

BM15-1790
Flat Keyhole Machine –
Touch Screen
Computerized Control System
for Square Buttonhole Machine
VER1.00

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10 overview

1.1 Function and Indicator Parameters

The functions and parameters of this series of CNC AC servo systems are shown in Table 1.

Table 1: Function and parameter comparison table

serial number	model project	1790/BM15-1790
1	wide	5mm (decomposition energy: 0.05mm)
2	Cutter size (cutter length Spend)	6.4~31.8mm (1/4"~11/4")
3	Sewing length (max)	41mm (Optional accessories can be sewn up to 120mm)
4	sewing speed	Standard 3600rpm Up to 4200rpm
5	speed control method	control panel input
6	Use a needle	DPx5 # 11J ~ # 14J
7	Needle bar stroke	34.6mm
8	thread take-up lever	Chain take-up lever
9	Rotary shuttle	DP type fully automatic rotary oil supply hook
10	Presser foot lift	14mm (can be set arbitrarily) Maximum 17mm (when the needle can be lifted in reverse direction)
11	Presser foot lifter drive	Pulse motor type (1 pedal · 2 pedals)
12	Winding function	Machine head built-in type (winding only possible in machine drive)
13	Feed drive method	Pulse motor type
14	Swing needle drive	Pulse motor type
15	Cutter drive	Pulse motor type
16	Upper thread tension function	Electromagnet tension method Data can be set for each part (parallel part, set part tension) through control panel operation
17	Stitch shape	30 types including angle type, radial type, round type (control panel selection)
18	number of memory patterns	999 patterns
19	data storage medium	USB stick
20	1/2 switch	Each pattern can be set
21	motor	Small AC Servo Motor 400W Direct Drive
22	Dimensions	Machine width 200mm, height 360mm, length 570mm

23	Head weight	70Kg
24	rated power	600W
25	Operating temperature range	0°C ~ 45°C
26	Use humidity range	35% ~ 85%
27	voltage	AC 220V ± 10%; 50/60Hz

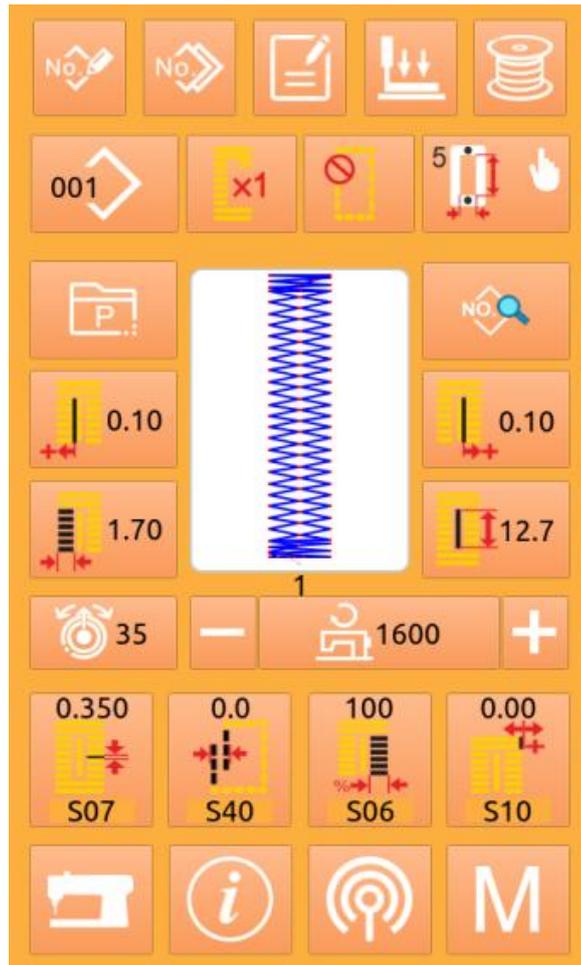
Presser Foot Specifications:

	Presser foot specification 1	Presser foot specification 2	Presser foot specification 3	Presser foot specification 5
width	4mm	5mm	5mm	3-6mm(arbitrary setting)
Sewing length (max)	25mm	35mm	41mm	10-120mm(arbitrary setting)

1.2 How to operate

The operation panel adopts the industry's advanced touch operation technology, and the friendly interface and convenient operation bring innovative changes to the user's daily use. The user can touch the screen with a finger or other object to complete the corresponding operation.

The function keys include ready key, information key, mode key and communication key, etc. The specific operation method is described in the following chapters.



Users should pay attention to avoid touching the screen with sharp objects during use, so as to avoid permanent damage to the touch screen.

1.3 List of basic sewing shapes

01 square 	02 round 	03 Radial Square 	04 radial 	05 Radial line fixed type 
06 Radial conical fixed shape 	07 Round eye square 	08 round eye radial 	09 Round eye linear reinforcement 	10 Round eye conical reinforcement 
11 semicircle 	12 Round square 	13 Semicircle square 	14 Semicircular linear reinforcement 	15 Semi conical reinforced 
16 Round eye semicircle 	17 Round eye round 	18 Square radial 	19 Square semicircle 	20 Square circle 
21 Square linear reinforcement 	22 Square cone reinforced 	23 Radial semicircle 	24 Radial circle 	25 Semicircular radial 
26 Semicircle 	27 Reinforcement joint 	28 Reinforced right cut-off 	29 Reinforced left cut-off 	30 Reinforced central cut-off 

31 Straight seam
backing

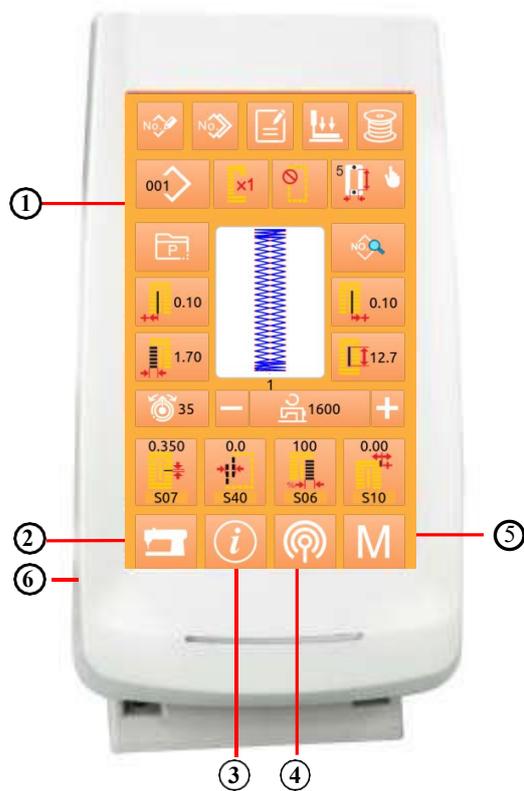


2 Instructions

2.1 Name and description of each part

(Front)

(right side)



① Touch panel crystal display

②  READY key → To switch between the data input screen and the sewing screen

③  Information key → switch between data input interface and information interface

④  Communication key → Converts the data input interface and the communication interface

⑤  Mode key → Converts the data input screen and various detailed setting conversion screens

⑥ Cable

⑦ U disk socket

2.2 Universal keys

The keys for common operations on each screen are shown below.

Serial number	Icon	Features	Remark
1		Cancel button → exit the current setting interface. When the data is changed on the interface, the data being changed is canceled.	
2		OK button → Confirm the changed data.	
3		Plus key → Up increment value key.	
4		Minus key → Decrease value key down.	

2.3 Basic operation

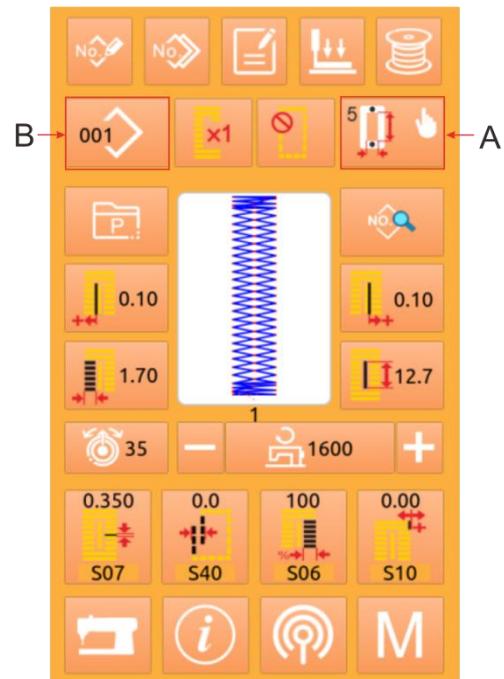
① Turn on the power switch

First, please confirm the set presser foot type (a) and the installed presser foot

Whether the foot types are the same.

② Select the pattern you want to sew No

After the power is turned on, the data input interface is displayed. The selected pattern No. appears on the upper part of the interface. You can select the pattern no after pressing (b). (unregistered pattern numbers are not displayed.)

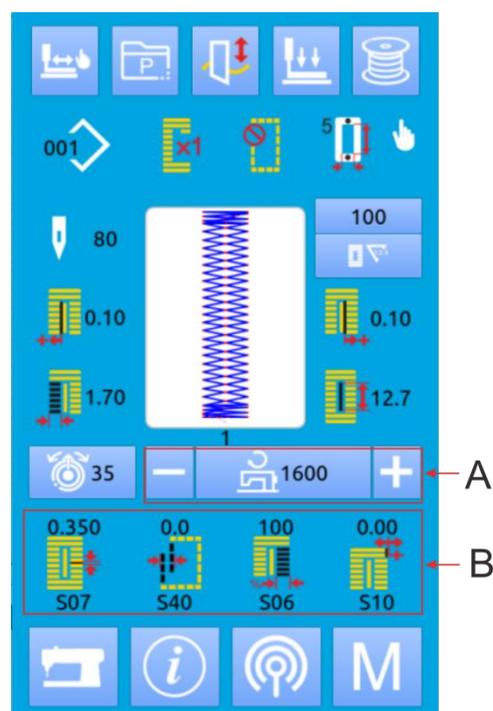


③ Set to a state where sewing is possible

After pressing the ready button "  ", the background color of the liquid crystal display changes to blue, and it becomes a state that can be sewn. The A in the right picture is the speed setting, and the B is the user management display.

④ Start sewing

Place the sewn product on the presser foot, depress the pedal, and the sewing machine starts to start sewing.



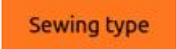
2.3 Common pattern operation

The common pattern setting and sewing interface are shown on the right. For the detailed function description of each key, please refer to the introduction of "4. Common pattern sewing".

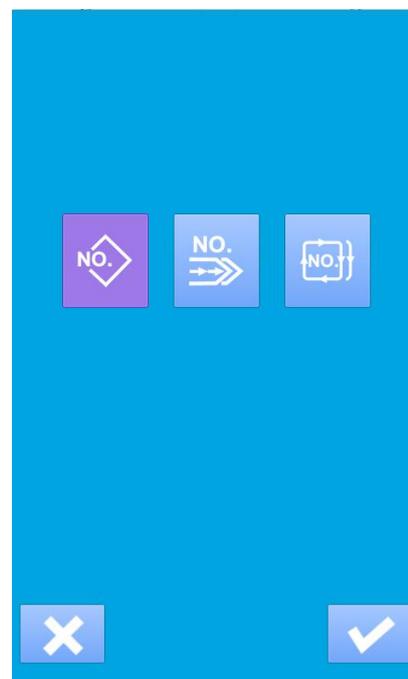
The common sewing method is the default method of the system, and the system is the common sewing method when it leaves the factory.

Steps:

① Press the mode key " " to enter the mode setting.

② Press " "to select " "normal sewing method

③ Press the OK key " " to return to the previous interface, and then press the mode key " " to display the main interface of ordinary sewing



④ In the main interface of circular sewing, select sewing fabric

⑤ Move the sewing position and add patterns for circular sewing

⑥ Set sewing parameters for sewing patterns

⑦ Perform necessary editing operations (copy, name, add, delete, etc)



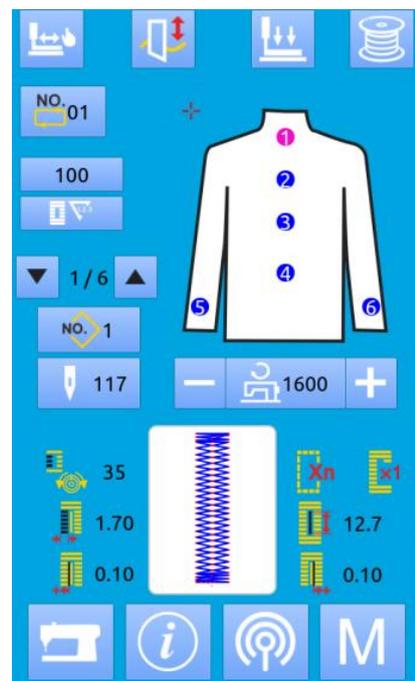
⑧ Press the button "  " to enter the sewing interface to prepare for sewing.

⑨ Set the cutter, speed, tension, etc. in the common sewing interface.

⑩ Make counter settings

⑪ Select trial sewing if necessary

⑫ Lower the presser foot and depress the pedal to sew



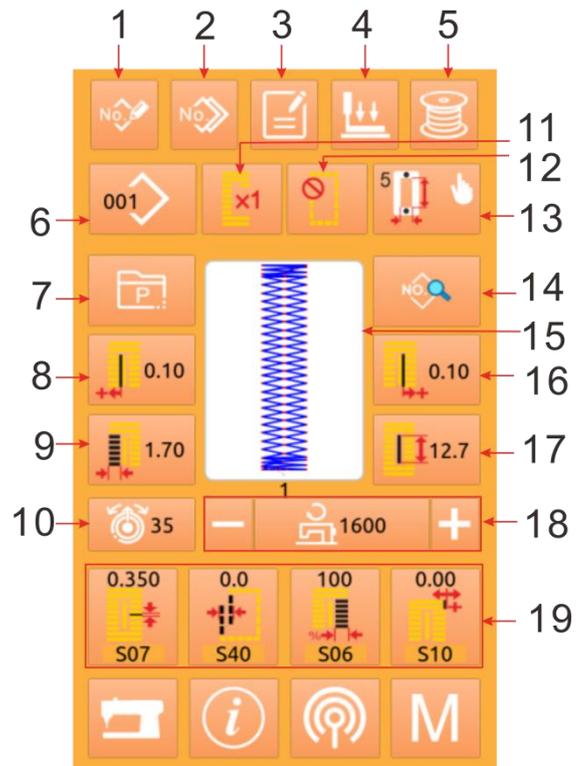
3 common pattern sewing

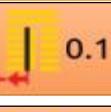
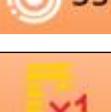
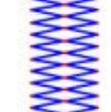
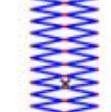
When the system leaves the factory, the default mode is the common pattern sewing mode. The operation steps of this method are described in "3. Operation Instructions". This section describes the operation of each key for common pattern sewing in detail.

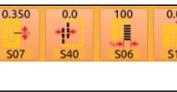
3.1 Interface function keys

(1) Sewing data input interface

The data input interface is shown on the right. For detailed function descriptions, please refer to the function key description table.

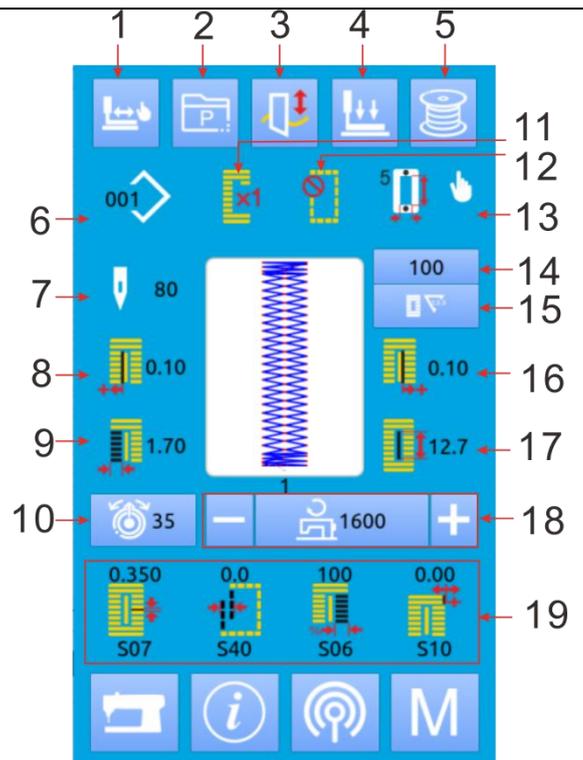


Serial number	Icon	Features	Remark
1		pattern registration	
2		pattern copy	
3		Pattern naming	
4		Threading (Presser Foot Down)	Needle can be replaced in this state
5		winding	
6		Pattern selection	Press this key to enter the pattern selection interface
7		direct selection key	
8		Left Knife Slot Width	
9		Left wrapping width	Shapes 27 and 29 are not supported
10		Needle thread tension setting (S51, S52, S55, S56)	S52 and S56 are affected by the sewing data switch
11		Double stitch/single stitch setting	Shapes 27, 28, 29 are not supported
12		Setting of sewing times	Shape 30 not supported
13		Presser foot type selection	
14		Sewing data setting	
15		Sewing shape selection	Click on the pattern to enter the sewing shape selection
16		Right cutter groove width	

17		Cut cloth length	
18		sewing speed	1 Press the +/- button to change the sewing speed 2 Click the speed button to directly set the sewing speed
19		Pattern parameters	Parameter options can be set

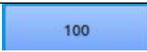
(2) Sewing interface

Press " " to enter the sewing interface as shown on the right. detailed function
Please refer to the function key description table for details.



Function key description:

Serial number	Icon	Features	Remark
1		Trial sewing	pattern trial sewing
2		P Pattern selection button	
3		 : Knife enable  : Knife Prohibition	Toggle cutter enable (After the cutter is disabled, the parameters in the pattern will not work)
4		Threading (Presser Foot Down)	
5		winding	
6		Pattern number display	
7		Display of the total number of needles	

Serial number	Icon	Features	Remark
8		Left Knife Slot Width	
9		Left wrapping width	
10		Upper thread tension tension setting, the displayed value is the left hemming tension	Enter the tension setting interface, you can set the tension S51, S52, S55, S56
11		Single seam/double seam display	
12		Display of the number of stitches	
13		Presser foot type selection	
14		Counter value display	
15		Counter mode display  : sewing counter  : Stitch counter	
16		Right cutter groove width	
17		Buttonhole length	
18		speed setting	Influenced by k07 parameter
19		User management display	

3.2 Pattern registration

A maximum of 999 common patterns can be registered. Press "  " to enter the pattern registration interface (as shown on the right):

① Enter the pattern number

Use the number keys to select the desired pattern number. If an existing pattern number is entered, the interface prompts whether to overwrite the existing pattern. Unregistered pattern numbers can be retrieved by pressing the "   " key.



② Select seam shape

After confirming the pattern number, enter the seam shape selection interface (as shown on the right). After selecting the pattern shape, press the enter key

"  " to complete the registration of the new pattern and return to the main interface. Set the initial value of the sewing data according to the selected sewing shape.

Press the exit key "  " to exit the selection directly, and the pattern is not registered.

Note: The number of sewing shapes is affected by parameter K04, please refer to Section 4.9 Sewing Shape Selection.



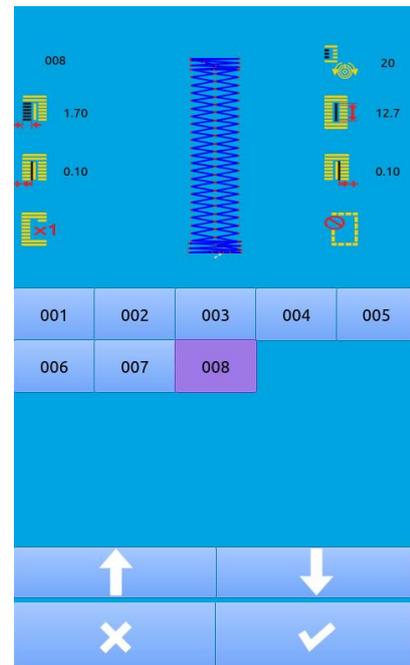
3.3 Pattern copy

① Select the copied pattern

Press "  " to enter the pattern copy interface (as shown on the right).

A. Select the number of the copied pattern among the registered patterns and press , then press the "  " key to enter the registration number input interface.

B. Press  the exit key to directly exit the pattern copying.

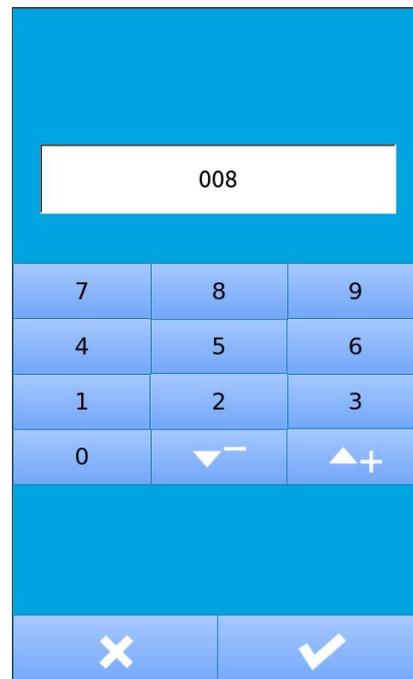


② Enter the newly registered pattern number

The upper part of the interface displays the sewing shape and relevant sewing data of the copied pattern. Use the numeric keys to select the unregistered pattern number. The registered pattern number cannot be registered repeatedly.

A. Press "  " to complete the pattern copy operation and return to the main pattern interface.

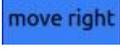
B. Press the "  " exit key to directly exit the number input interface.

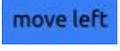


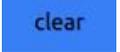
3.4 Pattern naming



Press "  " to enter the pattern naming interface (as shown in the right figure), up to 12 characters can be input.

 : Cursor right key

 : Cursor left key

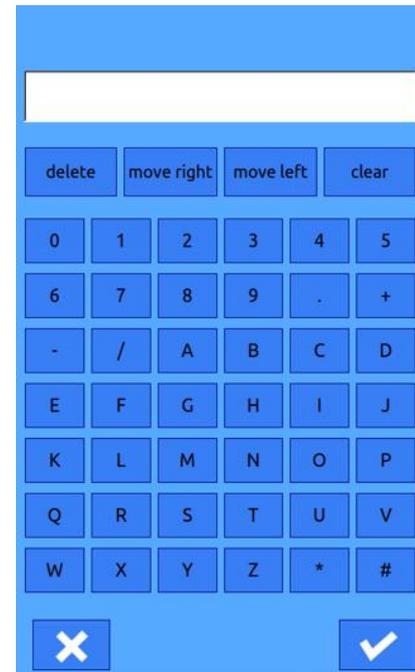
 : clear all key

A. Select the characters you want to input, and press

"  " to end the pattern naming operation.

B. The position of the character can be determined by moving the cursor, and the character at this position can be eliminated by the delete key.

C. Press the "  " exit key to exit directly.



3.5 Threading



Press "  " in the input interface to enter the threading interface. At this time, the presser foot drops.

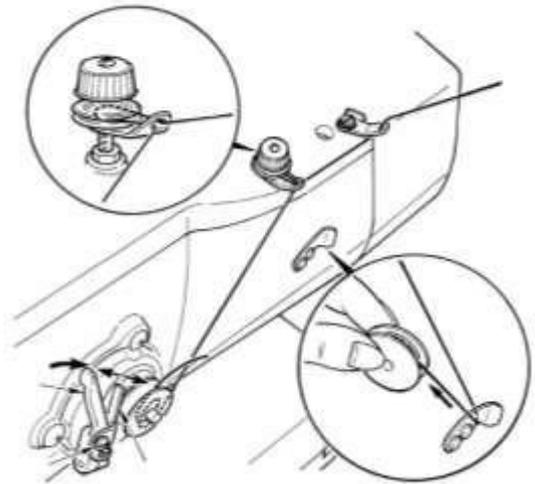
Press "  " under the threading interface, the presser foot rises and returns to the main interface.



3.6 winding

① Install the shuttle core

Insert the bobbin into the bobbin. Then press the bobbin guide in the direction of the arrow (as shown in the right figure).



② Display the bottom wire winding interface

On the data input interface (orange) or sewing interface (blue),

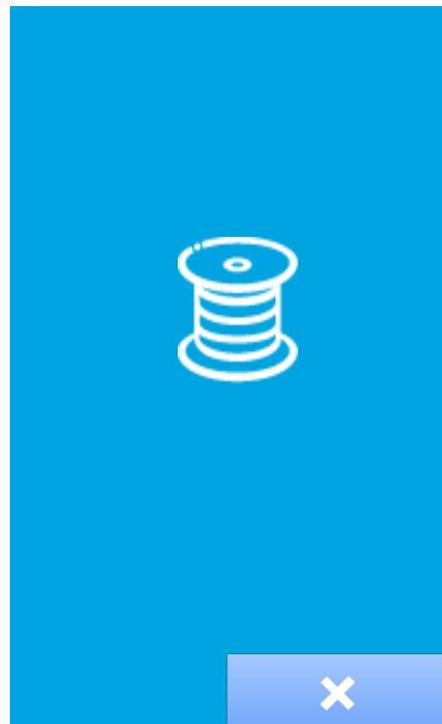
after pressing the winding button "", the winding interface is displayed (as shown on the right).

③ Start winding

After depressing the start pedal, the sewing machine turns and starts winding the lower thread.

④ Stop sewing machine

When the stop button "" is pressed, the sewing machine stops and returns to the normal mode. In addition, in the bobbin winding, the sewing machine stops the sewing machine in the winding mode after depressing the pedal again. Therefore, depressing the start pedal again can continue the bobbin winding. This function can be used when winding several bobbins.



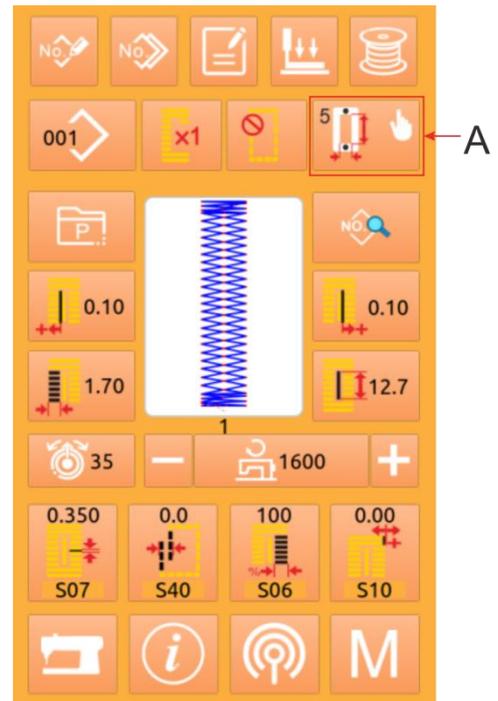
3.7 Select the type of presser foot

① Display data entry interface

Only the data entry screen (orange) can change the setting contents. If the sewing screen (blue) is displayed, press the ready key to display the data input screen.

② Call up the presser foot type selection interface

When the presser type selection button (A) is pressed, the presser type selection screen is displayed (as shown on the right).



③ Select the type of presser foot

Press the button (B) for the type of presser foot attached to the sewing machine. The pressed key is displayed in reverse. For the type of presser foot, refer to the table below to set.

	Type	Presser foot model
	Type 1	
	Type 2	
	Type 3	
	Type 5	Presser foot length and width can be set

※ When using a presser foot other than types 1 to 3, set it to type 5. Change the memory switch (level 1) according to the parameter U15 presser used and the width parameter U16 presser length. When using type 5 presser foot, the swing width can be up to 6mm, and when the length is more than 41mm, it is necessary to change the presser foot crank, feed plate and other parts.



④ Setting the range of type 5 presser foot

After selecting type 5 presser foot, enter the presser foot size setting interface, press the A button key, set the width of the presser foot through the numeric keyboard, the range is 3.0~10.0mm. Press the B button to set the length of the presser foot through the numeric keyboard, the range is 10.0~150.0mm.

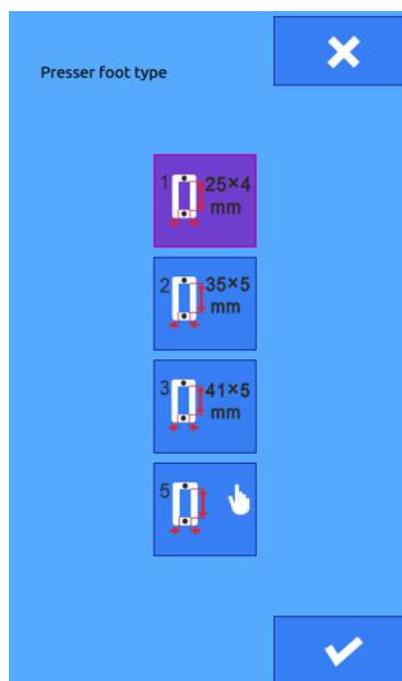
After the setting is completed, press the "✓" button to save the setting and exit.

To return to the main input interface, press the "✕" button. Cancel the setup and return to the previous interface step ③, you can re-select the presser foot model.



⑤ Determine the type of presser foot

After pressing the OK button "✓", the presser foot type change interface is exited, and the change is completed. Press the escape key "✕" to exit directly.



3.8 Pattern selection

Press  to enter the pattern selection interface (as shown on the right), the upper part is the sewing shape and related data of the currently selected pattern, and the lower part is the registered pattern number.



: Pattern deletion

① Select pattern

Each page can display 20 pattern numbers, if there is more than one page, pass

"   " to turn pages. When the registered pattern number is selected, the content of the selected pattern will be displayed above.

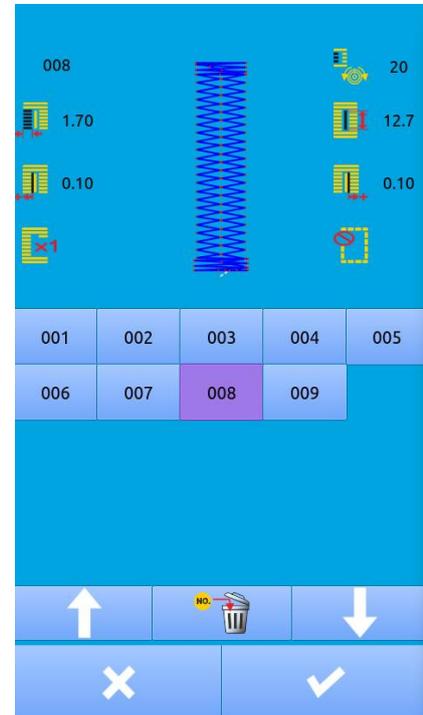
Press"  "to complete the pattern selection operation.

Press the escape key "  "to directly exit the pattern selection.

② Pattern deletion

Select the registered pattern and press "  " to delete the pattern, but the pattern in the following three cases cannot be deleted.

- A: Patterns included in continuous sewing
- B: Patterns included in cycle sewing
- C: The pattern registered to P cannot be deleted either



3.9 Sewing shape selection



Press "  " to enter the sewing shape selection interface.

Select the pattern seam shape.

Press the button of the selected pattern shape, and you

can press "  " to end the selection. Press the

escape key "  " to exit directly.

Note: The pattern selected by this function is the default parameter shape, which can be selected as required.

Set the pattern parameters, the system does not save by default, please refer to 4.2 Pattern Registration for saving data

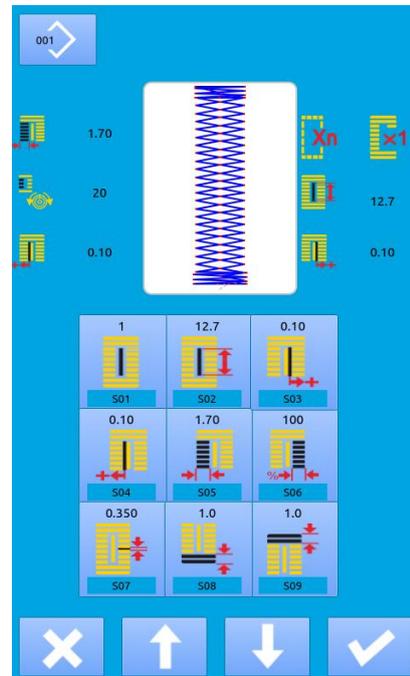


3.10 Sewing data setting

① Changing the sewing data

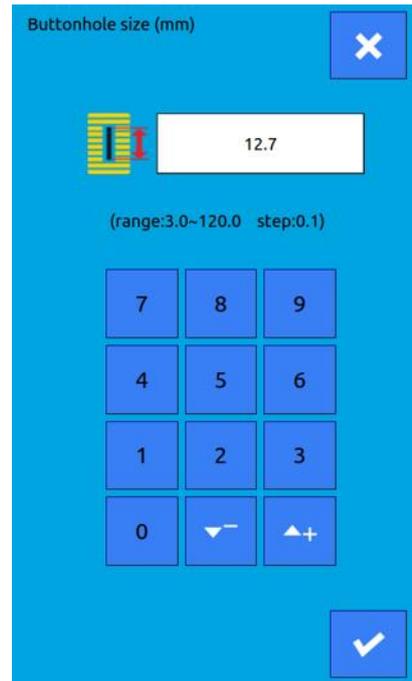
Press "  " to enter the sewing setting interface (as shown on the right). Select the sewing data to be modified and enter the setting state.

Press "  " to exit the sewing data setting. An example is as follows:

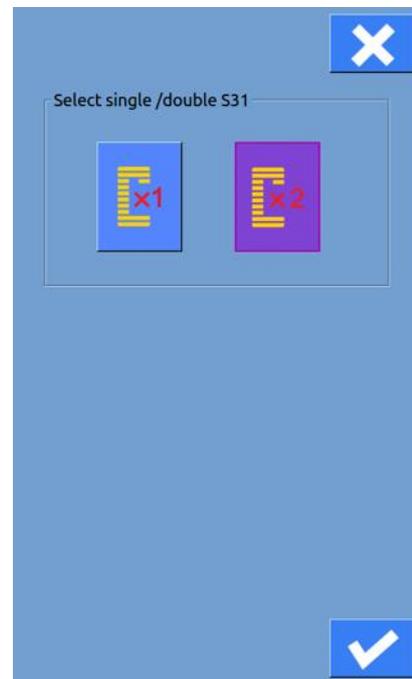




Select "S02" to enter the interface (as shown on the right)



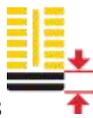
Select "S31" to enter the interface (as shown on the right)



② Sewing Data Sheet

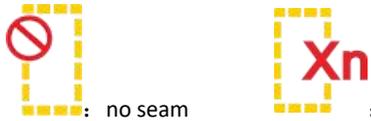
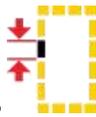
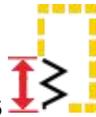
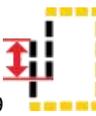
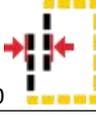
Sewing data is related to the selected sewing shape. Different shapes can set different sewing data, and the initial value of sewing data may also be different.

Whether the editing part of the sewing data is enabled in the mode state. In addition, some sewing data are affected by other sewing data.

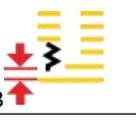
Number	Project	Predetermined area	Editing unit	Remark
S01 	sewing shape Refer to Section 2.12 Sewing Shape Selection.	1~30	1	Note 5
S02 	Cut cloth length Set the length of the cloth cutting knife to cut the sewn product. When the sewing shape is 27, 28, 29, and 30, the sewing length is set. Set parameter U19 (several movements of the cloth cutting knife) to be valid, and then follow the The cutter size set by U18 (cloth cutter size) cuts the sewn product several times.	3.0~120.0	0.1mm	
S03 	Knife groove right width Set the gap between the cutter and the right parallel.	-2.00~2.00	0.05mm	
S04 	Knife groove left width Set the gap between the cutter and the left parallel.	-2.00~2.00	0.05mm	
S05 	Left wrapping width Set the overcast width of the left parallel part.	0.10~5.00	0.05mm	
S06 	Left and right shape ratio Set the right shape enlargement/reduction ratio centered on the cutter position.	50~150	1%	
S07 	Parallel part spacing Set the sewing pitch of the left and right parallel parts.	0.200~2.500	0.025mm	
S08 	2nd bartack length Set the length of the front side bartack. Under the square"  "under the straight line reinforcement"  "under the cone。	0.2~5.0	0.1mm	

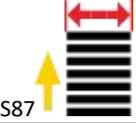
Number	Project	Predetermined area	Editing unit	Remark
S09 	1st bartack length Set the length of the inner side bartack. on the square	0.2~5.0	0.1mm	
S10 	Right reinforcement width correction Adjust the right side profile overlock seam of the reinforcement. The 1st and 2nd reinforcements have been corrected. "square up"  "square down"  "straight reinforcement down"	-1.00~1.00	0.05mm	
S11 	Left reinforcement width correction Adjust the left profile overlock seam of the reinforcement.	-1.00~1.00	0.05mm	
S12 	Left taper reinforcement symmetrical Sets the length of the reinforcement that forms the tapered reinforcement shape.	0.00~3.00	0.05mm	
S13 	Right conical reinforcement symmetrical Sets the length of the reinforcement that forms the tapered reinforcement shape.	0.00~3.00	0.05mm	Note 1
S14 	round eye shape length Sets the length from the center of the eyelet to the upper side of the eyelet shape.	1.0~10.0	0.1mm	Note 1
S15 	Round eye shape needles Sets the number of stitches in the upper 90 degrees of the eye shape.	1~8	1	Note 1
S16 	eye width Set the horizontal size of the inner side of the eye shape. The actual needle drop point is the dimension after adding the width of the S04 left cutter groove.	1.0~10.0	0.1mm	Note 1
S17 	Eye length: Set the vertical dimension of the inner side of the eye shape.	1.0~10.0	0.1mm	Note 1
S18 	Circle Shape Length: Set the length from the center of the circle shape to the upper side. On a circle "  "radially on"  "on a semicircle Under the circle"  "radiate"  "under the semicircle"	1.0~5.0	0.1mm	Note 1

Number	Project	Predetermined area	Editing unit	Remark
S19 	Radial shape needles Sets the number of stitches in the radial upper 90 degrees.	1~8	1	Note 1
S20	Radial Shape Reinforcement: Set with/without radial shape reinforcement 			Note 1 Note 2
S21 	Reinforcement part spacing: Set the sewing spacing of the reinforcement part. Square on "  "Circle on"  " Semicircle on Under the square "  "under the circle"  " under the semicircle  "tapered under" 	0.200~2.50 0	0.025	
S22 	1st gap Sets the gap between the 1st reinforcement and the cutter groove. Works with all shapes.	0.0~4.0	0.1mm	
S23 	2nd gap Sets the gap between the 2nd reinforcement and the cutter groove. Works with all shapes.	0.0~4.0	0.1mm	
S31	Single sewing/Double sewing  : single sewing  : double stitch			
S32	Choose a double stitched cross When double stitching is set, select overlapping stitching parallel stitch stitching or cross stitching.  : double stitch  : cross stitch			Note 3
S33 	Corrected double stitch width When double stitching is set, set the amount by which the overcast width is reduced for the first lap.	0.0~2.0	0.1mm	Note 3

Number	Project	Predetermined area	Editing unit	Remark
S34	Sewing times: Set the times of sewing.   : no seam  : 1~9 times	0~9	1 time	
S35	 Bottom seam spacing Set the sewing pitch when sewing down.	1.0~5.0	0.1mm	Note 3
S36	 Bottom seam roll-in length Set the sewing length of the needle thread winding when stitching is performed.	2.0~20.0	0.1mm	Note 3
S37	 Bottom seam roll-in spacing Set the sewing pitch at which the needle thread is drawn in when stitching is performed.	0.2~5.0	0.1mm	Note 3
S38	 Bottom seam roll-in width Set the sewing width of the needle thread winding when stitching is performed.	0.0~4.0	0.1mm	Note 3
S39	 Needle drop before and after correction When sewing more than two laps, set the front and rear correction amount of the needle drop point.	0.0~2.5	0.1mm	Note 2 Note 3
S40	 Needle drop left and right correction When performing 2 or more stitches, set the correction amount for the left and right of the needle drop point.	0.0~1.0	0.1mm	Note 3
S41	 Correction of the left position of the bottom seam Set the correction amount for correcting the sewing reference position of the bottom seam from the left overcast center to the left and right.	-2.0~2.0	0.1mm	Note 2 Note 3

Number	Project	Predetermined area	Editing unit	Remark
S42 	Correction of the right position of the bottom seam Set the correction amount for correcting the sewing reference position of the bottom seam from the center of the right overcasting to the left and right.	-2.0~2.0	0.1mm	Note 2 Note 3
S44 	Setting of sewing speed Set the sewing speed.	400~4200	100rpm	Note 3 Note 4
S51 	left parallel tension Set the needle thread tension of the left parallel section.	0~200	1	
S52 	right parallel tension Set the needle thread tension of the right parallel part.	0~200	1	Note 2
S53 	Left parallel tension (1st turn of double stitch) For double stitching, set the thread tension of the left parallel part of the first lap.	0~200	1	Note 2 Note 3
S54 	Right parallel tension (1st turn of double stitch) For double stitching, set the tension of the right parallel part of the first lap.	0~200	1	Note 2 Note 3
S55 	1st reinforcement tension Set the needle thread tension of the 1st reinforcement.	0~200	1	
S56 	2nd reinforcement tension Set the needle thread tension of the second reinforcement.	0~200	1	Note 2
S57 	Setting the needle thread tension at the start of sewing Set the needle thread tension for bartack at the start of sewing.	0~200	1	
S58 	Setting the needle thread tension for stitching Set the needle thread tension for stitching.	0~200	1	Note 3

 <p>S59</p>	<p>The first reinforcement starts, ACT is adjusted synchronously Adjust the needle thread tension output of the 1st reinforcement section and start synchronizing.</p>	<p>-5~5</p>	<p>1 pin</p>	<p>Note 2</p>
 <p>S60</p>	<p>The right edge starts, ACT is adjusted synchronously The needle thread tension output in the overlock sewing section is adjusted to start synchronization.</p>	<p>-5~5</p>	<p>1 pin</p>	<p>Note 2</p>
 <p>S61</p>	<p>The 2nd reinforcement starts, ACT is adjusted synchronously Adjust the needle thread tension output of the second reinforcing part to start synchronization.</p>	<p>-5~5</p>	<p>1 pin</p>	<p>Note 2</p>
 <p>S62</p>	<p>Sewing start fixed number of stitches Sets the number of stitches to start bartack sewing.</p>	<p>0~8</p>	<p>1 pin</p>	
 <p>S63</p>	<p>Sewing start Fixed sewing pitch Sets the sewing pitch for bartack sewing at the start of sewing.</p>	<p>0.00~0.70</p>	<p>0.05mm</p>	<p>Note 2</p>
 <p>S64</p>	<p>Sewing start Reinforcement sewing width Sets the width of bartack sewing at the start of sewing</p>	<p>0.0~3.0</p>	<p>0.1mm</p>	
 <p>S65</p>	<p>Longitudinal correction of bartack sewing at the start of sewing Sets the general direction start position of sewing start bartack sewing.</p>	<p>0.0~5.0</p>	<p>0.1mm</p>	<p>Note 2</p>
 <p>S66</p>	<p>Lateral correction of bartack sewing at the start of sewing Set the start position in the horizontal direction at which bartack sewing is to be started.</p>	<p>0.0~2.0</p>	<p>0.1mm</p>	<p>Note 2</p>
 <p>S67</p>	<p>Sewing End Reinforcement Sewing Width Sets the width of bartack sewing at the end of sewing.</p>	<p>0.1~1.5</p>	<p>0.1mm</p>	
 <p>S68</p>	<p>Number of bartack stitches at the end of sewing Set the number of stitches for bartack sewing at the end of sewing.</p>	<p>0~8</p>	<p>1 pin</p>	

 <p>S69</p>	<p>End-of-sewing reinforcement sewing vertical correction Sets the longitudinal start position of bartack sewing at the end of sewing.</p>	0.0~5.0	0.1mm	Note 2
 <p>S70</p>	<p>End-of-sewing bartack sewing transverse direction correction Set the horizontal start position of bartack sewing at the end of sewing.</p>	0.0~2.0	0.1mm	Note 2
<p>S81</p>	<p>Knife action: Set the normal cloth cutter on/off action.</p>  <p>: Normally the cutter action is off</p>  <p>: Normally the cutter action opens</p>			
<p>S83</p>	<p>1st Circle Knife for Double Sewing When double stitching is used, set whether the cloth cutting knife of the 1st circle is on or off.</p>  <p>: Normally the cutter action is off</p>  <p>: Normally the cutter action opens</p>			Note 2 Note 3
 <p>S84</p>	<p>top speed limit Set the maximum speed of the sewing machine. Limited by parameter K07 (maximum speed limit setting).</p>	400~4200	100rpm	Note 4
 <p>S86</p>	<p>Advance distance Set the sewing pitch on the forward side of the bar (S01 shape N0.27, 28, 29, 30).</p>	0.200~2.500	0.025	Note 1
 <p>S87</p>	<p>advance width Set the sewing width on the forward side of the bar (S01 shape N0.27, 28, 29, 30).</p>	0.10~3.00	0.05mm	Note 1
 <p>S88</p>	<p>Back to Spacing Set the sewing pitch on the return side of the bar (S01 shape N0.27, 28, 29, 30).</p>	0.200~2.500	0.025mm	Note 1
 <p>S89</p>	<p>return width Set the sewing width on the return side of the bar (S01 shape N0.27, 28, 29, 30).</p>	0.10~3.00	0.05mm	Note 1

Note 1: The display is different for different shapes.

Note 2: It is set to be displayed after opening under Edit. Note 3: Displayed after function is selected

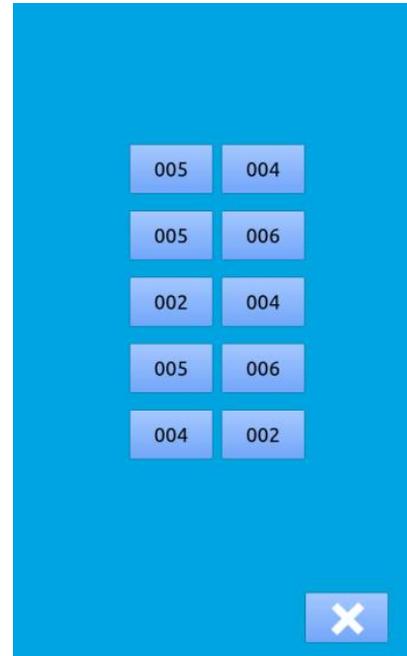
Note 4: Limited by parameter K07 (maximum speed limit setting)

Note 5: When changing the shape of the first fixed seam, please pay attention to modify the sewing parameters corresponding to the shape, otherwise it may affect the generation of patterning data or the sewing effect.

3.11 Select the pattern directly

10 frequently used patterns can be registered to the direct selection button, and the input interface press

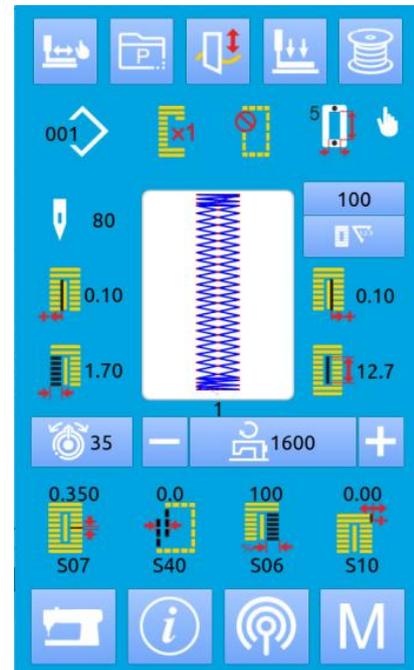
"" to enter the selection interface.



3.12 Common pattern trial sewing operation

① Display the sewing interface

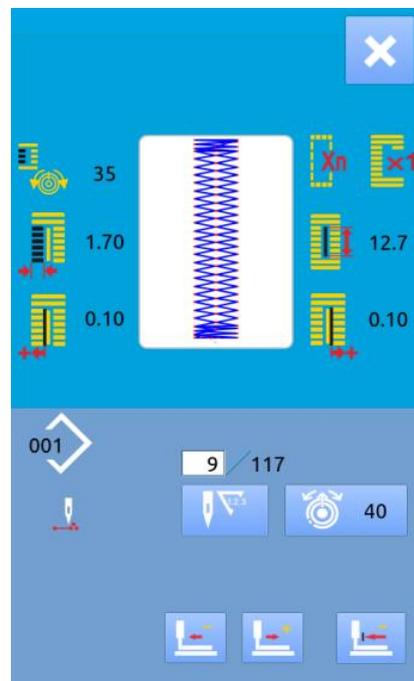
In the data input interface, after pressing the ready key , the background color of the liquid crystal display changes to blue, and the sewing interface is entered at this time. As shown on the right.



② Display the trial sewing interface

In the sewing interface, press the  key to enter the trial sewing interface (as shown on the right):

 : return to origin	 : sewing instructions
 : back	 : tangent command
 : go ahead	 : empty send command
 : needle drop point tension	 : thread tension command
 : current number of stitches/total number of stitches	 : cutter drive command



③ start trial sewing

A. By tapping the  back key,  back key and  Forward key three keys to start single-step trial sewing. In this mode, step on the foot pedal switch, the sewing machine will start to sew the remaining number of stitches.

B. When long press  , the whole pattern will be trial sewed at this time.

C. When the trial sewing is executed, the corresponding instruction mark on the left will be displayed according to the sewing data.

Example: When the sewing data is thread trimming, the icon

changes to 

④end trial sewing

Press the cancel key "" to exit the trial sewing interface and return to the sewing interface noodle.

3.13 Needle thread tension setting

(1) When changing the thread tension value

① Display the data input interface

The needle thread tension can be changed on the data input screen (orange) or the sewing screen (blue). If it is on the sewing interface (blue), press the ready key to display the data input interface (orange).

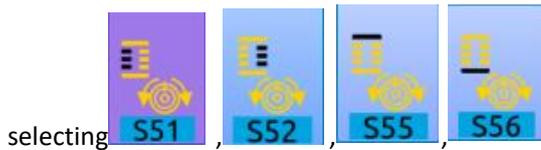
② Call out the needle thread tension change interface

After pressing the needle thread tension button "", the needle thread tension change interface is displayed (as shown on the right).

③ Change the thread tension

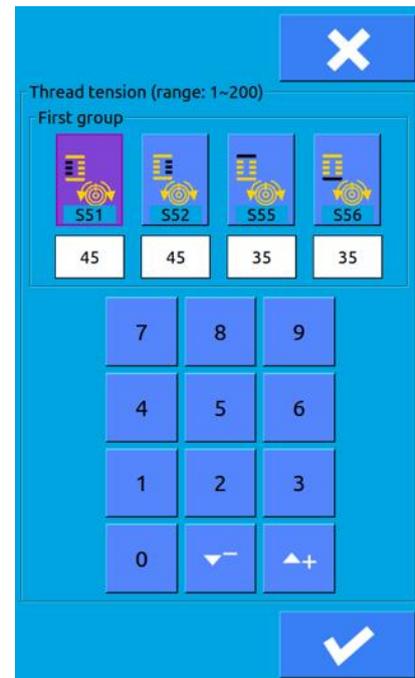
On the thread tension change interface, the thread tension of the parallel part can be changed.

Force and reinforcement thread tension. By



④ End the change of needle thread tension

After pressing  the cancel button, the needle thread tension change interface is closed, and the change is completed.



3.14 Counter operation

(1) How to set the counter

- ① Display the counter interface

In the sewing interface, after pressing the ( ) key, the counter setting interface is displayed.



: Sewing Counter Type

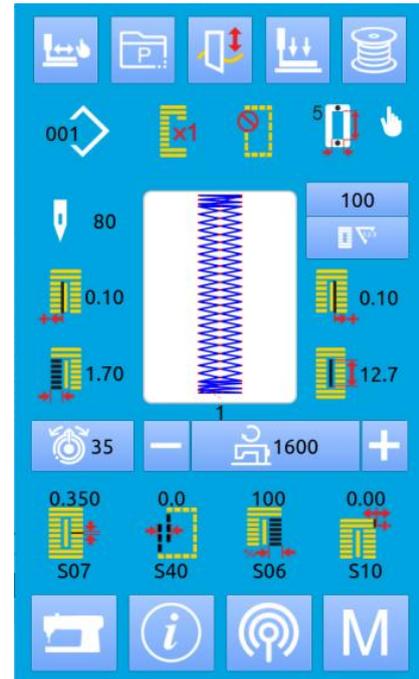


: Stitch counter type

By selecting "  " and "  ", the counter type can be set, and its current count value can be set.

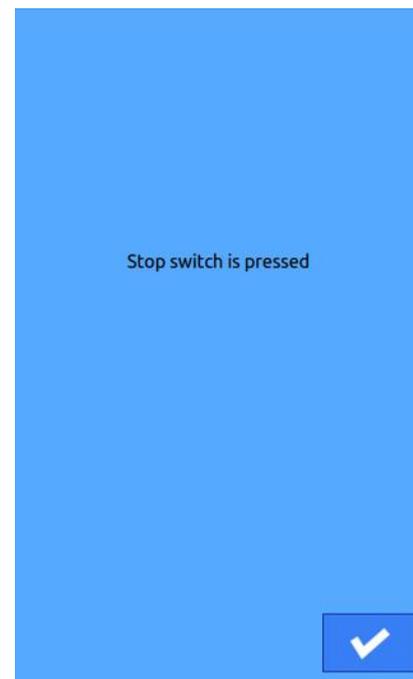
A. Press "  " to set it into effect and return to the main interface.

B. Press "  " to cancel the operation and return to the main interface.

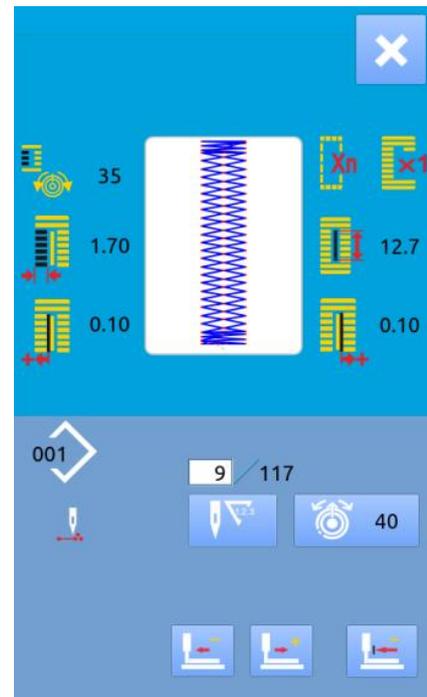


3.15 Emergency stop

During sewing, when the stop switch is pressed, the sewing machine stops sewing and stops rotating. At this time, the display interface is as shown on the right:



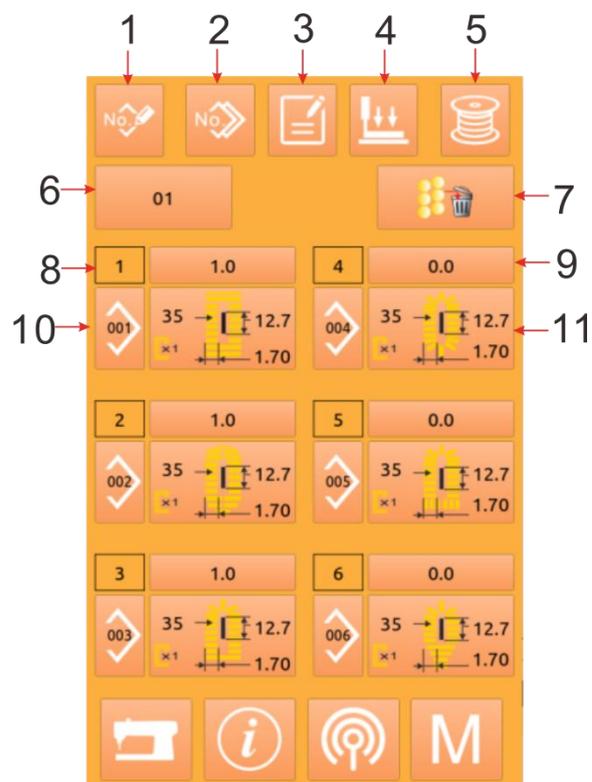
Press "  " to release the exception, and the single-step action interface will pop up (as shown on the right). The operation setting is the same as the trial sewing state. Depress the pedal to continue sewing.



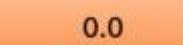
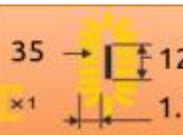
4 Continuous stitch pattern sewing

This sewing type continuously sews up to 6 shapes without raising the presser foot.

Up to 50 continuous sewing patterns can be registered.



4.1 Function Description

serial number	Icon	Features	Remark
1		new pattern registration	
2		pattern copy	
3		Pattern naming	
4		thread	
5		winding	
6		Continuous stitch pattern selection	
7		delete all key	Erase all sub-pattern data of the current continuous sewing pattern
8		Sewing order	
9		Feed amount input key	
10		Sub pattern selection key	
11		Sewing data editing ⁹⁹	

4.2 Continuous seam editing

4.2.1 Continuous stitch pattern selection



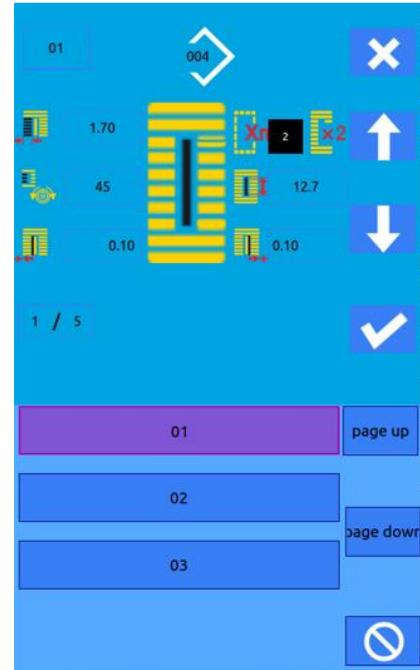
Press button 10  to enter the pattern selection interface (as shown on the right). Do it in the following way:

A. The pattern information registered in the continuous sewing data can be viewed through " 

". B. Press the delete key " " to delete the selected pattern.

C. Select the appropriate pattern, press " " to end the selection, and return to the main interface.

D. Press " " to cancel the selection operation and return to the main interface.



4.2.2 Continuous stitch pattern editing

① Feed amount setting

Press the A button "" in Figure 1 to enter the feeding amount setting interface (as shown in Figure 2).

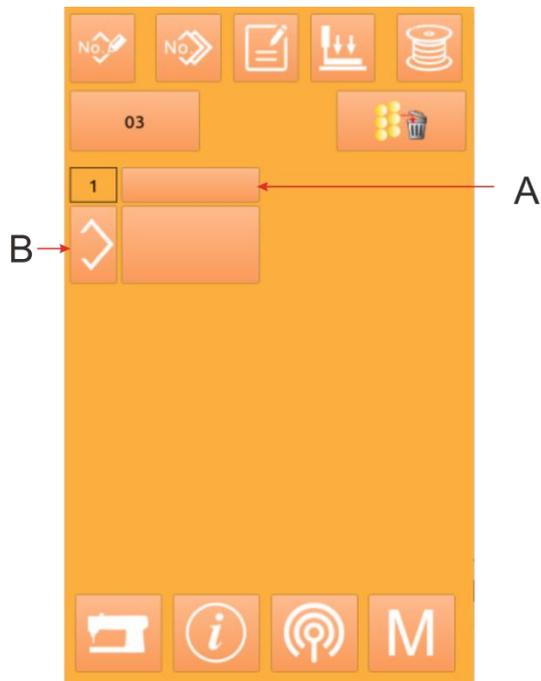


figure 1

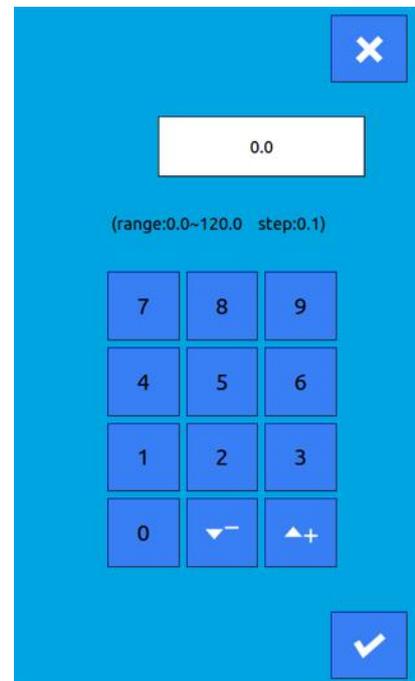


figure 2

② Select the pattern

Press B "" to enter the pattern selection interface (as shown on the right).

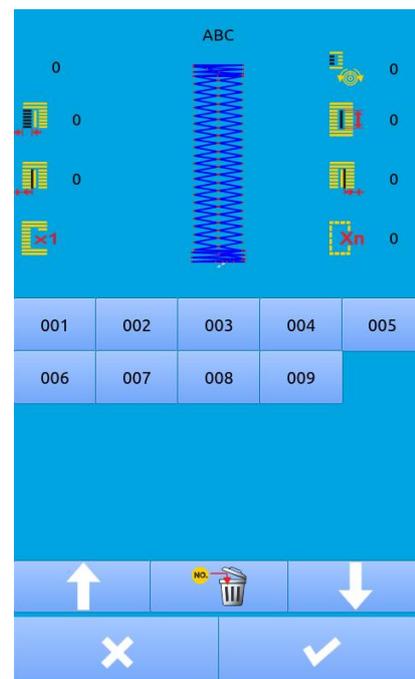
A. In this interface, there are two ways to select patterns:

Directly press the pattern number key to select

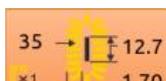
B. Press "" to remove the currently selected pattern.

C. Press "" to cancel the selection operation.

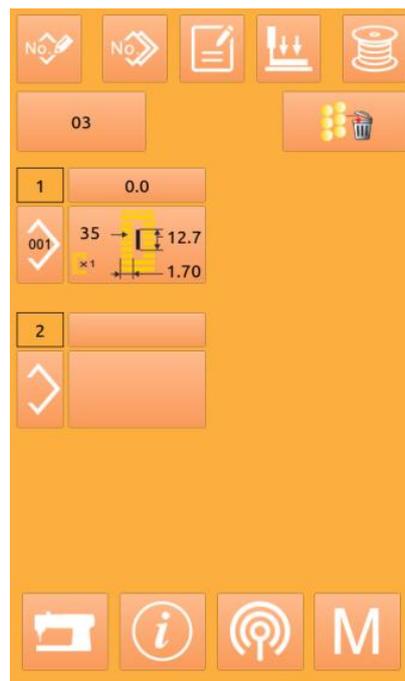
D. Select the appropriate pattern, press "" to confirm the selection



③ Sewing data change



Press " " to enter the sewing data setting interface (as shown in Figure 2 on the right).



④ Sewing data change

Refer to 4.10 Sewing data setting to set parameters for continuous patterns

4.2.3 Continuous sewing pattern registration

A maximum of 50 continuous sewing patterns can be

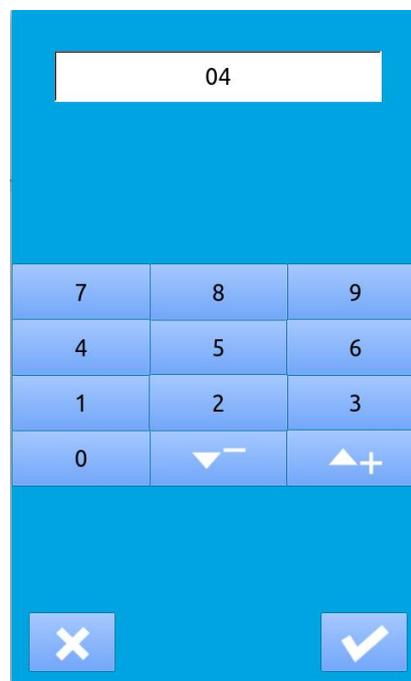
registered, press "" to enter the continuous sewing pattern registration interface (as shown in the right figure):

① Input the pattern number

The desired pattern number can be selected by the number keys, and the registered pattern numbers cannot be registered repeatedly. pass through "

"

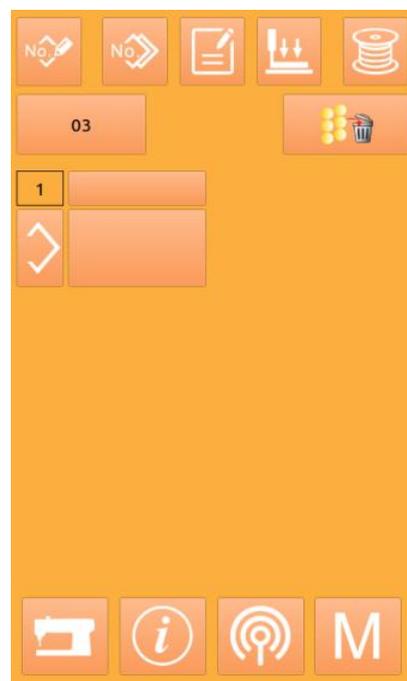
key to search for unregistered pattern numbers.



② Continuous seam editing

After confirming the pattern number, press "" to enter the continuous sewing editing interface (as shown on the right).

Subsequent operations refer to Section "4.2.2"



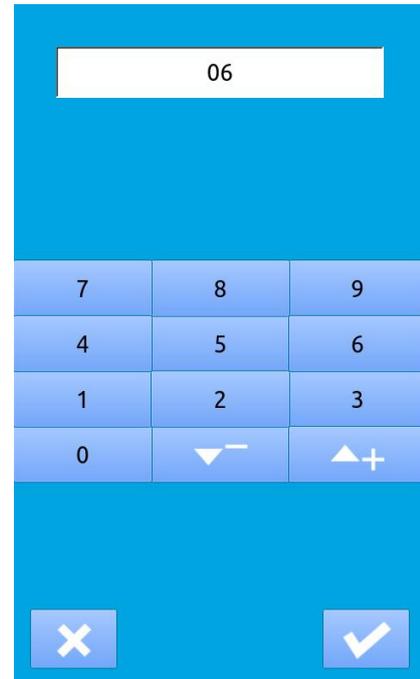
4.2.4 Continuous stitch pattern copy

① Select the copied pattern

Press " " to enter the pattern copy interface (as shown on the right). Select the copied pattern number among the registered patterns and press

Press " + " and " - " to view the pattern shapes contained in the continuous seam.

Press " " to cancel the copy operation.

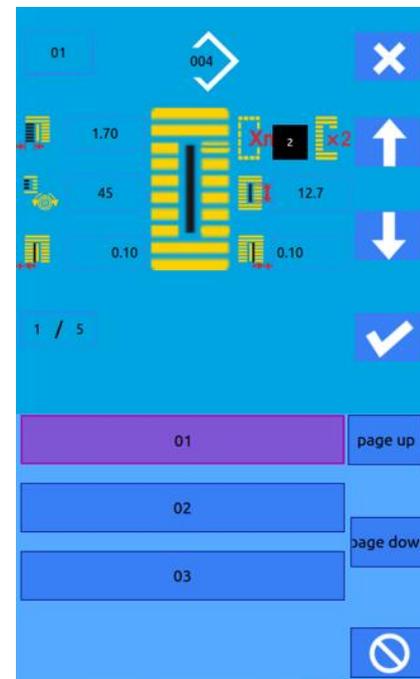


② Input the newly registered pattern number

The upper part of the interface displays the sewing shape and relevant sewing data of the copied pattern. Use the numeric keys to select the unregistered pattern number. Press " " to complete the pattern copy operation.

Press " " to cancel the operation and return to the previous interface.

※ The registered pattern number cannot be registered repeatedly

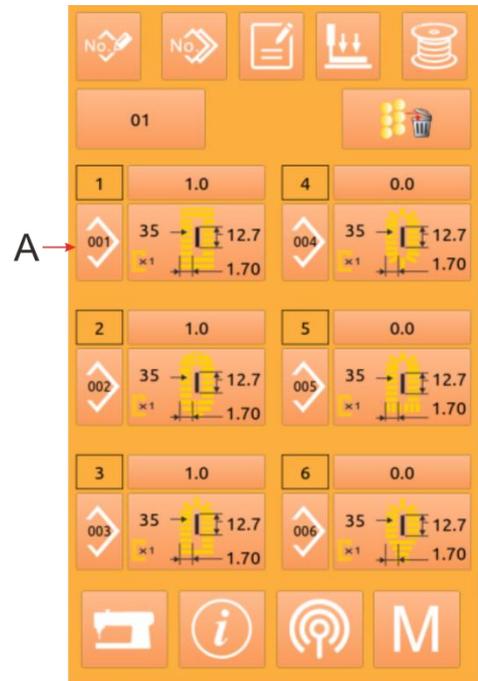


4.2.5 Deletion of continuous stitch pattern

① Select the pattern to be deleted

Press A key " " to select the pattern, press " " to return to the main interface, as shown on the right

Press " " to delete the continuous sewing pattern, and delete all the current sub-patterns



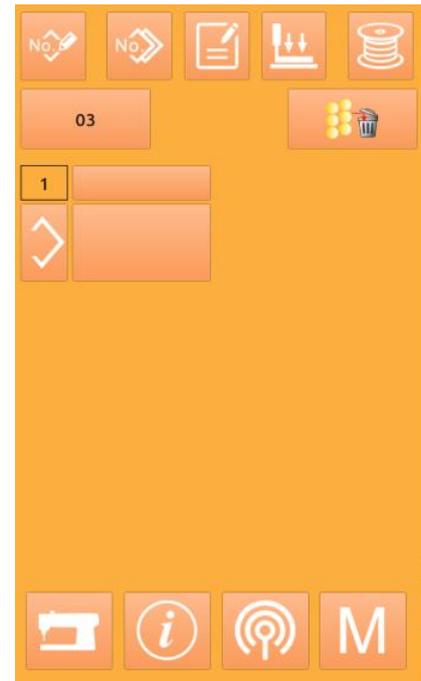
② Confirm whether to delete

Press " " to complete the pattern deletion operation. Press " " to cancel the delete operation.



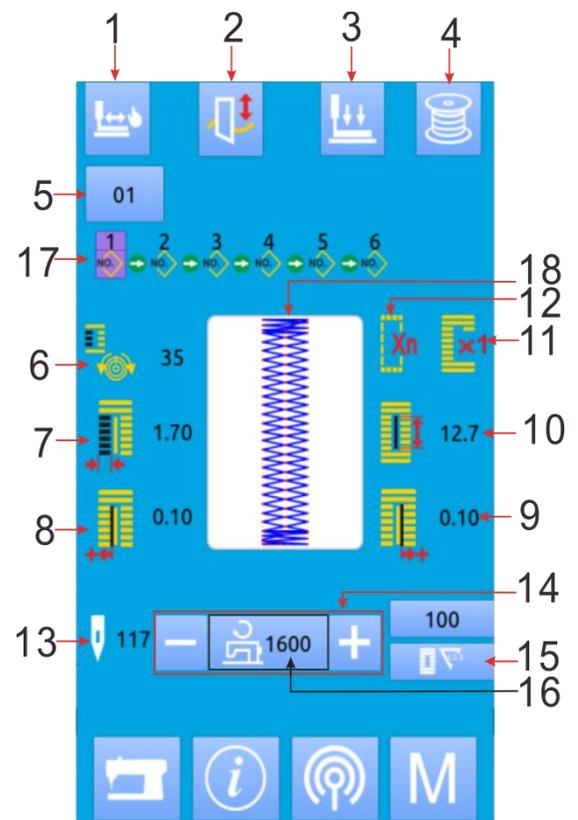
③ Complete the deletion

After the continuous sewing pattern is deleted, return to the main interface of continuous sewing, and the pattern can be re-edited



4.3 Continuous sewing interface

Press "  " to enter the sewing interface (as shown on the right).



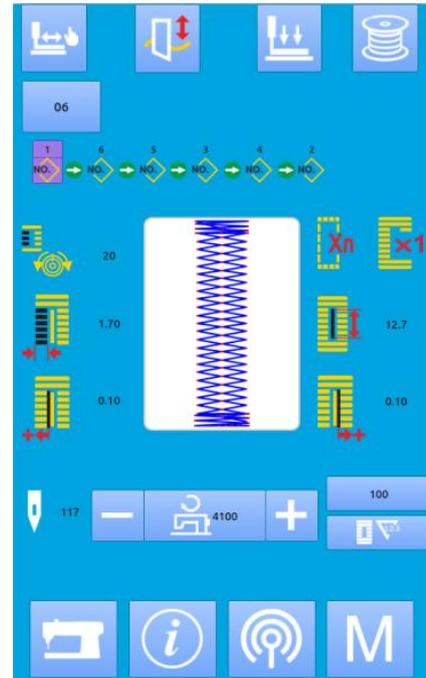
4.3.1 Function Description

serial number	Icon	Features	Remark
1		Trial sewing	
2		Knife enable	Toggle cutter enable
3		Threading (Presser Foot Down)	
4		winding	
5		Pattern number display	
6		Upper tension setting	
7		Left edge width display	
8		Knife groove left width display	
9		Knife groove right width display	
10		Buttonhole length	
11		Single stitch/multiple stitch display	
12		Display of the number of stitches	
13		Needle number display	
14		Display of current sewing speed	
15		Counter value display  : Stitch counter  : sewing counter	
16		speed setting	
17		Pattern number entered in continuous sewing data	
18		Sewing shape display	

4.3.2 Continuous seam trial seam

(1) Display the sewing interface

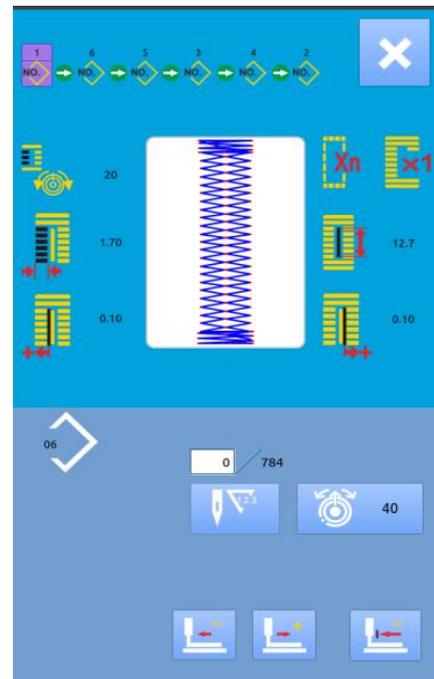
In the data input interface, after pressing the ready key "", the background color of the liquid crystal display changes to blue, and the sewing interface is entered at this time.



(2) Display the trial sewing interface

In the sewing interface, press the "" key to enter the trial sewing interface (as shown on the right):

	return to origin		sewing instructions
	backward		Tangent command
	go ahead		empty send command
	Needle drop point tension		Thread tension command
	Current number of stitches/total number of stitches		Cutter drive command



(3) Start trial sewing

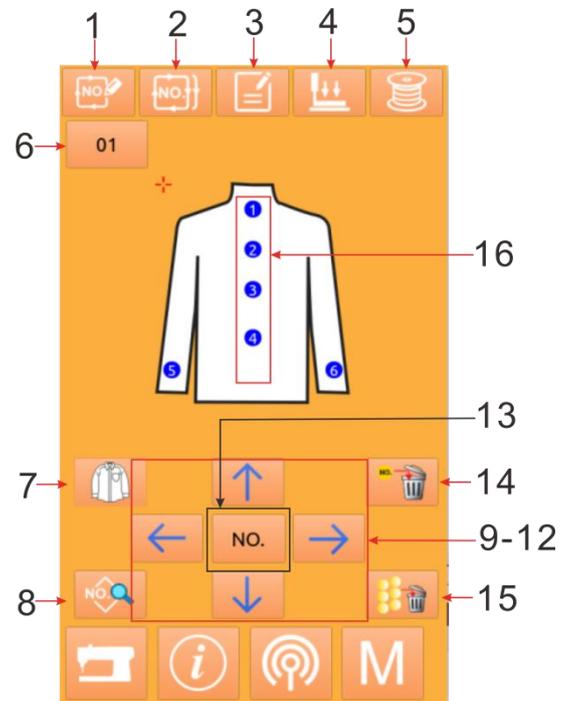
Start trial sewing with "" "return to origin key", "" "backward key" and "" "forward key. In this mode, step on the foot pedal switch, the sewing machine will start to sew the remaining number of stitches.

(4) End trial sewing

Press the "" cancel key to exit the trial sewing interface and return to the sewing interface noodle.

5 Cycle stitch pattern sewing

This function is used to sew multiple pattern data cyclically and sequentially. A maximum of 30 patterns can be input for a cycle sewing pattern, and a maximum of 50 cycle patterns can be registered.



5.1 Function description

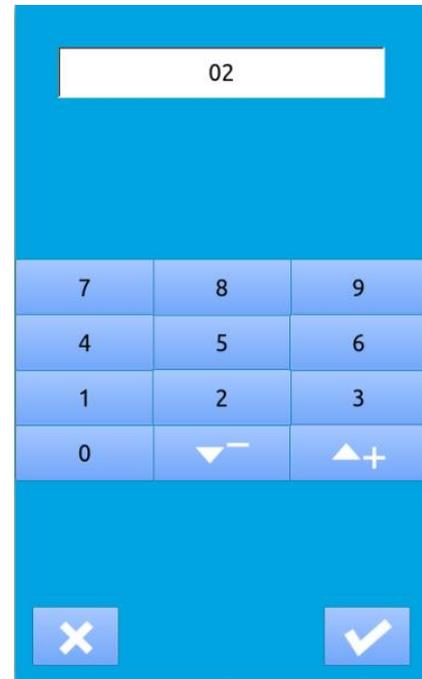
serial number	Icon	Features	Remark
1		new pattern registration	
2		pattern copy	
3		Pattern naming	
4		thread	
5		winding	
6		Cycle sewing pattern selection	
7		Sewing clothing options	
8		Sewing data modification	
9~12		Cursor movement keys	
13		Pattern selection key	
14		Sub pattern delete key	Sub-patterns at the selected position of the cursor can be eliminated
15		All sub-pattern delete key	All sub-patterns entered in the current cycle sewing data can be eliminated
16	 middle number	Sewing order	

5.2 Circular seam editing

5.2.1 Pattern registration

Input the pattern number through the numeric keyboard. Press the "✓" key to end the selection.

Press the "✕" key to exit the selection



5.2.2 Pattern copy

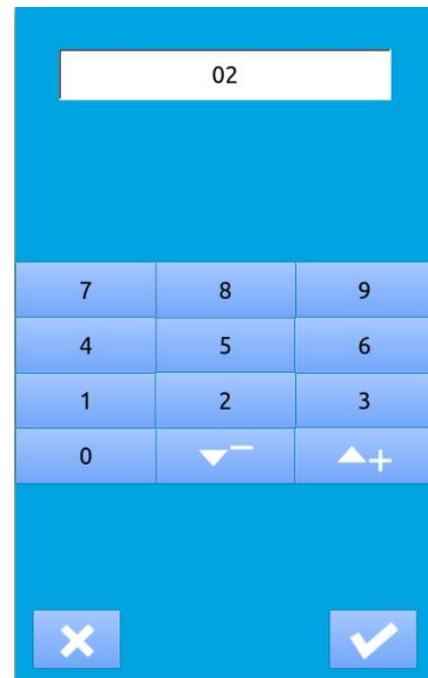
① Select the copied pattern

Press "NO." to enter the pattern copy interface (as shown on the right). Select the pattern number to be copied among the registered patterns and press "NO.". Press "✕" to exit the copy operation.

② Input the newly registered pattern number

The upper part of the interface displays the copied pattern. Use the numeric keys to select the unregistered pattern number. The registered pattern number cannot be registered repeatedly. Press "✓" to complete the pattern copy operation.

Press "✕" to exit number entry.



5.2.3 Cycle sewing pattern selection

Press  to enter the cycle sewing pattern selection interface (as shown on the right).

The operation is the same as normal pattern selection.

Press  to exit the pattern selection.



5.2.4 Cycle sewing pattern editing

① Start editing

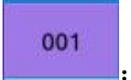
Select the desired position through the direction ", , , ,", and press "" to enter the pattern selection interface (as shown on the right).



② Pattern selection

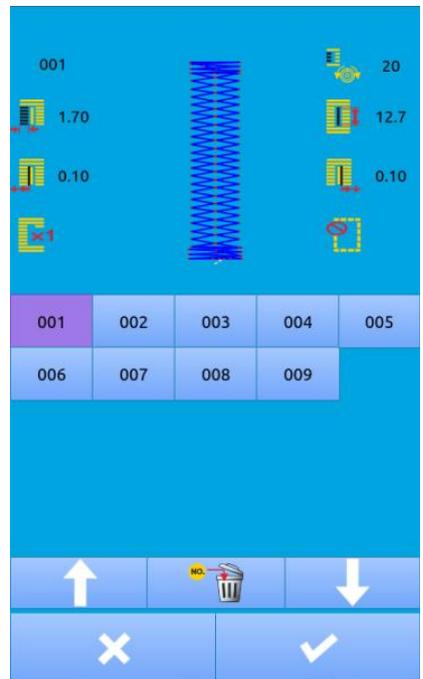


: Pattern deletion



: Pattern selection

Select the appropriate pattern, and press "" to end the selection. Press "" to exit directly without selecting

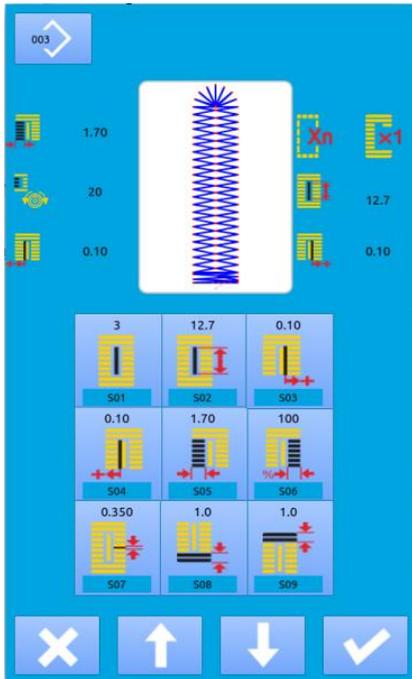


③ Sewing data change



Move the cursor to the position of the pattern you want to modify, and press " " to enter the sewing data setting interface (as shown in the figure below).

Press " " to exit the corresponding sewing data change interface



The picture on the left shows the modification of the sewing data of common patterns, with
For body operation, refer to Section 4.10 Sewing Data Setting.

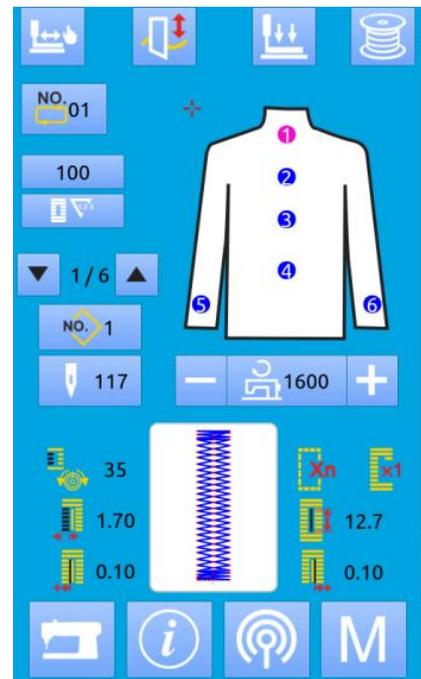
The picture on the right shows the editing of sewing data of continuous stitch pattern.
Refer to the continuous sewing data input for details.

5.2.5 Change sewing clothes

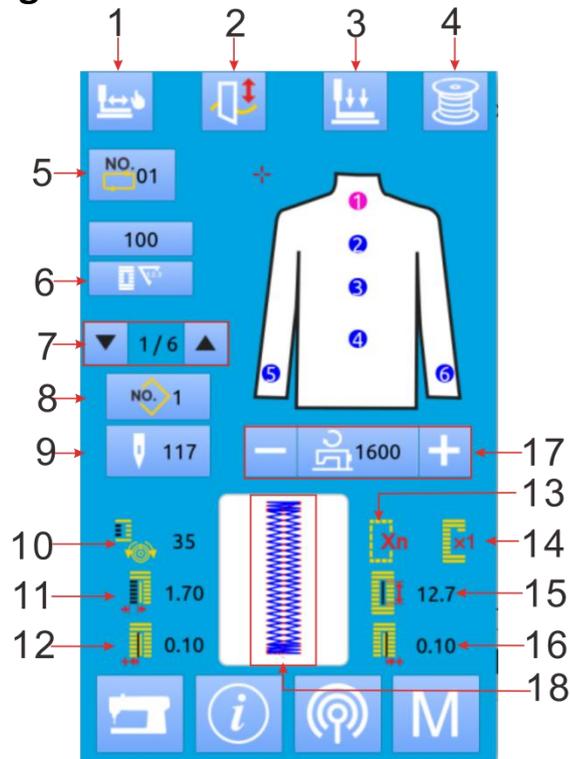
Press " " to enter the sewing clothes selection interface (as shown on the right), which is used to change the reference image of the sewing data input interface.

Press " " to exit, press " " to select to take effect.

Press " " to enter the sewing interface (as shown on the right).



5.3 Cycle sewing interface



5.3.1 Function Description

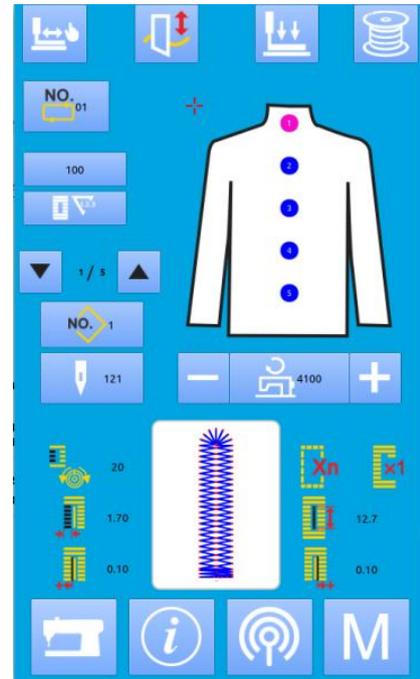
serial number	Icon	Features	Remark
1		Trial sewing	
2		Knife enable	Toggle cutter enable
3		Threading (Presser Foot Down)	
4		winding	
5		The serial pattern number currently sewn	
6		Counter value display  : sewing counter  : Stitch counter	

7		Sewing sequence minus operation	Reverse the sewing sequence of the previous sewing
8		Pattern number display	
9		Needle number display	
10		Upper tension setting	
11		Left edge width display	
12		Knife groove left width display	
13		Display of the number of stitches	
14		Single seam/double seam display	
15		Buttonhole length	
16		Knife groove right width display	
17		Display of current sewing speed	
18		Sewing shape display	

5.3.2 Loop seam trial seam

(1) Display the sewing interface

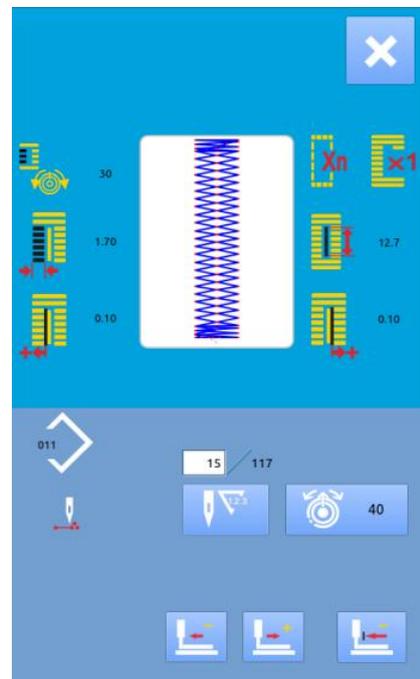
In the data input interface, after pressing the ready key "", the background color of the liquid crystal display changes to blue, and the sewing interface is entered at this time.



(2) Display the trial sewing interface

In the sewing interface, press the "" key to enter the trial sewing interface (as shown on the right):

	return to origin		sewing instructions
	back		Tangent command
	go ahead		empty send command
	Needle drop point tension		Thread tension command
	Current number of stitches/total number of stitches		Cutter drive command



(3) Start trial sewing

Start trial sewing with "" "return to origin key", "" "backward key" and "" "forward key. In this mode, step on the foot pedal switch, the sewing machine will start to sew the remaining number of stitches.

(4) End trial sewing

Press the "" cancel key to exit the trial sewing interface and return to the sewing interface noodle.

6 Mode settings

Press " **M** " to switch between data input interface and mode interface

(As shown on the right), some detailed settings and editing operations can be performed in this interface.



6.1 Function Description

serial number	Icon	Features	Remark
1	Level 1 para	First-level parameter setting	
2	counter	Counter settings	
3	Level 2 para	Secondary parameter setting	
4	test	test	
5	auxiliary function	Accessibility	
6	Version	Software version query	
7	Direct key registration	direct key registration	
8	F key settings	F key settings	
9	panel setting	panel settings	
10	Sewing type	Sewing type setting	

6.2 First-level parameter setting

① Parameter setting operation

Select " " to enter the first-level parameter setting interface (as shown on the right). Press " " to exit the parameter setting interface.

U001	10.0	The highest position of the presser foot
U002	6.0	Presser foot to raise the middle position
U003	0.0	Position of presser foot lifting cloth
U004	80%	Pedal position
U005	50%	Lifting position of the presser foot of the double pedal
U006	35	Needle thread tension setting at the end of sewing
U007	35	Needle thread tension setting during thread trimming
U008	60	Setting of needle thread tension for stitching basting
U009	400	Set soft start speed (1st stitch)
U010	800	Set soft start speed (2nd stitch)

↑ ↓ ×

Select U002 to enter the interface

(range:0.0~14.0 step:0.1)

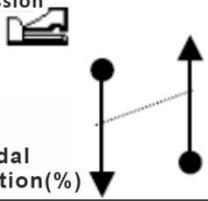
U002: Presser foot lifting middle position
 Set the height of the middle position of pedal action.
 Setting range: 0 ~ 14.0
 Edit unit: 0.1mm
 Initial value: 6.0mm

7	8	9
4	5	6
1	2	3
0	▼-	▲+
c	-	.

Select U19 to enter the interface

U019: Invalid/valid of the cloth cutting function of the cloth cutting knife several times.
 Setting range: [Invalid, valid]
 Edit unit:-
 Initial value: Invalid

First-level parameter table

Serial number	project	Predetermined area	Editing unit	Factory settings
U001	Presser foot lift highest position Sets the maximum position height for pedal action.	0~17.0	0.1mm	14.mm
U002	Presser foot lift intermediate position Sets the mid-position height for pedal action.	0~14.0	0.1mm	6.0mm
U003	Presser foot lifter cloth placement position Sets the height of the cloth placement position for pedal action.	0~14.0	0.1mm	0
U004	Depressed position of the double pedal Sets the operation when dual pedals are used.	5~95	1%	80%
U005	Presser foot lift position for double pedal Sets the operation when dual pedals are used.	5~95	1%	50%
	<p>Pedal Depression</p>  <p>U04 Double pedal pedal position(%)</p>			
U006	Needle thread tension setting at the end of sewing	0~200	1	33
U007	Needle thread tension setting during thread trimming	0~200	1	35
U008	Needle thread tension setting for stitching bottom seam	0~200	1	60
U009	Set soft start speed (pin 1)	400~4200	100rpm	400rpm
U010	Set soft start speed (pin 2)	400~4200	100rpm	400rpm
U011	Set soft start speed (pin 3)	400~4200	100rpm	2000rpm
U012	Set soft start speed (pin 4)	400~4200	100rpm	3000rpm
U013	Set soft start speed (pin 5)	400~4200	100rpm	3600rpm
U014	Presser Foot Type (Type 1, 2, 3, 5) Type 1: 25 x 4 Type 2: 35 x 5 Type 3: 41 x 5 Type 5: Custom	1, 2, 3, 5		Type 1
U015	Presser Foot Width (Type 5) This parameter is turned on after U14 is set to type 5.	3.0~10.0	0.1mm	3.0mm
U016	Presser foot length (type 5) This parameter is turned on after U14 is set to type 5.	10.0~120.0	0.5mm	10.0mm
U017	Sewing start position (feed direction) Set the sewing start position for the presser foot. Since there are high and low, set it when you want to move the starting position.	2.5~110.0	0.1mm	2.5mm

Serial number	project	Predetermined area	Editing unit	Factory settings
U018	Cloth cutting knife size	3.0~32.0	0.1mm	32.0mm
U019	Cloth-cutting knife several action function	ON、OFF		ON
U020	Disconnection detection function	ON、OFF		ON
U021	When the READY button is selected, the presser foot position is set. The position of the presser foot after the READY button is pressed UP: rise DN: drop	UP、DN		UP
U022	The presser foot position at the end of cycle sewing is set to the presser foot position after the end of the setting. (Only valid for single pedal) UP: rise DN: drop	UP、DN		UP
U023	Upper line tangent opening action start distance Input the distance at which the needle thread trimmer motor starts to open the scissors after the sewing starts.	0~15.0	0.1mm	1.8mm
U024	Bottom line opening action start distance Set the distance at which the lower thread trimmer motor starts to open the scissors after the start of sewing.	0~15.0	0.1mm	1.5mm
U025	Counter update unit Set the unit for updating the sewing counter.	1~30	1	1
U026	Total count not showing/displaying	ON、OFF		OFF
U500	language selection	Chinese English		Chinese
U201	Troubleshooting	ON、OFF		OFF

6.3 Secondary parameter setting

① Parameter setting operation

In the setting mode, select " **Level 2 para** " to enter the secondary parameter setting interface (as shown on the right). Refer to "6.2 Level 1 Parameter Setting" for the operation method.

Press "  " to exit the parameter setting interface

K001	1	Pedal selection
K003	ON	Forbid to select the function of the presser foot type
K004	0	Sewing shape selection level
K005	3	Power of cloth cutting knife
K006	0	Model selection
K007	3600	Max sewing speed setting
K008	0	Needle thread tension deviation correction
K009	0	Output time of upper thread tension change value
K010	OFF	Each reference point search function
K011	ON	Reverse needle lift
		
		

Secondary parameter table

Serial number	project	Predetermined area	Editing unit	Factory settings
K001	select pedal D: Double pedal S-1: Single pedal (no intermediate position) S-2: Single pedal (with middle position) S-3: Analog single pedal (no middle position) S-4: Analog single pedal (with middle position) S-5: Analog single pedal (with return pedal)	D、 S-1、 S-2 S-3 S-4 S-5		2
K003	Function that prohibits selection of presser foot type OFF: Prohibit changes ON: Allow changes	ON、 OFF		ON
K004	Sewing shape selection level (12/20/30)	0~2		0
K005	Cloth cutting knife power Set the output power of the cutter.	0~3	1	3
K006	Select the model (0-standard type, 1-dry type)	0~1	1	0
K007	Setting of the maximum sewing speed When the K06 is dry, the maximum speed is automatically limited to 3300rpm. ※ Password protected	400~4200	100rpm	4200rpm
K008	Needle thread tension deviation correction The output value of the needle thread tension for the overall balance is corrected.	-30~30	1	-30
K009	Needle thread tension change value output time After changing the needle thread tension related data, the changed value is output only at the set time.	0~20	1s	0
K010	Each reference point retrieval function The reference point search is performed after sewing is completed. OFF: None 1: After finishing sewing 2: After the cycle sewing ends	OFF、 1、 2		OFF
K011	Reverse needle lift U01 After the presser foot lift is set to a maximum of 14.0mm or more, the needle is automatically reversed and the needle is lifted to stop the sewing machine. Its action can be set to prohibit. OFF: Disable reverse boost ON: Allow reverse boost	ON、 OFF		OFF
K18	Direct selection key display OFF: not displayed ON: Display	ON、 OFF		OFF
K19	Thread trimming in the middle of continuous sewing When it is disabled, the empty feed is disabled, the registered pattern is sewn to the same position, and it becomes overlapping sewing. OFF: Disabled ON: Allow	ON、 OFF		ON

Serial number	project	Predetermined area	Editing unit	Factory settings
K21	Sewing with setting of opening amount at the start of bobbin thread trimming motor sewing Start by cutting the open volume of the lower thread scissors.	1~15	1 pulse	8
K22	Selection of presser foot lifting speed	1~3	1	1
K23	Presser foot abnormality detection position	0~10.0	0.1	1.0

6.4 Counter Settings

Press "**counter**" to enter the counter setting interface (as shown on the right). Steps:

① Sewing counter type selection

Select the function of sewing count and piece count

② Set the current value and set value

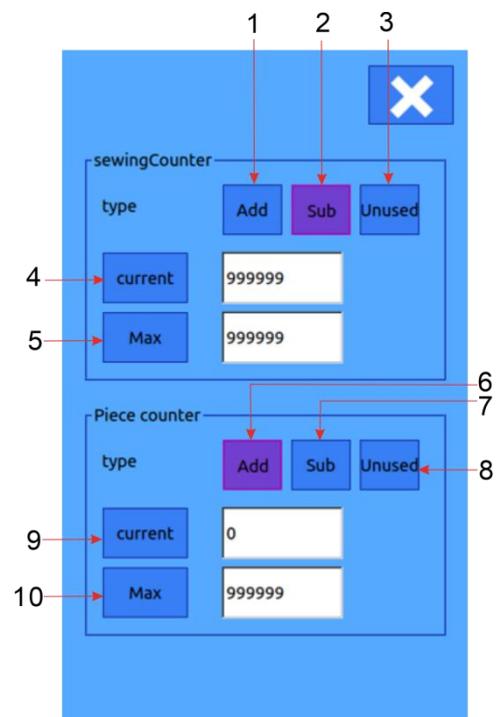
In the selected type, press the "current value" and "set value" buttons to enter perform related operations

③ Choose to count up or count down

In the selected type, press the "plus" and "minus" buttons to operate.

Press the "**X**" key to exit the counter setting interface.

Press "**✓**" to complete the setting and exit.



Sewing count up:

After each sewing of 1 shape, the current value is incremented. When the current value is equal to the set value, the counter overflow alarm limit is displayed.

noodle. Press the "" key, the current value of the counter will return to 0.

Sewing count down:

After each 1-shaped sewing object is sewn, 1 is subtracted from the current value. When the current value is equal to 0, the counter overflow alarm interface is displayed. Press the "" key to restore the current value of the counter to the set value.

Piece count plus count:

The current value is added up every time one cycle or one continuous seam is sewn.

When the current value is equal to the set value, the counter overflow alarm interface will be displayed. Press the "" key, the current value of the counter will return to 0.

Piece count down:

For every 1 cycle or 1 continuous stitch, the current value is reduced by 1. when the current value

After it is equal to 0, the counter overflow alarm interface is displayed. Press the "" key, the current value of the counter is restored to the set value.

④ Turn off the counter

In the selected type, press the "Off" button to turn off the counter.

6.4.1 Features

serial number	Features	Remark
1	Sewing counter counts up	
2	Sewing counter counts down	
3	Turn off the sewing counter	
4	Setting the current value of the sewing counter	
5	Setting the sewing counter setting value	
6	Piece counter counting up	
7	Piece counter counts down	
8	Turn off the stitch counter	
9	Set the current value of the piece counter	
10	Setting the Piece Counter Setting Value	

6.5 User management item settings

Frequently used sewing data can be registered to the management button for use. Press " **F key settings** " to enter the mode setting interface (as shown on the right). Press " **F key settings** " to enter the management button to register



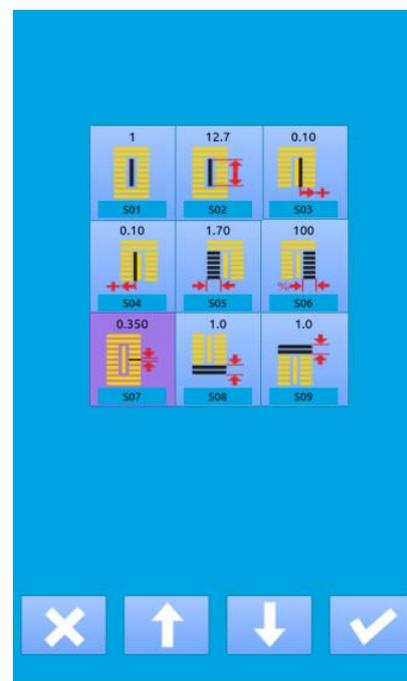
① Registration management button

Up to 4 management buttons can be registered and displayed on the current interface

4 management registration buttons are selected, and after pressing the button of the position you want to register, the sewing data selection interface is displayed (as shown in the

right figure). Press the "  " key to exit the user management item setting interface

Select the sewing data to be registered, and press "  " to end the registration operation. The newly registered sewing data is displayed on the user management button.



② Factory registration status

When shipped from the factory, they are registered in order from left to right:



: S07 Parallel part pitch Set the sewing pitch of the left and right parallel parts.



: S67 Bartack sewing width at the end of sewing sets the width of bartack sewing at the end of sewing.



: S06 Right and left shape ratio Set the right shape enlargement and reduction ratio with the cutter position as the center.



: S10 Right Reinforcement Width Correction Adjusts the right side profile overlock seam of the reinforcement. The 1st and 2nd reinforcements have been corrected.

Square upper "  "square lower"  " straight line reinforcement" 

6.6 Changing the sewing type

Sewing type

Press " " to enter the sewing type selection interface (as shown on the right).



: common seam



: continuous seam

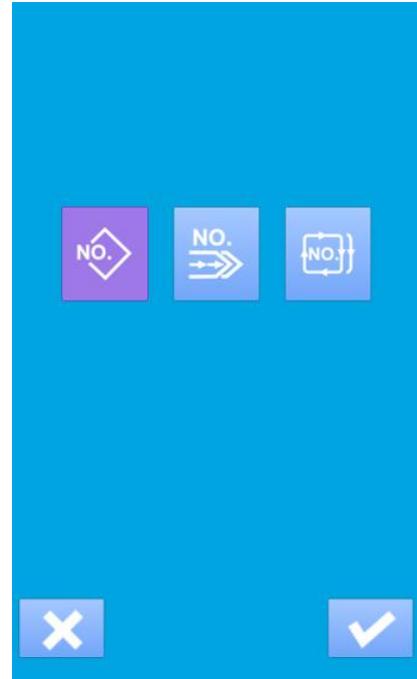


: loop seam

After confirming the sewing type, press " " to end and return to the mode interface. After exiting the mode interface, the data input interface of the selected sewing type is displayed.



Press " " to exit the interface of changing sewing type, and the original sewing type remains unchanged.



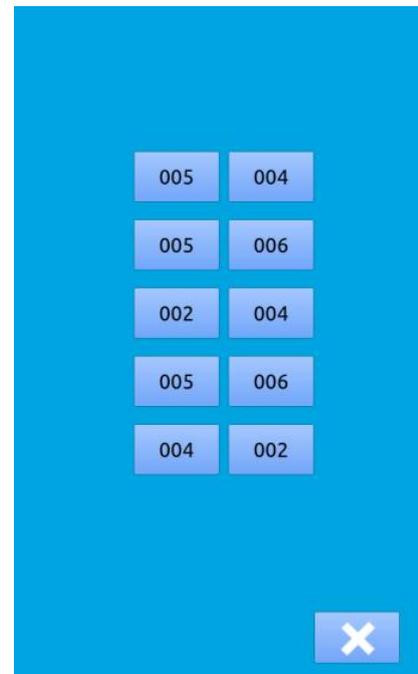
6.7 Register the pattern to the direct key

The frequently used pattern numbers can be registered to the direct keys for use.

Direct key registration

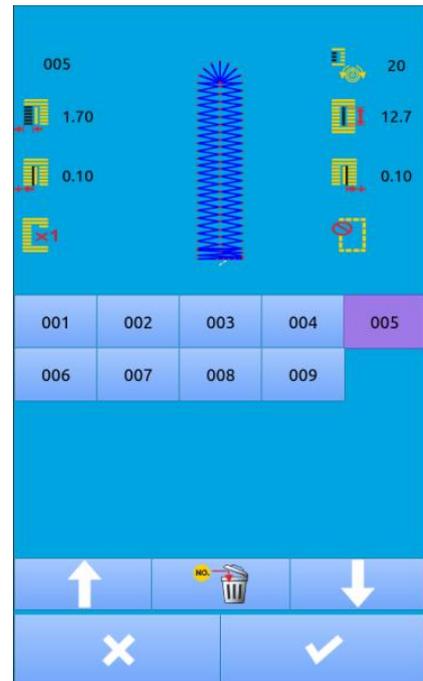
Press " " to enter the direct key registration

interface (as shown on the right). Press the " " key to exit the pattern registration function.



A maximum of 10 patterns can be registered. On the displayed 10 direct buttons, after selecting the button where you want to register, enter the pattern selection interface (as shown on the right).

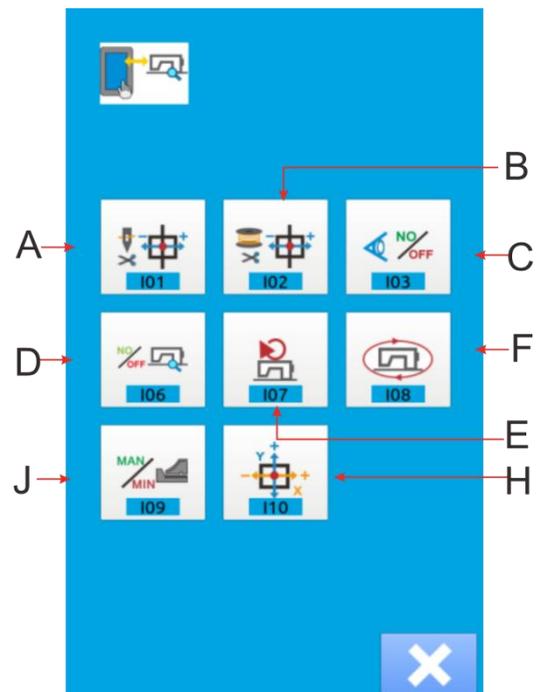
-  : Pattern query
-  : Eliminate the current registration sample
-  : confirm choice
-  : quit



6.8 Detection mode

In the "M" mode, press the "test" key to enter the detection mode interface (as shown on the right). The function description of each icon is shown in the following table:

serial number	name
A	I01 upper thread trimmer
B	I02 Lower thread trimming
C	I03 Input detection
D	I06 Output detection
E	I07 Speed measurement
F	I08 Continuous operation
J	I09 Pedal Calibration
H	I10 origin position adjustment



Press  the key to exit the detection mode interface.

(1) Adjustment method of upper trimmer

① Upper trimming adjustment method

In the detection mode interface, press the

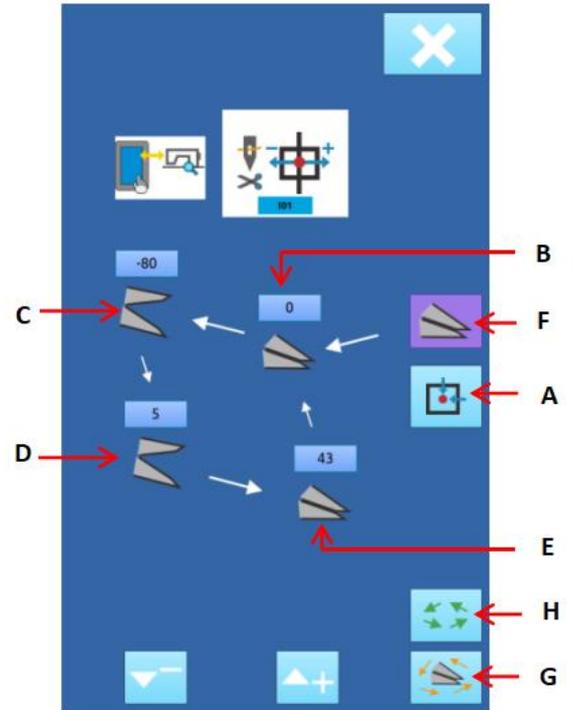


(thread trimmer on I01) key to enter

The adjustment interface of the upper trimmer (as shown on the right):

Upper trimmer:

serial number	name	Scope	initial value
A	Origin position		
B	starting point	-10~10	0
C	mouth opening position	-95~-80	-86
D	position to be cut	0~20	10
E	cut position	30~50	40



② Select the mode position you want to adjust

Press the key to select the position to be adjusted (A, B, C,D), and then adjust the desired value by pressing the plus and minus keys. Then press



Press "F" key to return to the origin position,

By pressing the "" button, you can complete the whole test at one time

③ Press " " to return to the detection mode interface.

(2) Adjustment method of undercut

① 下剪线调整方法



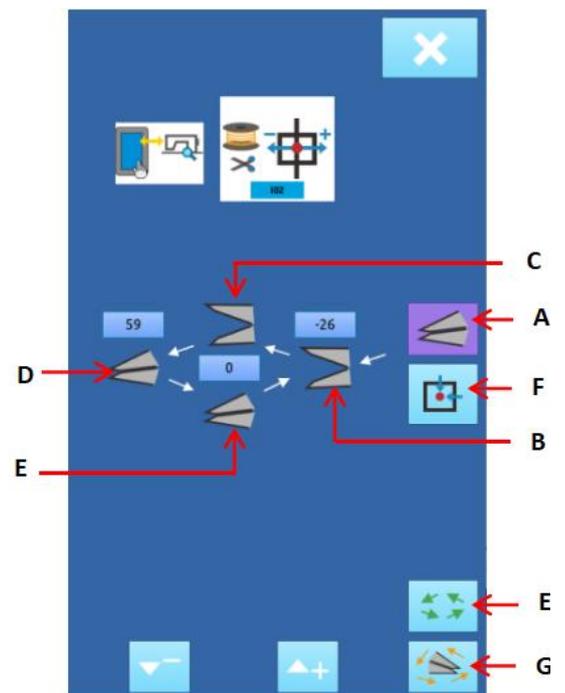
在检测模式界面按下 (I02 下剪线) 键进入下剪线的调整界面 (如右图所示):

下剪线:

序号	名称	范围	初始值
A	原点位置		
B	张口位置	-40~-15	-30
C	待剪位置	-10~10	0
D	剪后位置	40~60	50
E	起始位置	-10~15	0

② 选择想要调整的模式位置

通过按 键选择所要调整的位置 (A、B、C、



D)，然后通过按加键或减键调整所需

的数值。然后按 F 键返回到原点位置。

通过按””按键可一次性走全程测试

按键返回到检测模式界面。

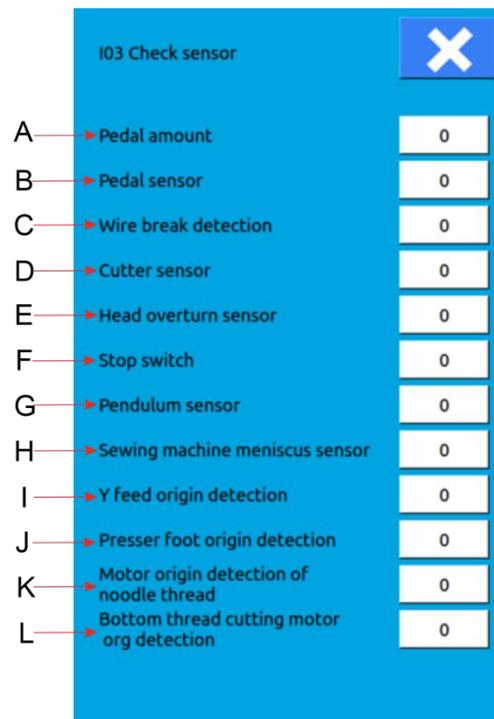
(3) 输入信号检测方法

在检测模式界面按下  (I03 输入检测) 键

进入输入检测界面 (如右图所示), 在该界面下可以确认各种开关和传感器的输入状况。

1: 表示开启

- A: 踏板量
- B: 踏板传感器
- C: 断线检测
- D: 切刀传感器
- E: 机头翻倒传感器
- F: 停止开关
- G: 摆针传感器
- H: 缝纫机半月板传感器
- I: Y 送布原点检测
- J: 压脚原点检测
- K: 剪面线电机原点检测
- L: 剪底线电机原点检测



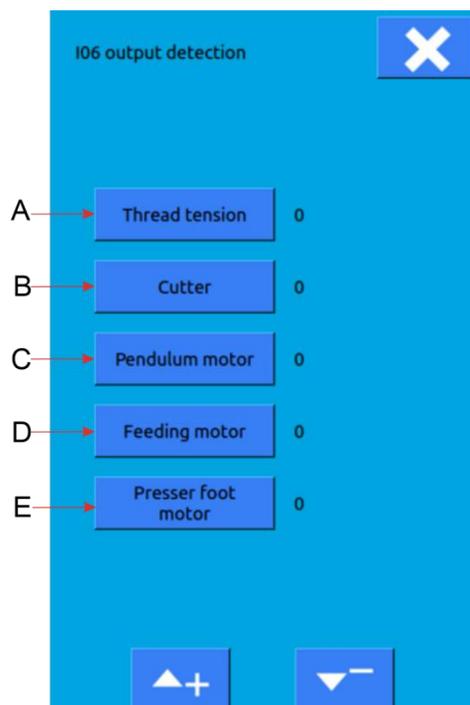
(4) 输出检测方法

在检测模式界面按下  (I06 输出检测) 键进入输出检测界面 (如右图所示), 在该界面下可以检测的输出状态包括:

- A: 线张力电磁铁
- B: 切刀电机检测
- C: 摆线电机检测
- D: 送布电机检测
- E: 压脚电机检测

■ 点按 A~E 时, 按 ,  键, 可测试电机动作

■ 按  退出输出检测界面



※ 注意缝纫机会有相应的动作

(5) 转速测定

① 显示转速测定界面

在检测模式界面按下  (I07 转速测定) 键进入转速测定界面 (如右图所示), 在该界面下可以检测主轴马达转速。

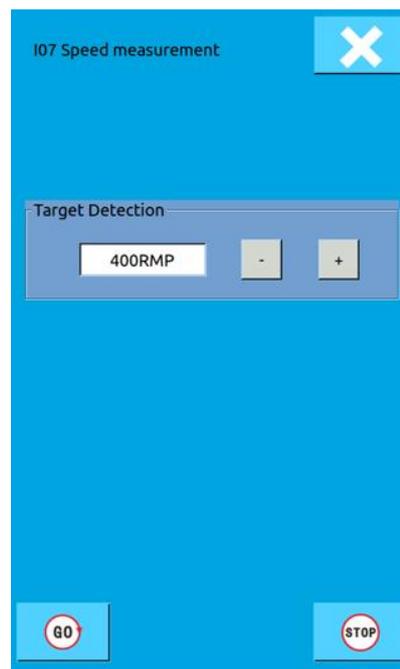
按退出键  退出转速测定界面。

② 转速测定设置

通过按加键“+”和按减键“-”可以设置主轴马

达转速, 按下  后, 主轴马达会以已设定的转速

旋转。按下  则机器停止运转。



(6) 连续运转

① 显示连续运转界面

在检测模式界面按下  (I08 连续运转) 键进入连续运转界面 (如右图所示)。

A: 动作间隔 B: 收针原点检测

按退出键  退出连续运转界面。

② 连续运转设置

点击连续运转状态下的“动作间隔”输入框和“老化模式”输入框, 通过数字键盘输入设置值, 可设定动作间隔时间和老化模式。

按  键, 踩下脚踏板即开始连续运转。连续运转过程中可以通过暂停开关暂停, 也可以在动作结束后压脚抬起时踩下脚踏板或按暂停开关停止连续运转。



(7) Analog pedal calibration



① Press the I09 key to enter the pedal calibration interface.

② The analog pedal calibration interface is shown on the right

A: The maximum amount of pedal depression

B: Step down the pedal for one gear

C: Balance position with pedal released

D: The maximum amount of pedal reverse

③ **Pedal calibration method:**

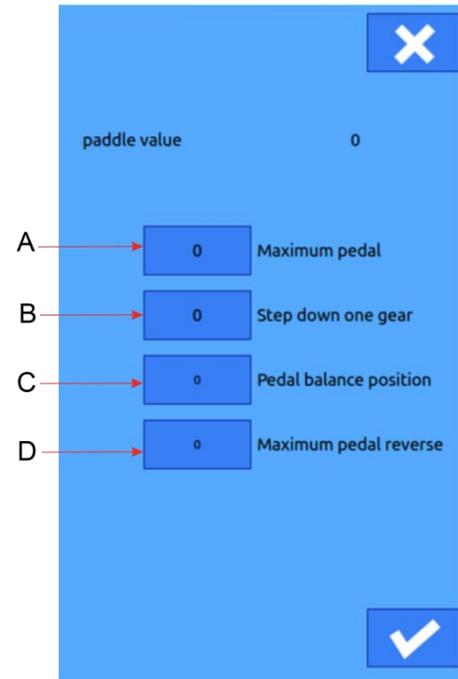
1. Press button A to make it in the pressed state, step on the pedal to the maximum amount, and press "✓" to save the current pedal input value;

2. Press button B to make it in the pressed state, step on the pedal to the first gear position, and press "✓" to save the current pedal input value;

3. Press button C to keep the button pressed, release the pedal to balance the pedal, press "✓" again to save the current pedal input value;

4. Press button D to keep the button pressed, and press "✓" again when the pedal is at the maximum value to save the current pedal input value.

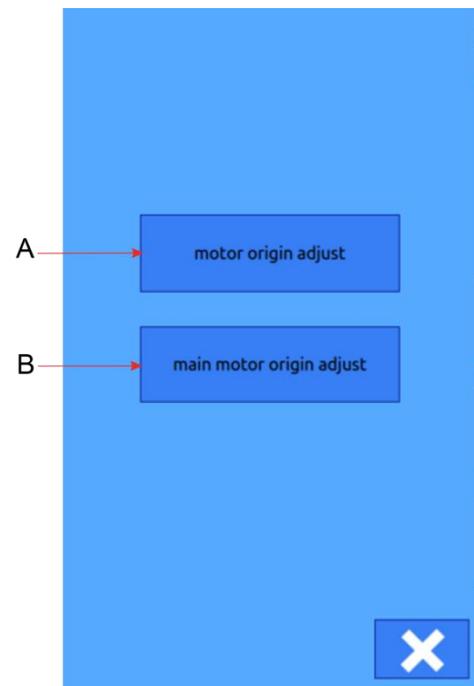
5. After saving the input values of the four pedals, press "✕" to exit the current interface after the pedal calibration is completed.



(8) Origin adjustment



Press the I10 key to enter the origin adjustment interface, as shown in the



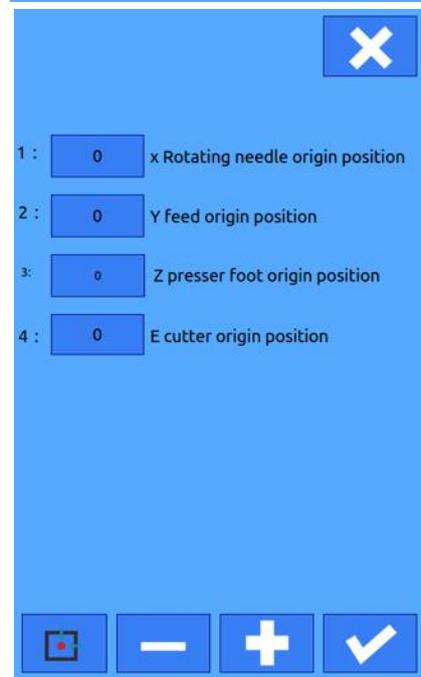
1. Motor origin adjustment

Press the A button to enter the motor origin adjustment interface, as shown in the figure, press the 1/2/3/4 button (to keep the button pressed), and press

the ",  " button to adjust the origin of the X/Y/Z/E motor. After the adjustment is completed, click " " (the pressed button changes to the raised state),

save the current adjustment value, and click the " " button to exit.

Press the " " button to find the origin test.



2. Spindle origin adjustment

Press the B button to enter the spindle origin adjustment interface, as shown in the figure.

C: Display value of current spindle angle

(If the displayed value is 65535 or -1, rotate the spindle in the direction of the handwheel arrow until the displayed value is between 0 and 360)

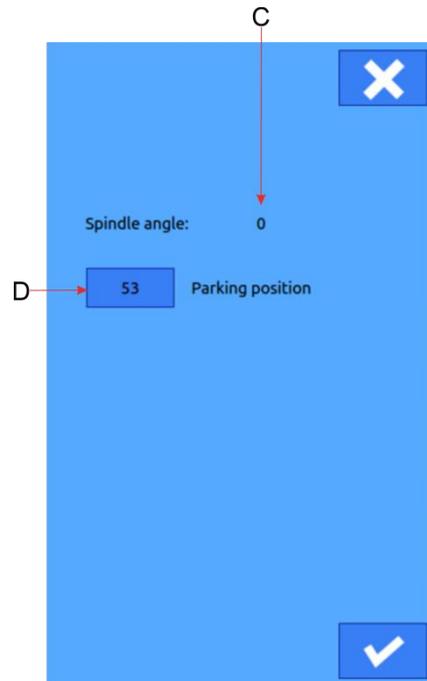
D: The parking angle value stored in the machine head memory

Spindle origin adjustment method: Turn the spindle in the direction of the handwheel arrow when the displayed value is between 0 and 360, stop the needle bar at the position where it needs to stop, press the D button

(to keep the button pressed), and then press "✓"

Press the key to save the value displayed at the current C position, which is the spindle parking position, and press

"✕" to exit.



7. Communication function

The communication function completes the following functions:

- Copy the sewing data compiled by other sewing machines or by pattern making software to the operation panel through the U disk;
- Copy the sewing data in the operation panel to the U disk.

7.1 About the data that can be processed

The sewing data that can be processed are as follows:

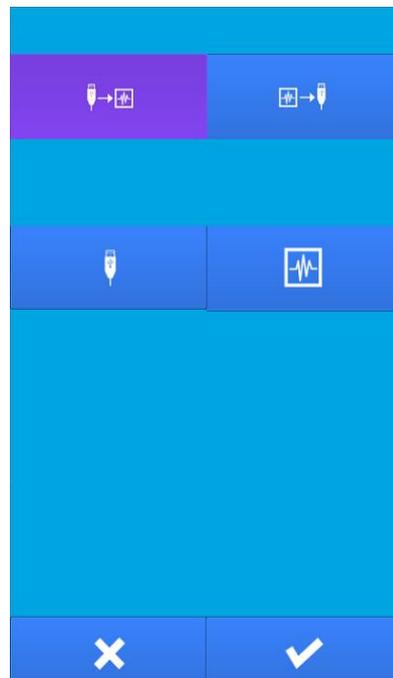
type of data	standard format
EPD	LBH00[0-9][0-9][1-9].VDT

7.2 Pattern transmission

1. Copy the pattern file from the U disk to the operation panel

In the data input interface, after pressing the communication key "", the communication interface is displayed, as shown on the right.

Select the "" button, this button means to copy the pattern file from the U disk to the operation panel;

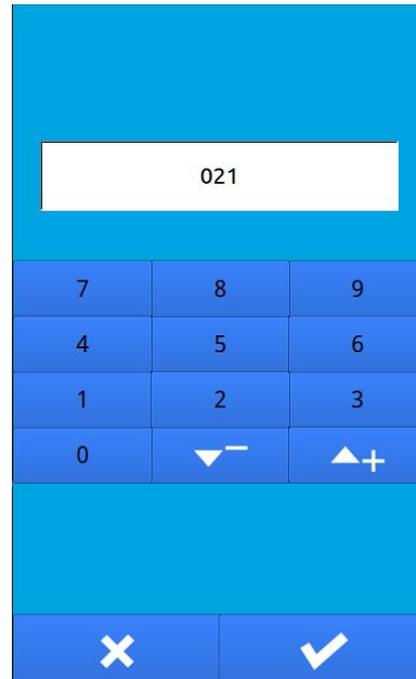


2) Press the U disk button "" to display the interface for selecting U disk files, as shown on the right. Find the file you want to copy and press the OK button .



3) Press the operation panel button "" to display the input file number interface, as shown in the right figure, this file number is the file number after the file is copied to the operation panel, after inputting the file

number, press the OK button ".



4) After selecting the file from the U disk and entering the file number of the operation panel, as shown on the

right, press the OK button ".



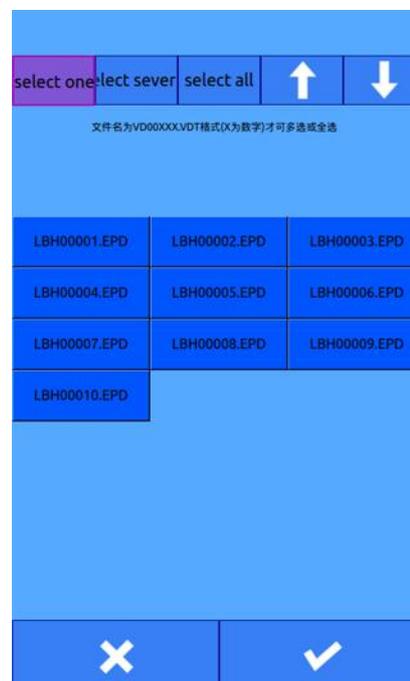
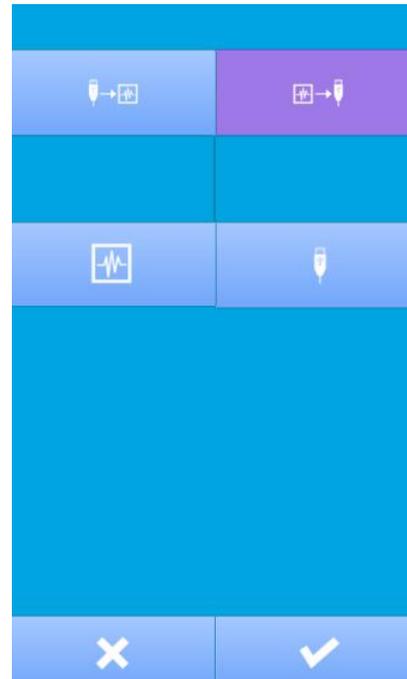
2. Copy the file from the operation disk and save it to the U disk

In the data input interface, after pressing the

communication key "", the communication interface is displayed, as shown on the right.

1) Select the button , this button means to copy the pattern file from the operation panel to the U disk;

2) Press the operation panel button  to display the interface for selecting the operation panel file, as shown in the right figure. Find the file to be copied and press the OK button .



3) Press the U disk button "" to display the input file number interface, as shown on the right. This file number is the file number after the file is copied to the U disk. After entering the file number, press the OK

button ".



4) After selecting the file from the operation panel and entering the file number of the U disk, as shown on the

right, press the OK button "", so that the file in the operation disk can be copied to the U disk.



8 Software upgrade

(1) Display the auxiliary interface

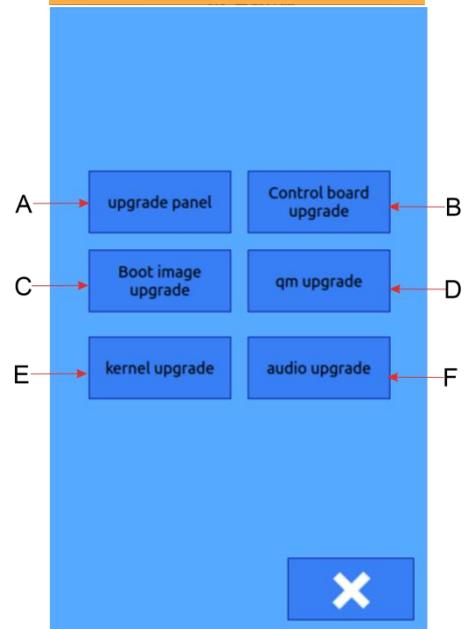
In M mode, press the " **auxiliary function** " button to enter the setting interface as shown on the right



(2) Display the upgrade interface

In M mode, press the " **System Upgrade** " button to enter the upgrade interface,As shown on the right.

- A: Panel upgrade
- B: Control board upgrade
- C: Boot image upgrade
- D: Translation file upgrade
- E: Kernel upgrade
- F: Sound file upgrade



8.1 Panel upgrade

This program can upgrade the host computer (panel) through the U disk. Before the upgrade, you need to copy the new version of the program panel file and the qm folder to the main directory of the U disk, then insert the U disk into the panel, and then update the panel program through the panel upgrade. After the upgrade is successful, a "successful, please restart" prompt will appear, just restart.

8.2 Lower computer upgrade

This program can upgrade the lower computer (control panel) through U disk. Before upgrading, you need to copy the new version of the program (NC1790A.bin file) to the main directory of the U disk, then insert the U disk into the panel, and then upgrade the control panel through the lower computer. The board program is upgraded. After the upgrade is successful, the prompt of "Success, please restart" will appear, just restart.

8.3 Boot image upgrade

If you want to change the picture displayed when the panel starts, you can send us the picture you want to display, and then we will change the picture to a file in the specified format and send it to you. You can put the modified picture file LOGO.BIN on the U disk. , insert the U disk into the panel, you can click the "Change" button to change the startup picture, and the change will prompt success.

8.4 Translation file upgrade

If you want to repair the translation file, copy the qm folder to the main directory of the U disk, then insert the U disk into the panel, and then upgrade the translation file through the panel upgrade. Can.

8.5 Kernel upgrade

When you need to upgrade the kernel, we will provide you with the conprog.bin file. You put this file into the U disk, and insert the U disk into the panel. After the panel recognizes the U disk, you can click "Kernel Upgrade" button to upgrade, after the upgrade is complete, it will prompt that the upgrade is successful.

8.6 Beep tone upgrade

When you need to upgrade the key sound, we will provide you with the wxaudio folder. You can put this folder into the U disk, and insert the U disk into the panel. After the panel recognizes the U disk, you can click "Prompt tone upgrade" button to upgrade, after the upgrade is complete, it will prompt the upgrade success.

9 System recovery

(1) Display the auxiliary interface

In M mode, press the "  " button to enter the setting interface as shown on the right.



(2) The system restores the initial value

- A: Restore factory settings
(First-level parameters, second-level parameters return to default values)
- B: Clear the common pattern
- C: Clear the continuous pattern
- D: Clear the loop pattern
- E: Clear super configuration (internal data)

10 Information function

The information function has the following two functions.

- 1) Check the version model
- 2) Set the time.

Click the button " " in the input interface to enter the information query interface, as shown in the figure.



10.1 View version

Press the button to  view the version machine model, kernel information, etc., as shown in the figure.



10.2 Time setting

Press the " **setting date** " button to enter the interface to set the time, as shown in the figure.

11 Alarm record

Long press the "  " button on the input interface to enter the error record query interface, as shown in Figure 1

1. Query the error record, press the button to enter the interface to view the error information

2. Delete the error record as shown in Figure 2, prompt whether to delete the error record Click the "  " button to delete the error recor.

figure 1

figure 2

12 Appendix 1

12.1 List of alarm information

Trouble number	Fault name	Reset method
E-007	Spindle motor locked	
E-023	Presser foot motor abnormality	
E-024	Pattern size is out of bounds	
E-025	The upper thread trimmer motor is abnormal	
E-026	The lower thread trimmer motor is abnormal	
E-030	Deviated stop position on needle	Press reset to enter simulated sewing, you can press the pedal to continue sewing
E-042	Operation exception	
E-043	Amplify anomalies	
E-050	stop switch pressed	Press reset to enter the simulation seam
E-052	Disconnection detected	Press reset to enter simulated sewing, you can press the pedal to continue sewing
E-061	Store switch data error	
E-062	The number of sewing needles exceeds the limit	
E-081	X motor out of balance	
E-082	Y motor out of balance	
E-083	Abnormal presser foot position	
E-098	Not enough needles	reset
E-099	Knife drop error	
E-302	The nose is down	
E-303	Z axis sensor abnormal	Check the presser foot motor
E-304	Cutter sensor abnormal	
E-430	Addition count exception	
E-485	The number of stitches is not set	
E-486	The length of the round head hole cutter is too short	

Trouble number	Fault name	Reset method
E-487	The shape and length of the round head hole are too short	
E-488	Cone reinforcement correction error	
E-489	Knife size is wrong	
E-492	Bottom seam size out of bounds	
E-493	The size of the presser foot of the bartack at the end of sewing exceeds	Check end reinforcement parameters
E-494	The size of the presser foot of the bartack at the start of sewing exceeds	Check start reinforcement parameters
E-495	Wrong size of presser foot (width direction only. Right side)	Check width related parameter settings
E-496	Wrong size of presser foot (width direction only. Left side)	Check width related parameter settings
E-497	Wrong size of presser foot (length direction. Front)	Check length-related parameter settings
E-498	Incorrect presser foot size (width direction. left and right)	Check width related parameter settings
E-499	Incorrect presser foot size (length direction. inside)	Check length-related parameter settings
E-730	Abnormal spindle motor	Check the servo board and servo motor
E-731	Defective spindle motor sensor	Check the servo motor
E-733	Spindle motor reverses	Check the servo motor
E-801	Power supply undervoltage	
E-802	Power outage detected	
E-901	Spindle motor IPM abnormal	
E-902	Spindle motor overcurrent	
E-903	Pulse motor power supply is abnormal	
E-904	Relay power failure	
E-905	Servo board temperature is too high	
E-906	Main circuit board temperature is too high	
E-907	X-axis origin retrieval error	Check motherboard, X motor
E-908	Y-axis origin retrieval error	Check motherboard, Y motor
E-909	Abnormal search of the origin of the upper trimmer	Check the upper thread trimmer motor, sensor
E-910	The presser foot motor cannot find the origin	Check the presser foot motor, main board
E-911	The origin of the lower trimming line is retrieved abnormally	Check lower thread trimmer motor, sensor
E-912	Abnormal sewing speed	
E-918	The temperature of the main control board is too high	
E-991	Servo motor failure	Check the servo motor
E-992	Servo motor failure	Check the servo motor
E-998	Abnormal presser foot deviation	Check the presser foot motor
E-999	Knife does not return to original position	Check the cutter motor

Trouble number	Fault name	Reset method
E-452	Head memory not connected	Check if the head memory is connected
E-502	Needle distance out of range	internal error
E-201	wrong X position	Check the X motor
E-202	X-axis overcurrent	Check motherboard, X motor
E-203	X axis cannot move	Check motherboard, X motor
E-204	X axis out of control	Check motherboard, X motor
E-212	Y-axis overcurrent	Check motherboard, Y motor
E-213	Y axis cannot move	Check motherboard, Y motor
E-214	Y axis out of control	Check motherboard, Y motor
E-222	Presser foot motor overcurrent	Check the main board, presser foot motor
E-223	The presser foot motor cannot move	Check the main board, presser foot motor
E-224	Presser foot out of control	Check the main board, presser foot motor
E-231	Cutter motor position error	Check the motherboard, the cutter motor
E-232	Cutter motor overcurrent	Check the motherboard, the cutter motor
E-233	Cutter motor does not move	Check the motherboard, the cutter motor
E-234	Cutter motor out of control	Check the motherboard, the cutter motor
E-310	Cutter motor abnormal	Check the cutter motor
E-705	power off	Check if the power is disconnected

12.2 Shape initial value data list

The shape initial value data list is shown in the following table.

number	project	unit															
S01	sewing shape	mm															
S02	Cut cloth length	mm	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7
S03	Knife groove right width	mm	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
S04	Knife groove left width	mm	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
S05	Left wrapping width	mm	1.70	1.70	1.70	1.70	1.70	1.70	1.40	1.40	1.40	1.40	1.70	1.70	1.70	1.70	1.70
S06	Left and right shape ratio	%	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
S07	Parallel part spacing	mm	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
S08	Second seam length	mm	1.0	—	1.0	—	1.5	3.0	1.0	—	1.5	3.0	—	1.0	1.0	1.5	3.0
S09	The length of the first seam	mm	1.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—
S10	Right reinforcement width compensation	mm	0	—	0	—	0	—	0	—	0	—	—	0	0	0	—
S11	Left reinforcement width compensation	mm	0	—	0	—	0	—	0	—	0	—	—	0	0	0	—
S12	Left taper reinforcement symmetrical	mm	—	—	—	—	—	0.85	—	—	—	0.85	—	—	—	—	0.85
S13	Right conical reinforcement symmetrical	mm	—	—	—	—	—	0.85	—	—	—	0.85	—	—	—	—	0.85
S14	Buttonhole shape and length	mm	—	—	—	—	—	—	2.0	2.0	2.0	2.0	—	—	—	—	—
S15	Round head buttonhole needles	Stitch	—	—	—	—	—	—	3	3	3	3	—	—	—	—	—
S16	Buttonhole width	mm	—	—	—	—	—	—	1.0	1.0	1.0	1.0	—	—	—	—	—
S17	Buttonhole length	mm	—	—	—	—	—	—	3.0	3.0	3.0	3.0	—	—	—	—	—
S18	round shape length	mm	—	2.0	2.0	2.0	2.0	2.0	—	2.0	—	—	2.0	2.0	2.0	2.0	2.0
S19	Radial shape needle count	Stitch	—	—	3	3	3	3	—	3	—	—	—	—	—	—	—
S20	Radiant shape reinforcement Yes / no	—	—	—	no	no	no	no	—	no	—	—	—	—	—	—	—
S21	Reinforced part spacing	mm	0.30	0.30	0.30	-	0.30	0.30	0.30	-	0.30	0.30	0.25	0.30	0.25	0.25	0.25
S22	1st gap	mm	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
S23	2nd gap	mm	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
S31	single/double seam	—	single	single	single	single	single	single	single	single	single	single	single	single	single	single	single
S32	Choose double stitch	—	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<
S33	Compensate for double seam width	mm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S34	Sewing times	second	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S35	sewing speed	mm	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
S36	Bottom seam roll-in length	mm	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
S37	Bottom seam rolled into gap	mm	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
S38	Bottom seam roll-in width	mm	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
S39	Before and after compensation for stitch drop	mm	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
S40	Compensate for left and	mm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	right stitch drop																
S41	Compensation for the left position of the sew	mm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S42	Compensate the position of the right side of the bottom seam	mm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S44	Bottom sewing speed setting	mm	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
S45	Sewing function yes/no	—	No														
S46	Butt seam width	mm	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
S47	seam gap	mm	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
S51	left parallel tension	—	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
S52	right parallel tension	—	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
S53	Left Parallel Tension (Double 1st loop of sewing)	—	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
S54	Right Parallel Tension (Double 1st loop of sewing)	—	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
S55	Tension of the first reinforcement	—	35	60	120	35	35	35	60	60	60	60	60	60	60	60	60
S56	The tension of the second reinforcement	—	35	60	35	35	35	35	60	60	60	60	60	60	60	60	606
S57	Set the sewing start to go online tension	—	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
S58	Setting the thread tension for lower stitching	—	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80
S59	Start the first backstitch, Adjust AC Sync	Stitch	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S60	Right Overlock Start, ACT Synchronized adjustment	Stitch	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S61	Start 2nd bartack, Adjust AC Sync	Stitch	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S62	Number of stitches to start sewing	Stitch	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
S63	Start sewing to reinforce the gap	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S64	Start seam width	mm	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
S65	Start seam reinforcement vertical correction	mm	0	1.5	0	1.5	0	0	0	1.5	0	0	1.5	0	0	0	0
S66	Start seam reinforcement lateral correction	mm	0	0	0	0	0	0.7	0	0	0	0.7	0	0	0	0	0.7
S67	End seam reinforcement width	mm	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
S68	End seam reinforcement stitches	Stitch	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
S69	End seam reinforcement vertical correction	mm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S70	End seam reinforcement lateral correction	mm	0.9	0.9	0.9	0.9	0	0.7	0.9	0.9	0	0.7	0.9	0.9	0.9	0	0.7
S81	Knife action yes/no	—	yes														
S83	1st Cycle Knife for Double Stitch yes/no	—	no														

S84	top speed limit	rpm	3600	3600	3600	3600	3600	3600	3600	3600	3600	3600	3600	3600	3600	3600	3600
S86	forward distance	mm															
S87	advance width	mm															
S88	Back to Spacing	mm															
S89	return width	mm															

number	project	unit																
S01	sewing shape	mm																
S02	Cut cloth length	mm	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	13	19.1	19.1	19.1
S03	Knife groove right width	mm	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	—	—	0.10	0.10
S04	Knife groove left width	mm	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	—	0.10	—	0.10
S05	Left wrapping width	mm	1.40	1.40	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	—	—	—	—
S06	Left and right shape ratio	%	100	100	100	100	100	100	100	100	100	100	100	100	—	—	—	—
S07	Parallel part spacing	mm	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	—	—	—	—
S08	Second seam length	mm	—	—	—	—	—	1.5	3.0	—	—	—	—	—	—	—	—	—
S09	The length of the first seam	mm	—	—	1.0	1.0	1.0	1.0	1.0	—	—	—	—	—	—	—	—	—
S10	Right reinforcement width compensation	mm	—	—	0	0	0	0	0	—	—	—	—	—	—	—	—	—
S11	Left reinforcement width compensation	mm	—	—	0	0	0	0	0	—	—	—	—	—	—	—	—	—
S12	Left taper reinforcement symmetrical	mm	—	—	—	—	—	—	0.85	—	—	—	—	—	—	—	—	—
S13	Right conical reinforcement symmetrical	mm	—	—	—	—	—	—	0.85	—	—	—	—	—	—	—	—	—
S14	Buttonhole shape and length	mm	2.0	2.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—
S15	Round head buttonhole needles	needle	3	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—
S16	Buttonhole width	mm	1.0	1.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—
S17	Buttonhole length	mm	3.0	3.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—
S18	round shape length	mm	2.0	2.0	2.0	2.0	2.0	—	—	2.0	2.0	2.0	2.0	—	—	—	—	—
S19	Radial shape needle count	Stitch	—	—	3	—	—	—	—	3	3	3	—	—	—	—	—	—
S20	Radiant shape reinforcement Yes / no	—	—	—	no	—	—	—	—	no	无	无	—	—	—	—	—	—
S21	Reinforced part spacing	mm	0.25	0.30	0.30	0.25	0.30	0.30	0.30	0.25	0.30	0.25	0.25	—	—	—	—	—
S22	1st gap	mm	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	—	2.0	2.0	2.0	2.0
S23	2nd gap	mm	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	—	2.0	2.0	2.0	2.0
S31	single/double seam	—	single	single	single	single	single	single	single	single	single	single	single	single	single	single	single	single
S32	Choose double stitch	—	<	<	<	<	<	<	<	<	<	<	<	<	—	—	—	<
S33	Compensate for double seam width	mm	0	0	0	0	0	0	0	0	0	0	0	—	—	—	—	—
S34	Sewing times	second	0	0	0	0	0	0	0	0	0	0	0	3	2	2	—	—
S35	sewing speed	mm	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	—
S36	Bottom seam roll-in length	mm	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	—

S37	Bottom seam rolled into gap	mm	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	—	
S38	Bottom seam roll-in width	mm	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	—
S39	Before and after compensation for stitch drop	mm	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	—
S40	Compensate for left and right stitch drop	mm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	—
S41	Compensation for the left position of the sew	mm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	—
S42	Compensate the position of the right side of the bottom seam	mm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	—
S44	Bottom sewing speed setting	mm	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	—
S45	Sewing function yes/no	—	no	—	—	—	—	—	—										
S46	Butt seam width	mm	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	—	—	—	—	—	—
S47	seam gap	mm	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	—	—	—	—	—	—
S51	left parallel tension	—	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
S52	right parallel tension	—	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
S53	Left Parallel Tension (Double 1st loop of sewing)	—	60	60	60	60	60	60	60	60	60	60	60	60	—	—	—	—	—
S54	Right Parallel Tension (Double 1st loop of sewing)	—	60	60	60	60	60	60	60	60	60	60	60	60	—	—	—	—	—
S55	Tension of the first reinforcement	—	60	60	60	60	60	60	60	60	60	60	60	60	—	—	—	—	—
S56	The tension of the second reinforcement	—	60	60	60	60	60	60	60	60	60	60	60	60	—	—	—	—	—
S57	Set the sewing start to go online tension	—	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
S58	Setting the thread tension for lower stitching	—	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80
S59	Start the first backstitch, Adjust AC Sync	needle	0	0	0	0	0	0	0	0	0	0	0	0	—	—	—	—	—
S60	Right Overlock Start, ACT Synchronized adjustment	needle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S61	Start 2nd bartack, Adjust AC Sync	needle	0	0	0	0	0	0	0	0	0	0	0	0	—	—	—	—	—
S62	Number of stitches to start sewing	needle	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
S63	Start sewing to reinforce the gap	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S64	Start seam width	mm	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
S65	Start seam reinforcement vertical correction	mm	1.5	1.5	1.5	1.5	1.5	0	0	1.5	1.5	1.5	1.5	0	0	0	0	0	0
S66	Start seam reinforcement lateral correction	mm	0	0	0	0	0	0	0.7	0	0	0	0	0	0	0	0	0	0

S67	End seam reinforcement width	mm	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	
S68	End seam reinforcement stitches	needle	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
S69	End seam reinforcement vertical correction	mm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
S70	End seam reinforcement lateral correction	mm	0.9	0.9	0.9	0.9	0.9	0	0.7	0.9	0.9	0.9	0.9	0	0	0	0	
S81	Knife action yes/no	—	yes	—	yes	yes	yes											
S83	1st Cycle Knife for Double Stitch yes/no	—	no	—	—	—	—											
S84	top speed limit	rpm	3600	3600	3600	3600	3600	3600	3600	3600	3600	3600	3600	3600	3600	3600	3600	3600
S86	forward distance	mm												0.80	0.80	0.80	0.80	
S87	advance width	mm												1.7	1.7	1.7	1.7	
S88	Back to Spacing	mm												0.80	0.80	0.80	0.80	
S89	return width	mm												1.7	1.7	1.7	1.7	