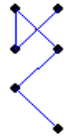
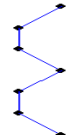
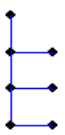
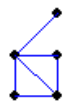
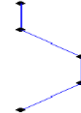
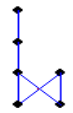
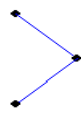
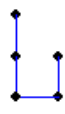
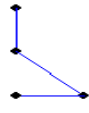
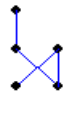
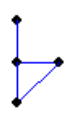
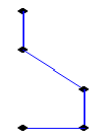
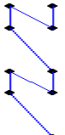
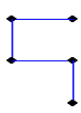
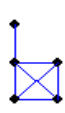
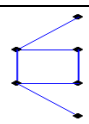
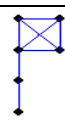
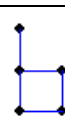
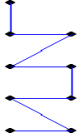
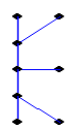
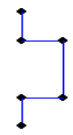
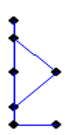


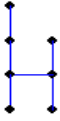
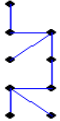
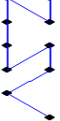
In the equipment maintenance interface, press  key, enter the test interface:

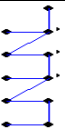
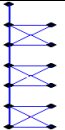
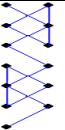
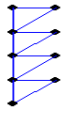
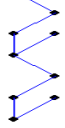
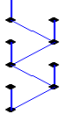
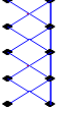
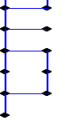
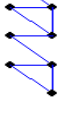
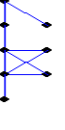
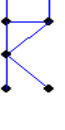
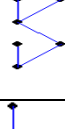
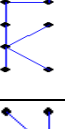
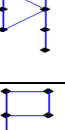
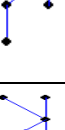
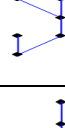
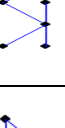
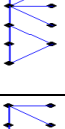
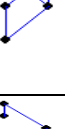
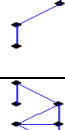
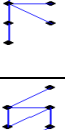
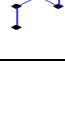
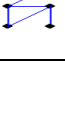
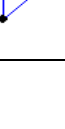


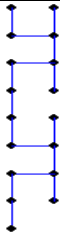
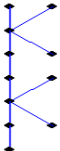
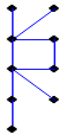
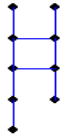
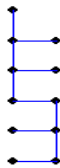
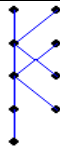
Test the current pattern, Press ,  key to increase or reduce the number of boxes, Can also be directly set by , , ; And then press  button to start, Press  key to end, Press  to return to the equipment maintenance interface.

Appendix Pattern chart

Number	Pattern	Number	Pattern	Number	Pattern
1		11		21	
2		12		22	
3		13		23	
4		14		24	
5		15		25	
6		16		26	
7		17		27	
8		18		28	
9		19		29	
10		20		30	

Number	Pattern	Number	Pattern	Number	Pattern
31		41		51	
32		42		52	
33		43		53	
34		44		54	
35		45		55	
36		46		56	
37		47		57	
38		48		58	
39		49		59	
40		50		60	

Number	Pattern	Number	Pattern	Number	Pattern
61		71		81	
62		72		82	
63		73		83	
64		74		84	
65		75		85	
66		76		86	
67		77		87	
68		78		88	
69		79		89	
70		80		90	

Number	Pattern	Number	Pattern	Number	Pattern
91		95		99	
92		96		100	
93		97			
94		98			