CHAPTER Ⅱ
Operation section

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Ⅱ. Operation section

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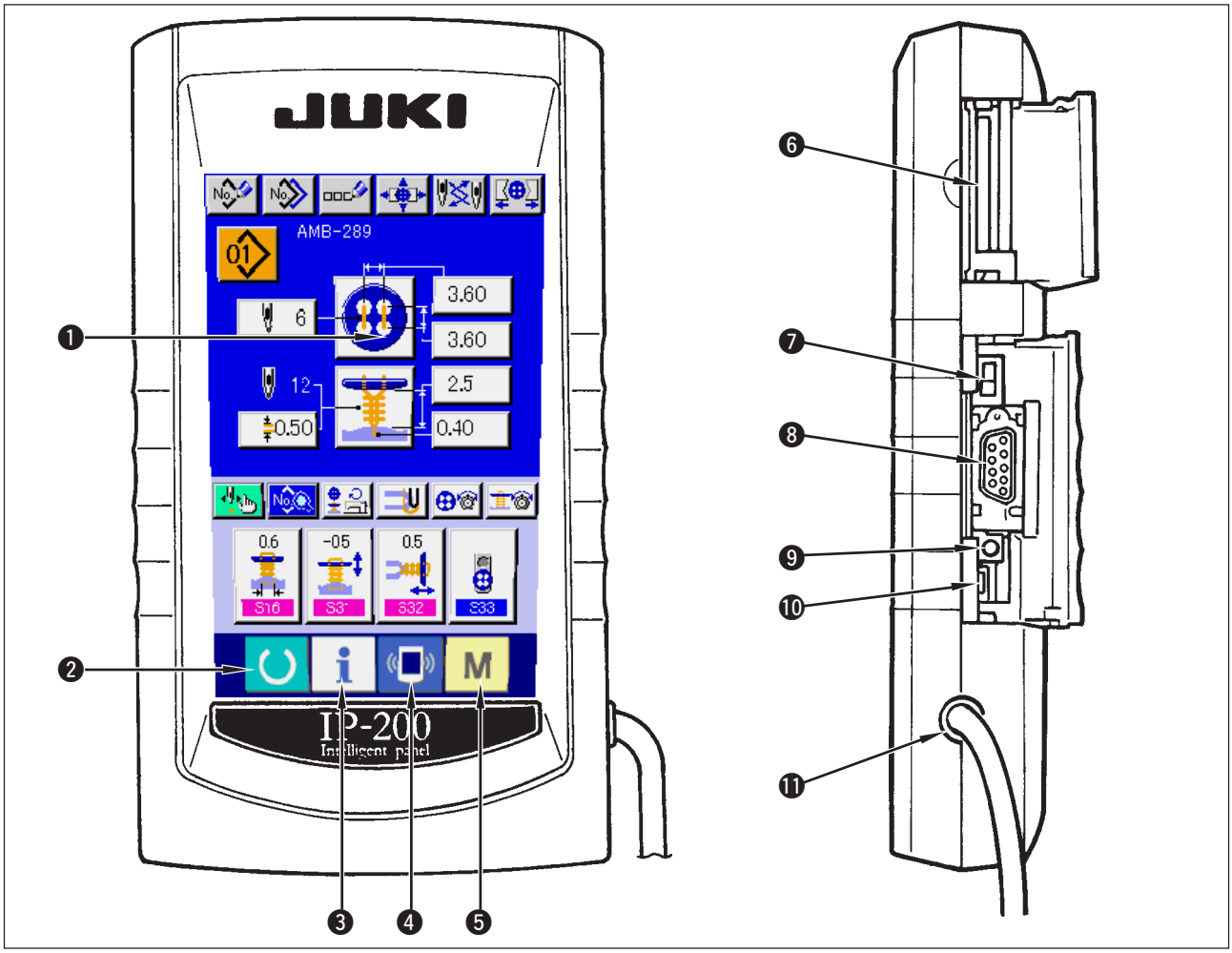
Ⅱ. Operation section

1. NAME OF EACH SECTION OF THE OPERATION PANEL

(1) Body



❶ Touch panel · LCD display section

❷ READY key → Changeover of the data input screen and the sewing screen can be performed.

❸ INFORMATION key → Changeover of the data input screen and the information screen can be performed.

❹ COMMUNICATION key → Changeover of the data input screen and the communication screen can be performed.

❺ M MODE key → Changeover of the data input screen and the mode changeover screen which performs various detail settings can be performed.

❻ Smart media card slot (Close the cover for use.)

❼ Slide switch (Not used · OFF)

❽ Connector for RS-232C communication

❾ Variable resistor for color LCD screen contrast adjustment → Screen contrast can be adjusted. Adjust it as you desire.

❿ Connector for external input

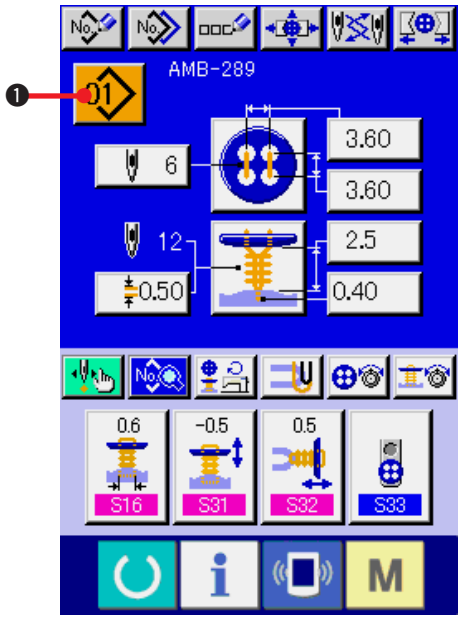
⓫ Cable

(2) Buttons to be used in common

The buttons which perform common operations in each screen of IP-200 are as follows :

CANCEL button	→	This button closes the pop-up screen. In case of the data change screen, the data being changed can be cancelled.
ENTER button	→	This button determines the changed data.
UP SCROLL button	→	This button scrolls the button or the display in the upward direction.
DOWN SCROLL button	→	This button scrolls the button or the display in the downward direction.
RESET button	→	This button performs the release of error.
NUMERAL INPUT button	→	This button displays ten keys and input of numerals can be performed.
SEWING DATA DISPLAY button	→	This button displays the sewing data list corresponding to the pattern No. being selected. → Refer to "20. CHANGING SEWING DATA".
CHARACTER INPUT button	→	This button displays the character input screen. → Refer to "5. NAMING THE PATTERN".

2. BASIC OPERATION OF THE SEWING MACHINE



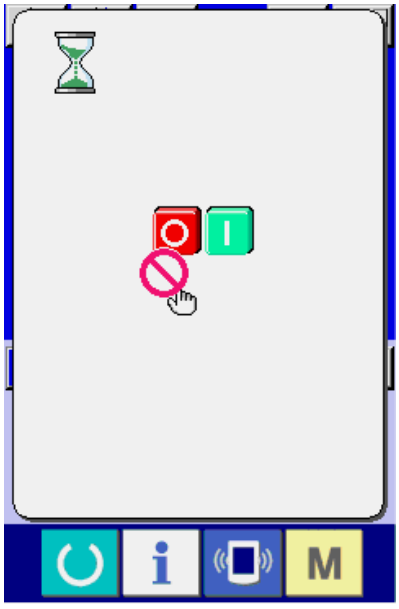
1) Turn ON the power switch.

First, turn ON the power switch. DATA INPUT screen is displayed after displaying WELCOME screen.

2) Select the pattern No. you desire to sew.

When the power is turned ON, the data input screen is displayed. Pattern No. button ❶ which is selected at present is displayed in the upper section of the screen. Press the button to select the pattern No. For selecting procedure of the pattern No., refer to "4. PERFORMING PATTERN No. SELECTION". When you purchase the sewing machine, Pattern Nos. 1 to 10 described in "20. (1) Initial sewing data at the time of your purchase have been registered". Select the pattern No. you desire to sew from among these numbers. (The No. to which the pattern has not been registered is not displayed.)

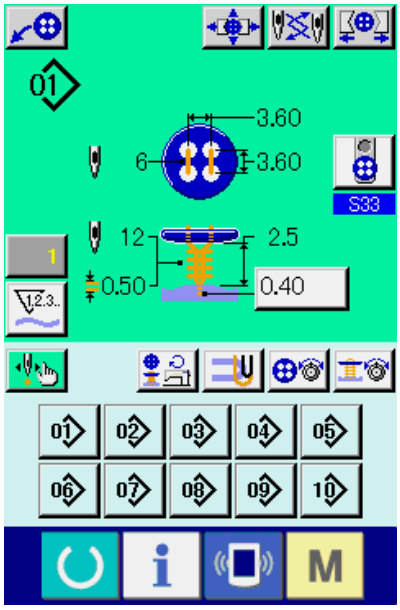
* For the detailed explanation of this screen, see "3. LCD DISPLAY SECTION AT THE TIME OF INDEPENDENT SEWING".



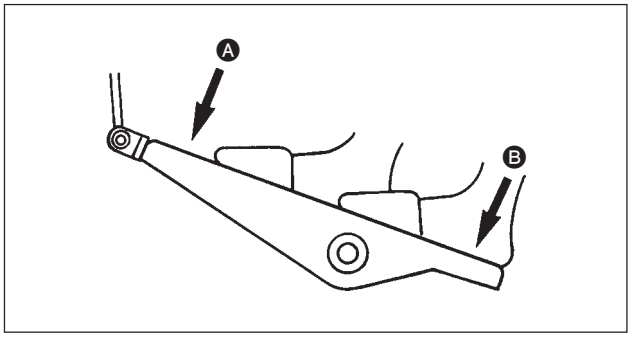
3) Set the sewing machine to sewing possible state.

Press READY key ❷, and POWER OFF PROHIBITION screen is displayed. Make preparations for sewing while this screen is displayed.

When the sewing is in a possible state, the back-light of LCD display changes to green color.



* For the detailed explanation of the sewing screen, refer to "3. (2) Sewing screen".

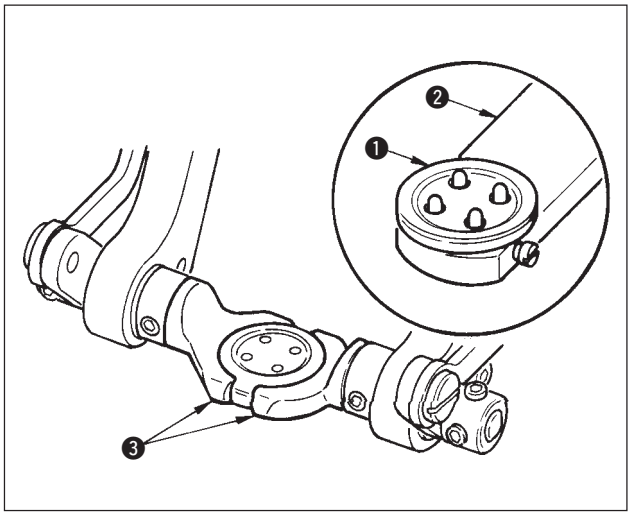


4) Settimg of the sewing products

Setting procedures of materials and buttons are different in sewing method.

Set them while operating the device by depressing front part ❹ or back part ❸ of the foot pedal.

* For the setting procedure of S01 Sewing method, refer to "13. PERFORMING SEWING METHOD SELECTION".

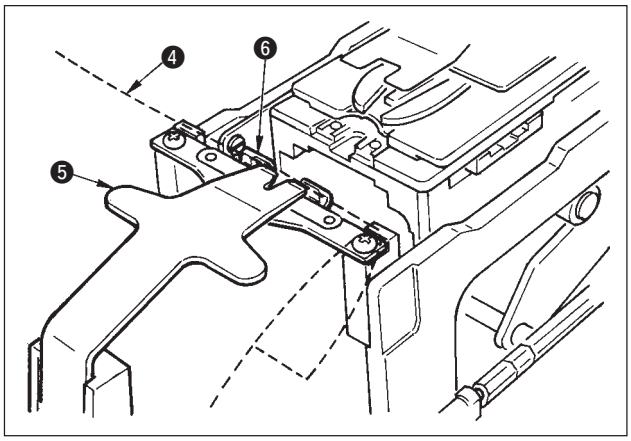


<In case of sewing flat/wrapped-around button with blindstitch or sewing flat button with blindstitch>

Set button ❶ to button loader ❷ and depress the back part of the pedal to insert the button into button chucks ❸.

(When the button loader is not used, insert the button by hand since the chuck is opened by depressing the back part of the pedal.)

↓



Set cloth ❹ to tongue ❺ and make it come in contact with tongue stopper ❻. (Release of the tongue is performed by depressing the back part of the pedal.)

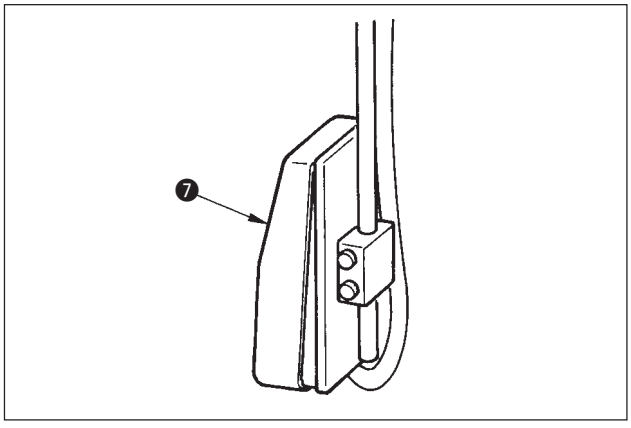
↓

When the front part of the pedal is depressed, the button chuck comes down to the sewing position where the sewing is possible.

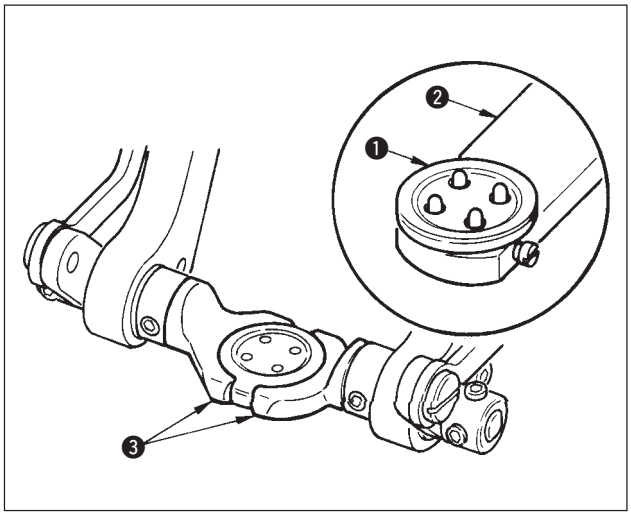
* By setting the pedal motion mode of memory switch data U01 , the button chuck automatically comes down to the sewing position.

→ For the details of the memory switch data, refer to **"32. (2) Memory switch data list"**.

↓



Sewing starts when start switch ❼ is turned ON.

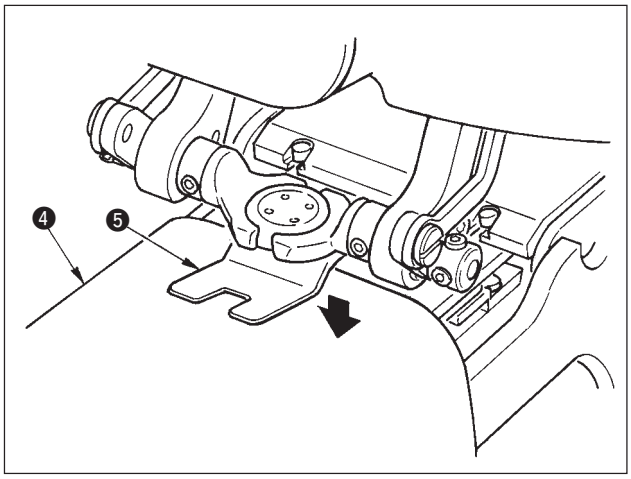


<In case of sewing flat button directly to cloth>

Set button ❶ to button loader ❷ and depress the back part of the pedal to insert the button into button chucks ❸.

(When the button loader is not used, insert the button by hand since the chuck is opened by depressing the back part of the pedal.)

↓



Set cloth ❹ under the needle, make the tongue come in contact with the tongue stopper, and make cloth presser ❺ come down by depressing the front part of the pedal to fix the cloth.

(By depressing the pedal reversely, the cloth presser is released.)

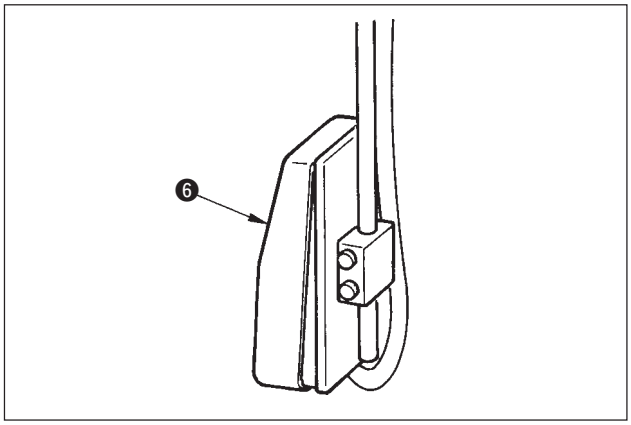
↓

When depressing the front part of the pedal again, the button chuck comes down to the sewing position where the sewing is possible.

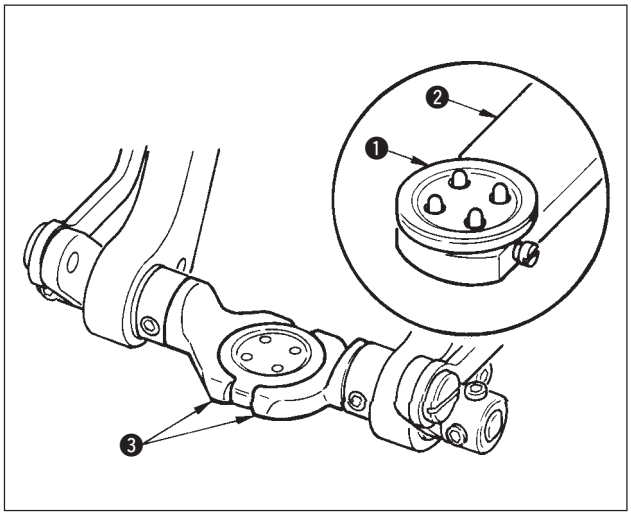
* By setting the pedal motion mode of memory switch data U01 , the button chuck automatically comes down to the sewing position.

→ For the details of the memory switch data, refer to **"32. (2) Memory switch data list"**.

↓



Sewing starts when start switch ❻ is turned ON.

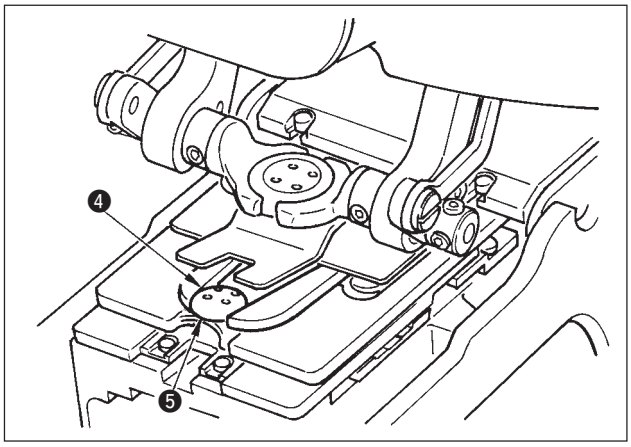


<In case of counter/stay button>

Set upper button ❶ to button loader ❷ and depress the back part of the pedal to insert the button into button chucks ❸.

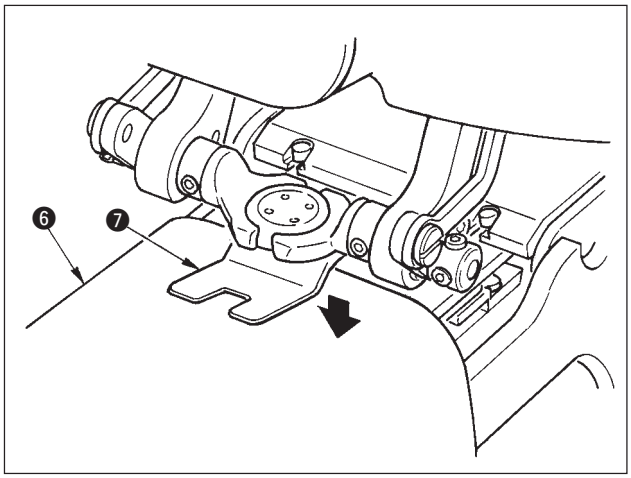
(When the button loader is not used, insert the button by hand since the chuck is opened by depressing the back part of the pedal.)

↓



Insert lower button ❹ into button setting section ❺ of the feed plate.

↓



Set cloth ❻ under the needle, make the tongue come in contact with the tongue stopper, and make cloth presser ❼ come down by depressing the front part of the pedal to fix the cloth.

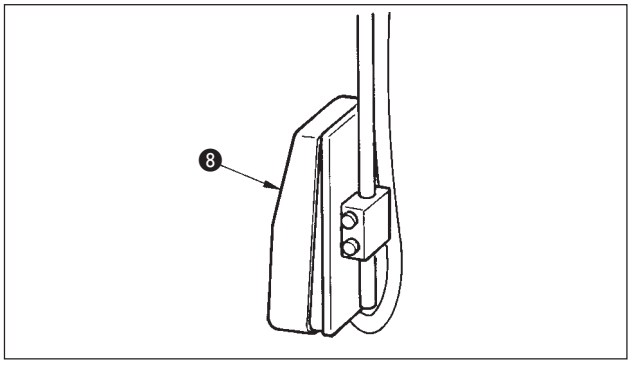
(By depressing the pedal reversely, the cloth presser is released.)

↓

When the front part of the pedal is depressed, the button chuck comes down to the sewing position where the sewing is possible.

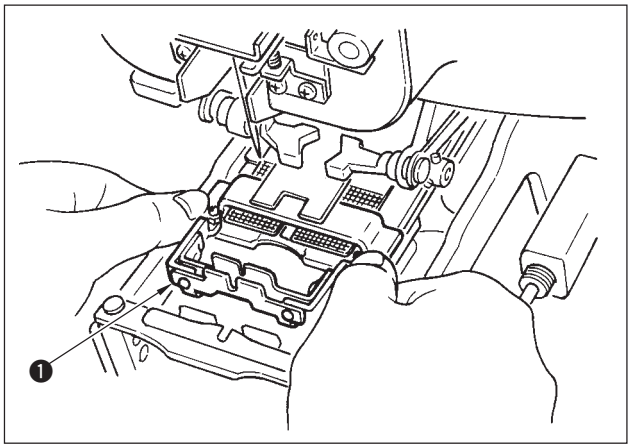
* By setting the pedal motion mode of memory switch data U01, the button chuck automatically comes down to the sewing position.

→ For the details of the memory switch data, refer to **"32. (2) Memory switch data list"**.



↓

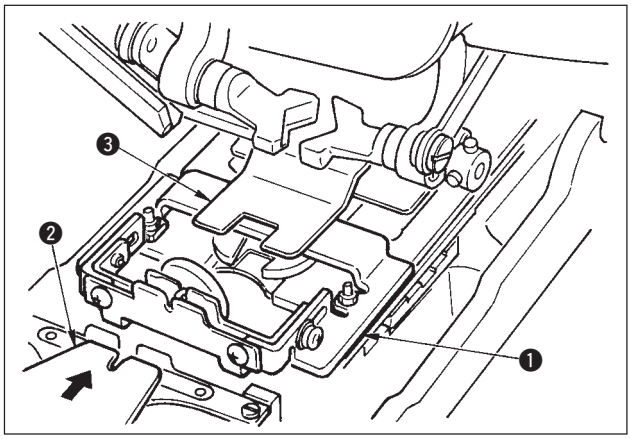
Sewing starts when start switch ❽ is turned ON.



<In case of neck wrapping sewing>

Install neck wrapping sewing unit ❶ to the inserting hole of the feed plate.

↓



Set tongue ❷ by hand, and make cloth presser ❸ come down to fix neck wrapping sewing unit ❶. (Tongue and neck wrapping sewing unit are released by depressing the pedal reversely.)

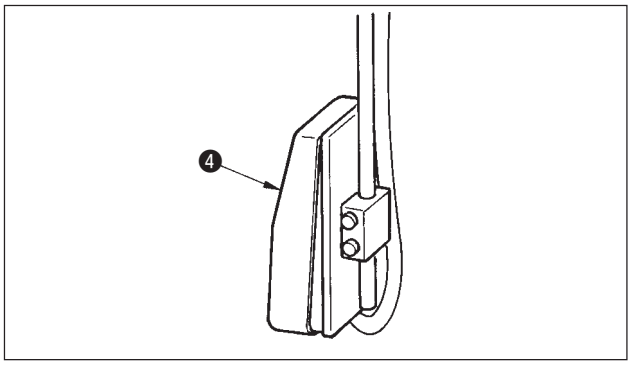
↓

Set the sewing product to neck wrapping sewing unit ❶.

↓

Transport the sewing product up to the sewing start position by depressing the front part of the pedal. (When depressing the front part of the pedal again, the sewing product returns to the set position.

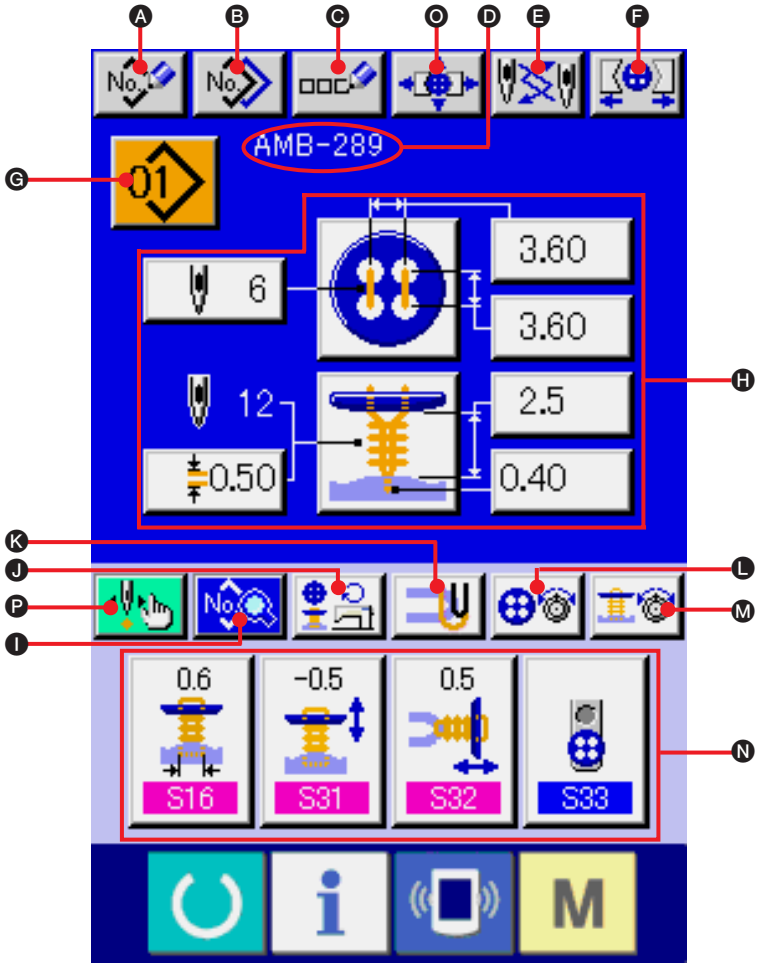
↓



The sewing starts when start switch ❹ is turned ON.

3. LCD DISPLAY SECTION AT THE TIME OF INDEPENDENT SEWING

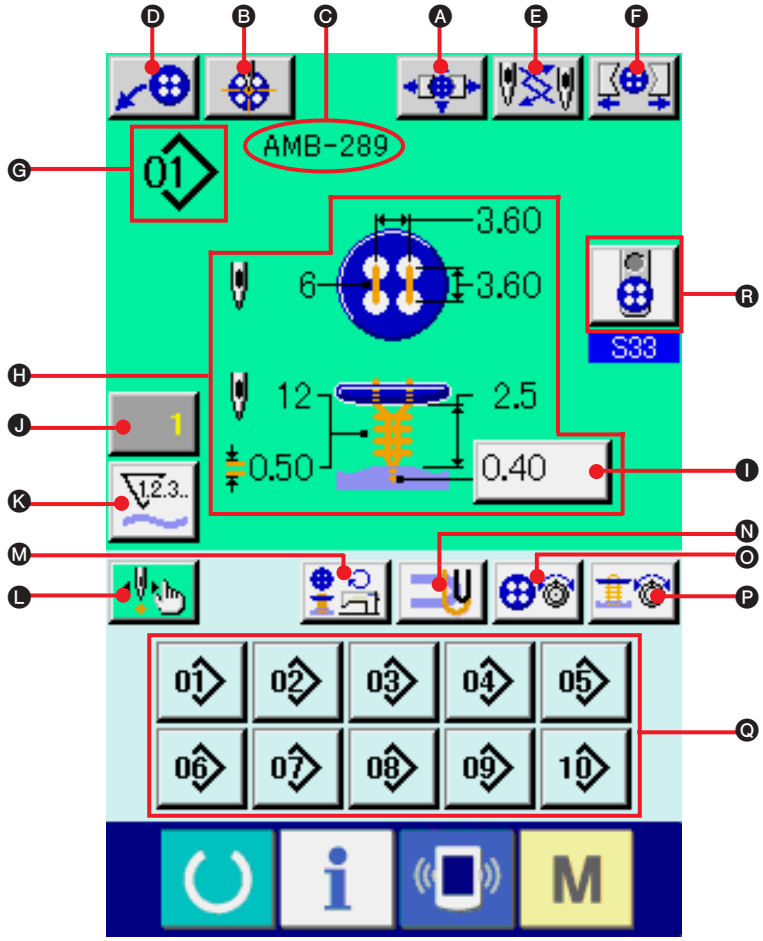
(1) Data input screen



Symbol	Display	Description
Ⓐ	PATTERN NEW REGISTER button	Pattern No. new register screen is displayed. → Refer to "21. PERFORMING NEW REGISTER OF SEWING PATTERN".
Ⓑ	PATTERN COPY button	Sewing pattern copy screen is displayed. → Refer to "22. COPYING SEWING PATTERN".
Ⓒ	PATTERN NAME SETTING button	Sewing pattern name input screen is displayed. → Refer to "5. NAMING THE PATTERN".
Ⓓ	PATTERN NAME display	Name which has been inputted to the sewing pattern being selected is displayed.
Ⓔ	NEEDLE CHANGE button	This button performs origin retrieval, makes needle come down, and displays the needle change screen. → Refer to "33. PERFORMING CHANGE OF NEEDLE".
Ⓕ	CHUCK CLOSE/OPEN button	This button performs close/open of the chuck. Chuck is opened as long as the button is pressed.

Symbol	Display	Description
Ⓖ	PATTERN SELECTION button	Pattern No. being selected at present is displayed on this button and when the button is pressed, the pattern No. change screen is displayed. → Refer to **"4. PERFORMING PATTERN NO. SELECTION"**.
Ⓗ	CONTENTS OF PATTERN display	Contents of the pattern which is registered to the pattern No. being selected at present are displayed. The respective display sections consist of buttons and can be changed. The contents of display differ in accordance with the sewing method. * Sewing flat/wrapped-around button with blindstitch → Refer to **"7. PERFORMING DATA SETTING OF SEWING BUTTON WITH BLINDSTITCH (SHANK/MARBLE BUTTON)"** and **"8. PERFORMING DATA SETTING OF SEWING BUTTON WITH BLINDSTITCH (FLAT BUTTON)"**. * Sewing flat button directly to cloth → Refer to **"9. PERFORMING DATA SETTING OF SEWING FLAT BUTTON DIRECTLY TO CLOTH"**. * Sewing flat button with blindstitch → Refer to **"10. PERFORMING DATA SETTING OF SEWING FLAT BUTTON WITH BLINDSTITCH"**. * Counter/stay button → Refer to **"11. PERFORMING SETTING OF COUNTER/STAY BUTTONS"**. * Neck wrapping sewing → Refer to **"12. PERFORMING DATA SETTING OF NECK WRAPPING SEWING DATA"**.
Ⓘ	SEWING DATA CHANGE button	Sewing data list screen is displayed. → Refer to **"20. CHANGING SEWING DATA"**.
Ⓙ	NUMBER OF REVOLUTIONS SETTING button	Number of revolutions setting screen is displayed. Change of number of revolutions of sewing machine for button sewing and that for neck wrapping can be performed. → Refer to **"15. PERFORMING SETTING NUMBER OF REVOLUTIONS OF SEWING MACHINE"**,
Ⓚ	STAY THREAD SETTING button	Stay thread setting screen is displayed.This screen is displayed only in case of sewing flat/wrapped-around button with blindstitch or flat button with blindstitch, and setting of stay thread is possible. → Refer to **"16. PERFORMING SETTING STAY THREAD"**.
Ⓛ	BUTTON SEWING THREAD TENSION SETTING button	Button sewing thread tension setting screen is displayed. → Refer to **"17. PERFORMING INPUT OF BUTTON SEWING THREAD TENSION"**.
Ⓜ	NECK WRAPPING THREAD TENSION SETTING button	Neck wrapping thread tension setting screen is displayed. This screen is displayed only in case of sewing flat/wrapped-around button with blindstitch or neck wrapping sewing. → Refer to **"18. PERFORMING INPUT OF NECK WRAP THREAD TENSION"**.
Ⓝ	CUSTOMIZE button	Sewing data which are more frequently used can be laid out to four buttons. When this button is pressed, the laid-out sewing data change screen is displayed. → Refer to **"35. CUSTOMIZING DATA INPUT SCREEN"**.
Ⓞ	CHUCK ADJUSTMENT button	Chuck adjustment screen is displayed. → Refer to **"23. PERFORMING CHUCK ADJUSTMENT"**.
Ⓟ	STEP SEWING button	When this button is pressed, the step sewing screen which performs input and check of needle entry point is displayed. → Refer to **"25. PERFORMING INPUT AND CHECK OF DATA WITH STEP MOTION"**.

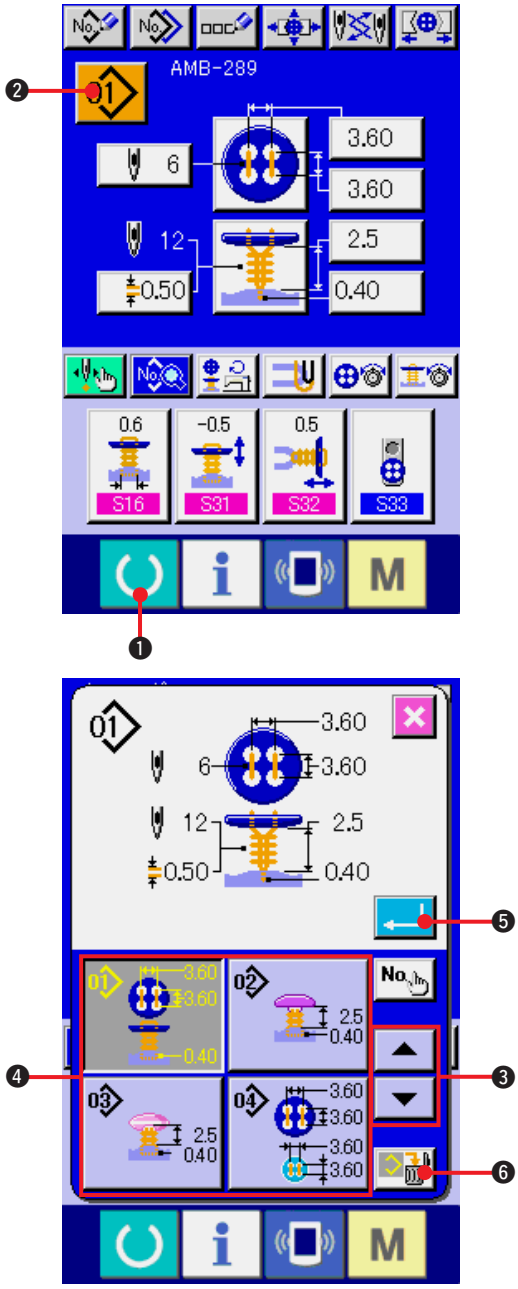
(2) Sewing screen



Symbol	Display	Description
Ⓐ	CHUCK ADJUSTMENT button	Chuck adjustment screen is displayed. → Refer to "23. PERFORMING CHUCK ADJUSTMENT".
Ⓑ	BUTTON CENTERING button	This is not displayed in the initial state. → Refer to "24. PERFORMING BUTTON CENTERING".
Ⓒ	PATTERN NAME display	Pattern name which is set in the pattern data during sewing is displayed.
Ⓓ	LOADER MOTION button	When this button is pressed, loader works and sets button to the chuck.
Ⓔ	NEEDLE CHANGE button	This button makes needle come down, and the needle change screen is displayed. → Refer to "33. PERFORMING CHANGE OF NEEDLE".

Symbol	Display	Description
Ⓕ	CHUCK CLOSE/OPEN button	This button performs close/open of the chuck. Chuck is opened as long as the button is pressed.
Ⓖ	PATTERN NO. display	Pattern No. during sewing is displayed.
Ⓗ	PATTERN CONTENTS display	Contents of pattern registered to pattern No. during sewing are displayed. Contents of display depend on the sewing method. Blindstitch amount only can be set in the sewing screen.
Ⓘ	BLINDSTITCH AMOUNT SETTING button	Setting of blindstitch amount is possible. * This is displayed only in case of sewing flat/wrapped-around button with blindstitch or flat button with blindstitch.
Ⓙ	COUNTER VALUE CHANGE button	Existing counter value is displayed on this button. When the button is pressed, the counter value change screen is displayed. → Refer to **"31. USING COUNTER"**.
Ⓚ	COUNTER CHANGE OVER button	Display of sewing counter/No. of pcs. counter can be changed over. → Refer to **"31. USING COUNTER"**.
Ⓛ	STEP SEWING button	When this button is pressed, the step sewing screen which performs input and check of needle entry point is displayed. → Refer to **"25. PERFORMING INPUT AND CHECK OF DATA WITH STEP MOTION"**.
Ⓜ	NUMBER OF REVOLUTIONS SETTING button	Number of revolutions setting screen is displayed. Change of number of revolutions of the sewing machine for button sewing and that for neck wrapping can be performed. → Refer to **"15. PERFORMING SETTING NUMBER OF REVOLUTIONS OF SEWING MACHINE"**.
Ⓝ	STAY THREAD SETTING button	Stay thread setting screen is displayed. This screen is displayed only in case of sewing flat/wrapped-around button with blindstitch or flat button with blindstitch, and setting of stay thread is possible. → Refer to **"16. PERFORMING SETTING STAY THREAD"**.
Ⓞ	BUTTON SEWING THREAD TENSION SETTING button	Button sewing thread tension setting screen is displayed. → Refer to **"17. PERFORMING INPUT OF BUTTON SEWING THREAD TENSION"**.
Ⓟ	NECK WRAPPING THREAD TENSION SETTING button	Neck wrap thread tension setting screen is displayed. This screen is displayed only in case of sewing flat/wrapped-around button with blindstitch or neck wrapping sewing. → Refer to **"18. PERFORMING INPUT OF NECK WRAP THREAD TENSION"**.
Ⓠ	DIRECT button	Pattern No. is changed over to pattern No. which is registered to the button. → Refer to **"36. CUSTOMIZING SEWING SCREEN"**.
Ⓡ	BUTTON LOADER SELECTION button	Button loader being selected at present is displayed on the button. When the button is pressed, the state of button loader can be changed.

4. PERFORMING PATTERN No. SELECTION



1) Display the data input screen.

Only in case of the data input screen (blue), the contents of setting can be changed. In case of the sewing screen (green), press READY key ❶ and display the data input screen.

2) Call the pattern No. selection screen.

Press PATTERN NO. SELECTION button ❷ and the pattern No. selection screen is displayed. Pattern No. which is selected at present and the contents are displayed in the upper part of the screen and the list of the pattern No. buttons which have been registered is displayed in the lower part.

3) Select the pattern No.

When UP or DOWN SCROLL button ❸ is pressed, the pattern No. buttons ❹ which have been registered are changed over in order. The contents of the sewing data inputted in the pattern No. are displayed in the button. Here, press the pattern No. button ❹ you desire to select.

4) Determine the pattern No.

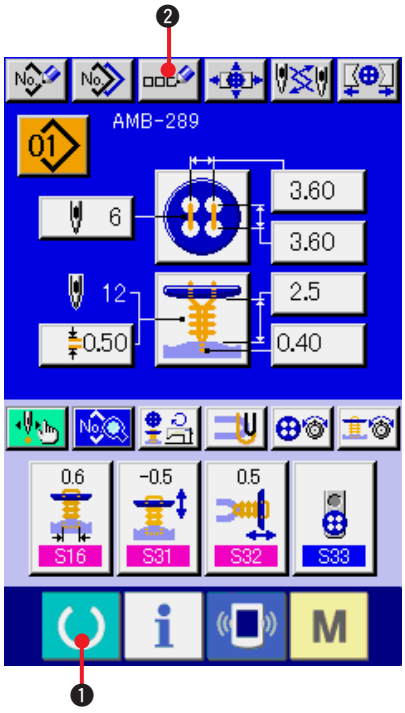
Press ENTER button ❺, and the pattern No. selection screen is closed. Then the selection has been finished.

* When you desire to delete the registered pattern, press DELETE button ❻.

However, the pattern which has been registered to the cycle stitching cannot be deleted.

5. NAMING THE PATTERN

As many as 14 characters can be inputted to the patterns respectively.



1) Display the data input screen.

Only in case of the data input screen (blue), input of the pattern name can be performed. In case of the sewing screen (green), press READY key ❶ and display the data input screen (blue).

2) Call the character input screen.

Press CHARACTER INPUT button ❷ and the character input screen is displayed.

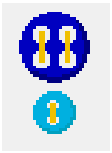
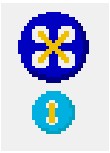
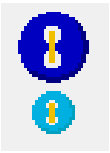
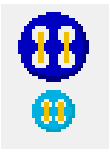
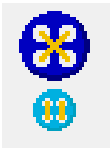
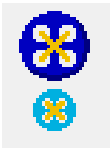
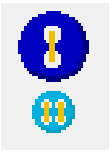
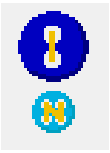
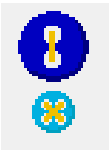
3) Input the character.

Press the character button ❸ you desire to input, and input of the character can be performed. Characters (A to Z and 0 to 9) and symbols (+ , - , / , # , , , .) can be inputted. As many as 14 characters can be inputted. The cursor can travel with CURSOR LEFT TRAVEL button ❹ and CURSOR RIGHT TRAVEL button ❺. When you desire to delete the inputted character, adjust the cursor to the position of the character you desire to delete and press DELETE button ❻.

4) Finish inputting the character.

Press ENTER button ❼ and inputting the character is finished. After the finish, the inputted character is displayed in the upper part of the data input screen (blue).

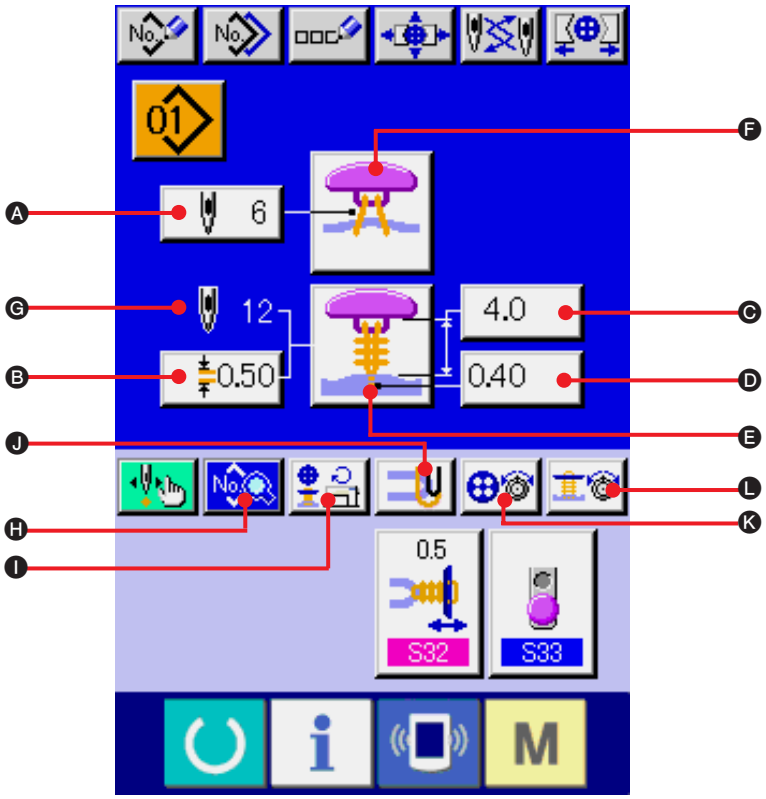
6. SEWING METHOD AND SEWING SHAPE LIST

Sewing method	Sewing shape					
Sewing flat/ wrapped-around button with blindstitch						
Sewing flat button directly to cloth						
Sewing flat button with blindstitch						
Sewing counter/ stay button						
						
Sewing button with neck wraps	– – –					

7. PERFORMING DATA SETTING OF SEWING BUTTON WITH BLINDSTITCH (SHANK AND MARBLE BUTTONS)

Items that can be set in the data input screen of sewing flat/wrapped-around button with blindstitch (shank and marble buttons) are those below. In case of performing more detailed setting, press SEWING DATA DISPLAY button Ⓗ and set it from the sewing data screen.

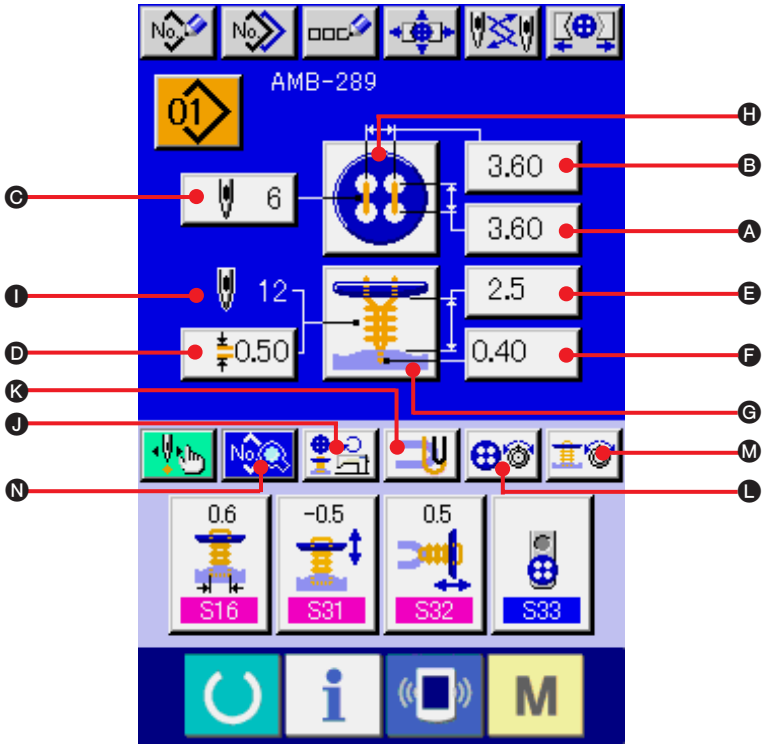
→ Refer to "20. CHANGING SEWING DATA".



Symbol	Item	Input range	Edit unit	Initial value
Ⓐ	S12 Number of stitches of button sewing	2 to 32	2 stitches	6
Ⓑ	S113 Neck wrapping pitch	0.05 to 2.00	0.05mm	0.50
Ⓒ	S27 Button sewing height	0 to 15.0	0.1mm	4.0
Ⓓ	S17 Blindstitch amount	–1.00 to 5.00	0.05mm	0.40
Ⓔ	S01 Sewing method selection	Refer to "13. PERFORMING SEWING METHOD SELECTION".		
Ⓕ	S02 Sewing shape selection	Refer to "14. PERFORMING SEWING SHAPE SELECTION".		
Ⓖ	Number of stitches of neck wrapping display	Number of stitches of neck wrapping actually sewn is displayed.		
Ⓘ	Number of revolutions of sewing machine setting	Refer to "15. PERFORMING SETTING NUMBER OF REVOLUTIONS OF SEWING MACHINE".		
Ⓙ	Stay thread setting	Refer to "16. PERFORMING SETTING STAY THREAD".		
Ⓚ	Button sewing thread tension setting	Refer to "17. PERFORMING INPUT OF BUTTON SEWING THREAD TENSION".		
Ⓛ	Neck wrapping thread tension setting	Refer to "18. PERFORMING INPUT OF NECK WRAPPING THREAD TENSION".		

8. PERFORMONG DATA SETTING OF SEWING BUTTON WITH BLINDSTITCH (FLAT BUTTON)

Items that can be set in the data input screen of sewing flat/wrapped-around button with blindstitch (flat button) are those below. In case of performing more detailed setting, press SEWING DATA DISPLAY button Ⓝ and set it from the sewing data screen. → Refer to "20. CHANGING SEWING DATA".

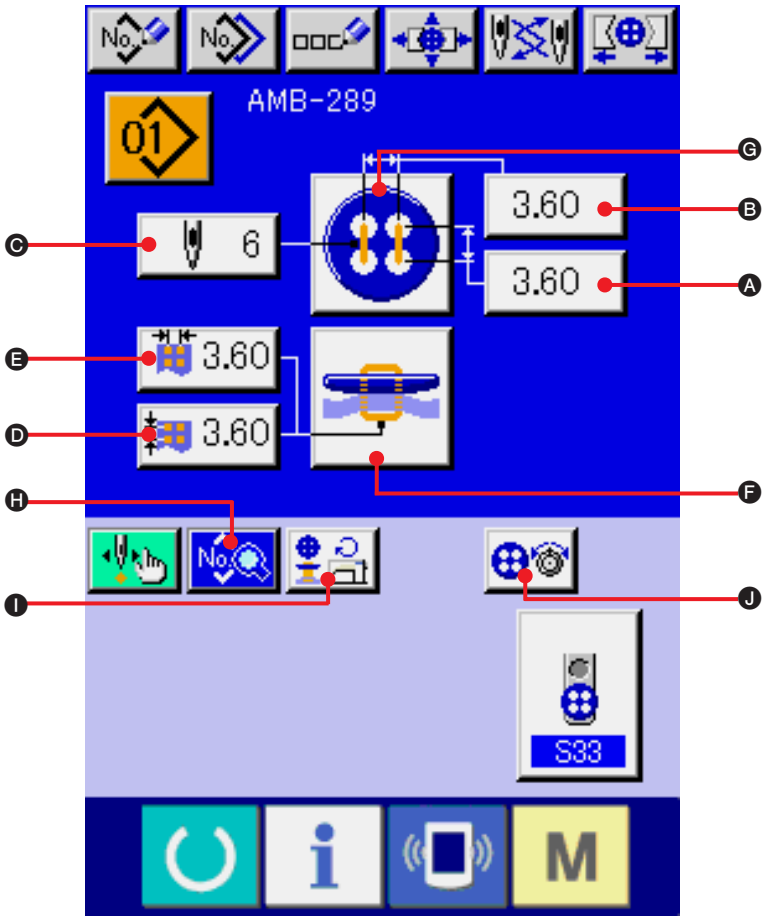


Symbol	Item	Input range	Edit unit	Initial value
Ⓐ	S08 Buttonhole interval (longitudinal)	0.10 to 6.00	0.05mm	3.60
Ⓑ	S09 Buttonhole interval (lateral)	0.10 to 6.00	0.05mm	3.60
Ⓒ	S12 Number of stitches of button sewing	2 to 32	2 stitches	6
Ⓓ	S113 Neck wrapping pitch	0.05 to 2.00	0.05mm	0.50
Ⓔ	S26 Button sewing height	0.5 to 15.0	0.1mm	2.5
Ⓕ	S17 Blindstitch amount	–1.00 to 5.00	0.05mm	0.40
Ⓖ	S01 Sewing method selection	Refer to "13. PERFORMING SEWING METHOD SELECTION".		
Ⓗ	S02 Sewing shape selection	Refer to "14. PERFORMING SEWING SHAPE SELECTION".		
Ⓘ	Number of stitches of neck wrapping display	Number of stitches of neck wrapping actually sewn is displayed.		
Ⓙ	Number of revolutions of sewing machine setting	Refer to "15. PERFORMING SETTING NUMBER OF REVOLUTIONS OF SEWING MACHINE".		
Ⓚ	Stay thread setting	Refer to "16. PERFORMING SETTING STAY THREAD".		
Ⓛ	Button sewing thread tension setting	Refer to "17. PERFORMING INPUT OF BUTTON SEWING THREAD TENSION".		
Ⓜ	Neck wrapping thread tension setting	Refer to "18. PERFORMING INPUT OF NECK WRAPPING THREAD TENSION".		

9. PERFORMING DATA SETTING OF SEWING BUTTON DIRECTLY TO CLOTH

Items that can be set in the data input screen of sewing flat button directly to cloth are those below. In case of performing more detailed setting, press SEWING DATA DISPLAY button Ⓗ and set it from the sewing data screen.

→ Refer to "20. CHANGING SEWING DATA".

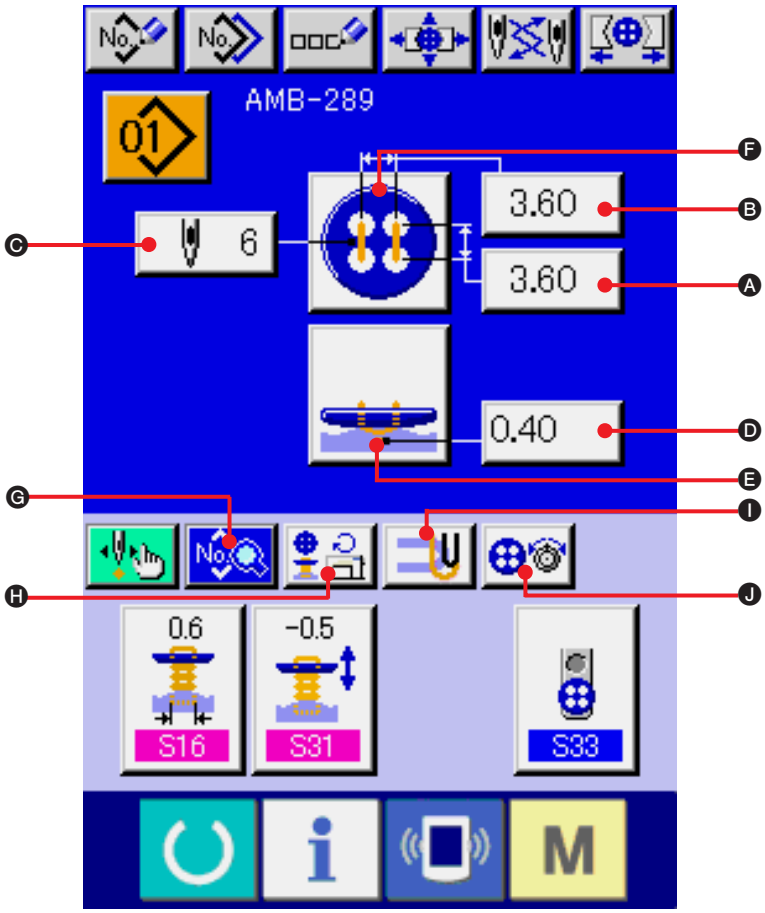


Symbol	Item	Input range	Edit unit	Initial value
Ⓐ	S08 Buttonhole interval (longitudinal)	0.10 to 6.00	0.05mm	3.60
Ⓑ	S09 Buttonhole interval (lateral)	0.10 to 6.00	0.05mm	3.60
Ⓒ	S12 Number of stitches of button sewing	2 to 32	2 stitches	6
Ⓓ	S10 Interval of bottom feed needle entry (longitudinal)	0.10 to 6.00	0.05mm	3.60
Ⓔ	S11 Interval of bottom feed needle entry (lateral)	0.10 to 6.00	0.05mm	3.60
Ⓕ	S01 Sewing method selection	Refer to "13. PERFORMING SEWING METHOD SELECTION".		
Ⓖ	S02 Sewing shape selection	Refer to "14. PERFORMING SEWING SHAPE SELECTION".		
Ⓘ	Number of revolutions of sewing machine setting	Refer to "15. PERFORMING SETTING NUMBER OF REVOLUTIONS OF SEWING MACHINE".		
Ⓙ	Button sewing thread tension setting	Refer to "17. PERFORMING INPUT OF BUTTON SEWING THREAD TENSION".		

10. PERFORMING DATA SETTING OF SEWING FLAT BUTTON WITH BLINDSTITCH

Items that can be set in the data input screen of sewing flat button with blindstitch are those below. In case of performing more detailed setting, press SEWING DATA DISPLAY button Ⓖ and set it from the sewing data screen.

→ Refer to "20. CHANGING SEWING DATA".

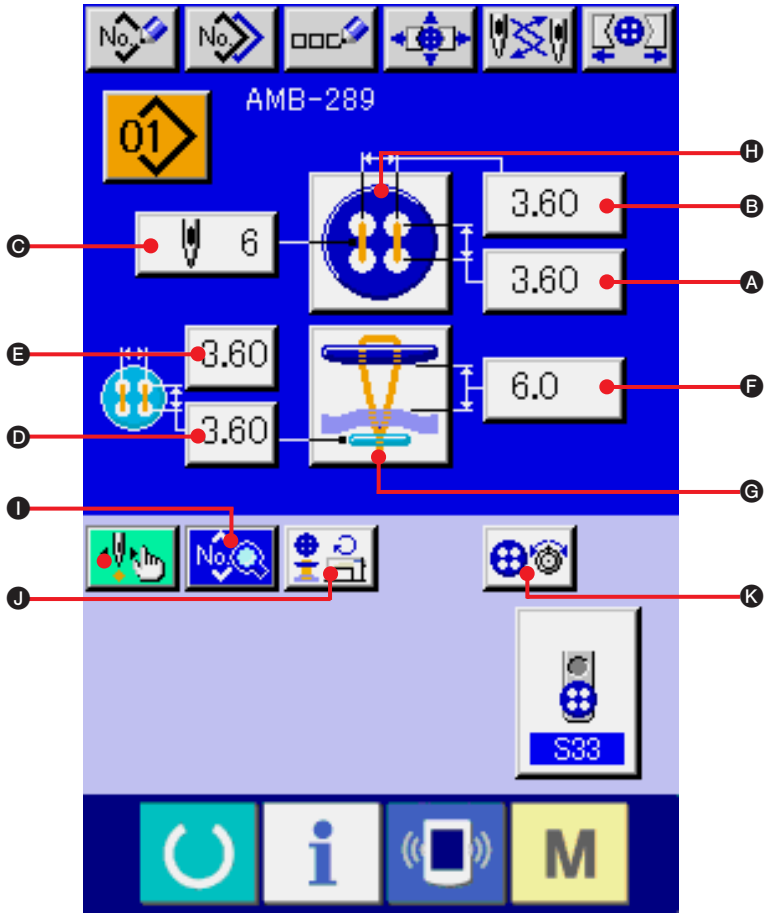


Symbol	Item	Input range	Edit unit	Initial value
Ⓐ	S08 Buttonhole interval (longitudinal)	0.10 to 6.00	0.05mm	3.60
Ⓑ	S09 Buttonhole interval (lateral)	0.10 to 6.00	0.05mm	3.60
Ⓒ	S12 Number of stitches of button sewing	2 to 32	2 stitches	6
Ⓓ	S17 Blindstitch amount	–1.00 to 5.00	0.05mm	0.40
Ⓔ	S01 Sewing method selection	Refer to "13. PERFORMING SEWING METHOD SELECTION".		
Ⓕ	S02 Sewing shape selection	Refer to "14. PERFORMING SEWING SHAPE SELECTION".		
Ⓗ	Number of revolutions of sewing machine setting	Refer to "15. PERFORMING SETTING NUMBER OF REVOLUTIONS OF SEWING MACHINE".		
Ⓘ	Stay thread setting	Refer to "16. PERFORMING SETTING STAY THREAD".		
Ⓙ	Button sewing thread tension setting	Refer to "17. PERFORMING INPUT OF BUTTON SEWING THREAD TENSION".		

11. PERFORMING SETTING OF COUNTER/STAY BUTTONS

Items that can be set in the data input screen of counter and stay buttons are those below. In case of performing more detailed setting, press SEWING DATA DISPLAY button ❶ and set it from the sewing data screen.

→ Refer to "20. CHANGING SEWING DATA".

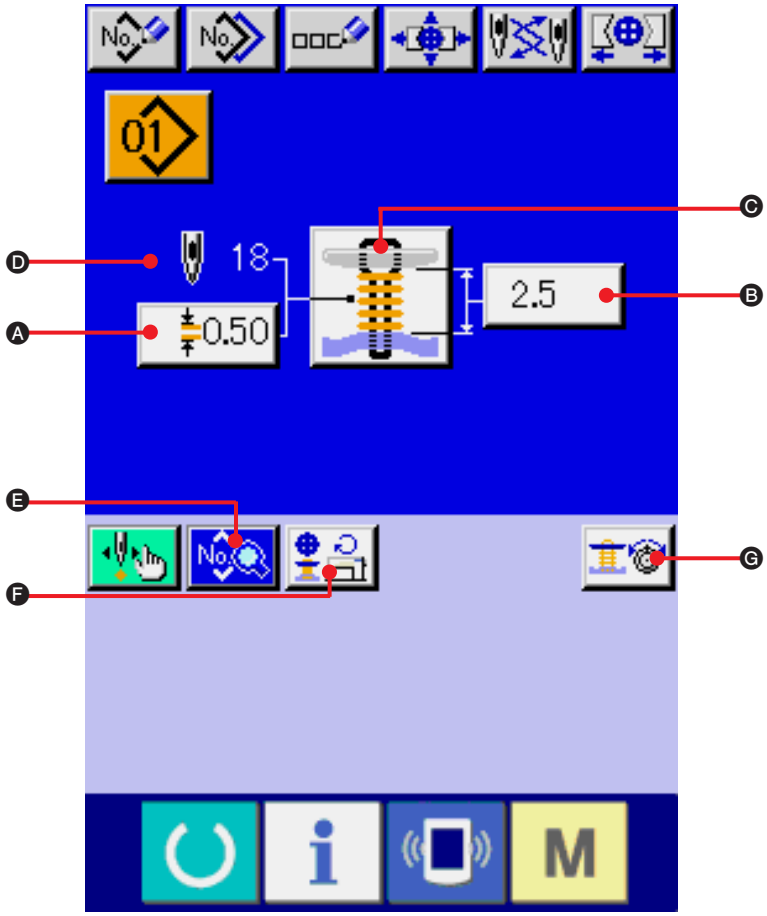


Symbol	Item	Input range	Edit unit	Initial value
Ⓐ	S08 Buttonhole interval (longitudinal)	0.10 to 6.00	0.05mm	3.60
Ⓑ	S09 Buttonhole interval (lateral)	0.10 to 6.00	0.05mm	3.60
Ⓒ	S12 Number of stitches of button sewing	2 to 32	2 stitches	6
Ⓓ	S10 Interval of bottom feed needle entry (longitudinal)	0.10 to 6.00	0.05mm	3.60
Ⓔ	S11 Interval of bottom feed needle entry (lateral)	0.10 to 6.00	0.05mm	3.60
Ⓕ	S28 Button height (counter button)	0 to 20.0	0.1mm	6.0
Ⓖ	S01 Sewing method selection	Refer to "13. PERFORMING SEWING METHOD SELECTION".		
Ⓗ	S02 Sewing shape selection	Refer to "14. PERFORMING SEWING SHAPE SELECTION".		
Ⓙ	Number of revolutions of sewing machine setting	Refer to "15. PERFORMING SETTING NUMBER OF REVOLUTIONS OF SEWING MACHINE".		
Ⓚ	Button sewing thread tension setting	Refer to "17. PERFORMING INPUT OF BUTTON SEWING THREAD TENSION".		

12. PERFORMING NECK WRAPPING SEWING DATA

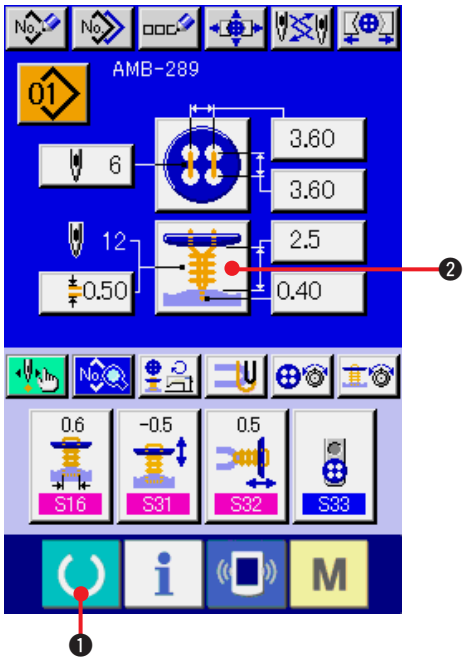
Items that can be set in the data input screen of neck wrapping sewing are those below. In case of performing more detailed setting, press SEWING DATA DISPLAY button Ⓔ and set it from the sewing data screen.

→ Refer to "20. CHANGING SEWING DATA".



Symbol	Item	Input range	Edit unit	Initial value
Ⓐ	S113 Neck wrapping pitch	0.05 to 2.00	0.05mm	0.50
Ⓑ	S26 Button sewing height	0.5 to 15.0	0.1mm	2.5
Ⓒ	S01 Sewing method selection	Refer to "13. PERFORMING SEWING METHOD SELECTION".		
Ⓓ	Number of stitches of neck wrapping display	Number of stitches of neck wrapping actually sewn is displayed.		
Ⓕ	Number of revolutions of sewing machine setting	Refer to "15. PERFORMING SETTING NUMBER OF REVOLUTIONS OF SEWING MACHINE".		
Ⓖ	Neck wrapping thread tension setting	Refer to "18. PERFORMING INPUT OF NECK WRAPPING THREAD TENSION".		

13. PERFORMING SEWING METHOD SELECTION

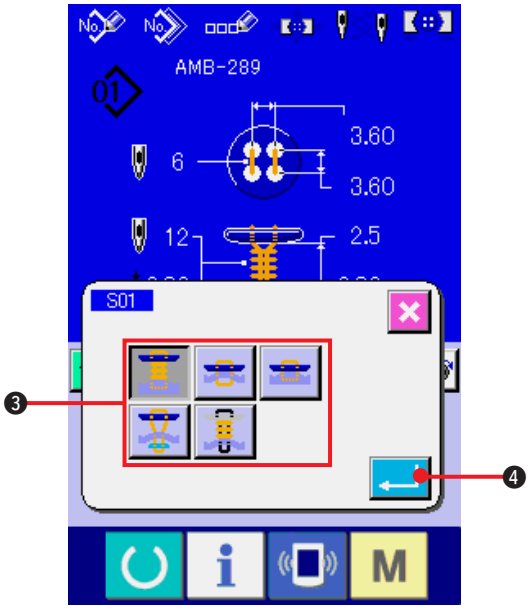


1) Display the data input screen.

Only in case of data input screen (blue), selection of the sewing shape can be performed. In case of the sewing screen (green), press READY key ❶ and display the data input screen (blue).

2) Call the sewing method selection screen.

Press SEWING METHOD button ❷ and the sewing shape selection screen is displayed.



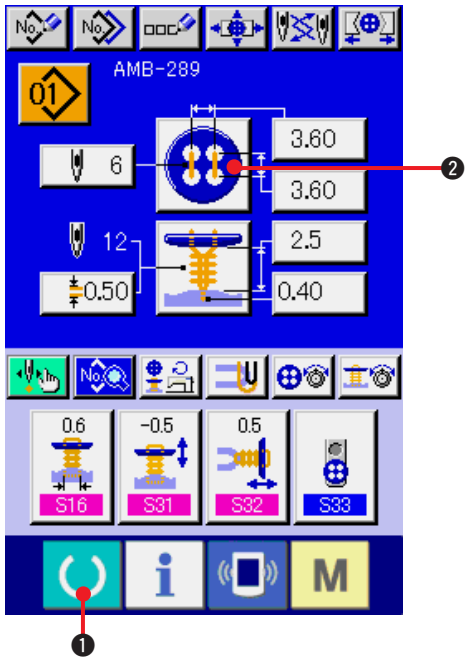
3) Select the sewing method.

Select SEWING METHOD button ❸ you desire to sew.

4) Finish the sewing method selection.

Press ENTER button ❹ to finish the sewing method selection and the selected sewing shape is displayed in the data input screen (blue).

14. PERFORMING SEWING SHAPE SELECTION

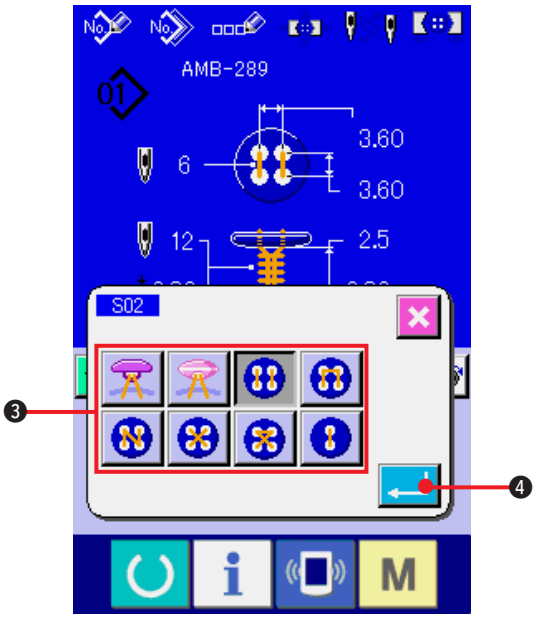


1) Display the data input screen.

Only in case of the data input screen (blue), the selection of sewing shape can be performed. In case of the sewing screen (green), press READY key ❶ and display the data input screen (blue).

2) Call the sewing shape selection screen.

Press SEWING SHAPE button ❷ and the sewing shape selection screen is displayed.



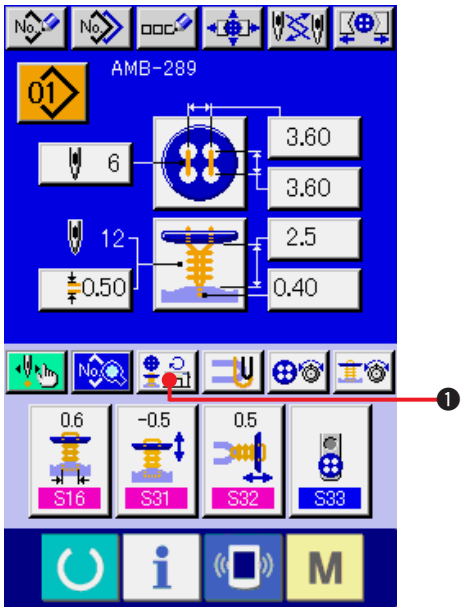
3) Select the sewing shape.

Select SEWING SHAPE button ❸ you desire to sew.

4) Finish the sewing shape selection.

Press ENTER button ❹ to finish the shape selection and the selected sewing shape is displayed in the data input screen (blue).

15. PERFORMING SETTING NUMBER OF REVOLUTIONS OF SEWING MACHINE

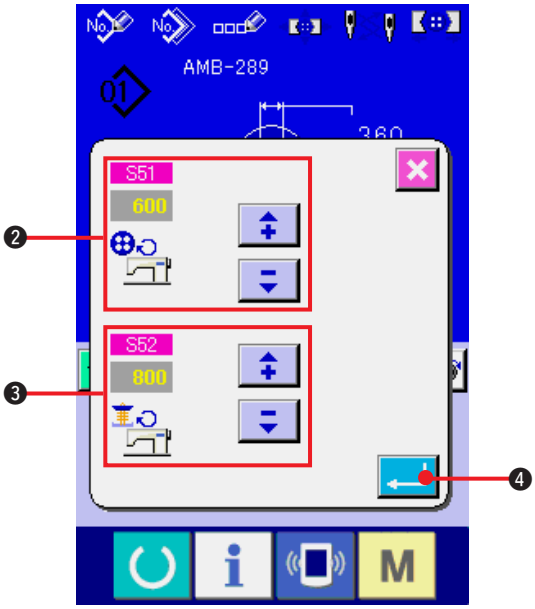


1) Display the data input screen.

Setting of number of revolutions of sewing machine can be performed in the data input screen and the sewing screen.

2) Display the number of revolutions setting screen.

Press NUMBER OF REVOLUTIONS SETTING button ❶ and the number of revolutions setting screen is displayed. Setting of number of revolutions for button sewing and that for neck wrapping can be performed.

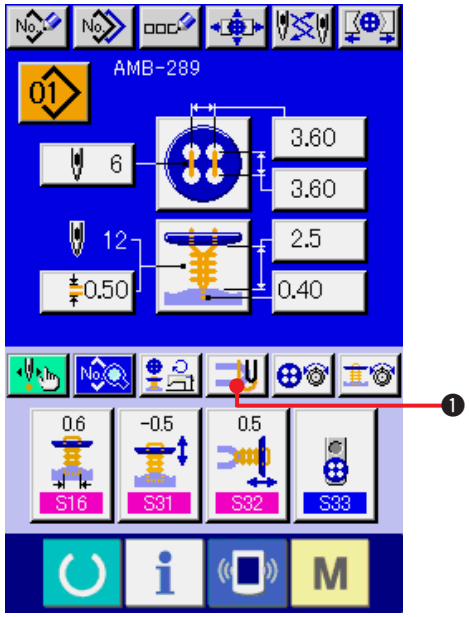


Press ENTER button ❹ after inputting with the arrow mark (up/down) buttons ❷ and ❸, and determine the data.

Symbol	Item	Input range	Edit unit	Initial value
❷	S51 Number of revolutions for button sewing	200 to 1200	100rpm	600
❸	S52 Number of revolutions for neck wrapping	200 to 1800	100rpm	800

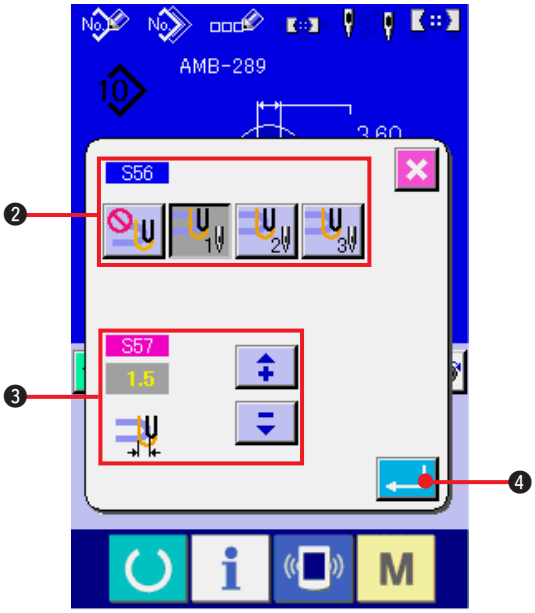
16. PERFORMING SETTING STAY THREAD

When sewing flat/wrapped-around button with blindstitch or sewing flat button with blindstitch is selected, STAY THREAD SETTING button is displayed in the data input screen and the sewing screen.



1) Display the stay thread setting screen.

Press STAY THREAD SETTING button ❶ and the stay thread setting screen is displayed.



Setting of number of stitches ❷ of the stay thread and amount ❸ of the stay thread can be performed.

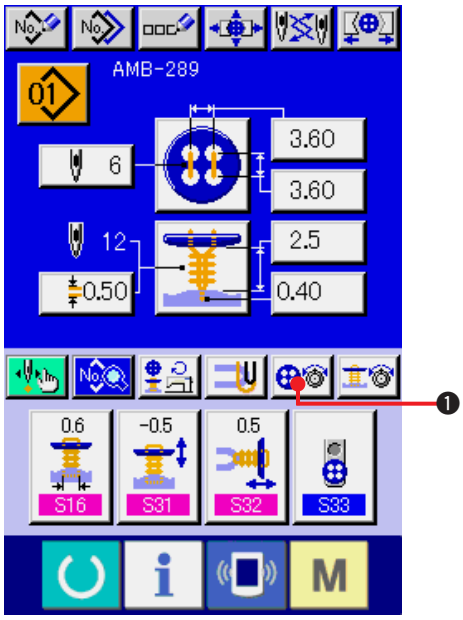
Press ENTER button ❹ after inputting, and determine the data.

Symbol	Item	Input range	Edit unit	Initial value
❷	S56 Number of stitches of stay thread	: Without stay thread : 1 stitche : 2 stitches : 3 stitches	– – –	: 1 stitche
❸	S57 Amount of stay thread	0 to 5.0	0.1mm	1.5

17. PERFORMING INPUT OF BUTTON SEWING THREAD TENSION

When selecting sewing flat/wrapped-around button with blindstitch, sewing flat button directly to cloth, sewing flat button with blindstitch, or sewing counter/stay button in the data input screen and the sewing screen, BUTTON SEWING THREAD TENSION SETTING button is displayed.

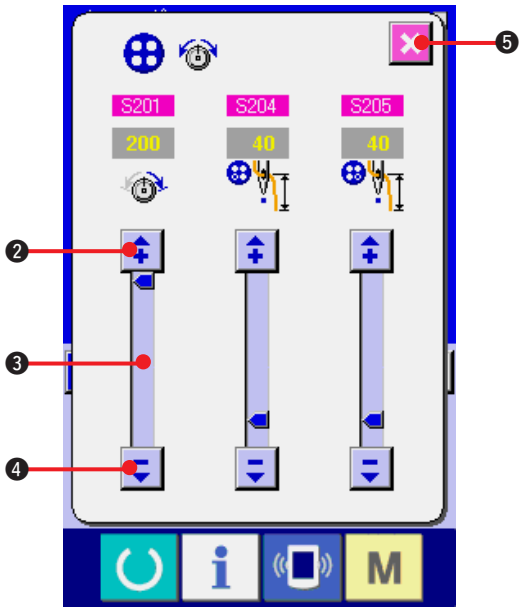
(1) In case of simplified input



1) Display the button sewing thread tension simplified setting screen.

Press BUTTON SEWING THREAD TENSION SIMPLIFIED SETTING button ❶ and the button sewing thread tension simplified setting screen is displayed, and setting of the thread remaining length before sewing and the thread tension of the normal stitches for button sewing can be performed.

Caution **Initial set value is the value when polyester spun thread #50 thread is used.**

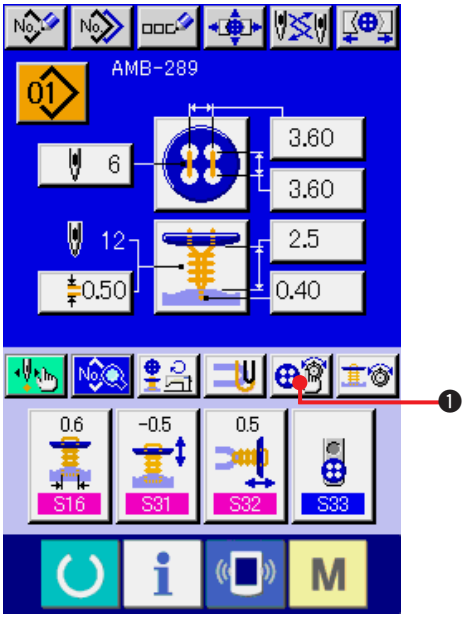


The edit of data can be performed with ARROW MARK (UP/DOWN) buttons (❷ and ❹) and SCROLL BAR ❸ respectively. The data can be determined at the time of editing.

When CANCEL button ❺ is pressed, the screen is closed and the data input screen is displayed.

(2) In case of detailed input

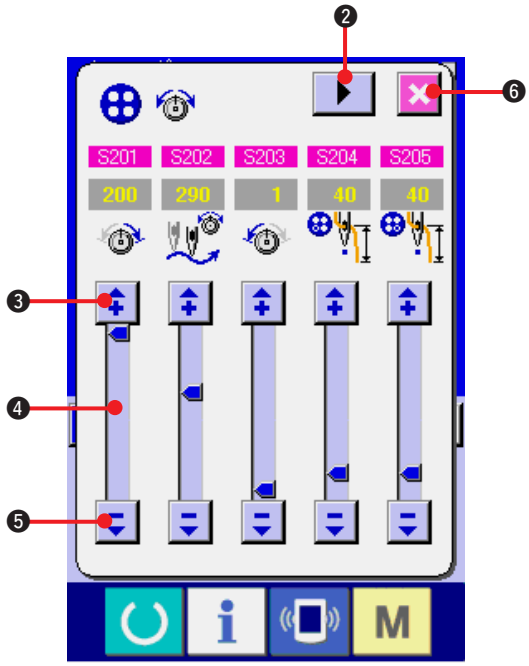
Display the data input screen and the sewing screen after the button sewing thread tension setting button has been set to the detailed input state in the customizing screen.
→ Refer to "35. CUSTOMIZING DTA INPUT SCREEN" and "36. CUSTOMIZING SEWING SCREEN".



1) Display the button sewing thread tension detailed setting screen.

Press BUTON SEWING THREAD TENSION DETAILED SETTING button ❶ and the button sewing thread tension detailed setting screen is displayed, and setting of the thread remaining length before sewing and the thread tension of the normal stitches for button sewing can be performed.

> **Caution** **Initial set value is the value when polyester spun thread #50 thread is used.**



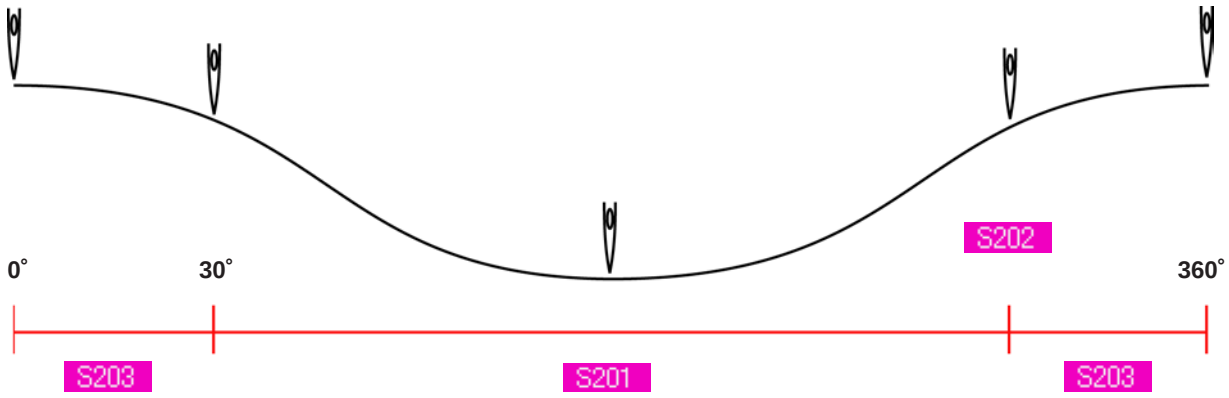
Turn the thread tension screen at each stitch of the last stitch, 1st stitch and 2nd stitch in order with TURN PAGE button ❷ and setting of the thread tension can be performed. The edit of data can be performed with ARROW MARK (UP/DOWN) buttons (❸ and ❺) and SCROLL BAR ❹ respectively. The data can be determined at the time of editing.

When CANCEL button ❻ is pressed, the screen is closed and the data input screen is displayed.

(3) Sewing data that can be changed

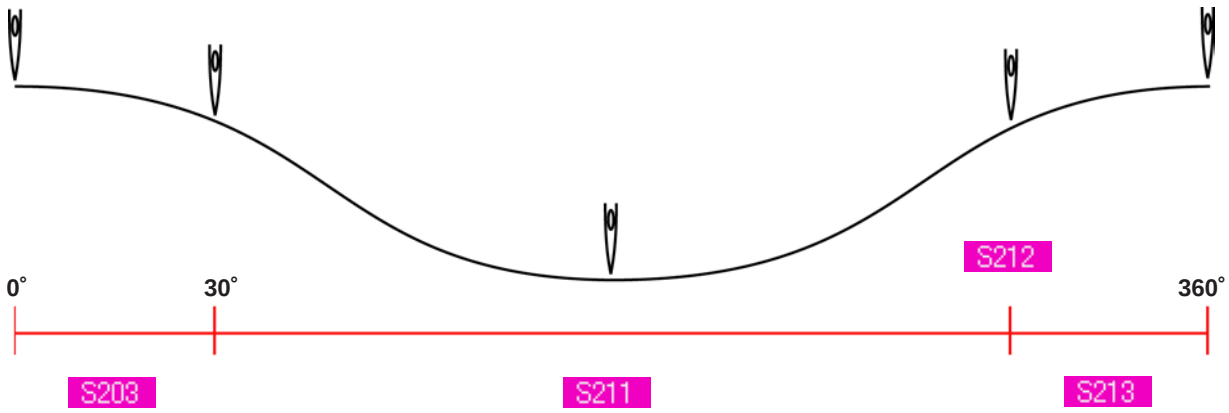
1) Normal stitches for button sewing

No.	Item	Setting range	Edit unit	Initial value	Remarks
S201	Thread tension of lower side of needle for button sewing (normal stitches)	0 to 200	1	110	
S202	Changeover angle of thread tension for button sewing (normal stitches)	180 to 355	1°	280	
S203	Thread tension of upper side of needle for button sewing (normal stitches)	0 to 200	1	1	
S204	Thread remaining length before sewing left side for button sewing	1 to 100	1	45	
S205	Thread remaining length before sewing right side for button sewing	1 to 100	1	45	



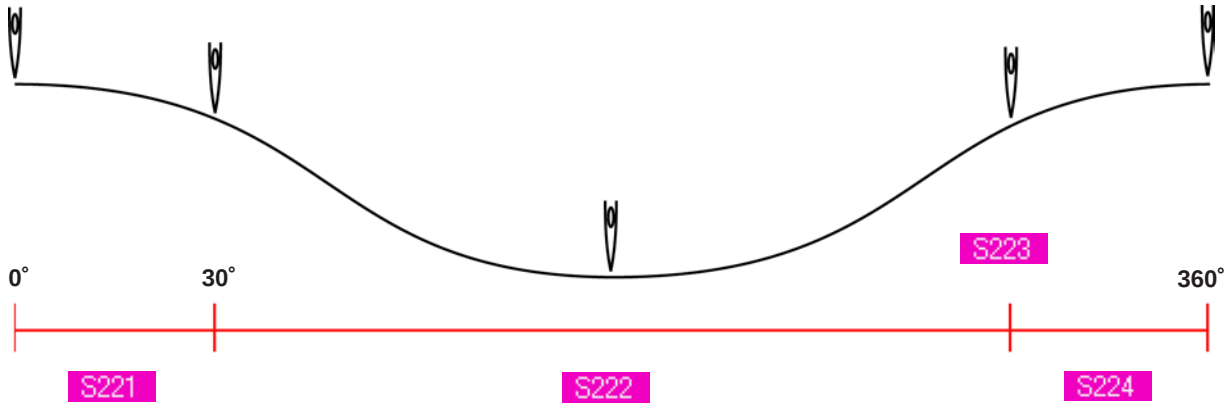
2) The last stitch for button sewing (It can be set only at the time of detailed setting.)

No.	Item	Setting range	Edit unit	Initial value	Remarks
S211	Thread tension of lower side of needle for button sewing (the last stitch)	0 to 200	1	200	
S212	Changeover angle of thread tension for button sewing (the last stitch)	180 to 360	1°	280	
S213	Thread tension of upper side of needle for button sewing (the last stitch)	0 to 200	1	70	



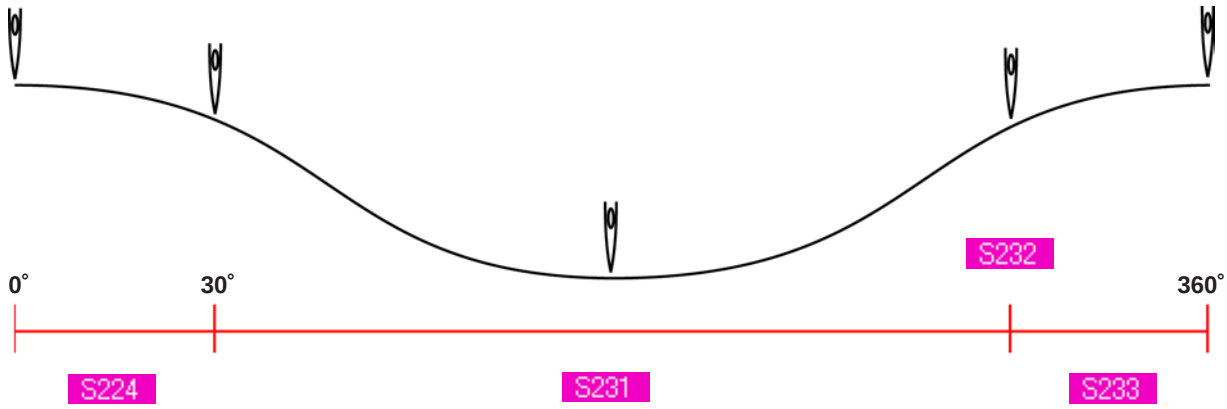
3) 1st stitch for button sewing (It can be set only at the time of detailed setting.)

No.	Item	Setting range	Edit unit	Initial value	Remarks
S221	Thread tension of the start of 1st stitch for button sewing	0 to 200	1	200	
S222	Thread tension of lower side of needle for button sewing (1st stitch)	0 to 200	1	200	
S223	Changeover angle of thread tension for button sewing (1st stitch)	180 to 355	1°	280	
S224	Thread tension of upper side of needle for button sewing (1st stitch)	0 to 200	1	200	



4) 2nd stitch for button sewing (It can be set only at the time of detailed setting.)

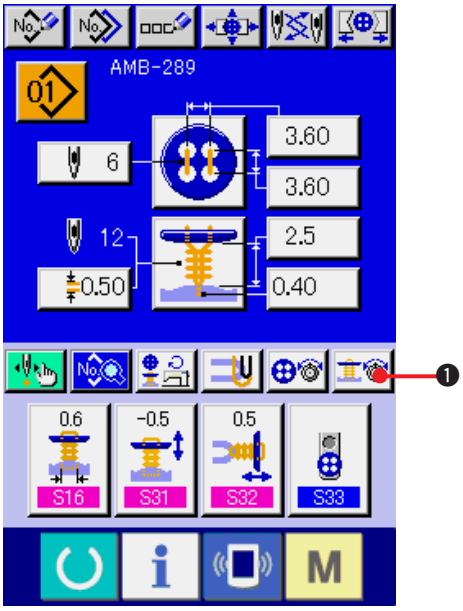
No.	Item	Setting range	Edit unit	Initial value	Remarks
S231	Thread tension of lower side of needle for button sewing (2nd stitch)	0 to 200	1	200	
S232	Changeover angle of thread tension for button sewing (2nd stitch)	180 to 360	1°	280	
S233	Thread tension of upper side of needle for button sewing (2nd stitch)	0 to 200	1	200	



18. PERFORMING INPUT OF NECK WRAPPING THREAD TENSION

When sewing flat/wrapped-around button with blindstitch or neck wrapping sewing is selected in the data input screen and the sewing screen, the neck wrapping thread tension setting button is displayed.

(1) In case of simplified input

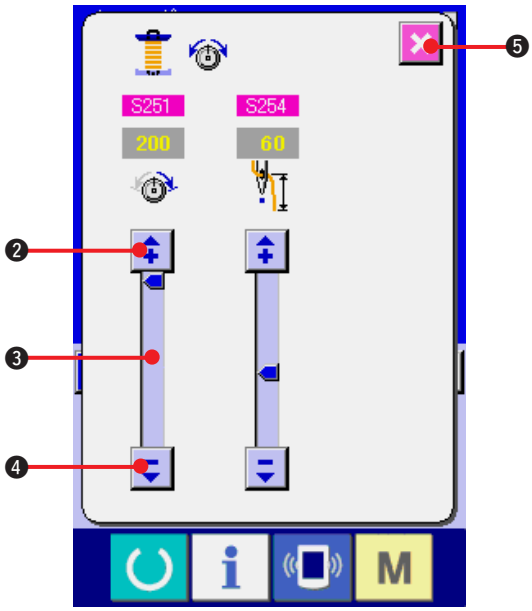


1) Display the neck wrapping thread tension simplified setting screen.

Press NECK WRAPPING THREAD TENSION SIMPLIFIED SETTING button ❶ and the neck wrapping thread tension simplified setting screen is displayed. Then setting of thread remaining length before sewing and the thread tension of the normal stitches for neck wrapping can be performed.

Caution

Initial set value is the value when polyester spun thread #50 thread is used.



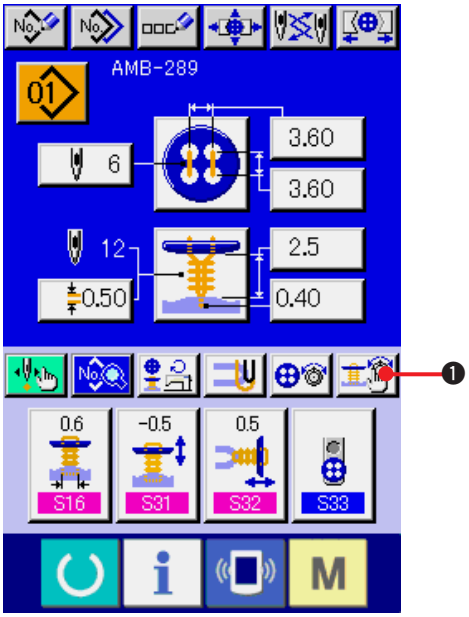
The edit of data can be performed with ARROW MARK (UP/DOWN) buttons (❷ and ❹) and SCROLL BAR ❸ respectively. The data can be determined at the time of editing.

When CANCEL button ❺ is pressed, the screen is closed and the data input screen is displayed.

(2) In case of detailed input

Display the data input screen and the sewing screen after the neck wrapping thread tension setting button has been set to the detailed input state in the customizing screen.

→ Refer to "35. CUSTOMIZING DATA INPUT SCREEN" and "36. CUSTOMIZING SEWING SCREEN".

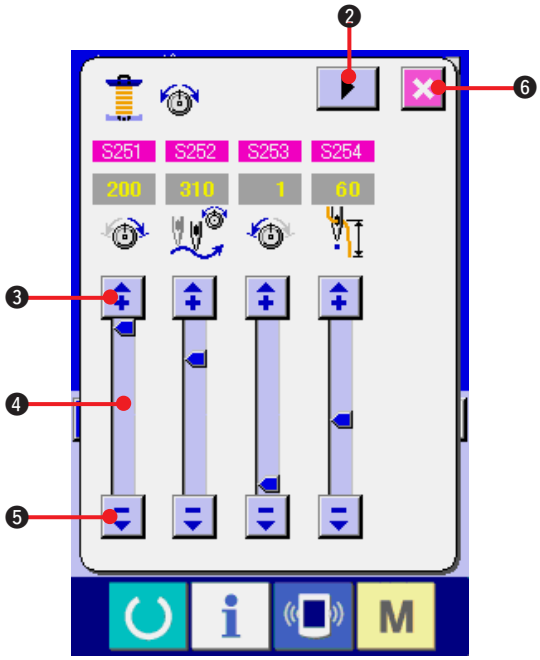


1) Display the neck wrapping thread tension detailed setting screen.

Press NECK WRAPPING THREAD TENSION DETAILED SETTING button ❶ and the neck wrapping thread tension detailed setting screen is displayed. Then setting of thread remaining length before sewing and the thread tension of the normal stitches for neck wrapping can be performed.

Caution

Initial set value is the value when polyester spun thread #50 thread is used.



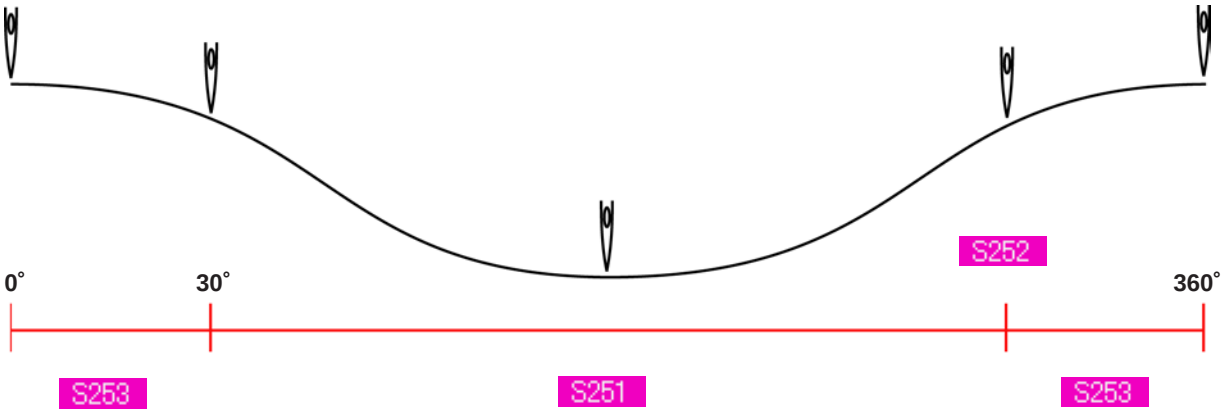
Turn the thread tension screen at each stitch of the last stitch, 1st stitch and 2nd stitch in order with TURN PAGE button ❷ and setting of the thread tension can be performed. The edit of data can be performed with ARROW MARK (UP/DOWN) buttons (❸ and ❺) and SCROLL BAR ❹ respectively. The data can be determined at the time of editing.

When CANCEL button ❻ is pressed, the screen is closed and the data input screen is displayed.

(3) Sewing data that can be changed

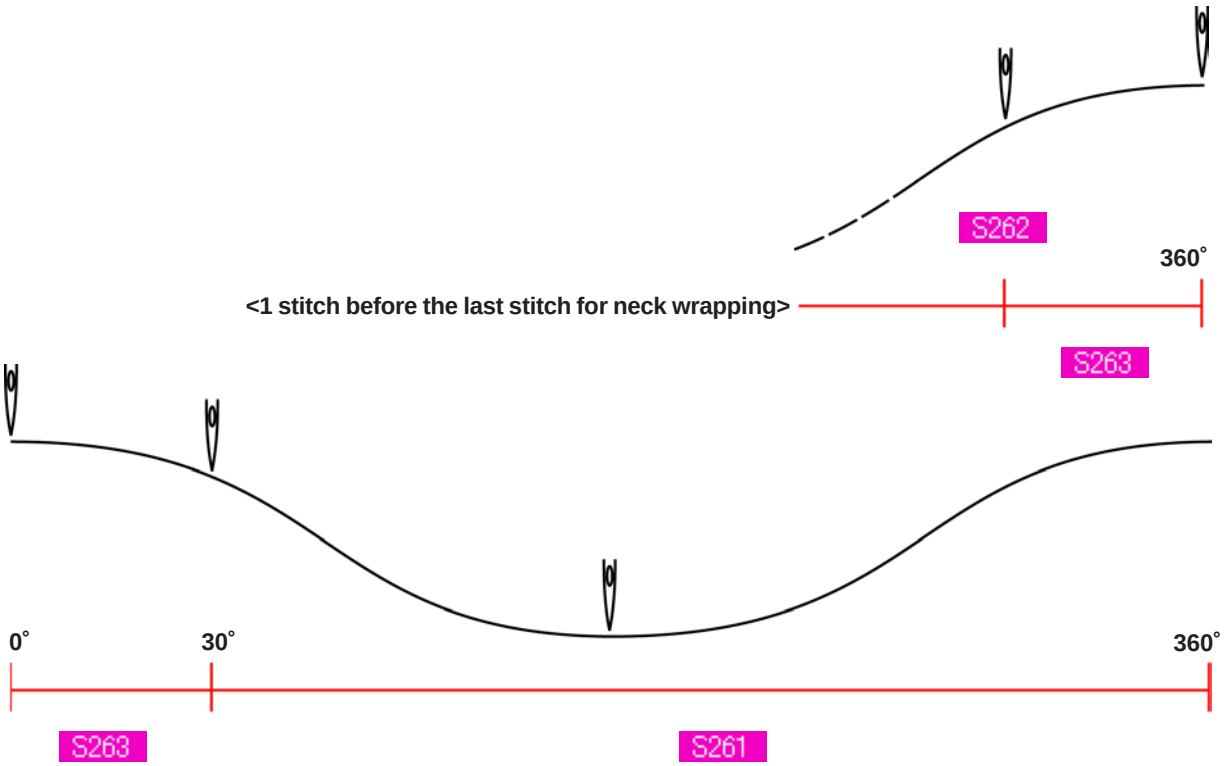
1) Normal stitches for neck wrapping sewing

No.	Item	Setting range	Edit unit	Initial value	Remarks
S251	Thread tension of lower side of needle for neck wrapping (normal stitches)	0 to 200	1	130	
S252	Changeover angle of thread tension for neck wrapping (normal stitches)	180 to 355	1°	290	
S253	Thread tension of upper side of needle for neck wrapping (normal stitches)	0 to 200	1	1	
S254	Thread remaining length before neck wrapping sewing	1 to 100	1	55	



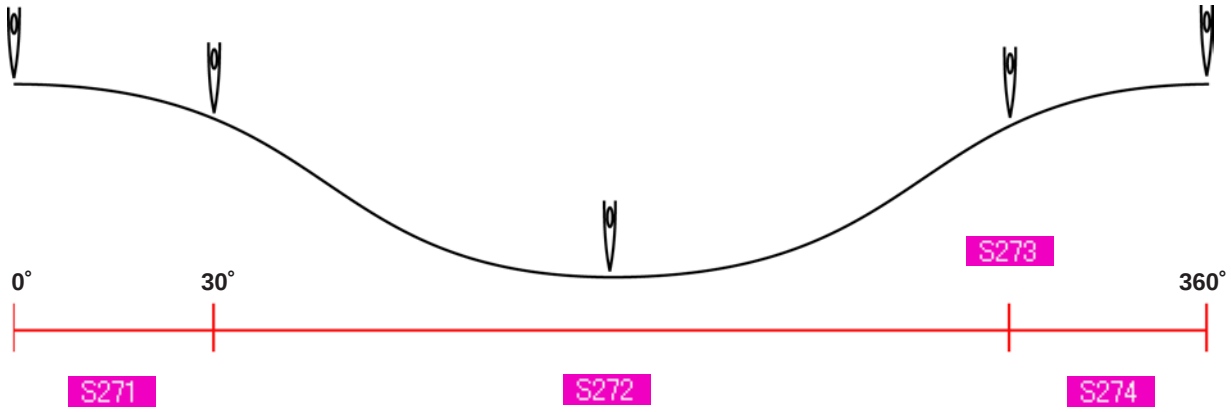
2) The last stitch for neck wrapping sewing (It can be set only at the time of detailed setting.)

No.	Item	Setting range	Edit unit	Initial value	Remarks
S261	Thread tension of lower side of needle for neck wrapping (the last stitch)	0 to 200	1	200	
S262	Changeover angle of thread tension for neck wrapping (the last stitch)	180 to 355	1°	345	
S263	Thread tension of upper side of needle for neck wrapping (the last stitch)	0 to 200	1	200	



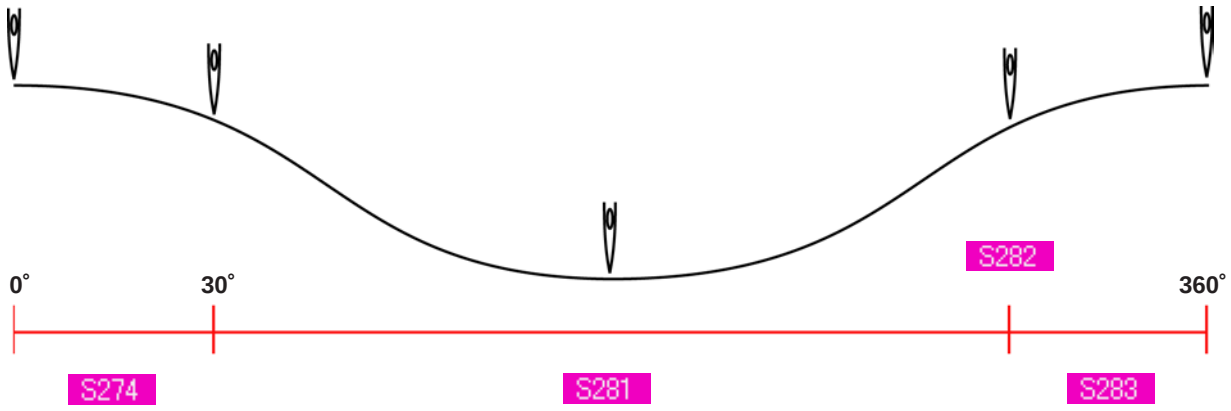
3) 1st stitch for neck wrapping sewing (It can be set only at the time of detailed setting.)

No.	Item	Setting range	Edit unit	Initial value	Remarks
S271	Thread tension of the start of 1st stitch for neck wrapping	0 to 200	1	200	
S272	Thread tension of lower side of needle for neck wrapping (1st stitch)	0 to 200	1	200	
S273	Changeover angle of thread tension for neck wrapping (1st stitch)	180 to 355	1°	290	
S274	Thread tension of upper side of needle for neck wrapping (1st stitch)	0 to 200	1	200	



4) 2nd stitch for neck wrapping sewing (It can be set only at the time of detailed setting.)

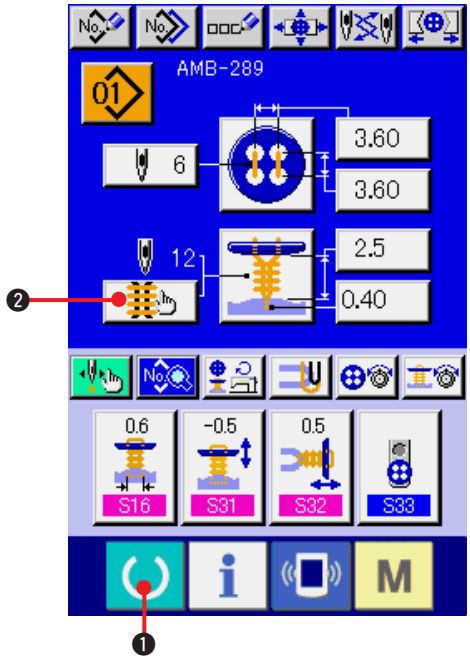
No.	Item	Setting range	Edit unit	Initial value	Remarks
S281	Thread tension of lower side of needle for neck wrapping (2nd stitch)	0 to 200	1	200	
S282	Changeover angle of thread tension for neck wrapping (2nd stitch)	180 to 355	1°	290	
S283	Thread tension of upper side of needle for neck wrapping (2nd stitch)	0 to 200	1	200	



19. PERFORMING DETAILED INPUT OF NECK WRAPPING

When the neck wrapping pitch input button is changed to the neck wrapping detailed input button in the cutomizing screen, detailed setting of the neck wrapping data can be performed.

→ Refer to **"35. CUSTOMIZING DATA INPUT SCREEN"**.

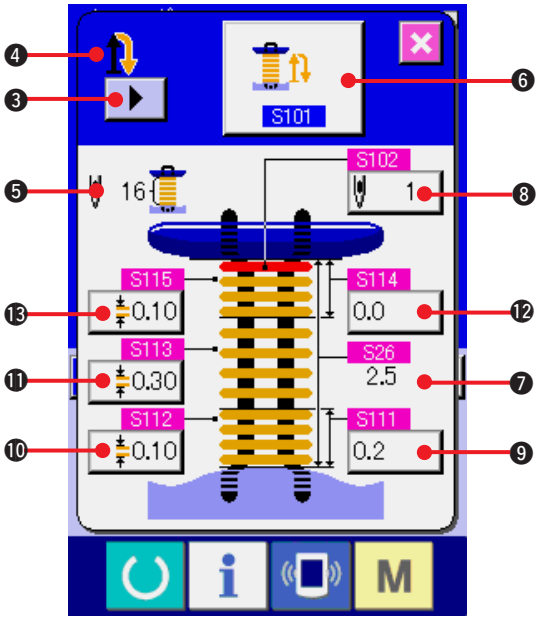


1) Display the data input screen.

Only in case of the data input screen (blue), detailed input of the neck wrapping data can be performed. In case of the sewing screen (green), press READY key ❶ to display the data input screen (blue).

2) Display the neck wrapping data detailed input screen.

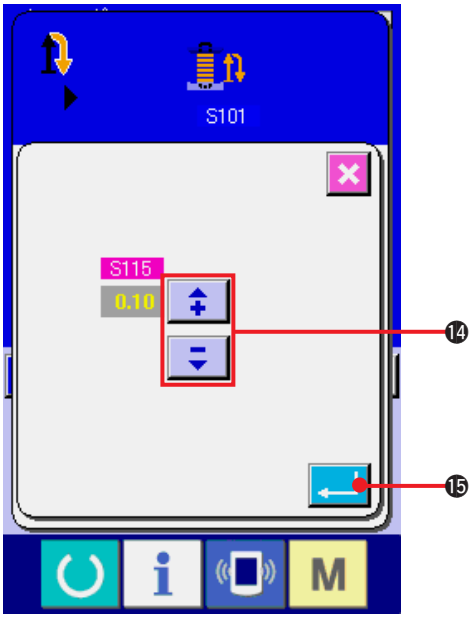
Press NECK WRAPPING DETAILED INPUT button ❷ and display the neck wrapping data detailed input screen.



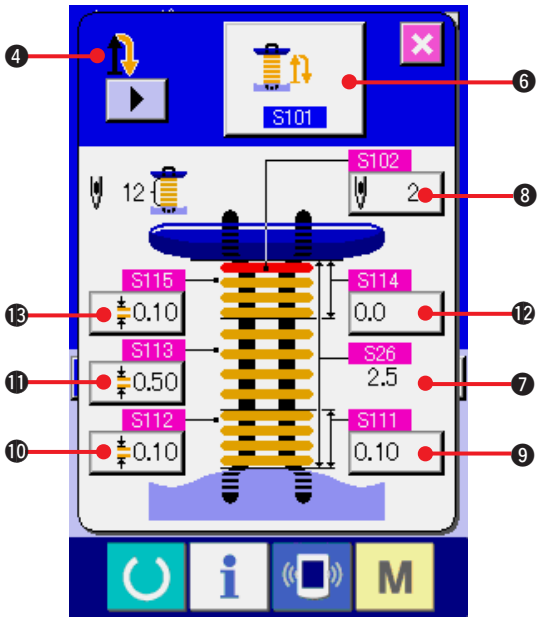
The data that can be set at the first page is the sewing setting data of the last cycle and the data pages of the previous cycles can be turned in order with TURN PAGE button ❸. In addition, the page being set is displayed in orange at ❹.

❺ is the number of stitches of neck wrapping which is actually sewn, and the display is updated every time each setting is changed.

When DATA CHANGE buttons (❻ to ⓭) are pressed, the change pop-up is displayed.



The edit of data is performed with SELECTION button or buttons ⓮. Press ENTER button ⓯ to determine the data.



Symbol	Item	Input range	Edit unit	Initial value
❻	S101 Number of times of neck wrapping	: Without neck wrapping : 1 time : 2 times : 3 times : 4 times	– – –	: 2 times
❼	S26 Neck wrapping height	Perform editing in the data input screen or the sewing data screen.		
❽	S102 Number of stitches at the top of neck wrapping	1 to 9	1 time	2

In case display of ❹ is the first. , , ,

Symbol	Item	Input range	Edit unit	Initial value
❾	S111 Neck wrapping going height (lower section of top)	0 to 2.0	0.1	0.10
❿	S112 Neck wrapping going pitch (lower section of top)	0.05 to 2.0	0.05	0.10
⓫	S113 Neck wrapping going pitch (center of top)	0.05 to 2.0	0.05	0.50
⓬	S114 Neck wrapping going height (upper section of top)	0 to 2.0	0.1	0.0
⓭	S115 Neck wrapping going pitch (upper section of top)	0.05 to 2.0	0.05	0.10

In case display of ❹ is the second. , ,

Symbol	Item	Input range	Edit unit	Initial value
❾	S121 Neck wrapping height (lower section of 2nd)	0 to 2.0	0.1	0.2
❿	S122 Neck wrapping pitch (lower section of 2nd)	0.05 to 2.0	0.05	0.10
⓫	S123 Neck wrapping pitch (center of 2nd)	0.05 to 2.0	0.05	1.0
⓬	S124 Neck wrapping height (upper section of 2nd)	0 to 2.0	0.1	0
⓭	S125 Neck wrapping pitch (upper section of 2nd)	0.05 to 2.0	0.05	0.10

In case display of ❹ is the third. ,

Symbol	Item	Input range	Edit unit	Initial value
❾	S131 Neck wrapping height (lower section of 3rd)	0 to 2.0	0.1	0.2
❿	S132 Neck wrapping pitch (lower section of 3rd)	0.05 to 2.0	0.05	0.10
⓫	S133 Neck wrapping pitch (center of 3rd)	0.05 to 2.0	0.05	1.0
⓬	S134 Neck wrapping height (upper section of 3rd)	0 to 2.0	0.1	0
⓭	S135 Neck wrapping pitch (upper section of 3rd)	0.05 to 2.0	0.05	0.10

In case display of ❹ is the fourth.

Symbol	Item	Input range	Edit unit	Initial value
❾	S141 Neck wrapping height (lower section of 4th)	0 to 2.0	0.1	0.2
❿	S142 Neck wrapping pitch (lower section of 4th)	0.05 to 2.0	0.05	0.10
⓫	S143 Neck wrapping pitch (center of 4th)	0.05 to 2.0	0.05	1.0
⓬	S144 Neck wrapping height (upper section of 4th)	0 to 2.0	0.1	0
⓭	S145 Neck wrapping pitch (upper section of 4th)	0.05 to 2.0	0.05	0.10

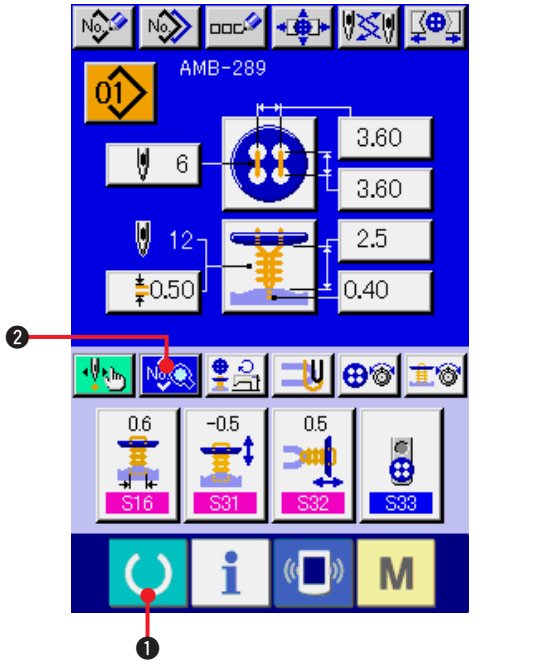
20. CHANGING SEWING DATA

(1) Initial sewing data at the time of your purchase

Patterns from 1 to 8 have been already registered at the time of your purchase and the data which are different in sewing method and sewing shape are inputted in the sewing data as the initial value.

Pattern No.	S01 Sewing method	S02 Sewing shape	Data changed from initial value	Changed value
1	Sewing flat/wrapped-around button with blindstitch		Without	
2	Sewing flat/wrapped-around button with blindstitch		S32 Thread release compensation S519 Top position of neck wrapping	0.5 → 0.0mm 0.5 → 2.7mm
3	Sewing flat/wrapped-around button with blindstitch		S27 Button height (shank/marble) S32 Thread release compensation S509 Hole position of shank/marble button	4.0 → 2.5mm 0.5 → 0.0mm 0.3 → 2.5mm
4	Sewing counter/stay button		Without	
5	Sewing counter/stay button		S10 Needle entry interval of bottom feed (longitudinal) S504 1st stitch hole position of lower button (longitudinal) S505 1st stitch hole position of lower button (lateral)	3.6 → 3.2mm 1.8 → 1.6mm 1.8 → 0.0mm
6	Sewing button with neck wraps	– – –	S510 Tie stitch position of 1st stitch at the start of sewing of neck wrapping (longitudinal) S512 Tie stitch position of 2nd stitch at the start of sewing of neck wrapping (longitudinal)	0.0 → 0.5mm 1.0 → 1.5mm
7	Sewing flat button with blindstitch		Without	
8	Sewing flat button directly to cloth		Without	

(2) Changing procedure of sewing data

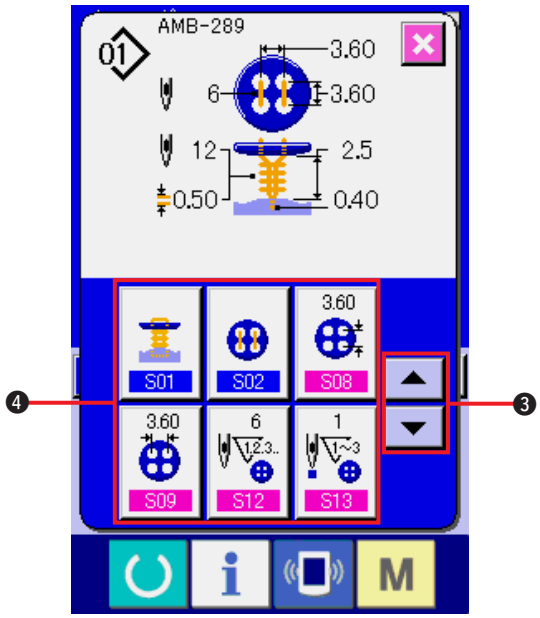


1) Display the data input screen.

Only in case of the data input screen (blue), change of the sewing data can be performed. In case of the sewing screen (green), press READY key ❶ and display the data input screen (blue).

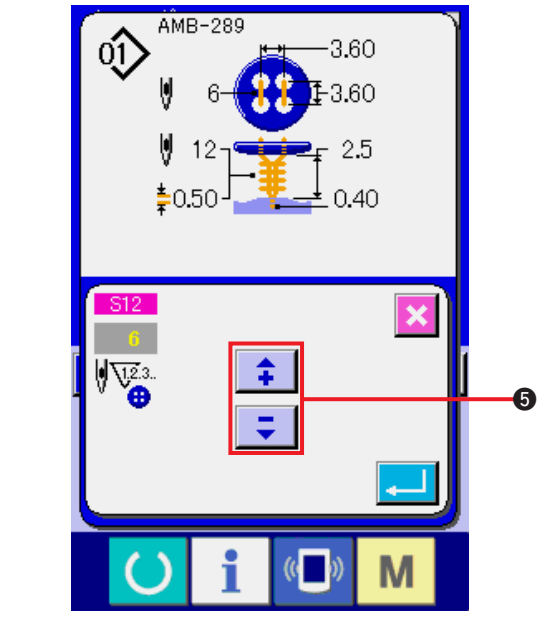
2) Call the sewing data screen.

Press SEWING DATA button ❷ and the sewing data screen is displayed.



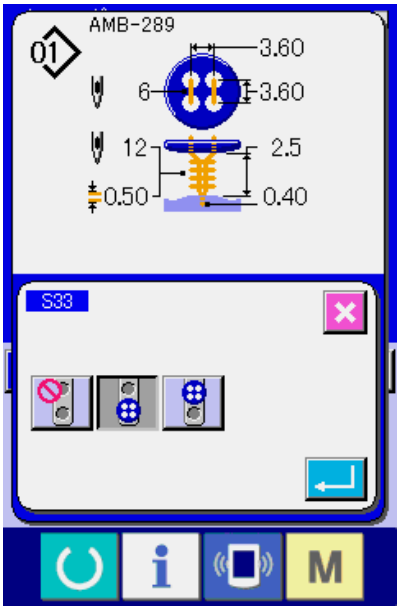
3) Select the sewing data to be changed.

Press UP/DOWN SCROLL button ❸ and select SEWING DATA ITEM button ❹ you desire to change. Data item which is not used according to the shape is not displayed. So, be careful.



4) Change the data.

For the sewing data, there are the data item to change the numeral and data item to select the pictograph. No. in pink color such as S12 is put on the data item to change the numeral and the set value can be changed with the + / – button ❺ which is displayed in the change screen.

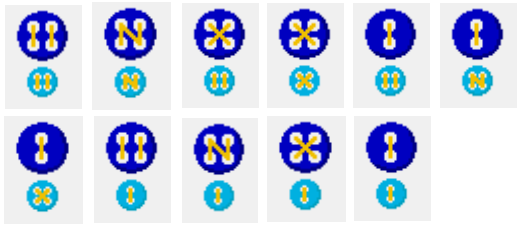
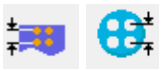


No. in blue color such as S33 is put on the data item to select the pictograph and the pictograph which is displayed in the change screen can be selected.

(3) Sewing data list

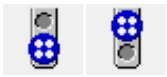
Sewing data are those that can be inputted to 99 patterns from pattern 1 to 99 and can be inputted to each pattern.However, the sewing data that can be inputted differ according to the selected sewing method or sewing shape.

No.	Item	Setting range	Edit unit	Initial display	Remarks
S01	**Sewing method** This item sets the sewing method. : Sewing flat/wrapped-around button with blindstitch : Sewing flat button directly to cloth : Sewing flat button with blindstitch : Neck wrapping : Counter/stay button sewing	– – –	– – –	Sewing flat/ wrapped-around button with blindstitch	
S02	**Stitch shape (sewing flat/wrapped-around button with blindstitch)** This item sets the stitch shape of sewing flat/wrapped-around button with blindstitch.	– – –	– – –	4-holed button without cross-over stitches (longitudinal)	
S03	**Stitch shape (sewing flat button directly to cloth)** This item sets the stitch shape of sewing flat button directly to cloth.	– – –	– – –	4-holed button without cross-over stitches (longitudinal)	
S04	**Stitch shape (sewing flat button with blindstitch)** This item sets the stitch shape of sewing flat button with blindstitch.	– – –	– – –	4-holed button without cross-over stitches (longitudinal)	

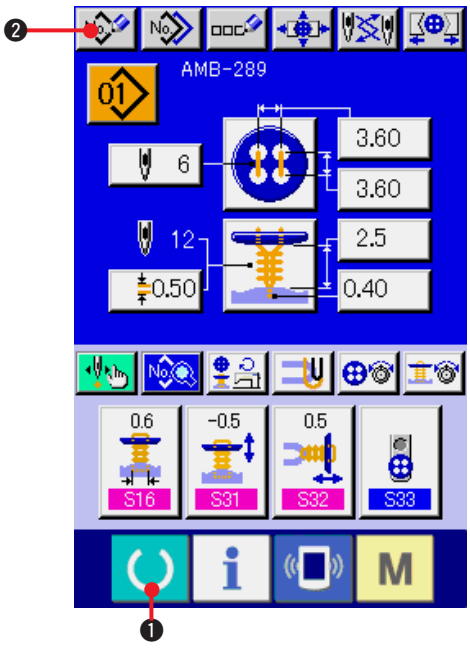
No.	Item	Setting range	Edit unit	Initial display	Remarks
S05	**Stitch shape (counter/stay button sewing)** This item sets the stitch shape of counter/stay button sewing. * Selection of the shape of lower button is performed with . 	– – –	– – –	 Front : 4-holed button without cross-over stitches (longitudinal) Rear : 4-holed button without cross-over stitches (longitudinal)	
S08	**Upper buttonhole interval (longitudinal)** This item sets the needle entry interval of top feed.	0.10 to 6.00	0.05mm	3.60	
S09	**Upper buttonhole interval (lateral)** This item sets the needle entry interval of top feed.	0.10 to 6.00	0.05mm	3.60	
S10	**Needle entry interval of bottom feed (longitudinal)** This item sets the needle entry interval of bottom feed. 	0.10 to 6.00	0.05mm	3.20	
S11	**Needle entry interval of bottom feed (lateral)** This item sets the needle entry interval of bottom feed.	0.10 to 6.00	0.05mm	3.20	
S12	**Number of stitches for button sewing** This item sets the number of stitches for button sewing.	2 to 32	2 stitchs	6	
S13	**Number of stitches at the start of button sewing (1 to 3 stitches)** This item sets the number of stitches at the start of button sewing.	1 to 3	1 stitch	1	
S14	**Compensation of lower left position of upper button** This item is set when cloth is pulled and the amount of blindstitch on the left side is different from that on the right side.	–1.00 to 1.00	0.05mm	0	
S15	**Compensation of 3rd stitch at the start of sewing** This item compensates the position of 3rd stitch at the start of sewing to prevent thread from slipping off at the start of button sewing	0 to 0.5	0.05mm	0	
S16	**Blindstitch width** This item has to be set within the range where needle and tongue do not come in contact with each other.	0.0 to K05	0.2mm	0.6	* 1
S17	**Blindstitch amount** This item sets the blindstitch amount to cloth.	–1.00 to 5.00	0.05mm	0.40	
S18	**Buttonhole height of shank/marble button sewing (Height from the feed plate)** This item is set to prevent the contact of needle and buttonhole.	0.0 to 10.0	0.1mm	3.0	

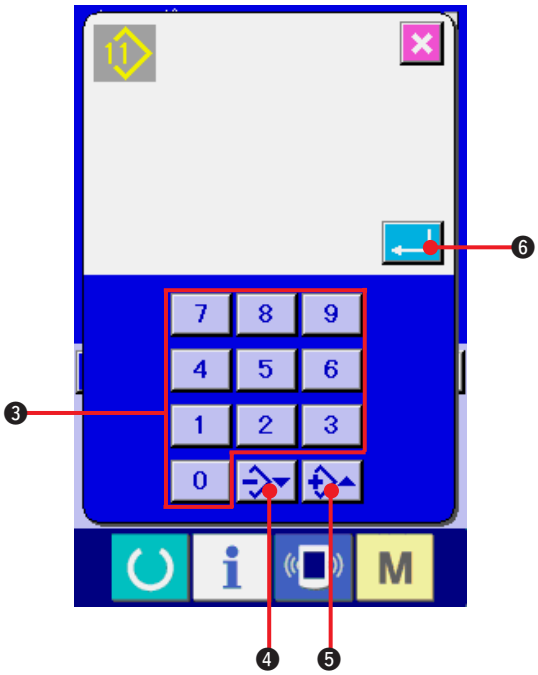
* 1 The maximum value of the range of data editing depends on the setting of K05.

No.	Item	Setting range	Edit unit	Initial display	Remarks
S21	**Thinning level of the stay button** This item decreases the number of cross-over stitches of the lower side button at the time of stay button sewing. : Without thinning : Thinning level 1 : Thinning level 2 : Thinning level 3	– – –	– – –	 Without thinning	
S22	**Lateral compensation of needle entry of lower button at the time of sewing counter button (front : 4 holes, rear : 2 holes)** Perform compensation to such an extent that needle does not come in contact with buttonhole within the range of lower buttonhole. 	0 to 0.30	0.05mm	0.30	
S24	**Number of stitches of tie stitch at the end of sewing flat button directly to cloth.** This item sets the number of stitches of tie stitch at the end of sewing flat button directly to cloth. 	2 to 3	1 stitch	2	
S25	**Number of stitches of tie stitch at the end of counter sewing** This item sets the number of stitches of tie stitch at the end of counter sewing. 	1 to 3	1 stitch	2	
S26	**Button sewing height (only neck wrapping of sewing flat/ wrapped-around button with blindstitch)** This item sets the button holding height (finished height) in the neck wrapping process. 	0.5 to 15.0	0.1mm	2.5	
S27	**Button height (shank/marble)** This item sets the button holding height (finished height) in the neck wrapping process. 	0 to 15.0	0.1mm	3.4	
S28	**Button height (counter button)** This item sets the button holding height (finished height) in the button sewing process. 	0 to 20.0	0.1mm	4.5	
S29	**Number of stitches at the start of sewing of neck wrapping** This item sets the number of stitches at the start of sewing of neck wrapping. 	1 to 3	1 stitch	2	
S30	**Number of stitches of tie stitch at the end of sewing of neck wrapping** This item sets the number of stitches of tie stitch at the end of sewing in the neck wrapping process. 	2 to 3	1 stitch	2	
S31	**Compensation of the button holding height at the time of sewing flat/wrapped-around button with blindstitch** This item sets when compensating the button holding height in the button sewing process and desiring to give slackness between button and neck wrapping section. 	–5.0 to 5.0	0.1mm	–0.5	
S32	**Thread release compensation** This item is the compensation value of the button holding height in the button sewing process. Sewing is performed in the neck wrapping process by gradually returning the compensation value to the former one. This item is set when desiring to tightly wrap up to the root of the button. 	–5.0 to 5.0	0.1mm	0.5	

No.	Item	Setting range	Edit unit	Initial display	Remarks
S33	**Button loader selection** <In case of shank/marble button> : Loader OFF : Loader ON <In case of normal button> : Loader OFF  : Loader ON	– – –	– – –	 Loader used (Front side)	
S34	**Number of times of wrapping** This item sets the number of times of thread wrapping sewing in the neck wrapping process.	0 to 5	1 time	0	
S35	**Number of stitches of thread air-blow** This item sets the number of stitches of thread air-blow in the neck wrapping process.	0 to 20	1 stitch	6	
S36	**Compensation of button height in the neck wrapping process** This item compensates the button holding height in the neck wrapping process and adjusts the wrapped condition.	–5.0 to 5.0	0.1mm	0	
S37	Button positioning motion With/without : With : Without This item sets whether the compensation motion of button positioning is performed at the time of operation by operator before driving the sewing machine. It is convenient to use this item when sewing buttons which are uneven in shape. * Compensation value which has been set here is applied to one button sewing only and the compensation value returns to 0 after completion of sewing.	– – –	– – –	 Without	
S38	**Needle height at the time of button positioning** This item sets the angle which automatically lowers needle at the time of button positioning motion. Set the angle which is easy to perform positioning according to kinds of buttons, neck wrapping height, etc.	0 to 130	1˚	80	
S39	**Thread drawing motor start position in the button sewing process** This item sets the thread slack amount at the start of sewing to stabilize thread remaining amount at the start of sewing.	0 to 100	1 pulse	30	
S40	**Number of stitches to start thread drawing motor operation in the button sewing process** This item sets number of stitches to hold the thread slack amount set in No. S39.	1 to 2	1 stitch	1	
S41	**Compensation of tension timing on cloth side and rear side in the button sewing process** This item changes the tension changeover timing at the needle entry on cloth side and rear side, and shifts the knotting position.	–90 to 90	1˚	0	

21. PERFORMING NEW REGISTRATION OF THE PATTERN





1) Display the data input screen.

Only in case of the data input screen (blue), new registration of the pattern can be performed. In case of the sewing screen (green), press READY key ❶ and display the data input screen.

2) Call the pattern new registration screen.

Press NEW REGISTRATION button ❷ and the pattern new registration screen is displayed.

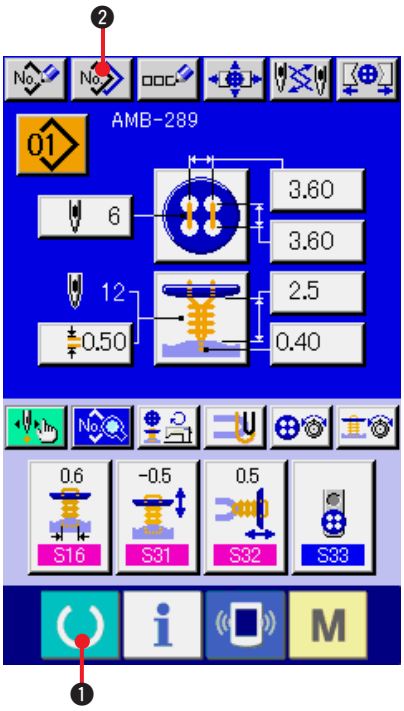
3) Input the pattern No.

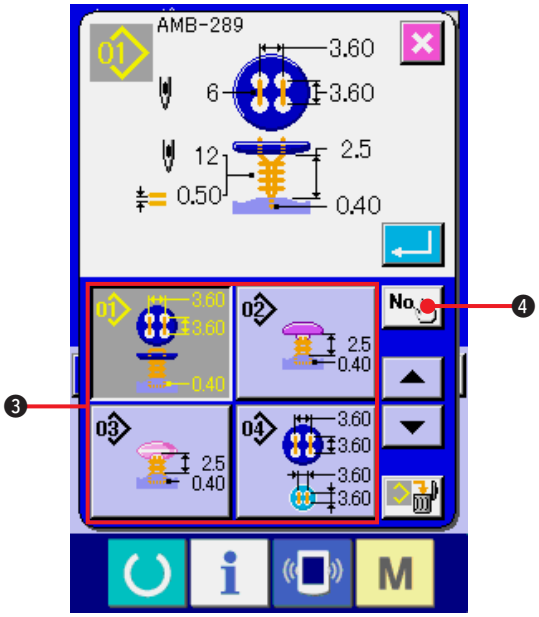
Input the pattern No. you desire to newly register with the ten keys ❸. When the pattern No. which has been already registered is inputted, the sewing shape which has been registered is displayed in the upper part of the screen. Select the pattern No. which is not displayed and has not been registered. New registration to the pattern No. which has been already registered is prohibited. It is possible to retrieve the pattern No. which has not been registered with the – · + button (❹ · ❺).

4) Determine pattern No.

Press ENTER button ❻ and the data input screen of pattern No. which has been newly registered is displayed.

22. COPYING SEWING PATTERN





The sewing data of the pattern No. which has been already registered can be copied to the pattern No. which has not been registered.
Overwriting copy of the pattern is prohibited. When you desire to overwrite, perform it after erasing the pattern once.

→ Refer to "4. PERFORMING PATTERN No. SELECTION".

1) Display the data input screen.

Only in case of the data input screen (blue), copying is possible. In case of the sewing screen (green), press READY key ❶ and display the data input screen (blue).

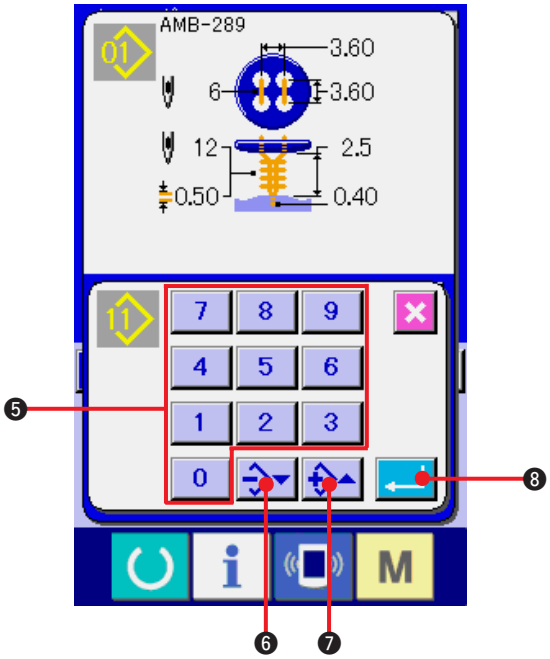
2) Call the pattern copy screen.

When pattern copy button ❷ is pressed, the pattern copy (copy source selection) screen is displayed.

3) Select the pattern No. of copy source.

Select the pattern No. of copy source from the list of pattern buttons ❸.

Then press copy destination input button ❹ and the copy destination input screen is displayed.



4) Input the pattern No. of copy destination.

Input the pattern No. of copy destination with ten keys ❺. It is possible to retrieve the pattern No. which is not used with – · + buttons (❻ · ❼).

5) Start copying.

Press ENTER button ❽ and copying starts.

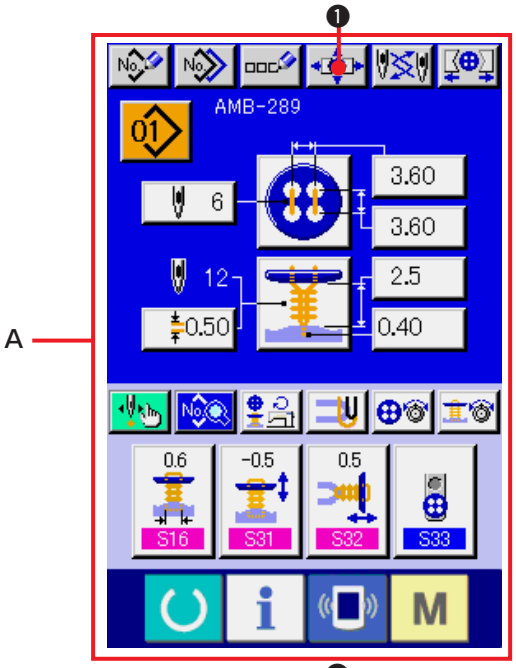
Pattern No. which has been copied in the selected state returns to the pattern copy (copy source selection) screen after approximately two seconds.

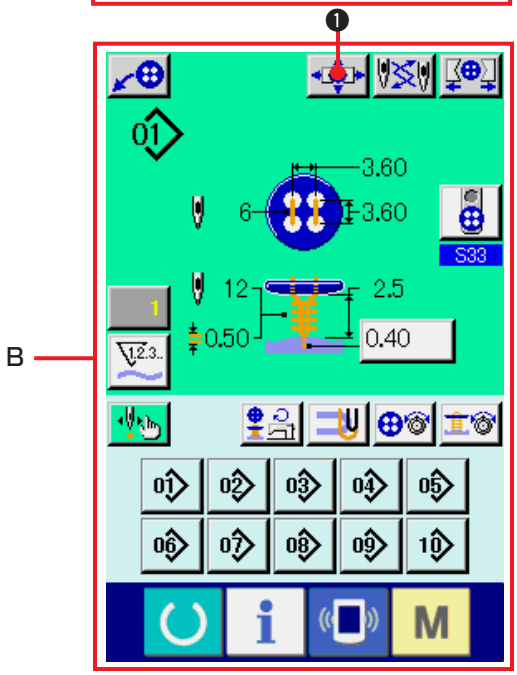
***1 Cycle data can be copied by the same method.**

***2 When deletion is performed in case the remaining pattern No. which has been registered is one, pattern deletion error (Error code 402) is displayed.**

***3 When trying to perform copying to the pattern No. which has been already registered, copy disapproval error (Error code 401) is displayed.**

23. PERFORMING CHUCK ADJUSTMENT



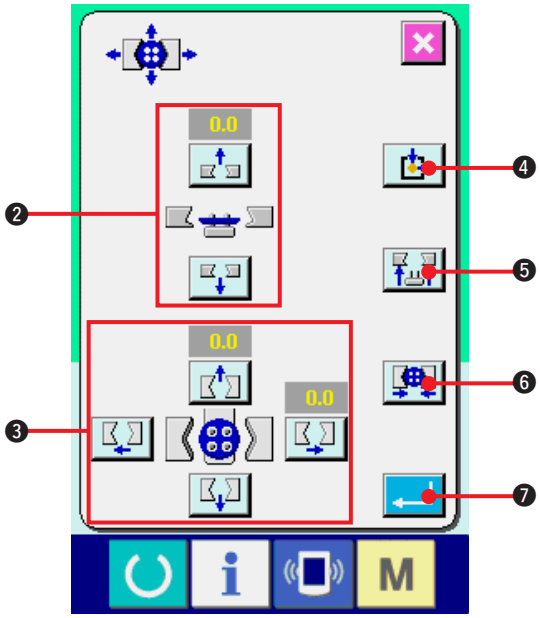


1) Display the data input screen or the sewing screen.

Only in case of the data input screen **A** or the sewing screen **B**, the adjustment of chuck can be performed.

2) Display the chuck adjustment screen.

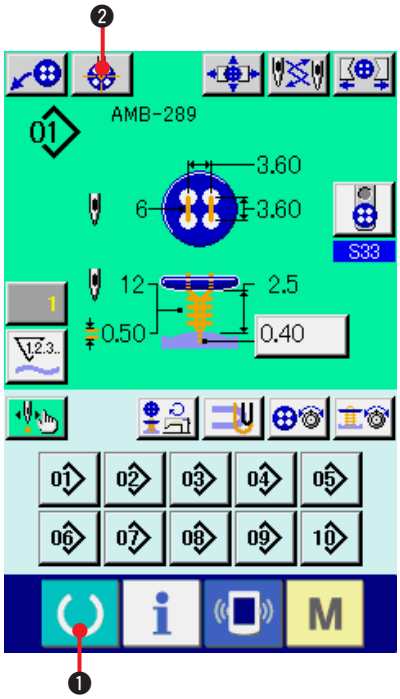
Press CHUCK ADJUSTMENT button ❶ and the chuck adjustment screen is displayed. Origin retrieval is performed and the button loader moves to the position of chuck.



Height and position can be adjusted with CHUCK HEIGHT ADJUSTMENT button ❷ and CHUCK LONGITUDINAL/LATERAL POSITION ADJUSTMENT buttons ❸.
Set the chuck to the state that is easy to be adjusted with ORIGIN RETRIEVAL READJUST button ❹, CHUCK UP/DOWN button ❺ and CHUCK OPEN/CLOSE button ❻, and confirm the adjustment.
After the adjustment, press ENTER button ❼ to determine the adjustment value.

24. PERFORMING BUTTON CENTERING

Button centering button is not displayed in the initial state. Set the button centering button to the displayed state in the customizing screen of the sewing screen.



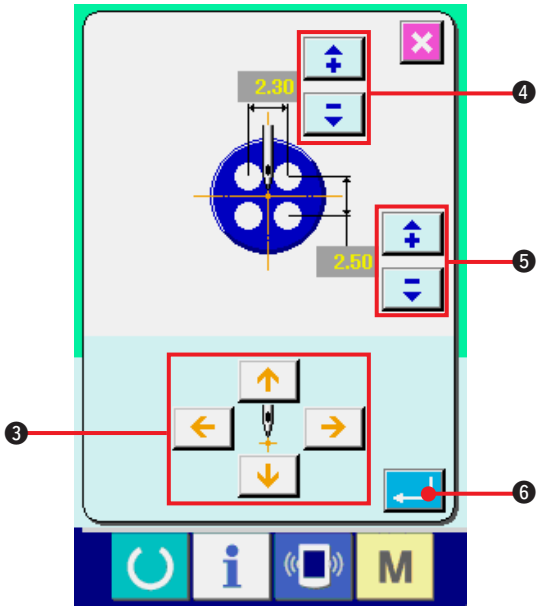
1) Display the sewing screen.

Only in case of the sewing screen, centering of the button can be performed.

In case of the data input screen (blue), the sewing data screen, press READY key ❶ and display the sewing screen (green).

2) Perform centering of the button.

Press BUTTON CENTERING button ❷ and the button centering screen is displayed.



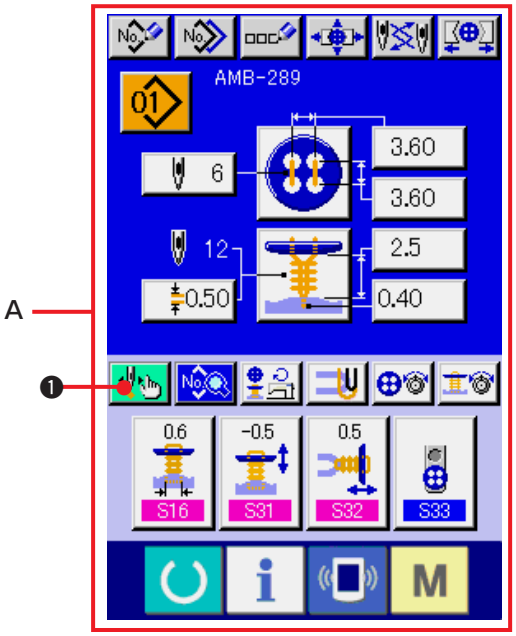
Adjust the needle position to the center of needle with 4-direction ARROW MARK buttons ❸. (It is possible to correctly adjust using the gauge button.)

Then input the longitudinal/lateral data of the buttonhole interval with buttons (❹ and ❺).

After inputting, press ENTER button ❻ to determine the data.

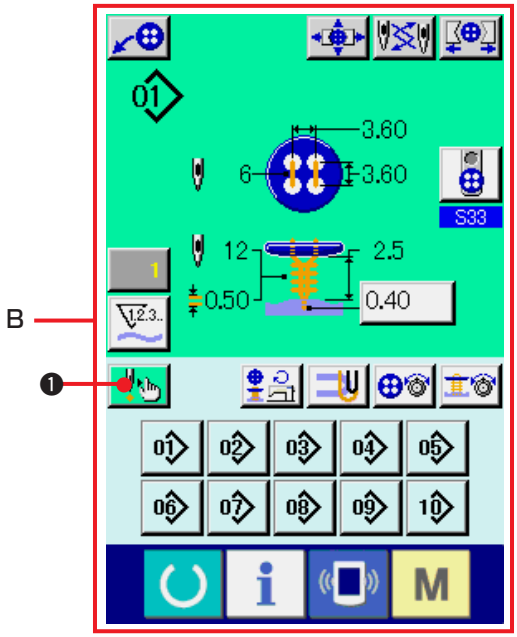
25. PERFORMING INPUT AND CHECK OF DATA WITH STEP MOTION

(1) Performing the step motion



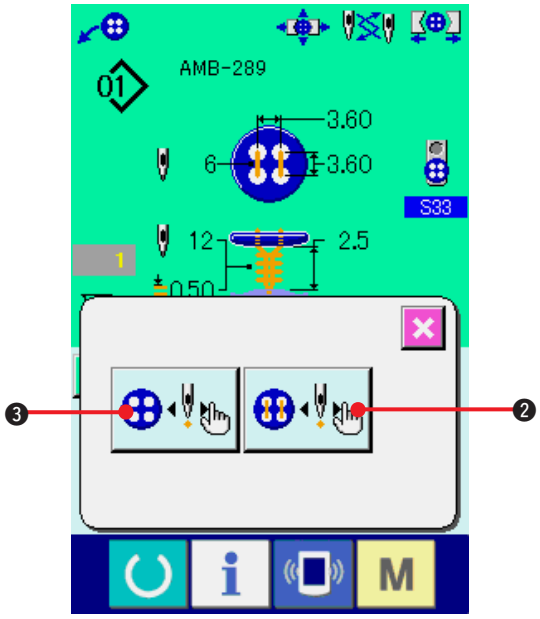
1) Display the data input screen or the sewing screen.

Only in case of the data input screen **A** or the sewing screen **B**, the step motion can be performed.



2) Display the step motion selection screen.

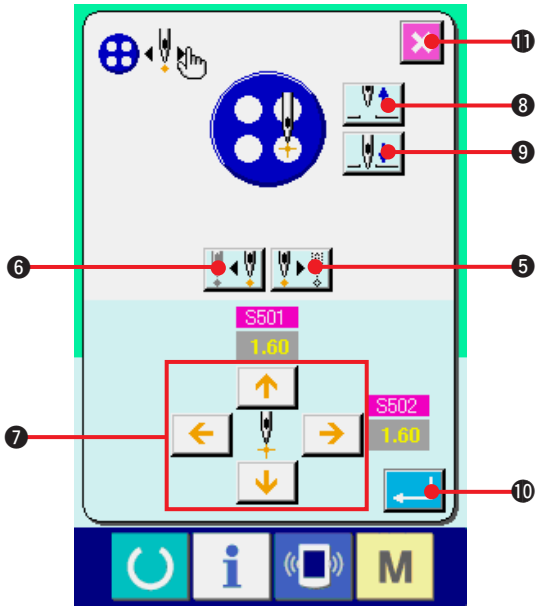
Press STEP MOTION SELECTION button ❶ and the step motion selection screen is displayed.



It is possible to select SEWING MOTION STEP MODE ❷ to perform setting while operating the sewing machine and POINT SETTING MODE ❸ to set needle entry points in order.

When the respective buttons are pressed, the input screen of the respective modes is displayed.

When sewing preparations are not ready, namely, tongue is not set, button is not set, and so forth, SEWING MOTION STEP MODE button ❷ is not displayed when the step sewing selection screen is displayed.



3) Perform data setting.

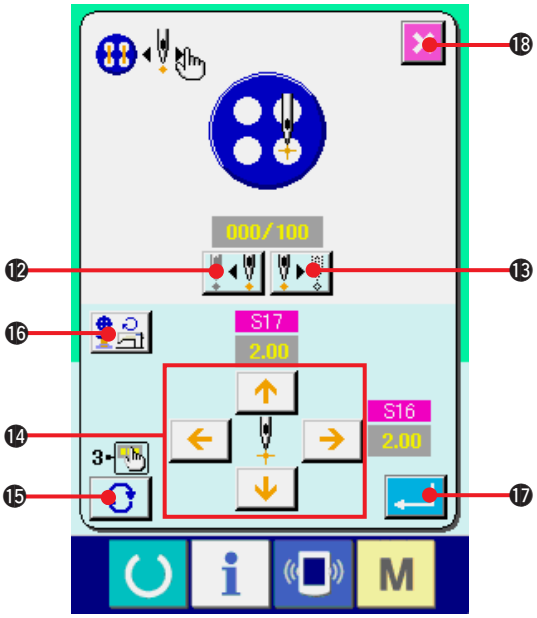
[In case of POINT SETTING MODE]

Press STEP FORWARD/BACK buttons (❺ and ❻), and input step moves.

Move to the step you desire to set and perform setting with ARROW MARK buttons ❼. Parameter that can be set differs according to the sewing method and the stitch shape. For the parameter, refer to **"25. (2) Data list"**.

In addition, move the needle up or down with NEEDLE UP/DOWN buttons (❽ and ❾) and adjust the relation of the position between button and needle to the state that is easy to check. It is convenient to set the data by this adjustment.

After setting the data, press ENTER button ❿ to determine the data. When the data is not determined, press CANCEL button ❶❶.



[In case of SEWING MOTION STEP MODE]

Press NEEDLE FORWARD/BACK buttons (⓬ and ⓭) and the needle moves stitch by stitch. In addition, it is possible to move the needle stitch by stitch while actually sewing with the start switch. Move the needle to the needle entry point you desire to set and perform the adjustment with ARROW MARK buttons ⓮. Parameter that can be adjusted differs according to the sewing method and the stitch shape.

For the parameter, refer to **"25. (2) Data list"**.

Press TURN PAGE button ⓯ and the screen is changed over to the other parameter setting screen regarding the present needle entry point.

In addition, when NUMBER OF REVOLUTIONS SETTING button ⓰ is pressed, the number of revolutions setting screen is displayed, and it is possible to set the number of revolutions for button sewing and the number of revolutions for neck wrapping.

After setting the data, press ENTER button ⓱ to determine the data. When the data is not determined, press CANCEL button ⓲.

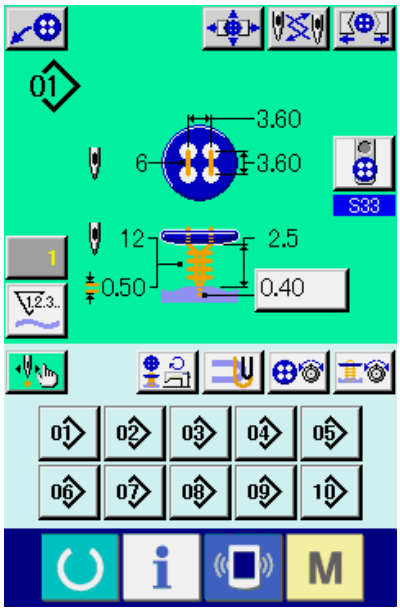
* However, when S21 Thinning level of stay button is set to 1 to 3 in counter button sewing, the input items are limited.

(2) Data list

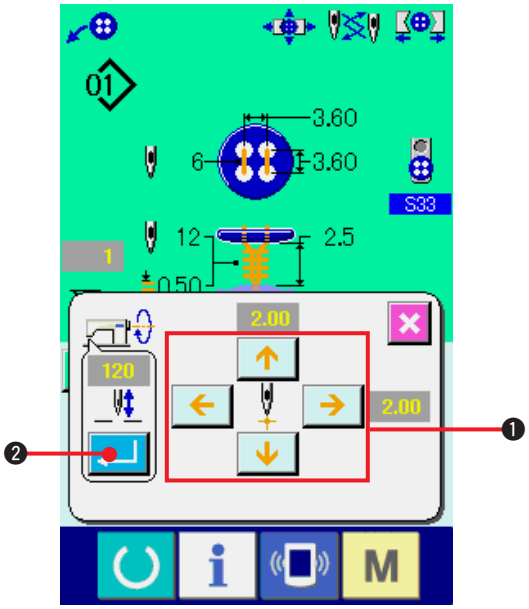
No.	Item	Setting range	Edit unit	Initial display	Remarks
S501	1st stitch hole position of upper button (longitudinal)	–2.00 to 4.00	0.05	1.80	
S502	1st stitch hole position of upper button (lateral)	–2.00 to 4.00	0.05	1.80	
S504	1st stitch hole position of lower button (longitudinal)	–13.00 to 4.00	0.05	1.60	
S505	1st stitch hole position of lower button (lateral)	–2.00 to 4.00	0.05	1.60	
S506	Whole compensation of button holding position (lateral)	–3.0 to 3.0	0.1	0	
S508	Compensation of shank/marble blindstitch position (left)	–2.0 to 2.0	0.1	0	
S509	Hole position of shank/marble button	–5.0 to 5.0	0.1	0.5	
S510	Tie stitch position of 1st stitch at the start of sewing of neck wrapping (longitudinal)	–4.0 to 4.0	0.1	0	
S511	Tie stitch position of 1st stitch at the start of sewing of neck wrapping (lateral)	–4.0 to 4.0	0.1	–0.3	
S512	Tie stitch position of 2nd stitch at the start of sewing of neck wrapping (longitudinal)	–4.0 to 4.0	0.1	1.0	
S513	Tie stitch position of 2nd stitch at the start of sewing of neck wrapping (lateral)	–4.0 to 4.0	0.1	0.3	
S516	Stitch width of neck wrapping (right side)	0 to 5.0	0.1	3.0	
S517	Stitch width of neck wrapping (left side)	0 to 5.0	0.1	3.0	
S518	Start position of neck wrapping	–1.0 to 3.0	0.1	1.0	
S519	Top position of neck wrapping	–1.0 to 5.0	0.1	0.5	
S520	1st stitch of first compensation of tie stitch position at the end of button sewing (longitudinal)	–1.0 to 1.0	0.1	0.3	

No.	Item	Setting range	Edit unit	Initial display	Remarks
S521	1st stitch of first compensation of tie stitch position at the end of button sewing (lateral)	–1.0 to 1.0	0.1	0	
S522	2nd stitch of first compensation of tie stitch position at the end of button sewing (longitudinal)	–1.0 to 1.0	0.1	0	
S523	2nd stitch of first compensation of tie stitch position at the end of button sewing (lateral)	–1.0 to 1.0	0.1	0	
S524	3rd stitch of first compensation of tie stitch position at the end of button sewing (longitudinal)	–1.0 to 1.0	0.1	0	
S525	3rd stitch of first compensation of tie stitch position at the end of button sewing (lateral)	–1.0 to 1.0	0.1	0	
S526	1st stitch of second compensation of tie stitch position at the end of button sewing (longitudinal)	–1.0 to 1.0	0.1	0.3	
S527	1st stitch of second compensation of tie stitch position at the end of button sewing (lateral)	–1.0 to 1.0	0.1	0	
S528	2nd stitch of second compensation of tie stitch position at the end of button sewing (longitudinal)	–1.0 to 1.0	0.1	0	
S529	2nd stitch of second compensation of tie stitch position at the end of button sewing (lateral)	–1.0 to 1.0	0.1	0	
S530	3rd stitch of second compensation of tie stitch position at the end of button sewing (longitudinal)	–1.0 to 1.0	0.1	0	
S531	3rd stitch of second compensation of tie stitch position at the end of button sewing (lateral)	–1.0 to 1.0	0.1	0	
S532	Tie stitch position at the end of sewing of neck wrapping (longitudinal)	–4.0 to 4.0	0.1	1.2	
S533	Tie stitch position at the end of sewing of neck wrapping (lateral)	–4.0 to 4.0	0.1	3.0	
S534	Longitudinal position of thread trimming of button sewing	–4.0 to 8.0	0.1	–1.0	
S535	Longitudinal position of thread trimming of neck wrapping sewing	–4.0 to 8.0	0.1	–0.5	
S536	Blindstitch width of shank/marble (right)	–2.0 to 5.0	0.1	0.3	
S537	Blindstitch width of shank/marble (left)	–2.0 to 5.0	0.1	0.3	

26. PERFORMING COMPENSATION OF UNEVENNESS OF BUTTON



When S37 Button positioning motion of the sewing data is set to "With" and the sewing preparations are in the completed state, the needle bar automatically comes down to the angle which has been set and the compensation of unevenness of button screen is displayed.



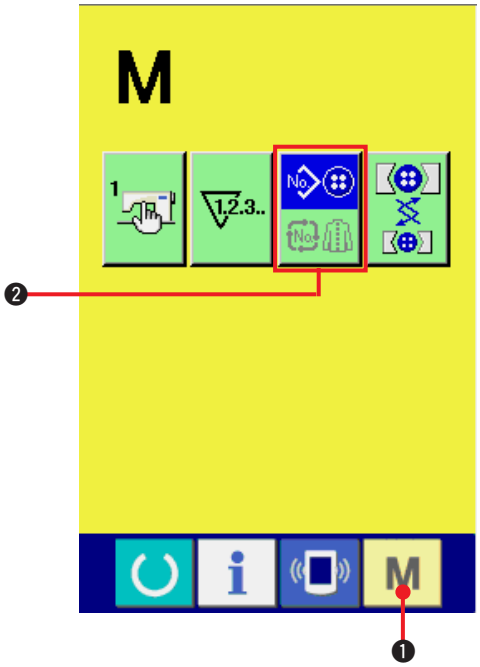
In this state, adjust the relation between button and needle with 4-direction ARROW MARK buttons ❶. Then start sewing.

(Caution) This adjustment value is effective only for once and cleared after the completion of sewing.

In addition, when ENTER button ❷ is pressed, the present height of the needle bar is inputted to the data of S38 Needle height at the time of button positioning of the sewing data and it becomes the effective value at the time of next sewing as well.

Reference : See "20. (3) Sewing data list".

27. CHANGING SEWING MODE



1) Select the sewing mode.

When MODE key M ❶ is pressed in the state that the pattern has been registered, SEWING MODE SELECTION button ❷ is displayed on the screen. When this button is pressed, the sewing mode changes alternately the individual sewing and the cycle stitching.

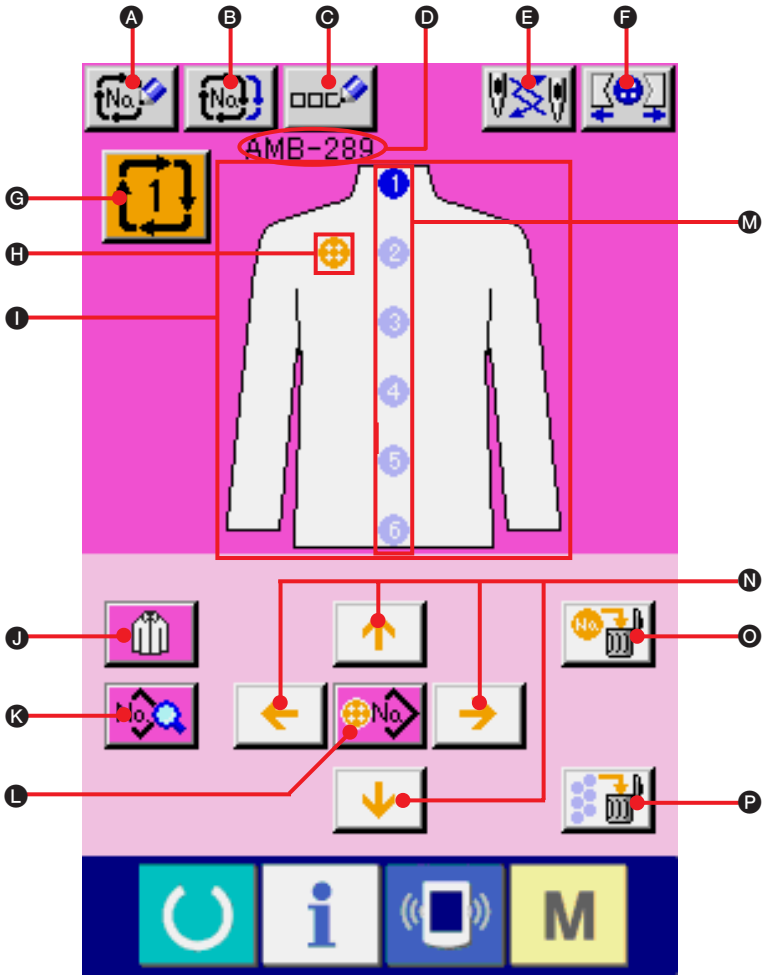
When individual sewing is selected :

When cycle stitching is selected :

28. LCD DISPLAY SECTION AT THE TIME OF CYCLE STITCHING

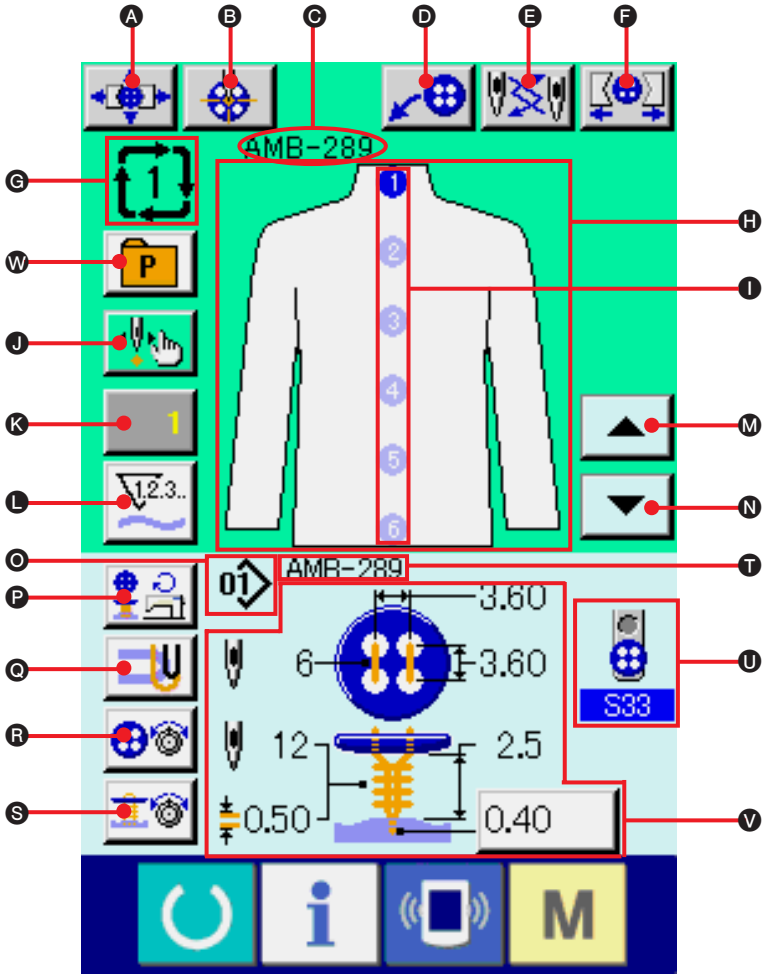
This sewing machine can sew the plural sewing pattern data in order in cycle.
As many as 30 patterns can be inputted. Use this function when sewing plural different button holes on the sewing product. In addition, as many as 20 cycles can be registered. Use this function for new creation or copying in case of need.
→ Refer to "21. PERFORMING NEW REGISTRATION OF PATTERN". and "22. COPYING SEWING PATTERN".

(1) Data input screen



Symbol	Display	Description
Ⓐ	CYCLE DATA NEW REGISTER button	Cycle data No. new register screen is displayed.
Ⓑ	CYCLE DATA COPY button	Cycle data No. copy screen is displayed.
Ⓒ	CYCLE DATA NAME INPUT button	Cycle data name input screen is displayed. → Refer to **"5. NAMING THE PATTERN"**.
Ⓓ	CYCLE DATA NAME display	Name inputted in cycle data which is being selected is displayed.
Ⓔ	NEEDLE CHANGE button	This button lowers the needle and the change of needle screen is displayed. → Refer to **"33. PERFORMING CHANGE OF NEEDLE"**.
Ⓕ	CHUCK CLOSE/OPEN button	This button performs close/open of the chuck. Chuck is opened as long as the button is pressed.
Ⓖ	CYCLE DATA NO. SELECTION button	Cycle data No. which is being selected is displayed in the button. When the button is pressed, cycle data No. change screen is displayed.
Ⓗ	CURSOR display	Cursor can move on sewing product with ARROW MARK button Ⓝ and can designate the position on sewing product to input pattern data.
Ⓘ	SEWING PRODUCT display	Image of sewing product is displayed.
Ⓙ	SEWING PRODUCT SELECTION button	Image of sewing product Ⓘ selection screen is displayed.
Ⓚ	SEWING DATA CHANGE button	Sewing data of pattern data inputted in the position of cursor change screen is displayed.
Ⓛ	PATTERN SELECTION button	When the button is pressed, pattern No. change screen is displayed. In addition, pattern No. can be inputted in the position of cursor.
Ⓜ	SEWING ORDER display	Sewing order of inputted pattern data is displayed. When the screen is changed over to the sewing screen, pattern to be sewn first is displayed in blue color.
Ⓝ	ARROW MARK button	Position of cursor Ⓗ can be moved.
Ⓞ	PATTERN SEPARATE DELETE button	Release of input of pattern data registered in the position of cursor can be performed.
Ⓟ	PATTERN ALL DELETE button	Release of input of all pattern data inputted in cycle data which is being selected can be performed.

(2) Sewing screen



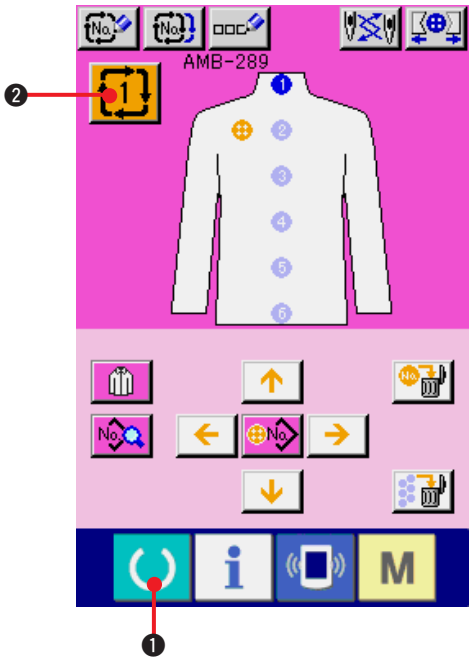
Symbol	Display	Description
Ⓐ	CHUCK ADJUSTMENT button	Chuck adjustment screen is displayed. → Refer to "23. PERFORMING CHUCK ADJUSTMENT".
Ⓑ	BUTTON CENTERING button	This is not displayed in the initial state. → Refer to "24. PERFORMING BUTTON CENTERING".
Ⓒ	CYCLE DATA NAME display	Name inputted in cycle data which is being selected is desplayed.
Ⓓ	LOADER MOTION button	When this button is pressed, loader works and sets button to the chuck.
Ⓔ	NEEDLE CHANGE button	This button makes needle come down, and the needle change screen is displayed. → Refer to "33. PERFORMING CHANGE OF NEEDLE".
Ⓕ	CHUCK CLOSE/OPEN button	This button performs close/open of the chuck.
Ⓖ	CYCLE DATA No. display	Cycle data No. during sewing is displayed.

Symbol	Display	Description
Ⓗ	SEWING PRODUCT display	Image of sewing product is displayed.
Ⓘ	SEWING ORDER display	Sewing order of inputted pattern data is displayed. Pattern data during sewing is displayed in blue color.
Ⓙ	STEP SEWING button	When this button is pressed, the step sewing screen which performs input and check of needle entry point is displayed. → Refer to "25. PERFORMING INPUT AND CHECK OF DATA WITH STEP MOTION".
Ⓚ	COUNTER VALUE CHANGE button	Existing counter value is displayed on this button.When the button is pressed, the counter value change screen is displayed. → Refer to "31. USING COUNTER".
Ⓛ	COUNTER CHANGE OVER button	Display of sewing counter/No. of pcs. counter can be changed over. → Refer to "31. USING COUNTER".
Ⓜ	SEWING ORDER RETURN button	Sewing order to be sewn next is returned by one.
Ⓝ	SEWING ORDER ADVANCE button	Sewing order to be sewn next is advanced by one.
Ⓞ	PATTERN NO. display	Pattern No. during sewing is displayed.
Ⓟ	NUMBER OF REVOLUTIONS SETTING button	Number of revolutions setting screen is displayed. Change of number of revolutions of the sewing machine for button sewing and that for neck wrapping can be performed. → Refer to "15. PERFORMING SETTING NUMBER OF REVOLUTIONS OF SEWING MACHINE".
Ⓠ	STAY THREAD SETTING button	Stay thread setting screen is displayed. This screen is displayed only in case of sewing flat/wrapped-around button with blindstitch or flat button with blindstitch, and setting of stay thread is possible. → Refer to "16. PERFORMING SETTING STAY THREAD".
Ⓡ	BUTTON SEWING THREAD TENSION SETTING button	Button sewing thread tension setting screen is displayed. → Refer to "17. PERFORMING INPUT OF BUTTON SEWING THREAD TENSION".
Ⓢ	NECK WRAPPING THREAD TENSION SETTING button	Neck wrap thread tension setting screen is displayed. The screen is displayed only in case of sewing flat/wrapped-around button with blindstitch and neck wrapping sewing. → Refer to "18. PERFORMING INPUT OF NECK WRAP THREAD TENSION".
Ⓣ	PATTERN NAME display	Pattern name which is set in the pattern data during sewing is displayed.
Ⓤ	LOADER MOTION	Setting of the loader which is registered to the pattern No. during sewing is displayed.
Ⓥ	PATTERN CONTENTS display	Contents of pattern registered to pattern No. during sewing are displayed. Contents of display depend on the sewing method. Blindstitch amount only can be set in the sewing screen.
Ⓦ	DIRECT SELECTION button	When this button is pressed, the screen of the list of pattern Nos. which have been registered to the direct selection button is displayed.

29. PERFORMING CYCLE STITCHING

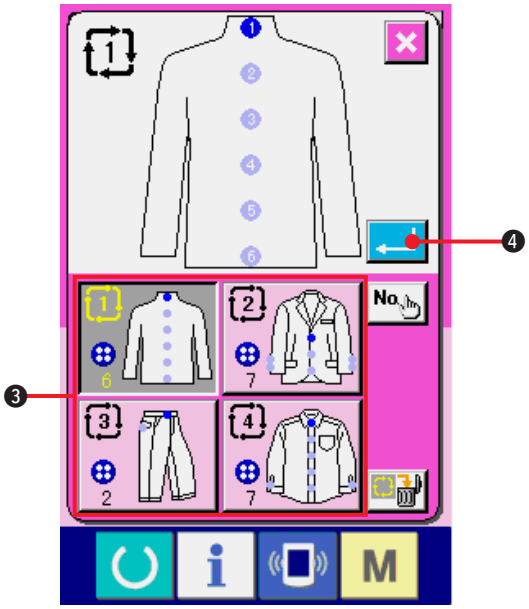
First, change the sewing mode to the cycle stitching before performing setting.
→ Refer to "27. CHANGING SEWING MODE".

(1) Selection of the cycle data



1) Display the data input screen.
Only in case of the data input screen (pink), it is possible to select the cycle data No. In case of the sewing screen (green), press READY key ❶ and display the data input screen (pink).

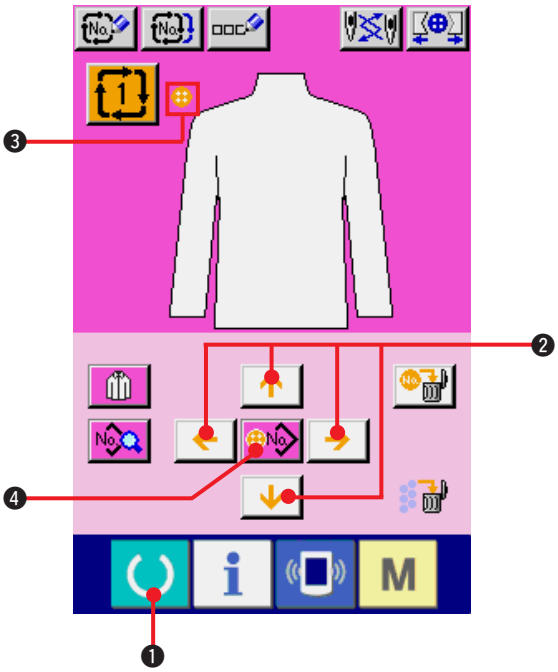
2) Call the cycle data No. selection screen.
When cycle data No. button ❷ is pressed, the cycle data selection screen is displayed. Cycle data No. which is selected at present and the contents are displayed in the upper part of the screen and other cycle data No. buttons which have been registered are displayed in the lower part of the screen.



3) Select the cycle data No.
When UP/DOWN button is pressed, the registered cycle data No. selection buttons ❸ are changed over in order. Contents of cycle data are displayed in the buttons. Here, press cycle data No. selection button ❸ you desire to select.

4) Determine the cycle data No.
When ENTER button ❹ is pressed, the cycle data No. selection screen is closed and the selection has been completed.

(2) Editing procedure of the cycle data

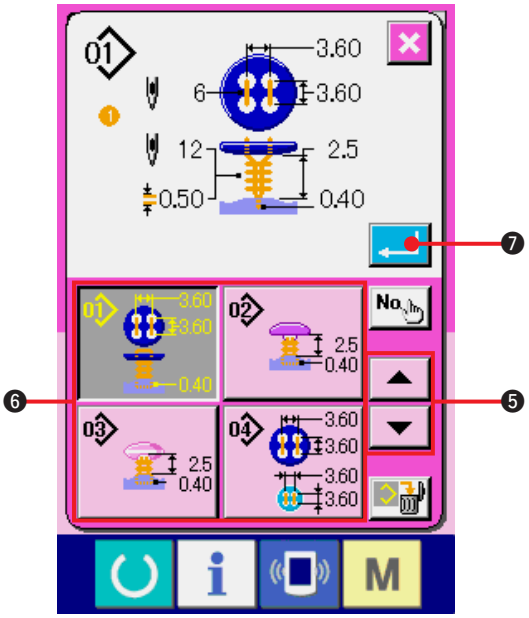


1) Display the data input screen.

Only in case of the data input screen (pink), it is possible to input the cycle data. In case of the sewing screen (green), press READY key ❶ and display the data input screen (pink).

2) Move the cursor to the position you desire.

Move cursor ❸ to the position you desire with arrow mark button ❷, press pattern No. selection button ❹, and call the pattern No. selection screen.

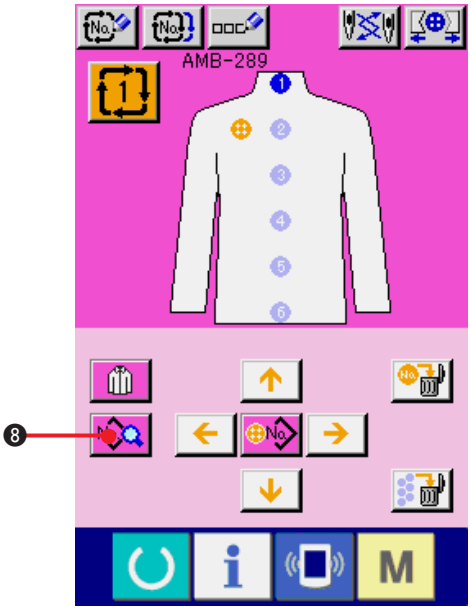


3) Select the pattern No.

When UP/DOWN SCROLL button ❺ is pressed, the registered pattern No. selection buttons ❻ are changed over in order. Contents of the pattern data are displayed in the buttons. Here, press the pattern No. selection button you desire to select.

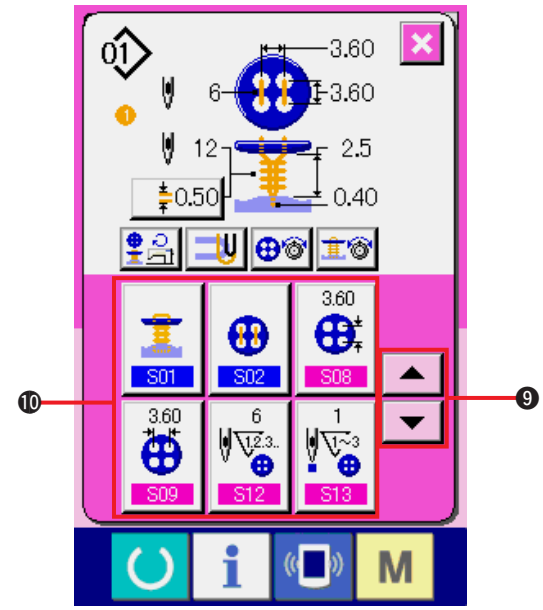
4) Determine the pattern No.

When ENTER button ❼ is pressed, the pattern No. selection screen is closed and the selection has been completed.



5) Edit the sewing data of pattern inputted in cycle data.

When the pattern data is inputted in the designated position, the inputted order is displayed on the screen as the sewing order. Adjust the cursor to the position where the sewing order is displayed and press sewing data button ❽. Then sewing data input screen is displayed.



6) Select the sewing data to be changed.

Press scroll UP/DOWN button ❾ and select the data item button ❿ you desire to change. Data items which are not used according to the shape and data items which have been set to Without function are not displayed. So, be careful.

7) Change the data.

There are data items to change numerals and those to select pictographs in the sewing data.

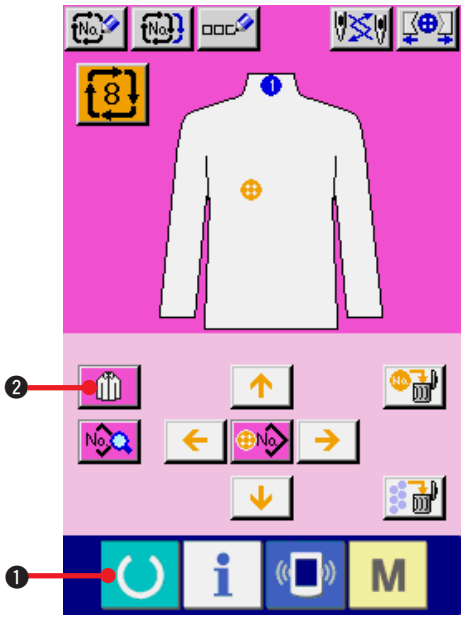
No. in pink color such as S08 is put on the data items to change numerals and the set value can be changed with + / – buttons displayed in the change screen.

No. in blue color such as S01 is put on the data items to select pictographs and the pictographs displayed in the change screen can be selected.

→ For the details of sewing data, refer to "20.(3) Sewing data list".

30. PERFORMING CHANGE OF DISPLAY OF SEWING PRODUCT

The picture displayed in the center of the screen can be changed.

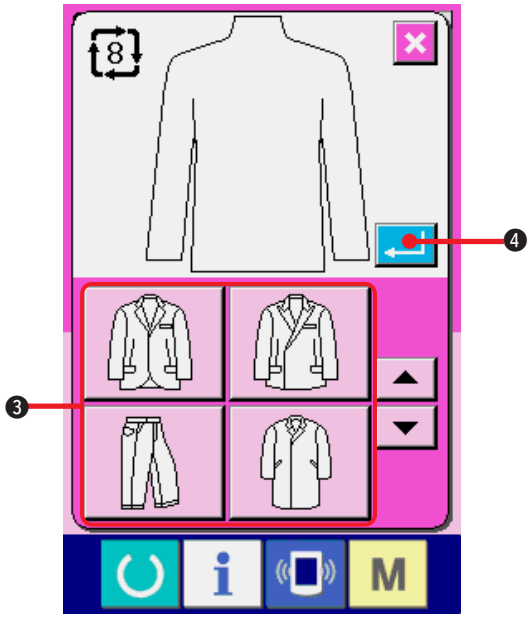


1) Display the data input screen.

Only in case of the data input screen (pink), it is possible to change the sewing product. In case of the sewing screen (green), press READY key ❶ and display the data input screen (pink).

2) Call the sewing product selection screen.

When the sewing product selection button ❷ is pressed, the sewing product selection screen is displayed.

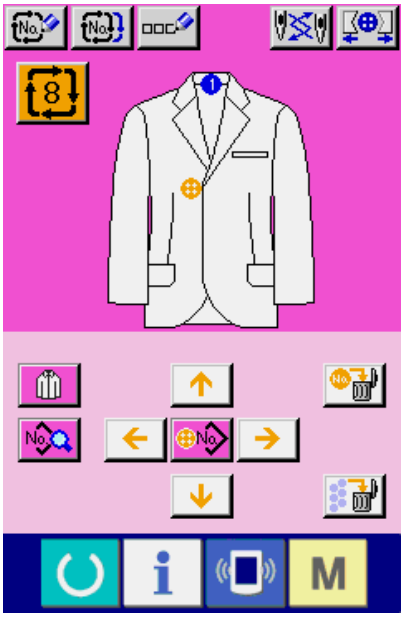


3) Select the image of sewing product to be displayed.

Select the sewing product button ❸ you desire to display.

4) Determine the image of the sewing product to be displayed.

When ENTER button ❹ is pressed, the selection is determined and the data input screen is displayed.

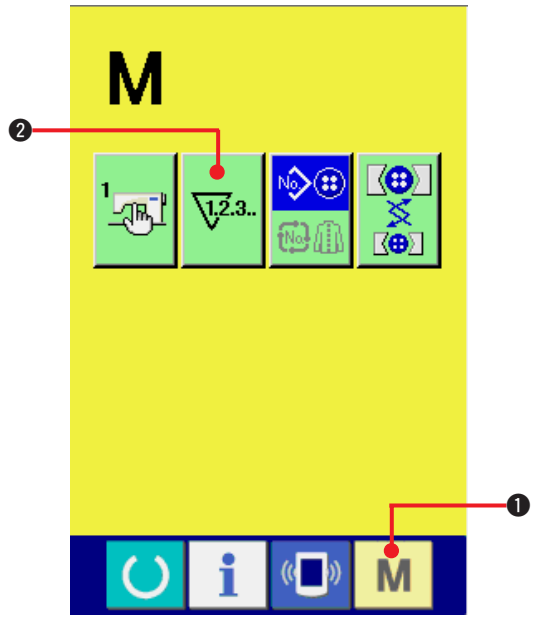


5) Image of the selected sewing product is displayed.

The image of selected sewing product is displayed in the data input screen. Position and number of pieces in which pattern data is inputted are the same as those before the change of image of sewing product.

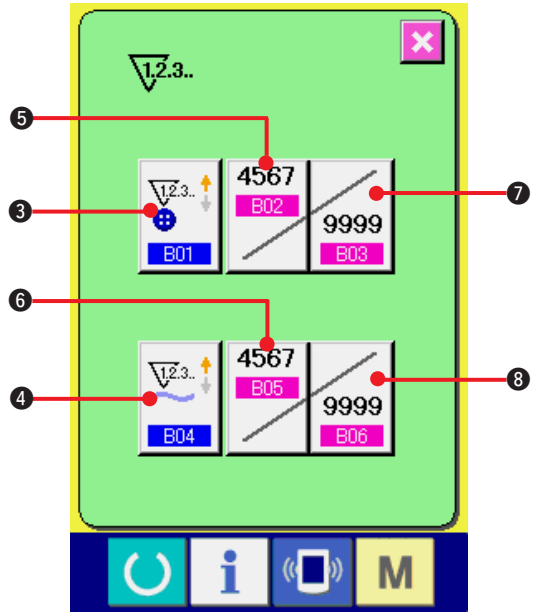
31. USING COUNTER

(1) Setting procedure of the counter



1) Display the counter setting screen.

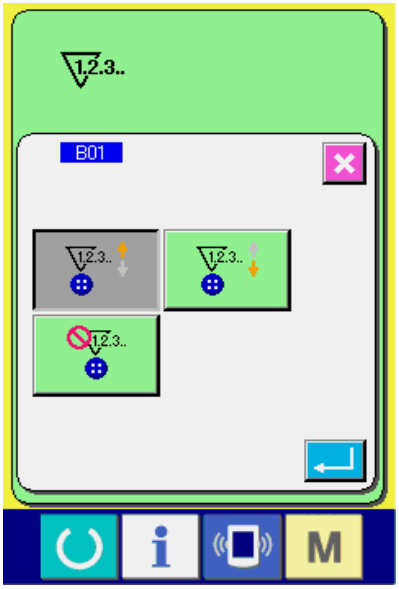
Press Mode key M ❶ and the COUNTER SETTING button ❷ is displayed on the screen. When this button is pressed, the counter setting screen is displayed.



2) Selection of kinds of counters

This sewing machine has two kinds of counters, i. e., sewing counter and No. of pcs. counter.

Press SEWING COUNTER KIND SELECTION button ❸ or No. OF PCS. KIND SELECTION button ❹ to display the counter kind selection screen. The kinds of the respective counters can be set separately.



[Sewing counter]

UP counter : Every time the sewing of one shape is performed, the existing value is counted up. When the existing value is equal to the set value, the count-up screen is displayed.

DOWN counter : Every time the sewing of one shape is performed, the existing value is counted down. When the existing value is reached to "0", the count-up screen is displayed.

Counter not used :

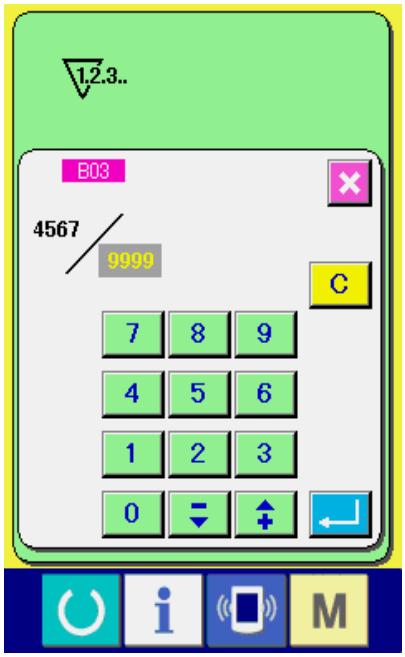
[No. of pcs. counter]

UP counter : Every time one cycle or one continuous stitching is performed, the existing value is counted up. When the existing value is equal to the set value, the count-up screen is displayed.

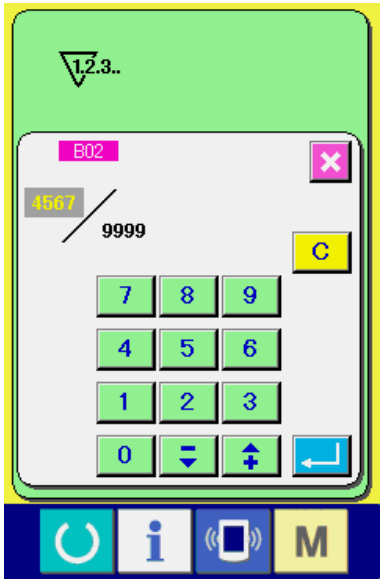
DOWN counter : Every time one cycle stitching is performed, the existing value is counted down. When the existing value is reached to "0", the count-up screen is displayed.

Counter not used :

3) Change of counter set value



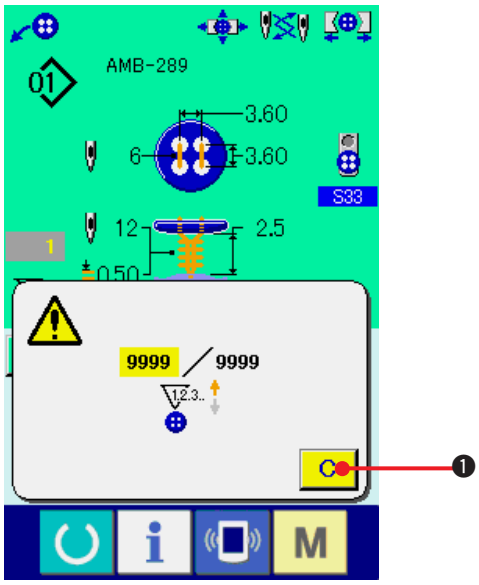
In case of the sewing counter, press button 9999 B03 ❼ and in case of the No. of pcs. counter, press button 9999 B06 ❽ and the set value input screen is displayed.
Here, input the set value.



4) Change of counter existing value

In case of the sewing counter, press button 4567 B02 ❺ and in case of the No. of pcs. counter, press button 4567 B05 ❻ and the existing value input screen is displayed. Here, input the existing value.

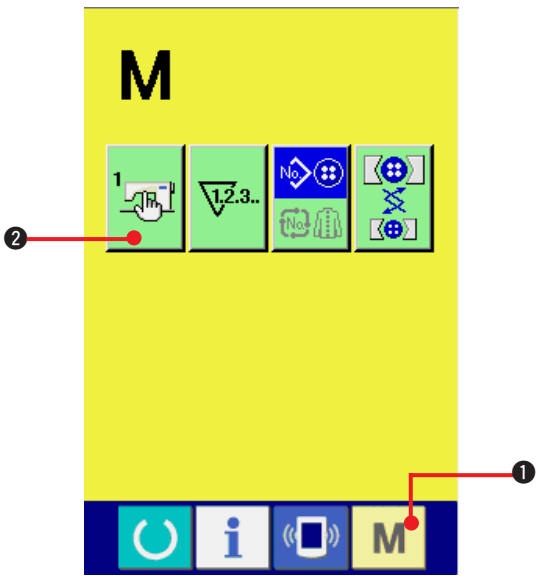
(2) Count-up releasing procedure



When count-up condition is reached during sewing work, the count-up screen is displayed and the buzzer beeps. Press CLEAR button C ❶ to reset the counter and the screen returns to the sewing screen. Then the counter starts counting again.

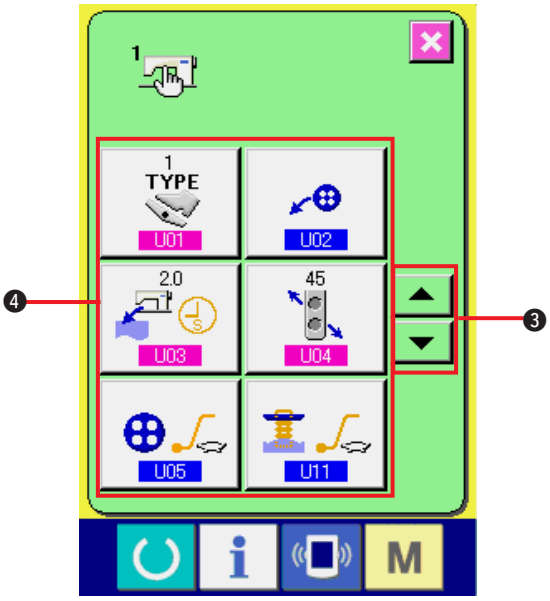
32. CHANGING MEMORY SWITCH DATA

(1) Changing procedure of memory switch data



1) Display the memory switch data list screen.

When MODE key M ❶ is pressed, memory switch button ❷ is displayed on the screen. When this button is pressed, the memory switch data list screen is displayed.

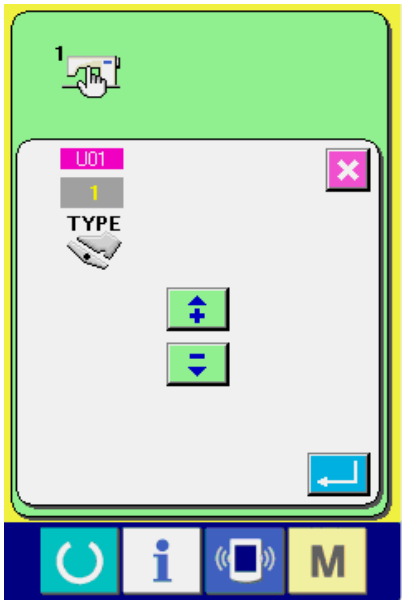


2) Select the memory switch button you desire to change.

Press UP/DOWN SCROOL button

❸ and select the data item button

❹ you desire to change.



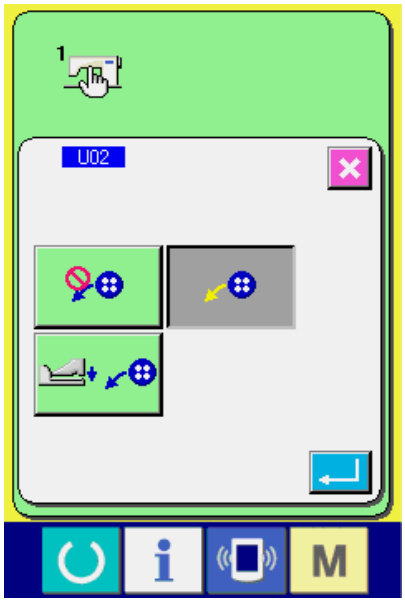
3) Change the memory switch data.

There are data items to change numerals and those to select pictographs in the memory switch data.

No. in pink color such as U01 is put on the data items to change numerals and the set value can be changed with buttons displayed in the change screen.

No. in blue color such as U02 is put on the data items to select pictographs and the pictographs displayed in the change screen can be selected.

→ For the details of memory switch data, refer to "32. (2) Memory switch data list".



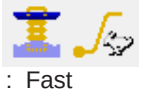
(2) Memory switch data list

1) Level 1

Memory switch data (level 1) are the motion data that the sewing machine has in common and the data that operate on all sewing patterns in common.

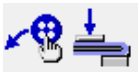
<table>
<tr><th>No.</th><th>Item</th><th>Setting range</th><th>Edit unit</th><th>Initial display</th><th>Remarks</th></tr>
<tr><td>U01</td><td>Pedal motion mode
Motion mode of the pedal is set.
1 : Lower the button by depressing the front part of the pedal. Lower the cloth presser with the tongue sensor.
2 : Lower the button and the cloth presser by depressing the front part of the pedal.
3 : Lower the button and the cloth presser with the tongue sensor.
 </td><td>1 to 3</td><td>1</td><td>1</td><td></td></tr>
<tr><td>U02</td><td>Button loader motion mode
Motion mode of the button loader is set.
 : Unused
 : Automatic inserting mode
 : Pedal inserting mode</td><td>– – –</td><td>– – –</td><td>
Automatic inserting mode</td><td></td></tr>
<tr><td>U03</td><td>Cloth take-out time
Waiting time for operator to take out cloth is set in case of sewing flat button directly to cloth and counter sewing.
 </td><td>0 to 20.0</td><td>0.1s</td><td>2.0s</td><td></td></tr>
<tr><td>U04</td><td>Button loader setting position setting
 </td><td>0 to 90</td><td>1˚</td><td>20˚</td><td></td></tr>
<tr><td>U05</td><td>Soft start mode (button sewing)
<table>
<tr><th>Display</th><th>1st stitch</th><th>2nd stitch</th><th>3rd stitch</th><th>4th stitch</th><th>5th stitch</th></tr>
<tr><td>
: Slow</td><td>300</td><td>400</td><td>700</td><td>900</td><td>1100</td></tr>
<tr><td>
: Rather fast</td><td>400</td><td>600</td><td>800</td><td>1000</td><td>1200</td></tr>
<tr><td>
: Fast</td><td>800</td><td>1000</td><td>1200</td><td>1200</td><td>1200</td></tr>
<tr><td> </td><td colspan="5">Optional setting</td></tr>
</table>
(Unit : rpm)</td><td>– – –</td><td>– – –</td><td>
Rather fast</td><td></td></tr>
<tr><td>U06</td><td>Soft start 1st stitch (button sewing)
 </td><td>200 to 1200</td><td>100rpm</td><td>400rpm</td><td>*1</td></tr>
<tr><td>U07</td><td>Soft start 2nd stitch (button sewing)
 </td><td>200 to 1200</td><td>100rpm</td><td>600rpm</td><td>*1</td></tr>
</table>

*1 Displayed only when U05 is set optionally.

<table>
<tr><th>No.</th><th>Item</th><th>Setting range</th><th>Edit unit</th><th>Initial display</th><th>Remarks</th></tr>
<tr><td>U08</td><td>Soft start 3rd stitch (button sewing)
 </td><td>200 to 1200</td><td>100rpm</td><td>800rpm</td><td>*1</td></tr>
<tr><td>U09</td><td>Soft start 4th stitch (button sewing)
 </td><td>200 to 1200</td><td>100rpm</td><td>1000rpm</td><td>*1</td></tr>
<tr><td>U10</td><td>Soft start 5th stitch (button sewing)
 </td><td>200 to 1200</td><td>100rpm</td><td>1200rpm</td><td>*1</td></tr>
<tr><td>U11</td><td>Soft start mode (neck wrapping)
<table>
<tr><th>Display</th><th>1st stitch</th><th>2nd stitch</th><th>3rd stitch</th><th>4th stitch</th><th>5th stitch</th></tr>
<tr><td>
: Slow</td><td>300</td><td>400</td><td>600</td><td>900</td><td>1200</td></tr>
<tr><td>
: Rather fast</td><td>400</td><td>500</td><td>700</td><td>1000</td><td>1600</td></tr>
<tr><td> 
: Fast</td><td>600</td><td>900</td><td>1200</td><td>1600</td><td>1800</td></tr>
<tr><td> </td><td colspan="5">Optional setting</td></tr>
</table>
(Unit : rpm)</td><td>– – –</td><td>– – –</td><td>
Rather fast</td><td></td></tr>
<tr><td>U12</td><td>Soft start 1st stitch (neck wrapping)
 </td><td>200 to 1800</td><td>100rpm</td><td>400rpm</td><td></td></tr>
<tr><td>U13</td><td>Soft start 2nd stitch (neck wrapping)
 </td><td>200 to 1800</td><td>100rpm</td><td>500rpm</td><td>*2</td></tr>
<tr><td>U14</td><td>Soft start 3rd stitch (neck wrapping)
 </td><td>200 to 1800</td><td>100rpm</td><td>700rpm</td><td>*2</td></tr>
<tr><td>U15</td><td>Soft start 4th stitch (neck wrapping)
 </td><td>200 to 1800</td><td>100rpm</td><td>1000rpm</td><td>*2</td></tr>
<tr><td>U16</td><td>Soft start 5th stitch (neck wrapping)
 </td><td>200 to 1800</td><td>100rpm</td><td>1500rpm</td><td>*2</td></tr>
<tr><td>U17</td><td>Cloth thickness
Height of the chuck motor is compensated in case of sewing flat button directly to cloth and counter sewing.
 </td><td>0 to 10.0</td><td>0.1mm</td><td>2.0mm</td><td>*2</td></tr>
<tr><td>U18</td><td>Tongue cloth presser ON timing
Waiting time from working of tongue sensor to cloth presser ON is set.
 </td><td>0 to 500</td><td>5ms</td><td>100</td><td></td></tr>
</table>

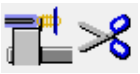
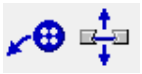
*1 Displayed only when U05 is set optionally.

*2 Displayed only when U11 is set optionally.

No.	Item	Setting range	Edit unit	Initial display	Remarks
U19	**Operation speed setting** Motion speed of the feed motor by means of pedal operation is set. 1 : Slow 10 : Fast	1 to 10	1	10.0	
U20	**Bottom feed move amount at the time of manual mode** As much as the move amount of the bottom feed motor to which cloth setting position is set is advanced.	0 to 25.0	0.1mm	10.0	
U21	**Position of the cloth presser at the time of manual mode** : Up  : Down	– – –	– – –	 Up	

2) Level2

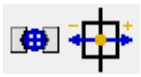
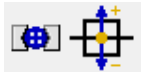
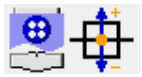
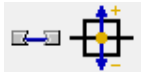
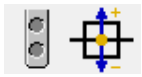
Memory switch data (level 2) can be edited when pressing MODE switch for as long as 6 seconds.

No.	Item	Setting range	Edit unit	Initial display	Remarks
K01	**VCM control starting angle offset**	– 20 to 20.0	1˚	0	*1
K02	**Tongue lifting amount**	10.0 to 24.0	0.1mm	16.5mm	*1
K03	**Thread trimming control mode** : Thread trimming priority mode  : Cycle time priority mode	– – –	– – –	 Thread trimming priority mode	
K04	**Button loader inserting height compensation** 	10.0 to 25.0	0.1mm	17.0	
K05	**Max. value of blindstitch width setting**	0.0 to 6.0	0.2mm	1.6	
K06	**Bottom feed position of rear hole of blindstitch** Bottom feed position from origin at the rear hole of blindstitch is set.	0.0 to 2.0	0.1mm	1.5	
K07	**Head tilt sensor detection ON/OFF** : OFF : ON	– – –	– – –	 ON	

*1 Data that have been memorized in the machine head EEP-ROM, and the adjustment value has been written at the time of delivery.

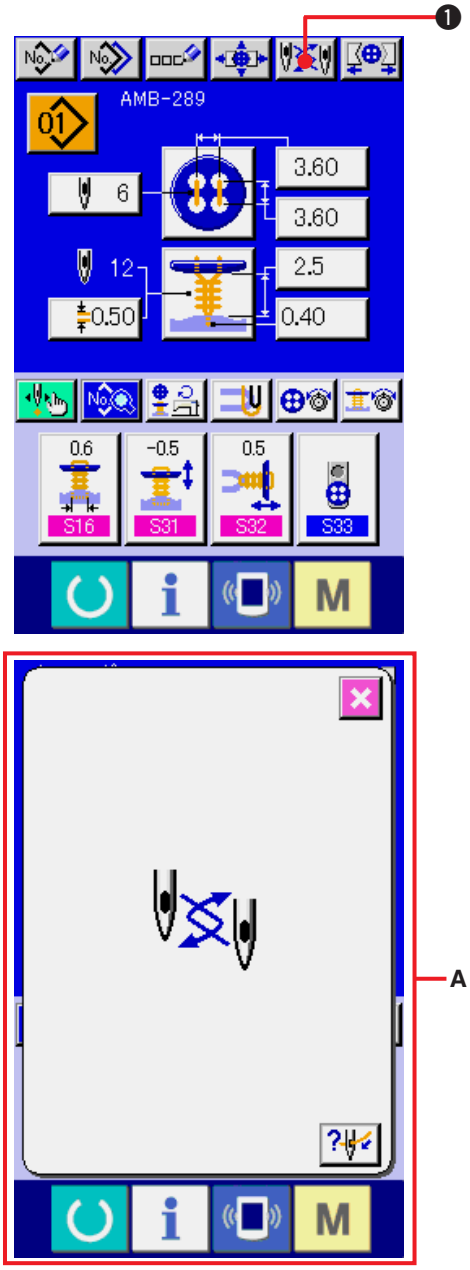
No.	Item	Setting range	Edit unit	Initial display	Remarks
K08	**Head type** 1 : Standard 2 to 9 : Unused	1 to 9	1	1	*1
K09	**Each time origin retrieval** 1 : Bottom feed only 2 : Bottom feed + needle rocking 3 : Bottom feed + thread drawing 4 : Bottom feed + needle rocking + thread drawing * Origin retrieval of bottom feed is performed only at the time of sewing flat/wrapped-around button with blindstitch.	1 to 4	1	1	
K10	**Button loader lifting amount** Lifting amount after grasping button is set.	5.0 to 10.0	0.1mm	6.5	
K11	**Height from tongue stopper lower plate** Set this item when tongue stopper parts are changed.	0 to 8.0	0.1mm	5.6	*1
K12	**Tongue change display mode** When READY key is pressed, whether AMB-189 type tongue or AMB-289 type one is judged, and displays below are shown. * Judge value is determined with K13 . : Without display : When tongue change is necessary : When AMB-189 type tongue (wide gauge) is used : When AMB-289 type tongue (narrow gauge) is used : Tongue type used is displayed each time.	– – –	– – –	 When tongue change is necessary	
K13	**Tongue change blindstitch width** Blindstich width which is the standard to make the check screen display.	1.0 to 20.0	0.1mm	1.6	
K14	**Pedal type** Kind of pedal to be used is set. : Standerd pedal : PK-47	– – –	– – –	 Standerd pedal	

*1 Data that have been memorized in the machine head EEP-ROM, and the adjustment value has been written at the time of delivery.

No.	Item	Setting range	Edit unit	Initial display	Remarks
K51	**Needle rocking motor origin compensation**	– 5.00 to 5.00	0.05mm	0	*1
K52	**Differential motor origin compensation** 	– 2.0 to 2.0	0.1mm	0	*1
K53	**Y feed upper motor origin compensation** 	–5.00 to 5.00	0.05mm	0	*1
K54	**Y feed lower motor origin compensation (blindstitch origin)**	–5.00 to 5.00	0.05mm	0	*1
K55	**Y feed lower motor origin compensation (neck wrapping compensation)**	–5.00 to 5.00	0.05mm	0	*1
K56	**Y feed lower motor origin compensation (origin of button sewn directly to cloth)** 	–5.00 to 5.00	0.05mm	0	*1
K57	**Presser motor origin compensation** 	–50 to 50	1pulse	0	*1
K58	**Thread drawing motor origin compensation**	–10 to 10	1pulse	0	*1
K59	**Loader motor origin compensation** 	–50 to 50	1pulse	0	*1

*1 Data that have been memorized in the machine head EEP-ROM, and the adjustment value has been written at the time of delivery.

33. PERFORMING CHANGE OF NEEDLE



1) Display the data input screen or the sewing screen.

Display the data input screen (independent sewing, cycle stitching) or the sewing screen (independent sewing, cycle stitching).

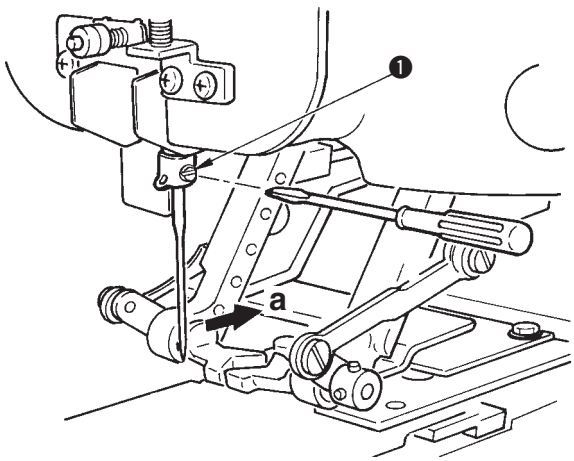
2) Call the needle change screen.

When NEEDLE CHANGE button ❶ is pressed, the needle comes down to the position where it can be changed and the needle change screen **A** is displayed.

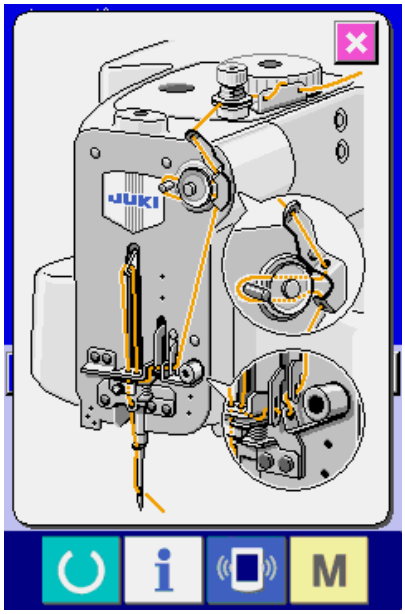
Be sure to turn OFF the power before performing the change of needle.

○ **Refer to the Needle installation drawing below.**

[Needle installation drawing]



○ Hold needle with its recessed part facing toward side **"a"** as observed from the front of the sewing machine, insert the needle into the needle hole of needle bar until it will go no further, and tighten setscrew ❶ with a flat-blade screwdriver. Use a SM332EXTLG-NY(#11 to #18).



3) **Display the threading diagram.**

Press THREADING DIAGRAM DISPLAY button ❷ and the threading diagram is displayed.

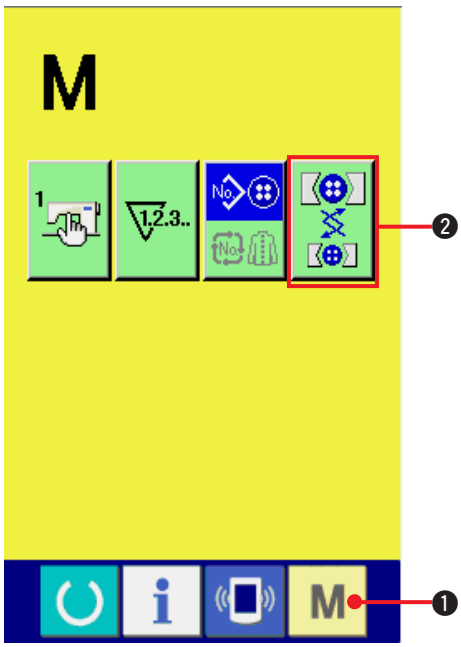
Reference : [Mechanical section]

3. PREPARATION BEFORE OPERATION

Be sure to turn OFF the power before performing the threading.

34. PERFORMING CHANGE OF CHUCK

WARNING :
Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.

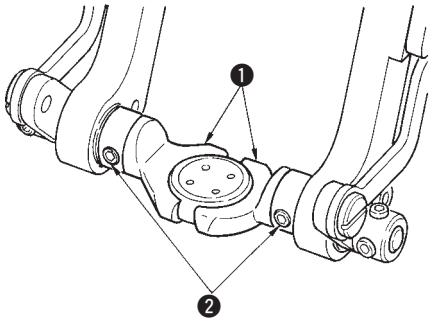


1) **Display the chuck change screen.**

Press MODE key M ❶, and CHUCK ADJUSTMENT button ❷ is displayed on the screen. When this button is pressed, the chuck adjustment screen is displayed.

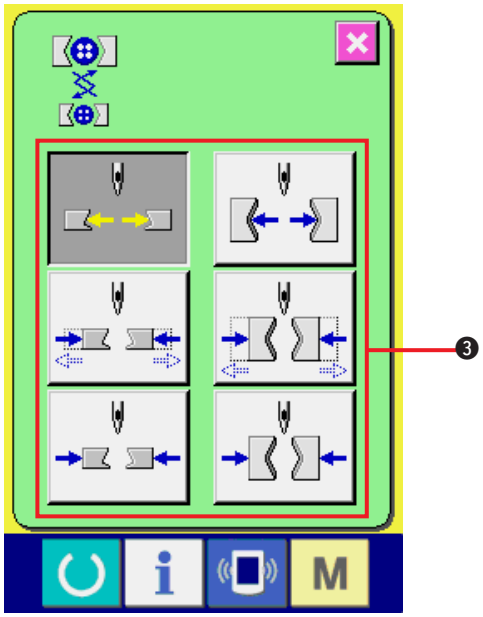
2) **Perform installation of the chuck.**
Refer to the chuck installation drawing below.

[Chuck installation drawing]



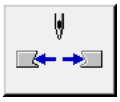
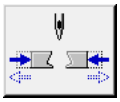
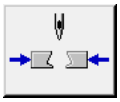
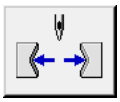
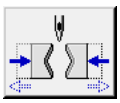
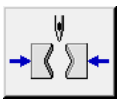
○ When replacing chuck ❶, loosen screws ❷ and replace it.

Reference : [Mechanical section]
3. PREPARATION BEFORE OPERATION
(4) Replacing the button chuck



3) **Perform checking of installation of the chuck.**
Press CHUCK MOTION button ❸ and the chuck performs open/close and inversion motions.

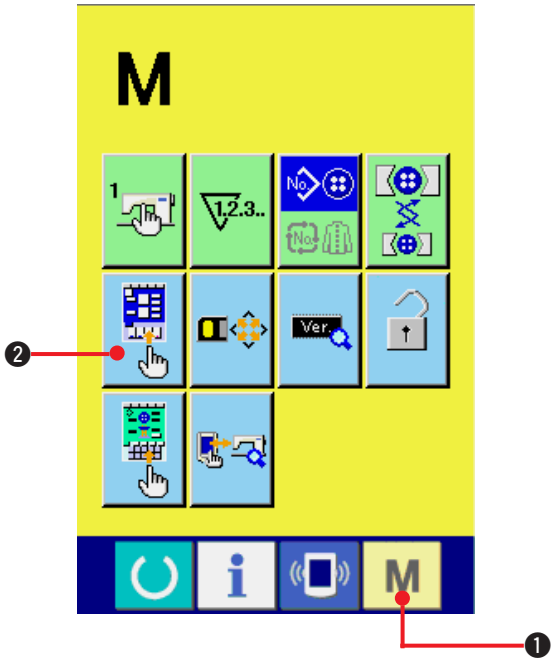
Caution **Check the level position and the perpendicular position of the check which has been installed after installation.**

Button	Level and perpendicular of chuck	Chuck open/close
	Level	Open
	Level	Free
	Level	Close
	Perpendicular	Open
	Perpendicular	Free
	Perpendicular	Close

35. CUSTOMIZING DATA INPUT SCREEN

The buttons which are displayed in the data input screen can be customized to the buttons which are easy for the customers to use.

(1) Registering procedure

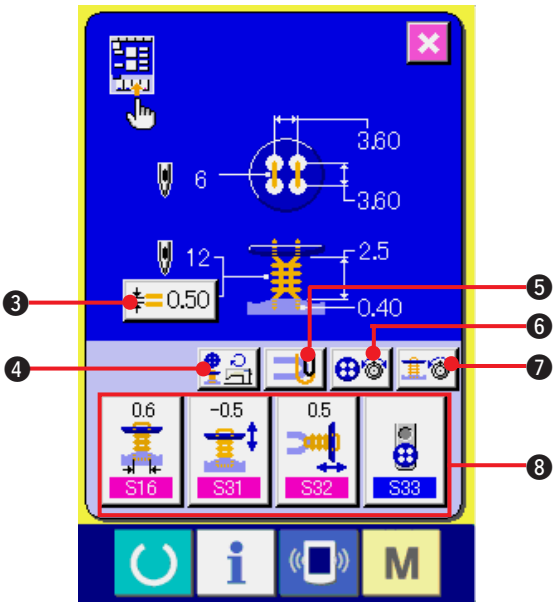


1) Display the customize screen of the input screen.

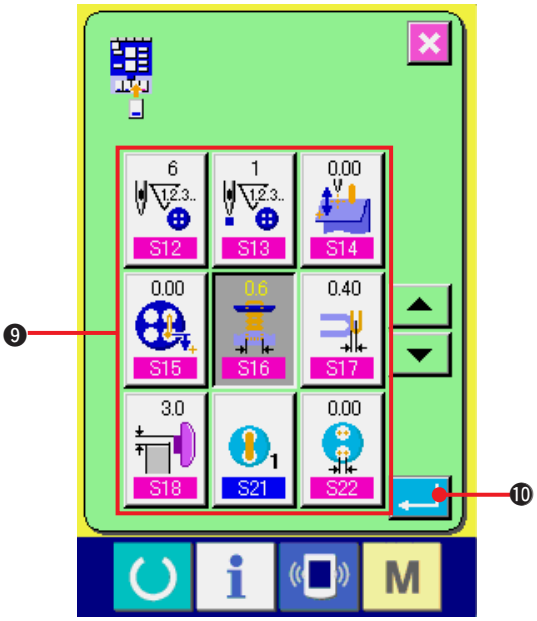
When MODE key M ❶ is held pressed for three seconds, CUSTOMIZE button ❷ of the input screen is displayed on the screen. Press this button and the customize screen of the input screen is displayed.

2) Select the state of buttons.

Every time buttons from ❸ to ❼ are pressed, the state of buttons changes. Set the buttons to the state that is easy for you to use.



Symbol	display	Description
❸		Neck wrapping simplified setting
		Neck wrapping detailed setting
❹		Number of revolutions button display
		Number of revolutions button non-display
❺		Stay thread setting button display
		Stay thread setting button non-display
❻		Button sewing thread tension simplified setting
		Button sewing thread tension detailed setting
		Button sewing thread tension non-display
❼		Neck wrapping thread tension simplified setting
		Neck wrapping thread tension detailed setting
		Neck wrapping thread tension non-display



3) Register the sewing data to the customize buttons.

As many as four sewing data can be registered to CUSTOMIZE buttons ❽. Register the sewing data which are frequently used for use.
When CUSTOMIZE button ❽ to which you desire to register is pressed, the sewing data list screen is displayed.
Four pieces of data below have been registered from the left side in order at the time of your purchase.

4) Select the sewing data to be registered.

Select the sewing data you desire to register with the sewing data buttons ❾. When the selected button is pressed twice, the selection is released.

5) Register to the customize button.

When ENTER button ❿ is pressed, register to the customize button is finished and the customize button register screen is displayed. The registered sewing data is displayed on the customize button.

(2) Register state at the time of your purchase

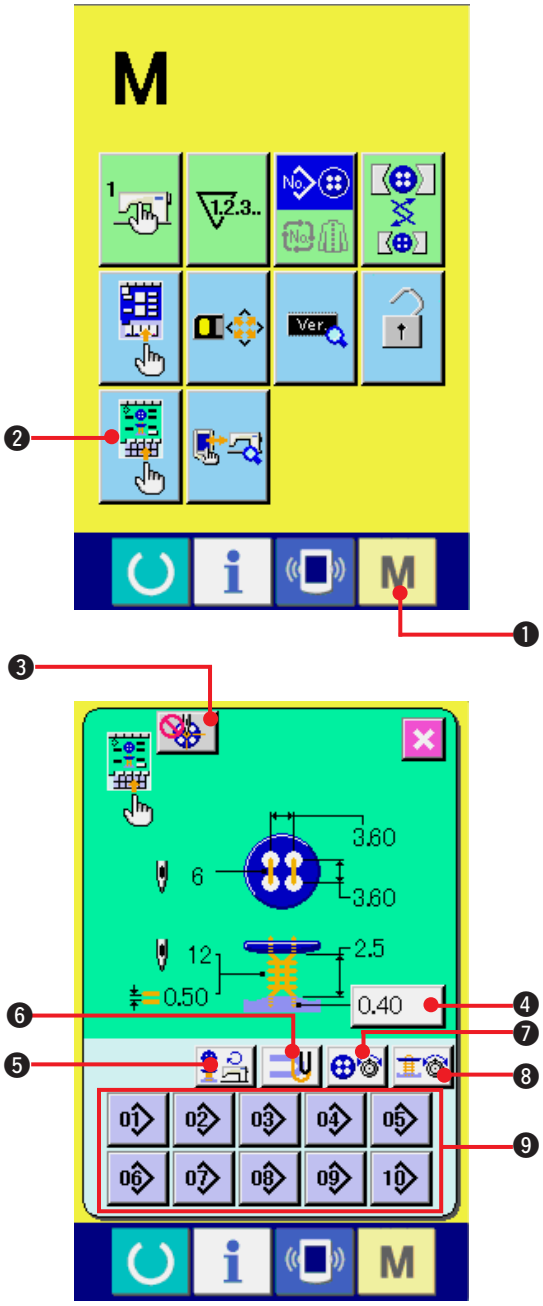
The following items have been registered in order from the left at the time of your purchase.

a.	S16	Blindstitch width :	
b.	S31	Compensation of button holding height when sewing flat/wrapped-around button with blindstitch :	
c.	S32	Thread release compensation :	
d.	S33	Loader selection :	

36. CUSTOMIZING SEWING SCREEN

The buttons which are displayed in the sewing screen can be customized to the buttons which are easy for the customers to use.

(1) Registering procedure



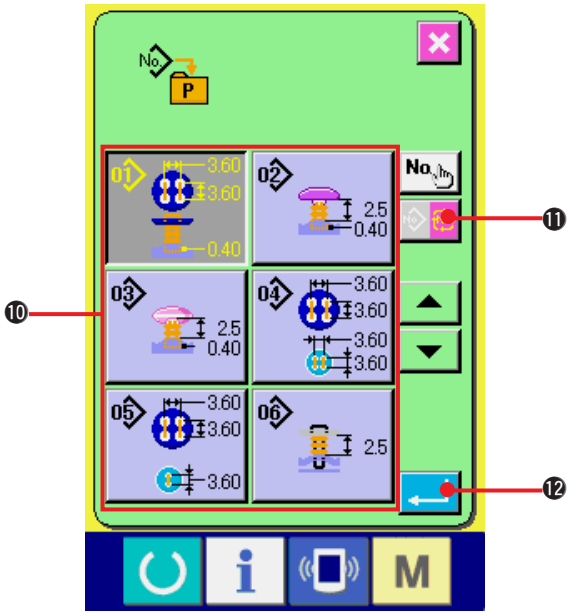
1) Display the customize screen of the sewing screen.

When MODE key M ❶ is held pressed for three seconds, CUSTOMIZE button ❷ of the sewing screen is displayed on the screen. Press this button and the customize screen of the sewing screen is displayed.

2) Select the state of buttons.

Every time buttons from ❸ to ❽ are pressed, the state of buttons changes. Set the buttons to the state that is easy for you to use.

Symbol	display	Description
❸		Centering button display
		Centering button non-display
❹	0.40	Blindstitch amount setting button display
	0.40	Blindstitch amount setting non-display
❺		Number of revolutions button display
		Number of revolutions button non-display
❻		Stay thread setting button display
		Stay thread setting button non-display
❼		Button sewing thread tension simplified setting
		Button sewing thread tension detailed setting
		Button sewing thread tension non-display
❽		Neck wrapping thread tension simplified setting
		Neck wrapping thread tension detailed setting
		Neck wrapping thread tension non-display



3) Register the patterns to the direct buttons.

Direct patterns can register the patterns of independent sewing and cycle stitching up to 10 patterns.
10 pieces of DIRECT PATTERN REGISTER buttons ❾ are displayed on the screen, and the pattern list screen is displayed when the button of the position you desire to register is pressed.

4) Select the sewing data to be registered.

Select the pattern you desire to register with PATTERN LIST buttons ❿. Press CYCLE PATTERN CHANGE button ⓫, and the cycle pattern list screen is displayed.
Press again the selected button and the selection is released.

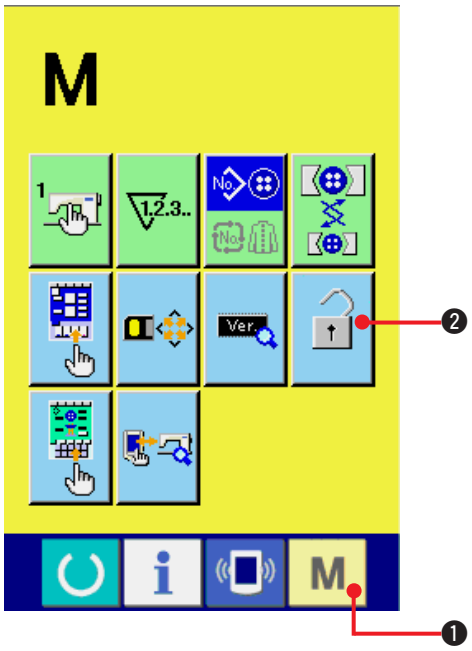
5) Register to the customize button.

When ENTER button ⓬ is pressed, the register to direct button is completed and the direct button register screen is displayed.
Pattern No. which has been registered is displayed on the direct button.

(2) Register state at the time of your purchase

Pattern Nos. 1 to 10 have been registered to the direct buttons at the time of your purchase.

37. PERFORMING KEY LOCK



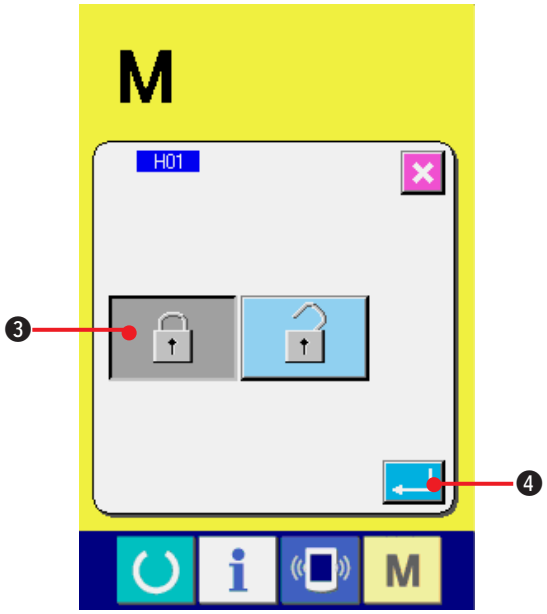
1) Display the key lock screen.

Press MODE key M ❶ for three seconds, and the KEY LOCK button ❷ is displayed on the screen. When this button is pressed down, the key lock screen is displayed.

The existing setting state is displayed on the KEY LOCK button.

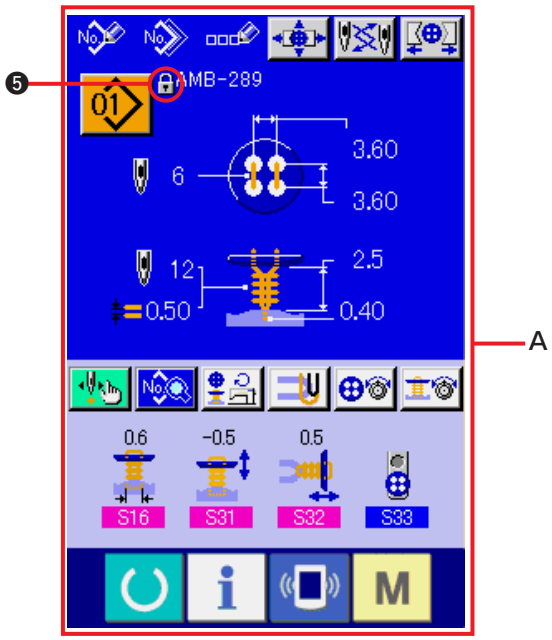
: State that key lock is not set

: State that key lock is set



2) Select and determine the key lock state.

Select the key lock state button ❸ in the key lock setting screen, and press ENTER button ❹. Then the key lock setting screen is closed and the key lock state is set.

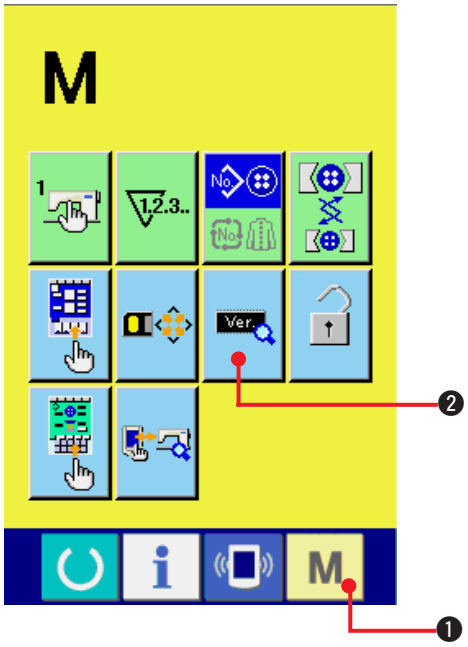


3) Close the mode screen and display the data input screen.

When the mode screen is closed and the data input screen is displayed, pictograph ❺ showing the key lock state is displayed on the right-hand side of the pattern No. display.

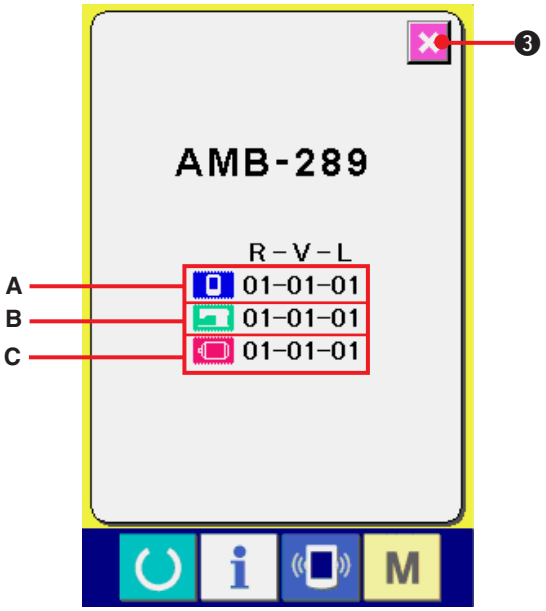
○ Besides, only the buttons which are possible to be used even in the key lock state are displayed.(**A**)

38. DISPLAYING VERSION INFORMATION



1) Display the version information screen.

Press MODE key M ❶ for three seconds, and the VERSION INFORMATION button ❷ is displayed on the screen. When this button is pressed down, the version information screen is displayed.



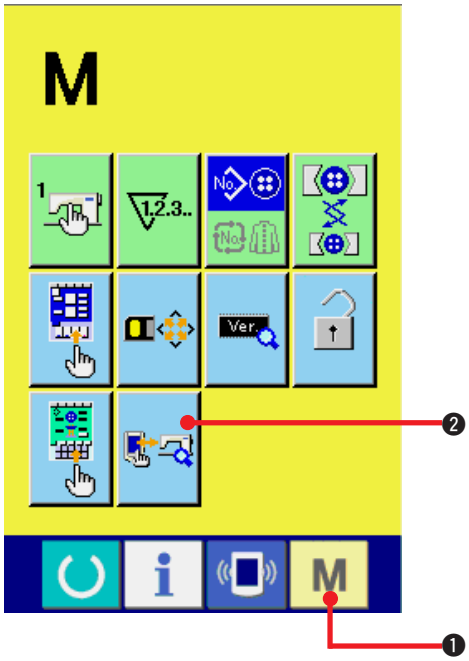
The version information on the sewing machine you use is displayed on the version information screen, and it is possible to check it.

A : Version information on panel program
B : Version information on main program
C : Version information on servo program

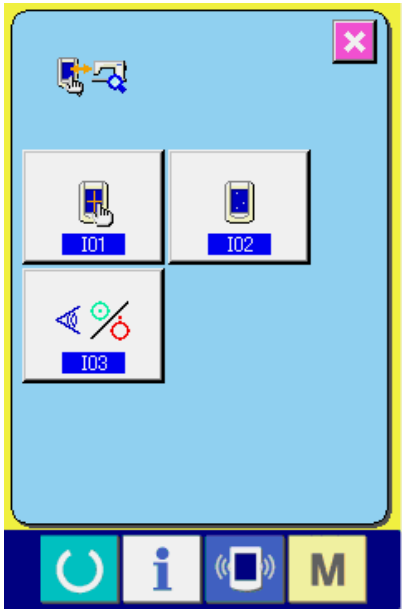
When CANCEL button ❸ is pressed, the version information screen is closed and the mode screen is displayed.

39. USING CHECK PROGRAM

(1) Displaying the check program screen



Press MODE key M ❶ for three seconds, and CHECK PROGRAM button ❷ is displayed on the screen.
When this button is pressed down, the check program screen is displayed.



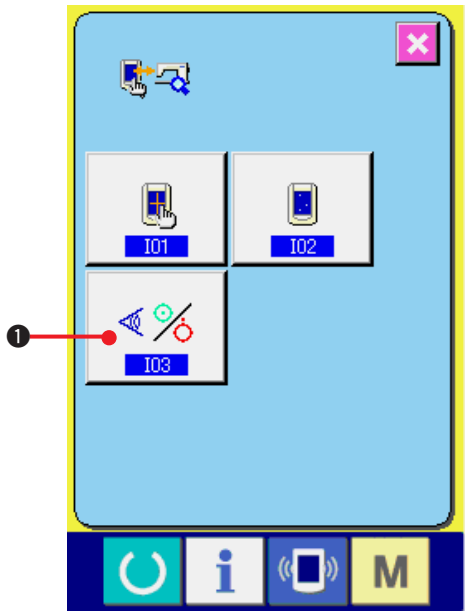
There are 3 items below in the check program.

I01 : Touch panel compensation
→ Refer to **"39.(4) Performing touch panel compensation."**

I02 : LCD check
→ Refer to **"39.(3) Performing LCD check"**.

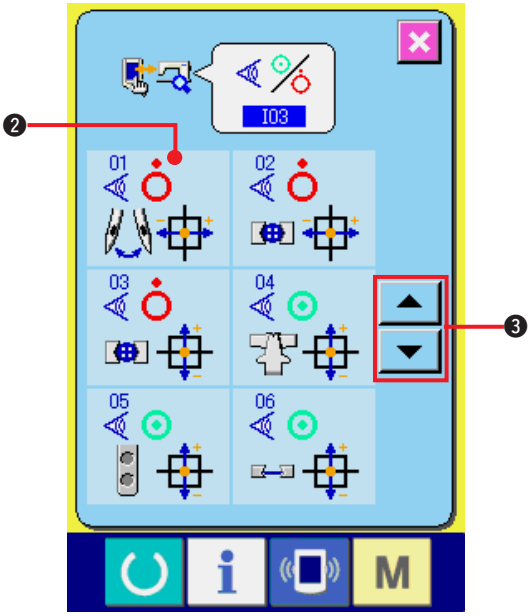
I03 : Sensor check
→ Refer to **"39.(2) Performing sensor check"**.

(2) Performing sensor check



1) Display the sensor check screen.

When SENSOR CHECK button ❶on the check program screen is pressed, the sensor check screen is displayed.



2) Perform the sensor check.

Input status of the various sensors can be checked on the sensor check screen. Input status of each sensor is displayed as ❷. The display of ON status/OFF status is displayed as below.

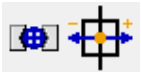
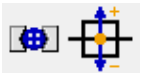
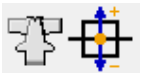
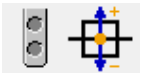
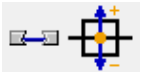
The display of ON status/OFF status is displayed as below.

: ON status

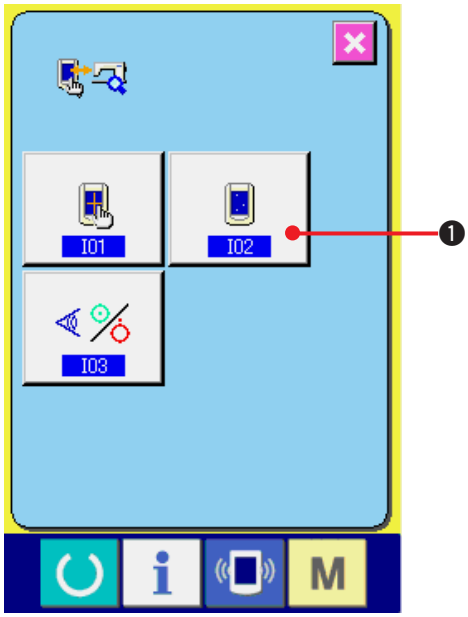
: OFF status

Press UP or DOWN button or ❸ and display the sensor which has been checked.

20 kinds of sensors below are displayed.

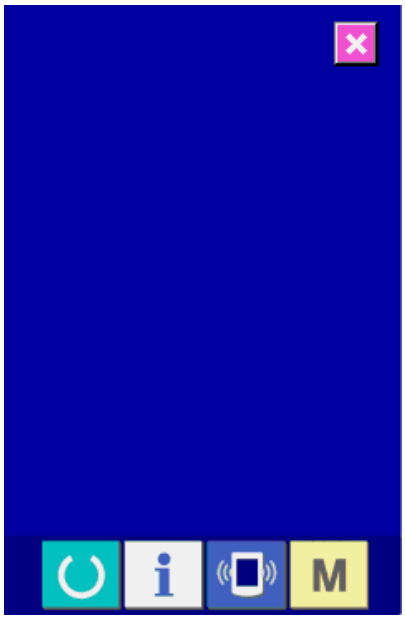
No.	Pictograph	Description of sensor	No.	Pictograph	Description of sensor
01		Needle rocking motor origin	11		Air pressure sensor
02		Differential motor origin	12		Tongue open/close
03		Y feed upper motor origin	13		Feed plate up (rear side)
04		Y feed lower motor origin	14		Feed plate down (front side)
05		Button loader motor origin	15		Chuck inversion (left side)
06		Presser motor origin	16		Chuck level (right side)
07		Thread drawing motor origin	17		Chuck open/close
08		Temperature detection	18		Pedal start
09		Pause	19		Pedal input
10		Safety switch	20		Needle bar angle

(3) Performing LCD check



1) Display the LCD check screen.

When LCD CHECK button ❶on the check program screen is pressed, the LCD check screen is displayed.

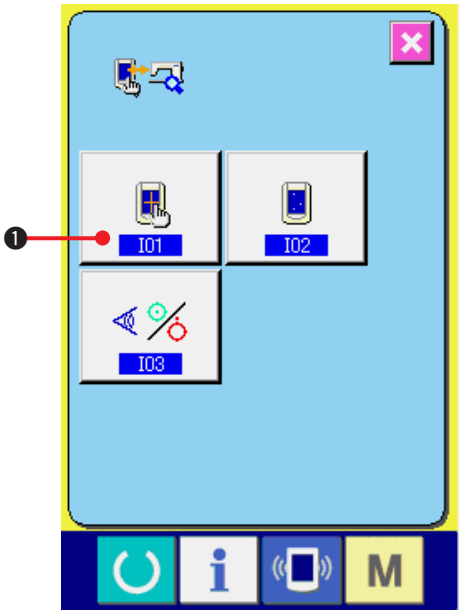


2) Check whether any dot of LCD is omitted.

The screen of LCD check screen is displayed by one color only. Check in this state whether any dot is omitted or not.

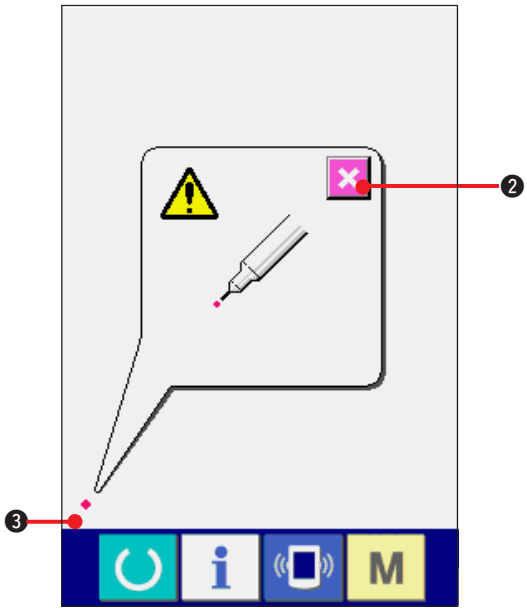
After checking, press a proper place on the screen. The LCD check screen is closed and the check program screen is displayed.

(4) Performing touch panel compensation



1) Display the touch panel compensation screen.

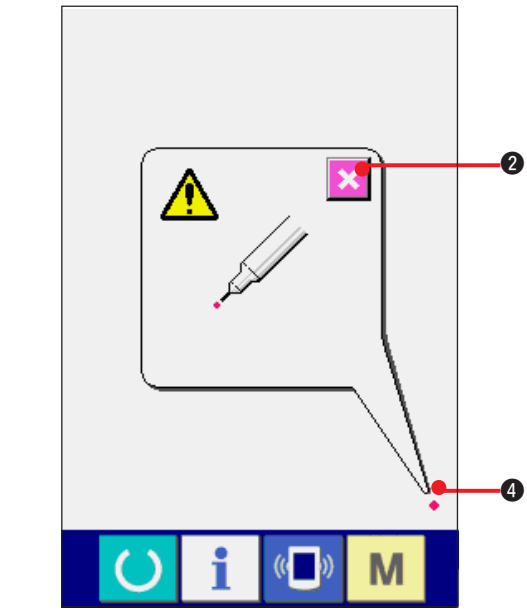
When TOUCH PANEL COMPENSATION button ❶ on the check program screen is pressed, the touch panel compensation screen is displayed.



2) Press the lower left position.

Press red circle ● ❸ located at the lower left position on the screen.

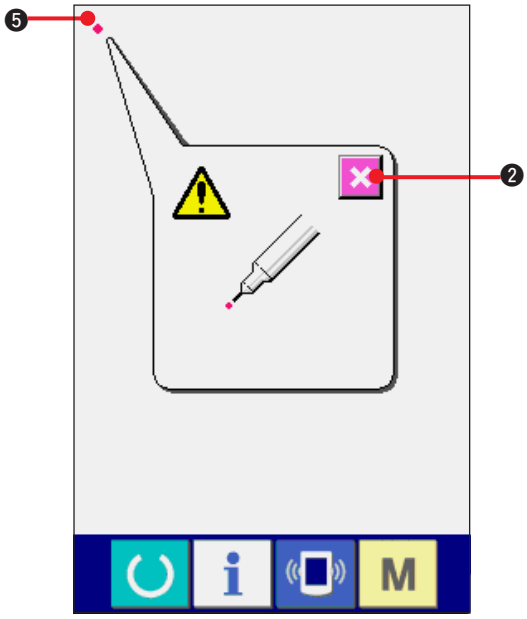
When finishing the compensation, press CANCEL button ❷.



3) Press the lower right position.

Press red circle ● ❹ located at the lower right position on the screen.

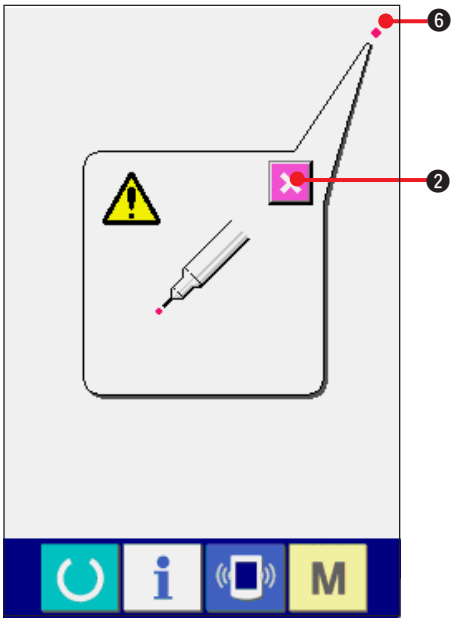
When finishing the compensation, press CANCEL button ❷.



4) Press the upper left position.

Press red circle ❺ located at the upper left position on the screen.

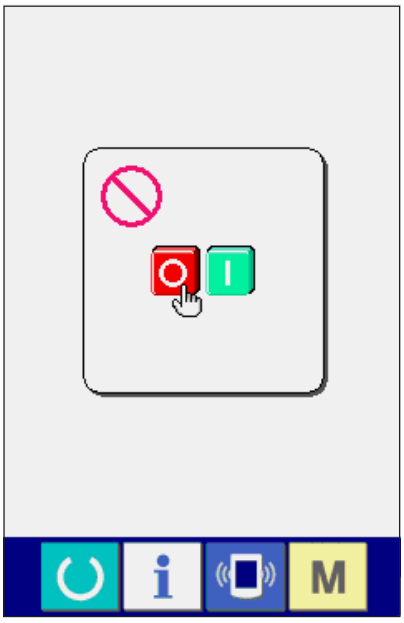
When finishing the compensation, press CANCEL button ❷



5) Press the upper right position.

Press red circle ❻ located at the upper right position on the screen.

When finishing the compensation, press CANCEL button ❷



6) Store the data.

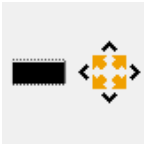
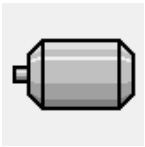
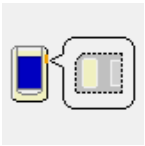
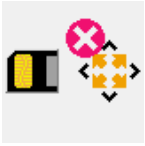
When 4 points have been pressed, the screen showing power-OFF prohibition is displayed since the compensation data are to be stored.

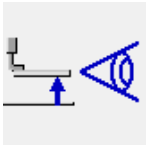
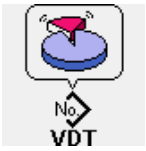
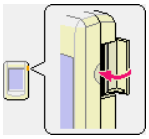
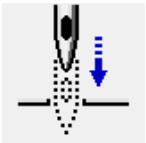
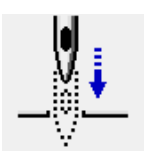
Do not turn OFF the power while this screen is being displayed.

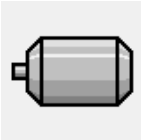
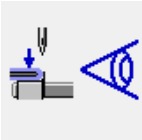
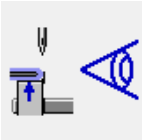
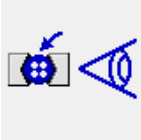
When the power is turned OFF, the compensated data are not stored.

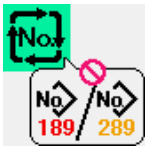
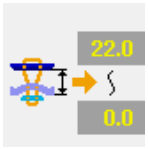
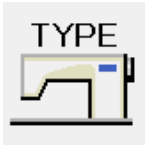
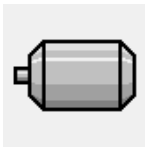
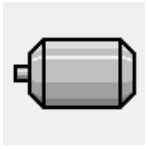
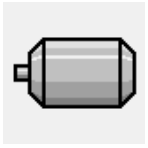
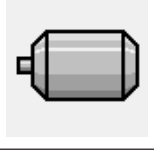
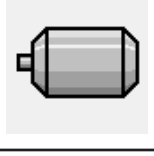
When storing is finished, the check program screen is automatically displayed.

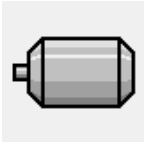
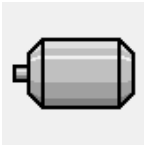
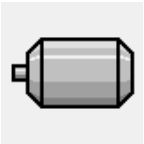
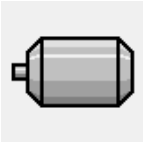
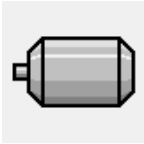
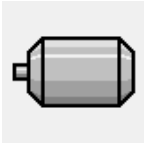
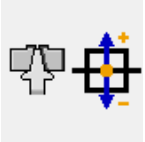
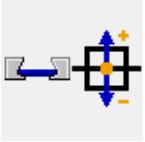
40. ERROR CODE LIST

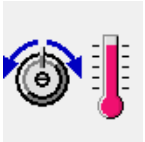
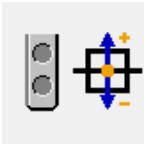
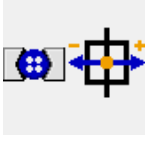
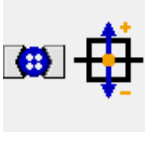
Error code	Pictograph	Description of error	How to recover	Place of recovery
E001		Contact of EEP-ROM initialization of MAIN CONTROL p.c.b. When data is not written in EEP-ROM or data is broken, data is automatically initialized and the initialization is informed.	Turn OFF the power.	
E007		Main shaft motor-lock When large needle resistance sewing product is sewn	Turn OFF the power.	
E011		External media not inserted External media is not inserted.	Possible to recover by reset.	
E012		Read error Data read from external media cannot be performed.	Possible to recover by reset.	Previous screen
E013		Write error Data write from external media cannot be performed.	Possible to recover by reset.	Previous screen
E014		Write protect External media is in the write prohibition state	Possible to recover by reset.	Previous screen
E015		Format error Formatting of external media cannot be performed.	Possible to recover by reset.	Previous screen
E016		External media capacity over Capacity of external media is short.	Possible to recover by reset.	Previous screen
E017		EEP-ROM capacity over Capacity of EEP-ROM is short.	Possible to recover by reset.	Previous screen
E018		Type of EER-ROM is different When the mounted EEP-ROM is different in type.	Turn OFF the power.	Previous screen
E019		**File size over** File size to be read in is too large.	Possible to recover by reset.	Previous screen

Error code	Pictograph	Description of error	How to recover	Place of recovery
E022		**File No. error** There is no designated file in the server or external media.	Possible to recover by reset.	Previous screen
E023		**Detection of step-out of presser lifting motor error** When step-out of motor is detected at the time when presser lifting motor passes the origin sensor.	Possible to recover by reset.	Data input screen
E024		**Pattern data size over** When sewing cannot be performed since the size of downloaded sewing data is too large.	Possible to recover by reset.	Data input screen
E027		**Read error** Data read from server cannot be performed.	Possible to recover by reset.	Previous screen
E028		**Write error** Data write to the server cannot be performed.	Possible to recover by reset.	Previous screen
E029		**Smart media slot release error** Lid of smart media slot is open.	Possible to recover by reset.	Previous screen
E030		**Needle bar upper position failure** When needle does not stop at UP position at the time of needle UP operation.	Possible to recover by reset.	Data input screen
E031		**Air pressure drop** When air pressure dropped.	Possible to recover by reset.	Data input screen
E042		**Operation error** Operation of sewing data cannot be performed.	Possible to recover by reset.	Data input screen
E050		**Stop switch** When stop switch is pressed during machine running.	Possible to recover by reset.	Data input screen
E098		**Needle bar down error** When needle bar cannot be lowered.	Possible to recover by reset.	Step screen

Error code	Pictograph	Description of error	How to recover	Place of recovery
E099		**Loader motor step-out detection error** When step-out of motor is detected at the time when loader motor passes origin sensor.	Possible to recover by reset.	Step screen
E302		**Confirmation of tilt of machine head** When tilt of machine head sensor is OFF.	Possible to recover by reset.	Data input screen
E303		**Main shaft semilunar plate sensor error** Semilunar plate of sewing machine motor is abnormal.	Turn OFF thepower.	Data input screen
E394		**Feed plate lowering sensor can not detect.** When feed plate lowering sensor fails to work.	Possible to recover by reset.	Data input screen
E395		**Feed plate lifting sensor can not detect.** When feed plate lifting sensor fails to work.	Possible to recover by reset.	Data input screen
E396		**Tongue close/open sensor can not detect.** When the sensor fails to work, or the tongue is not drawn out at the time of tongue close/open operation.	Possible to recover by reset.	Data input screen
E397		**Chuck close/open sensor can not detect.** When the button is not in the chuck at the start of sewing machine operation.	Possible to recover by reset.	Data input screen
E398		**Chuck level sensor can not detect.** When the sensor fails to work at the time of chuck level operation.	Possible to recover by reset.	Data input screen
E399		**Chuck inversion sensor can not detect.** When the sensor fails to work at the time of chuck inversion operation.	Possible to recover by reset.	Pattern list screen
E401		**Copy disapproval error** When trying to perform copying to the pattern No. which has been registered. In case of cycle stitching :	Possible to re-start after pressing cancel button.	
E402		**Pattern deletion error** When the registered pattern No. is registered to cycle stitching, or trying to delete the pattern No. when there is only one pattern No. In case of cycle stitching :	Possible to re-start after pressing cancel button.	Pattern list screen

Error code	Pictograph	Description of error	How to recover	Place of recovery
E497		**Tongue type error** When AMB-289 type tongue and AMB-189 type one are mixedly used in the cycle data.	Possible to recover by reset.	Data input screen
E498		**Button holding height over at the time of sewing** Button holding height is too high and sewing cannot be performed at the time of button sewing.	Possible to recover by reset.	Data input screen
E499		**Y feed motor move limit value over** When input data of shank/marble sewing exceed the maximum of Y feed move amount (max. operating amount : 15 mm).	Possible to recover by reset.	Data input screen
E702		**Abnormality of display data** When there is no display data of panel.	Turn OFF the power. Rewriting of program	
E703		**Panel is connected to the machine other than supposed. (Machine type error)** When machine type code of system is improper in case of initial communication.	Possible to rewrite program after pressing down communication switch.	Communication screen
E704		**Nonagreement of system version** When version of system software is improper in case of initial communication.	Possible to rewrite program after pressing down communication switch.	Communication screen
E730		**Main shaft motor encoder defectiveness or phase-out** When encoder of sewing machine motor is abnormal.	Turn OFF the power.	
E731		**Main motor hole sensor defectiveness or position sensor defectiveness** When hole sensor or position sensor of sewing machine is defective.	Turn OFF the power.	
E733		**Reverse rotation of main shaft motor** When sewing machine motor rotates in reversedirection.	Turn OFF the power.	
E801		**Phase-lack of power** When phase-lack of input power occurs.	Turn OFF the power.	
E802		**Power instantaneous cut detection** When input power is instantaneously OFF.	Turn OFF the power.	

Error code	Pictograph	Description of error	How to recover	Place of recovery
E811		**Overvoltage** When input voltage is 280V or more.	Turn OFF the power.	
E813		**Low voltage** When input voltage is 150V or less.	Turn OFF the power.	
E901		**Abnormality of main shaft motor IPM** When IPM of servo control p.c.b. is abnormal.	Turn OFF the power.	
E902		**Overcurrent of main shaft motor** When current flows excessively to sewing machine motor.	Turn OFF the power.	
E903		**Abnormality of stepping motor power** When stepping motor power of servo control p.c.b. fluctuates ±15% or more.	Turn OFF the power.	
E904		**Abnormality of solenoid power** When solenoid power of servo control p.c.b. fluctuates ±15% or more.	Turn OFF the power.	
E905		**Abnormality of temperature of heat sink for servo control p.c.b.** When temperature of heat sink of servo control p.c.b. is 85 ˚C or more.	Turn OFF the power.	
E907		**Needle rocking width motor origin retrieval error** When origin sensor signal is not inputted at the time of origin retrieval motion.	Turn OFF the power.	
E908		**Y-feed motor origin retrieval error** When origin sensor signal is not inputted at the time of origin retrieval motion.	Turn OFF the power.	
E910		**Presser motor origin retrieval error** When origin sensor signal is not inputted at the time of origin retrieval motion.	Turn OFF the power.	
E915		**Abnormality of communication between operation panel and main CPU** When abnormality occurs in data communication.	Turn OFF the power.	

Error code	Pictograph	Description of error	How to recover	Place of recovery
E916		**Abnormality of communication between main CPU and main shaft CPU** When abnormality occurs in data communication.	Turn OFF the power.	
E917		**Failure of communication between operation panel and personal computer** When abnormality occurs in data communication.	Turn OFF the power.	
E918		**Abnormality of heat sink temperature for MAIN p.c.b.** When temperature of heat sink for MAIN p.c.b. is 85˚C or more.	Turn OFF the power.	
E923		**Abnormality of VCM temperature** When temperature of VCM has risen to 70˚C or more.	Turn OFF the power.	
E943		**Main EEP-ROM trouble** When data writing to EEP-ROM cannot be performed.	Turn OFF the power.	
E946		**Head EEP-ROM trouble** When data writing to EEP-ROM cannot be performed.	Turn OFF the power.	
E948		**Abnormality of F ROM.** When deletion or writing of F ROM is not performed at the time of downloading program.	Turn OFF the power.	
E996		**Thread drawing motor origin retrieval error** Origin sensor signal is not inputted at the time of operation of origin retrieval.	Turn OFF the power.	
E997		**Button loader motor origin retrieval error** Origin sensor signal is not inputted at the time of operation of origin retrieval.	Turn OFF the power.	
E998		**Differential motor origin retrieval error** Origin sensor signal is not inputted at the time of operation of origin retrieval.	Turn OFF the power.	
E999		**Y feed upper motor origin retrieval error** Origin sensor signal is not inputted at the time of operation of origin retrieval.	Turn OFF the power.	

41. USING COMMUNICATION FUNCTION

Communication function can download the sewing data created with other sewing machine, creation of sewing data and sewing data created by editing device PM-1 to the sewing machine. In addition, the function can upload the aforementioned data to the smart media or personal computer.
Smart media and RS-232C port are prepared as the vehicle to communicate.

* However, SU-1 (data server utility) is necessary to perform download/upload from the personal computer.

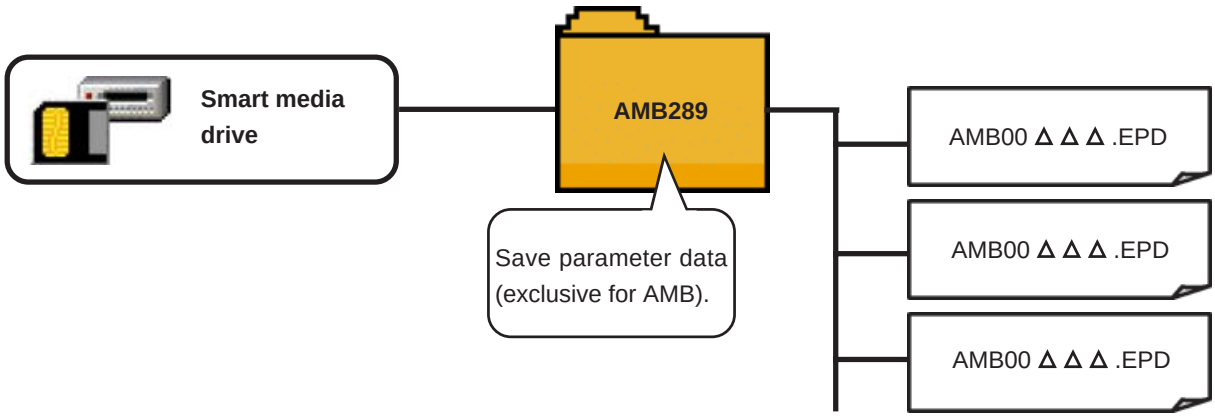
(1) Handling possible data

Handling possible sewing data is one kind below and the data format is as described below.

Data name	Pictograph	Extension	Description of data
Parameter data		AMB 00 Δ Δ Δ .EPD	Format of the data of sewing proper to AMB such as sewing shape, sewing method, interval of button holes, etc. created with the sewing machine

Δ Δ Δ : file No.

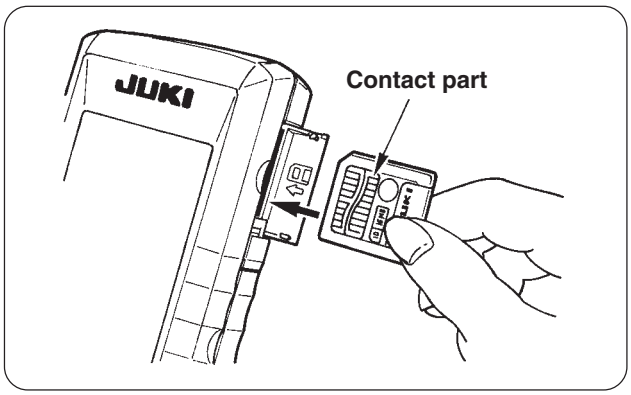
In case of saving the data in the smart media, save the data in the state of directory structure below.When the data are not saved in the correct folder, reading of file cannot be performed.



There is beforehand the PROG folder in the Smart media purchased from our company. Do not delete it.

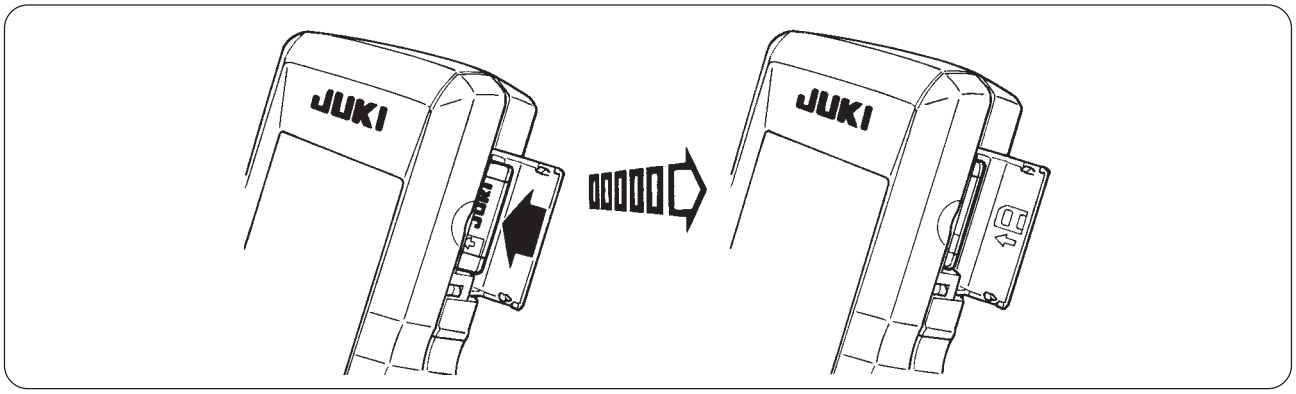
(2) Performing communication by using the smart media

[Setting procedure]



1) When the upper side cover located on the side of the operation panel is opened, there is the inserting opening for smart media card.
Put the contact part of the card to the front side and insert it into the opening.

2) The smart media card stops once in the protruding state by approximately 10 mm while inserting the card. Further, apply force to insert the card and ease up the force when it is reached to the end. Setting is completed when the card has returned by approximately 1 mm.



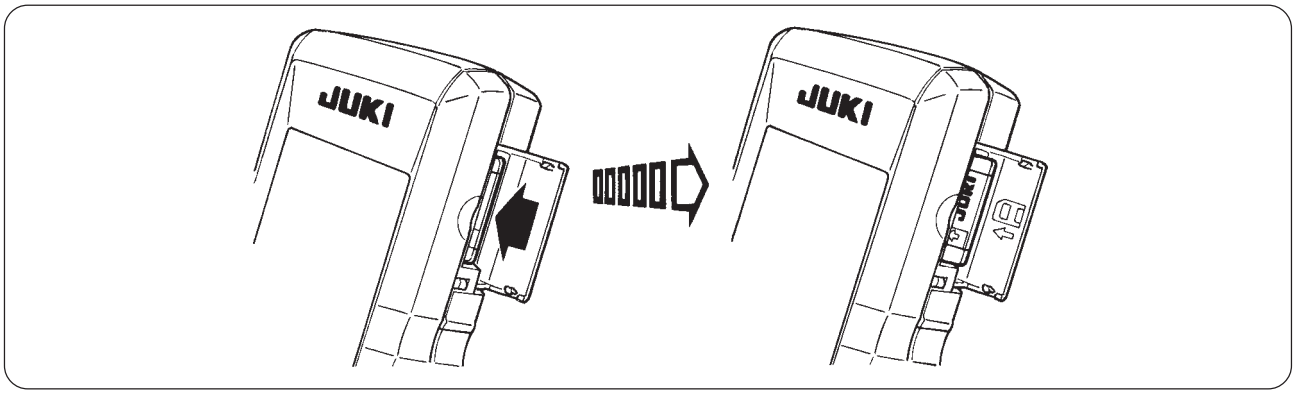
3) After completion of setting of the card, close the smart media cover. By closing the cover, it is possible to perform communication. If the smart media card and the cover come in contact with each other and the cover is not closed, check the following matters.

- Check that the inserting is stopped in the state that the card protrudes by approximately 10 mm.
- Check that the contact part of the card is put downward and inserted.
- Check that the smart media card other than 3.3V voltage type is used.

[Removing procedure]

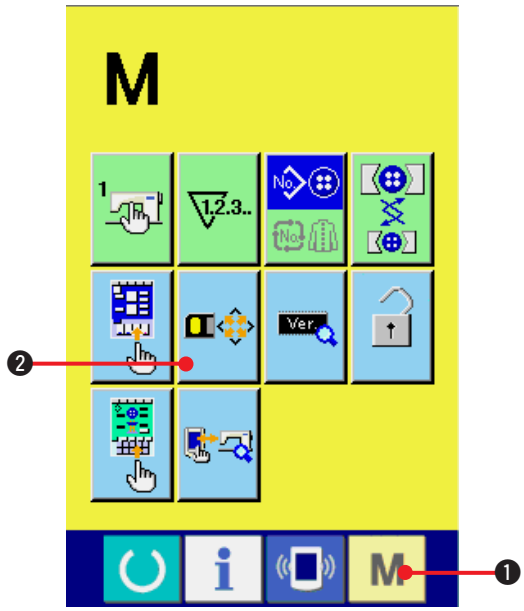
1) Open the smart media cover, push the card until it goes no further, and ease up force when it goes to the end. The card returns by approximately 10 mm in the reverse order of the time of setting.

2) Then draw out the card to complete removing.

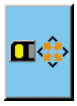


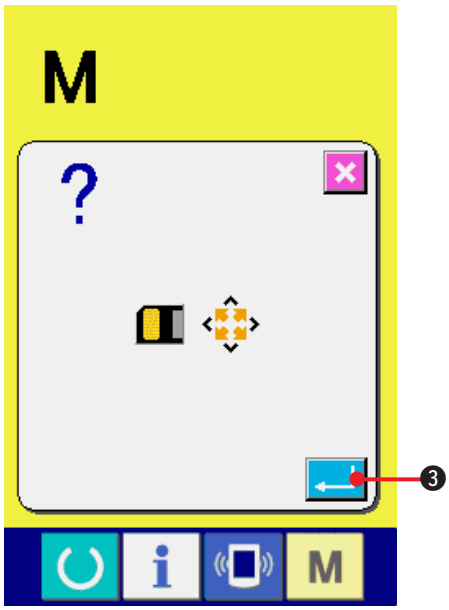
[Performing format]

In case of re-formating the smart media, be sure to perform it with IP-200. The smart media formated with the personal computer cannot be read with IP-200.



1) Display the smart media format screen.

When MODE key M ❶ is held pressed for three seconds, smart media format button  ❷ is displayed on the screen. When this button is pressed, the smart media format screen is displayed.



2) Start formating of the smart media.

Set the smart media you desire to format to the smart media slot, close the cover, press ENTER button ❸ and formating starts.

Save necessary data in the smart media to the other vehicle before formating. When formating is performed, the inside data are deleted.

[Prohibition items in handling the smart media]

① Smart media is a precision electronic instrument. Do not bend it or apply shock to it.
② It is recommended to periodically save the data saved in the smart media to the other vehicle to prepare for accidents.
③ When initializing the data, perform it after checking that necessary data do not exist in the card.
④ Avoid using or storing the smart media in a place of high temperature and high humidity.
⑤ Avoid using the smart media near exothermic and combustible articles.
⑥ If the contact part of the card becomes dirty, failure of contact will be caused. Do not touch by hand, and control so that dust, oil, or other foreign material does not adhere to it. In addition, the inside element is damaged by static electricity or the like. So, be very careful when handling.
⑦ Smart media has a span of life. Writing and deletion cannot be performed after an extended period of use. In this case, replace it with a new one.

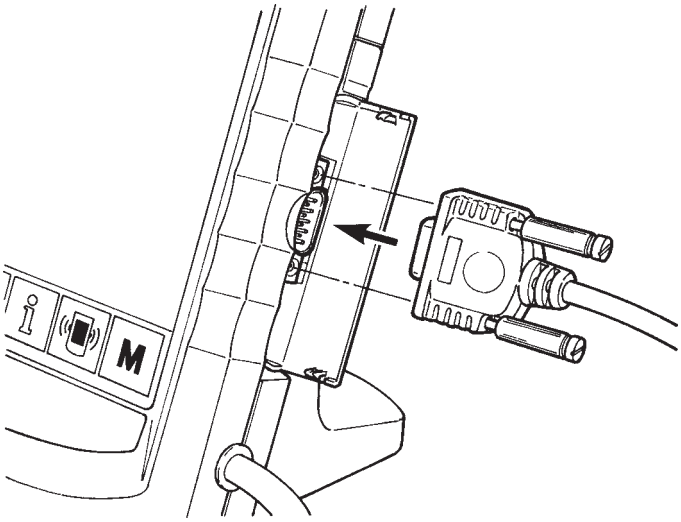
(3) Performing communication by using RS-232C

[Setting procedure]

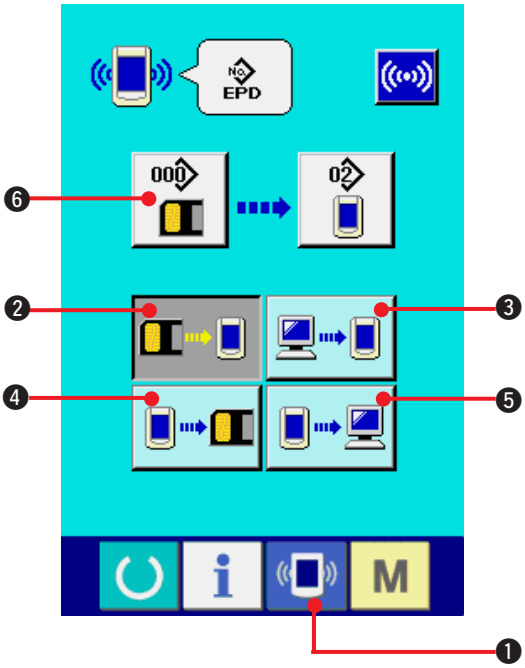
It is possible to send and receive the data, by using RS-232C cable, with the personal computer or the like. For the cable to be connected, connect reverse type 9-pin (female) to the operation panel side.

If the contact part becomes dirty, failure of contact will be caused. Do not touch by hand, and control so that dust, oil or other foreign material does not adhere to it. In addition, the inside element is damaged by static electricity or the like. So, be very careful when handling.

* When the lower part of the cover located on the side of the operation panel is opened, there is the connector of 9-pin for RS-232C. Connect the cable there. When the screw for locking is attached to the connector, tighten the screw to prevent it from falling.



(4) Take-in of the data



1) Display the communication screen.

When communication switch ❶ of switch seat section is pressed in the data input screen, the communication screen is displayed.

2) Select the communication procedure.

There are four communication procedures as described below.

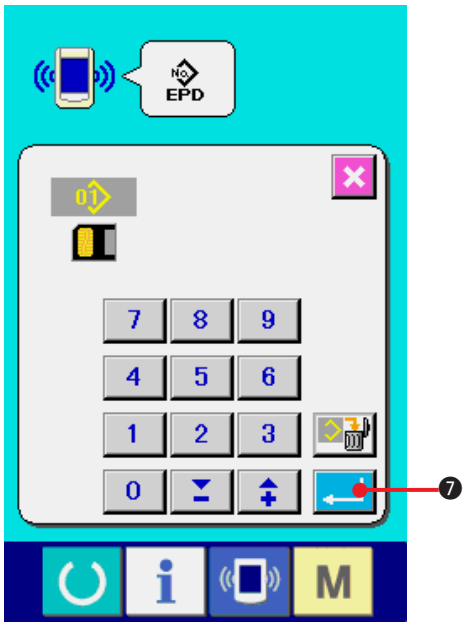
❷ Writing data from smart media to panel

❸ Writing data from personal computer (server) to panel

❹ Writing data from panel to smart media

❺ Writing data from panel to personal computer (server)

Select the button of communication procedure you desire.

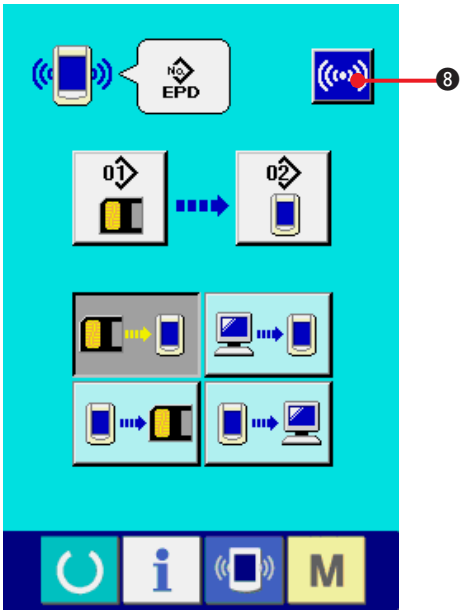


3) Select the data No.

When ❻ is pressed, the writing file selection screen is displayed.
Input the file No. of the data you desire to write.
For the file No., input the numerals of the part Δ Δ Δ of AMB 00Δ Δ Δ .EPD of the file name.
Designation of the pattern No. of writing destination can be performed in the same way.
When the writing destination is the panel, pattern Nos. which have not been registered are displayed.

4) Determine the data No.

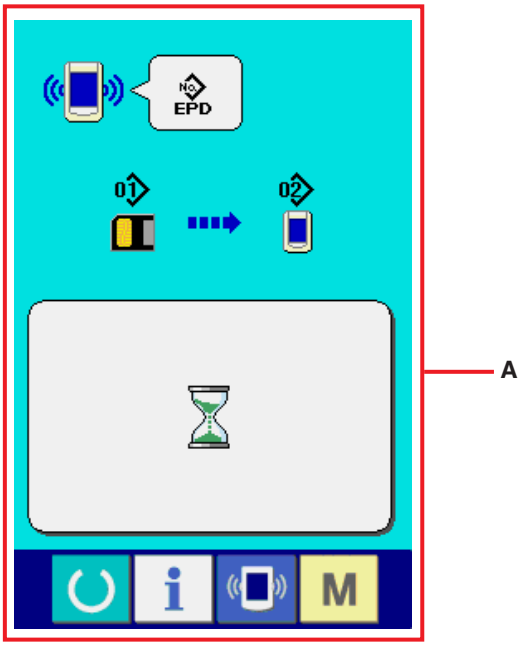
When ENTER button ❼ is pressed, the data No. selection screen is closed and the selection of the data No. has been completed.



5) Start communication.

When communication button ❽ is pressed, the data communication starts.The during communication screen (**A**) is displayed during communication and the screen returns to the communication screen after the end of communication.

* **Do not open the cover during reading the data. Data may not be read in.**



42. INFORMATION FUNCTION

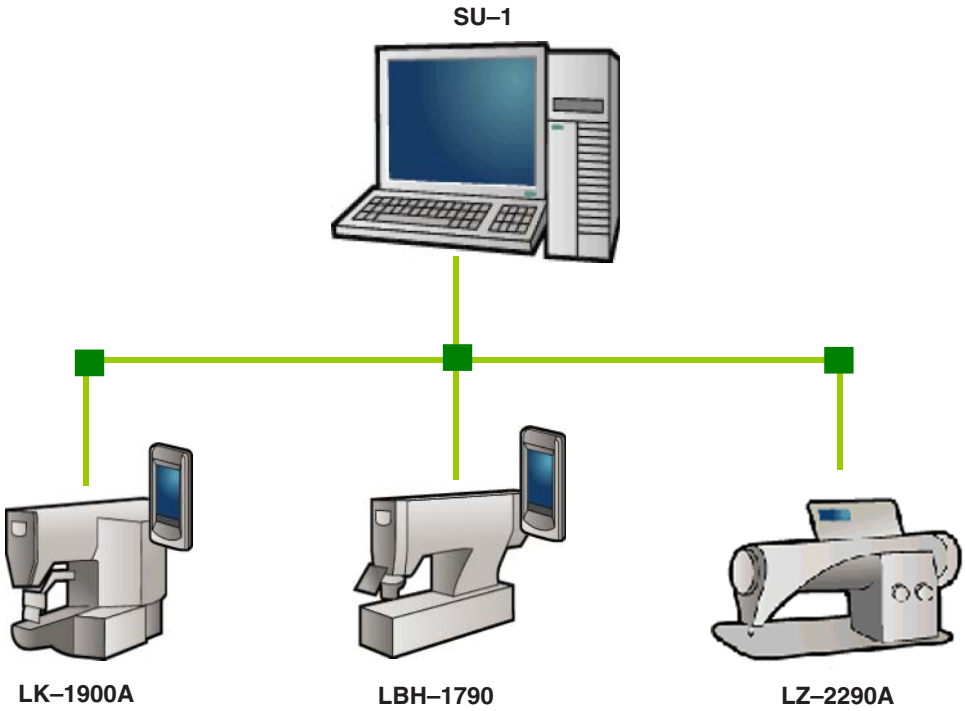
There are three functions below in the information function.

1) Oil replacement (grease-up) time, needle replacement time, cleaning time, etc. can be specified and the warning notice can be performed after the lapse of the specified time.
   Refer to **"42. (1) Observing the maintenance and inspection information"** and **"42. (2) Inputting the maintenance and inspection time"**.

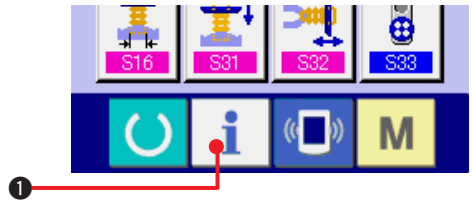
2) Speed can be checked at a glance and the target achieving consciousness as a line or group is increased as well by the function to display the target output and the actual output.
   Refer to **"42. (4) Observing the production control information"** and **"42. (5) Performing setting of the production control information"**.

3) Information on machine working ratio, pitch time, machine time and machine speed can be displayed from the working state of the sewing machine.
   Refer to **"42. (6) Observing the working measurement information"**.

In addition, information on plural sewing machines can be controlled by the server when this function is used by connecting SU-1 (sewing machine data server utility) with the sewing machines.

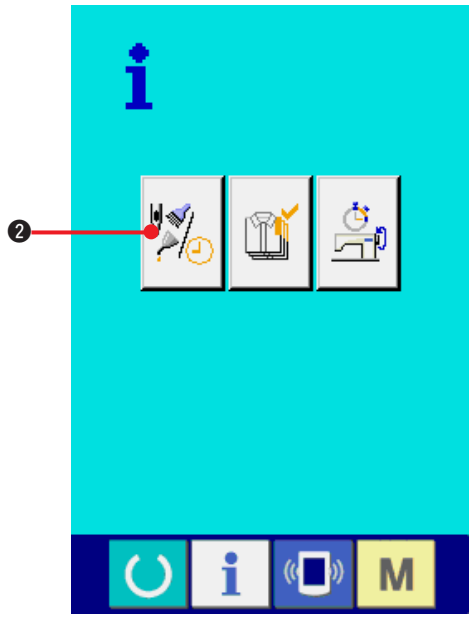


(1) Observing the maintenance and inspection information



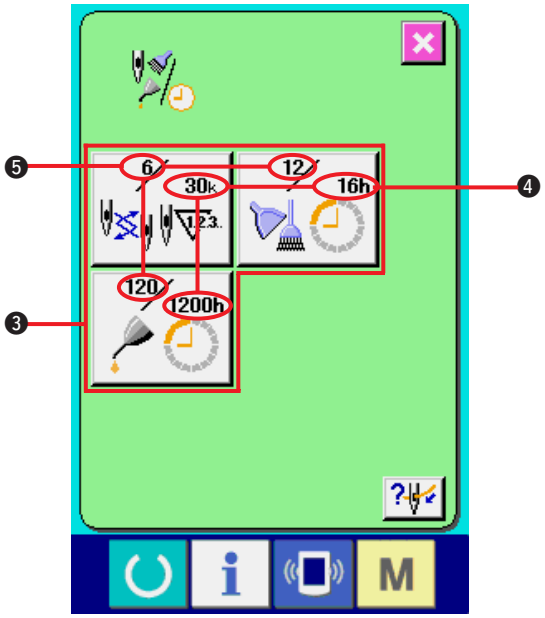
1) Display the information screen.

When information key ❶ of the switch seat section is pressed in the data input screen, the information screen is displayed.



2) Display the maintenance and inspection information screen.

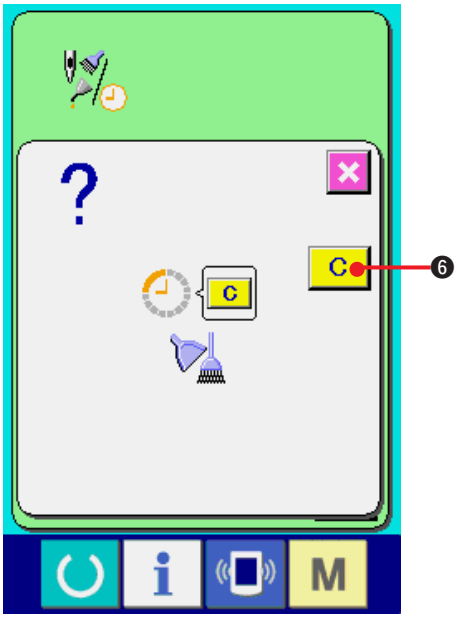
Press maintenance and inspection informationscreen display button ❷ in the information screen.



Information on the following three items is displayed in the maintenance and inspection information screen.

- Needle replacement (1,000 stitches) :
- Cleaning time (hour) :
- Oil replacement time (hour) (Grease-up time) :

The interval to inform of the inspection for each item in button ❸ is displayed at ❹, and remaining time up to the replacement is displayed at ❺. In addition, remaining time up to the replacement can be cleared.

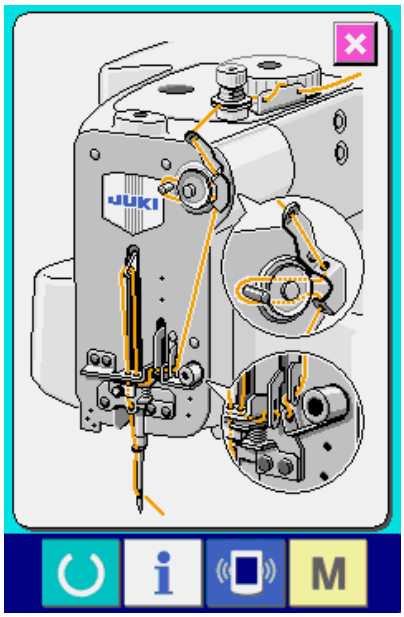


3) Perform clearing remaining time up to the replacement.

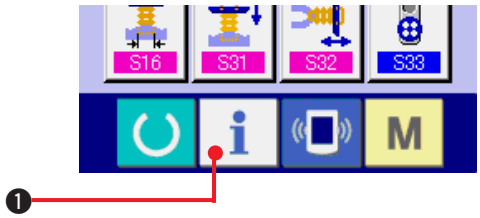
When button ❸ of the item you desire to clear is pressed, the time of replacement clear screen is displayed. When CLEAR button C ❻ is pressed, the remaining time up to the replacement is cleared.

4) Display the threading diagram.

When threading button ❼ displayed in the maintenance and inspection screen is pressed, the needle thread threading diagram is displayed. Observe it when performing threading.

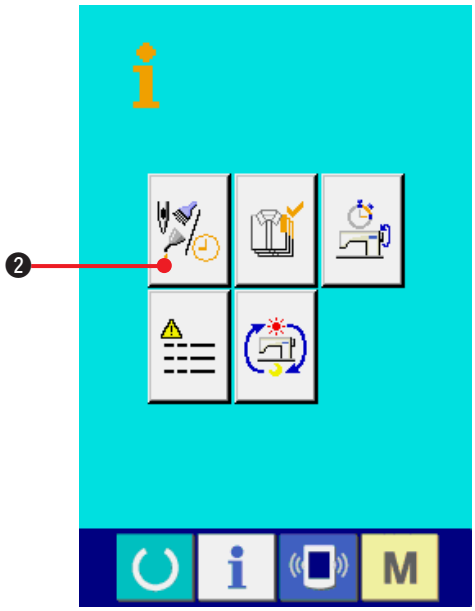


(2) Inputting the inspection time



1) Display the information screen (maintenance personnel level).

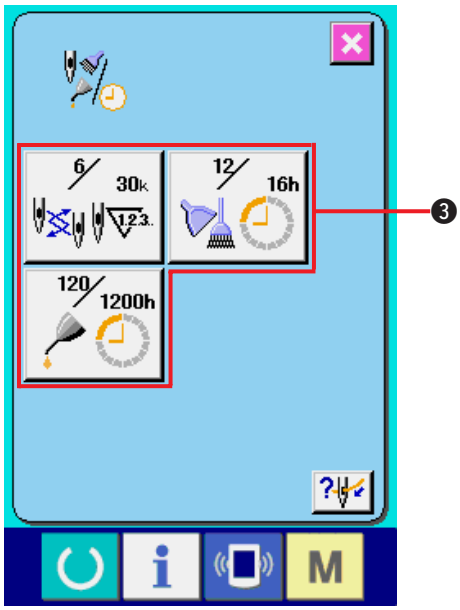
When information key ❶ of the switch seat section is pressed in the data input screen for approximately three seconds, information screen (maintenance level) is displayed. In case of the maintenance personnel level, the pictograph located on the upper left side changes from blue to orange, and five buttons are displayed.



2) Display the maintenance and inspection information screen.

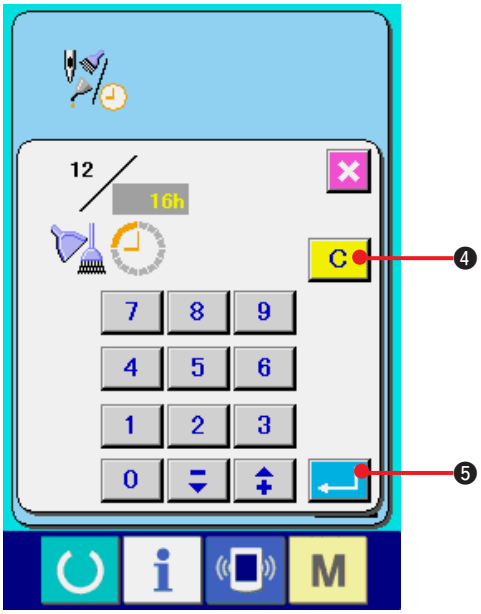
Press maintenance and inspection information screen display button ❷ in the information screen.

* For the two buttons displayed in the bottom stage at the time of the maintenance personnel level, refer to "44. Information screen of the maintenance personnel level".



The same information as that in the normal maintenance and inspection information screen is displayed in the maintenance and inspection information screen.

When button ❸ of the item you desire to change the inspection time is pressed, the inspection time input screen is displayed.



3) Input the inspection time.

Input the inspection time.

When the inspection time is set to "0", the warning function stops.

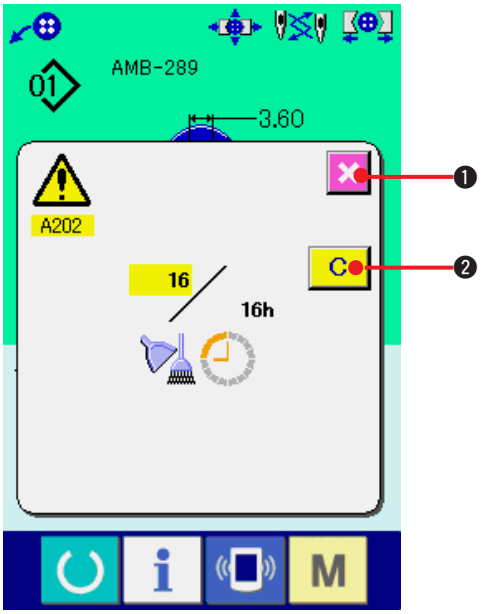
When clear button C ❹ is pressed, the value returns to the initial value.

The initial values of the inspection time of respective items are as follows.

- Needle replacement : 0 (1,000 stitches)
- Cleaning time : 0 (hour)
- Oil replacement time : 500 (hour)
  (Grease-up time)

When ENTER ❺ button is pressed, the inputted value is determined.

(3) Releasing procedure of the warning



When the designated inspection time is reached, the warning screen is displayed.

In case of clearing the inspection time, press CLEAR button C ❷. The inspection time is cleared and the pop-up is closed. In case of not clearing the inspection time, press CANCEL button ❶ and close the pop-up. Every time one sewing is completed, the warning screen is displayed until the inspection time is cleared.

Warning Nos. of the respective items are as follows.

- Needle replacement : A201
- Cleaning time : A202
- Oil replacement time : A203
  (Grease-up time)

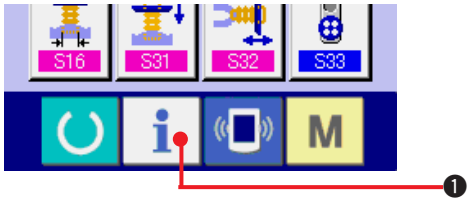
For the grease-up portion, refer to the item of "(3) Greasing parts of 5. MAINTENANCE of CHAPTER Ⅰ Mechanical section".

(4) Observing the production control information

It is possible to designate the start, display the number of pieces of production from the start to the existing time, display the number of pieces of production target, etc. in the production control screen.

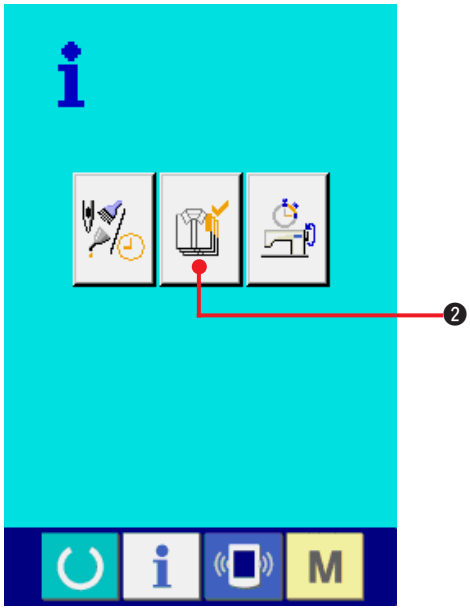
There are two kinds of display ways for the production control screen.

a. When displaying from the information screen



1) Display the information screen.

When information key ❶ of the switch seat section is pressed in the data input screen, the information screen is displayed.



2) Display the production control screen.

Press production control screen display button ❷ in the information screen. The production control screen is displayed.

Information on the following 5 items is displayed in the production control screen.

A : Existing target value

Number of pieces of the target of products at the present time is automatically displayed.

B : FActual results value

Number of pieces of the sewn products is automatically displayed.

C : Final target value

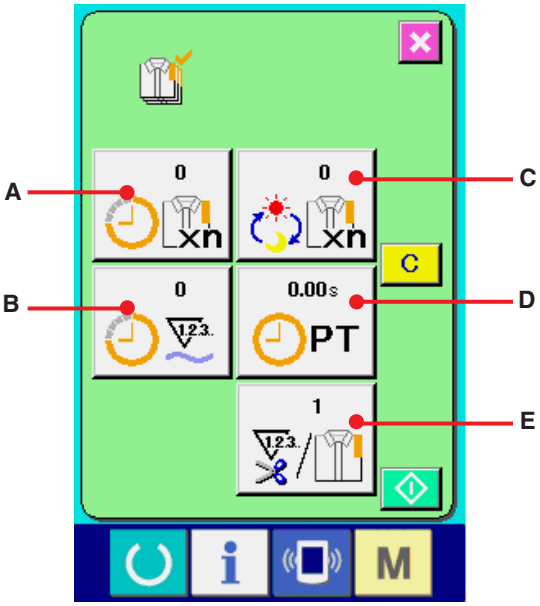
Number of pieces of the final target of products is displayed.Input the number of pieces referring to **"42.(5) Performing setting of the production control information".**

D : Pitch time

Time (second) required for one process is displayed.Input the time (unit : second) referring to **"42.(5) Performing setting of the production control information"**.

E : Number of times of thread trimming

Number of times of thread trimming per process is displayed. Input the number of times referring to **"42.(5) Performing setting of the production control information"**.

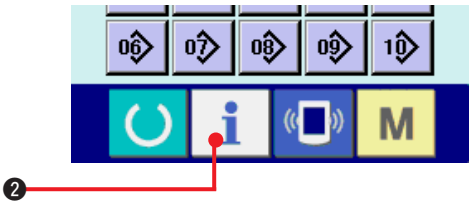


* **For AMB, number of times of thread trimming is counted up by one when one pattern has been sewn.**

b. When displaying from the sewing screen

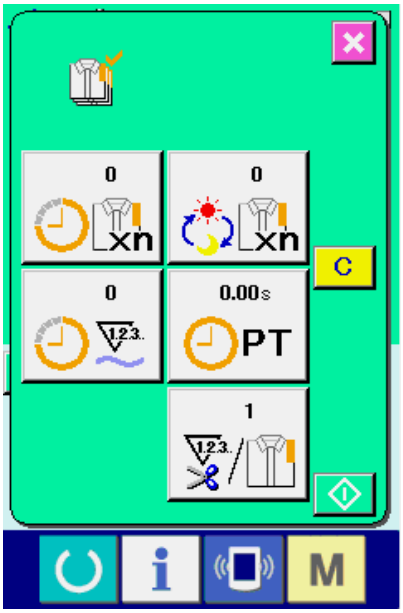
1) Display the sewing screen.

When READY key ❶ of the switch seat section is pressed in the data input screen, the sewing screen is displayed.



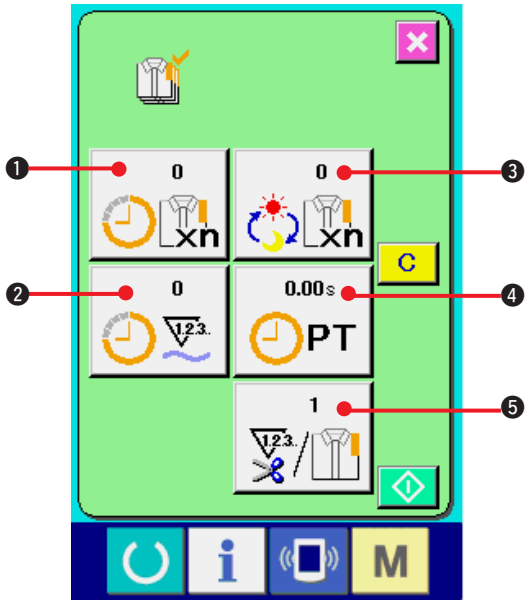
2) Display the production control screen.

When information key ❷ of the switch seat section is pressed in the sewing screen, the production control screen is displayed.



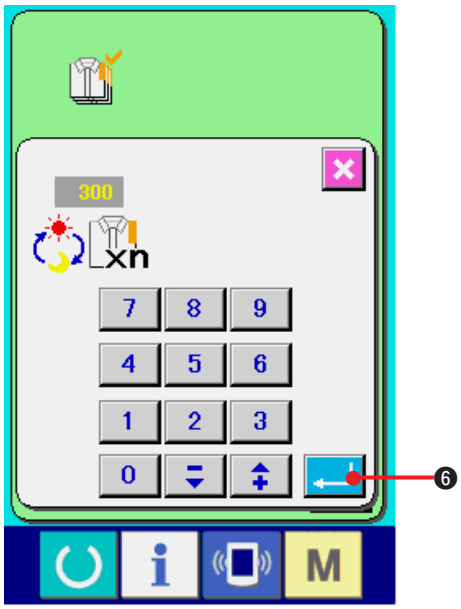
The contents of display and the functions are common to "42. (4)-a. When displaying from the information screen".

(5) Performing setting of the production control information



1) Display the production control screen.

Display the production control screen referring to **"42.(4) Observing the production control information"**.

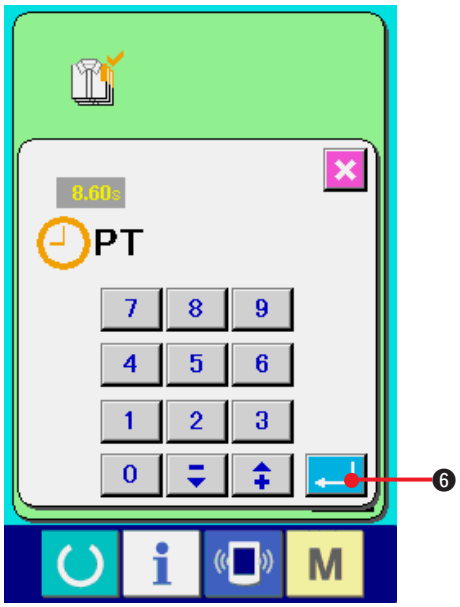


2) Input the final target value.

First, input the number of pieces of the target of production in the process to which sewing is performed from now on. When final target value button ❸ is pressed, the final target value input screen is displayed.

Input the value you desire with ten keys or UP/DOWN buttons.

After the input, press ENTER button ❻.

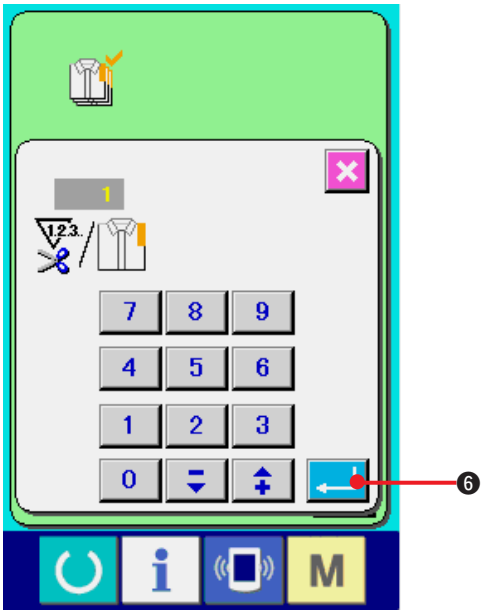


3) Input the pitch time.

Next, input the pitch time required for one process. When PITCH button ❹ of the aforementioned item 1) is pressed, the pitch time input screen is displayed.

Input the value you desire with ten keys or UP/DOWN buttons.

After the input, press ENTER button ❻.



4) **Input the number of times of thread trimming.**

Next, input the number of times of thread trimming per process.

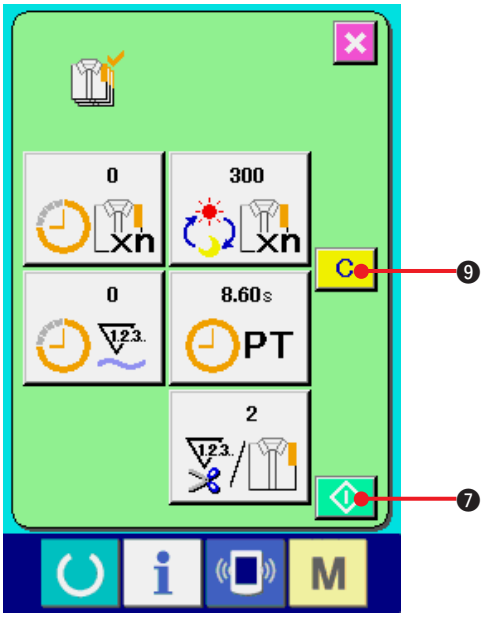
When number of times of thread trimming button ❺ in the previous page is pressed, the number of times of thread trimming input screen is displayed.

Input the value you desire with ten keys or UP/DOWN buttons.

After the input, press ENTER button ❻.

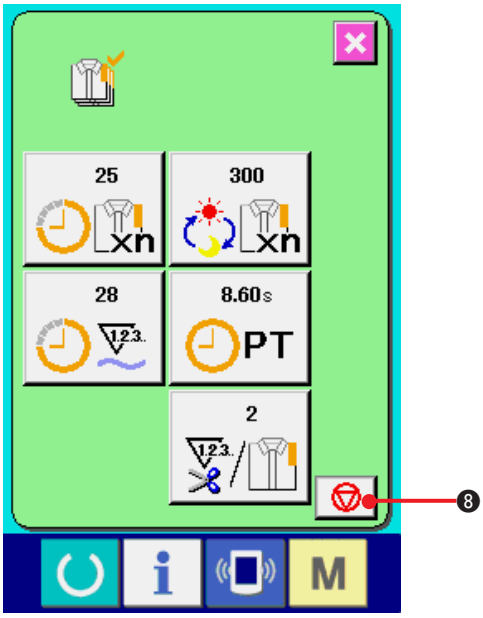
* **When the input value is "0", count of the number of times of thread trimming is not performed. Use this function by connecting the external switch.**

* **For AMB, number of times of thread trimming is counted up by one when one pattern has been sewn.**



5) **Start the count of number of pieces of production.**

When START button ❼ is pressed, the count of number of pieces of production is started.

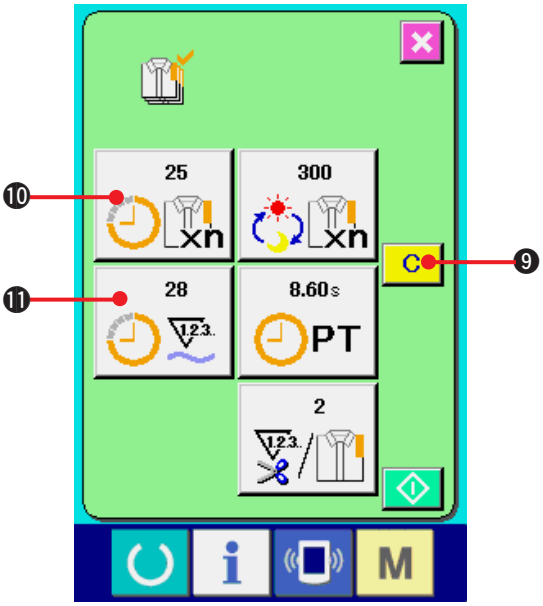


6) **Stop the count.**

Display the production control screen referring to "42. (4) Observing the production control information".

When the count is being performed, STOP switch ❽ is displayed. When STOP button ❽ is pressed, the count is stopped.

After the stop, START button ❼ is displayed at the position of STOP button. When continuing the count, press START button again. The counted value is not cleared until CLEAR button C ❾ is pressed.



7) Clear the counted value.

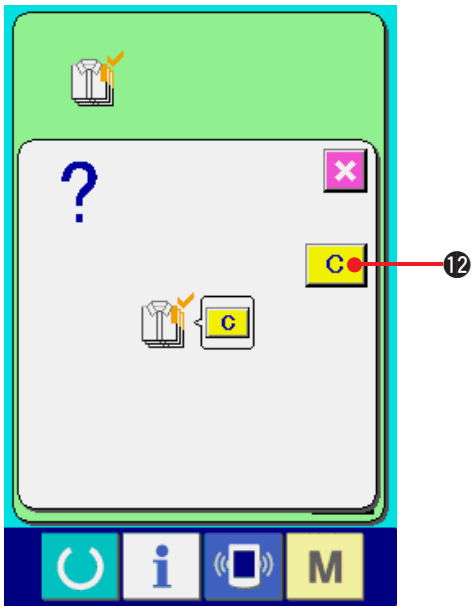
When clearing the counted value, set the count to the stop state and press CLEAR button C ❾.

The value to be cleared is the present target value ❿ and actual results value ⓫ only.

(Note)

CLEAR button is displayed only in case of stop state.

When CLEAR button is pressed, the clear confirmation screen is displayed.

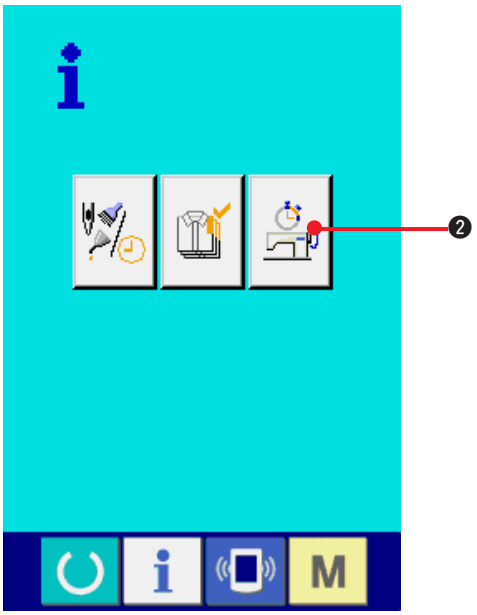


When CLEAR button C ⓬ is pressed in the clear confirmation screen. the counted value is cleared.

(6) Observing the working measurement information

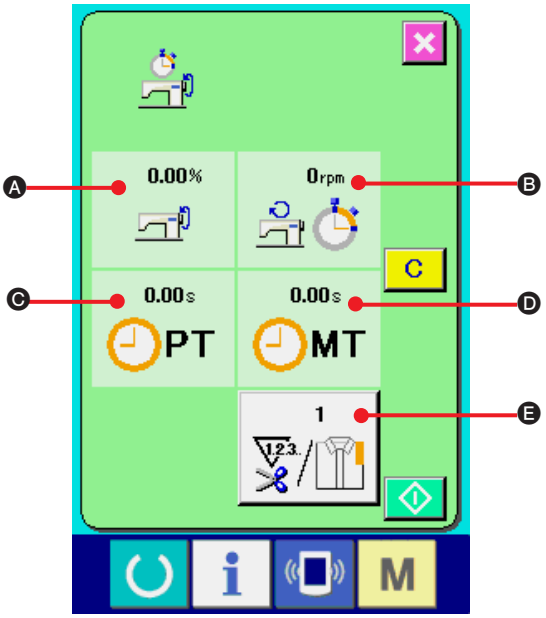
1) Display the information screen.

When information key ❶ of the switch seat section is pressed in the data input screen, the information screen is displayed.



2) Display the working measurement screen.

Press working measurement screen display button ❷ in the information screen. The working measurement screen is displayed.



Information on the following 5 items are displayed in the working measurement screen.

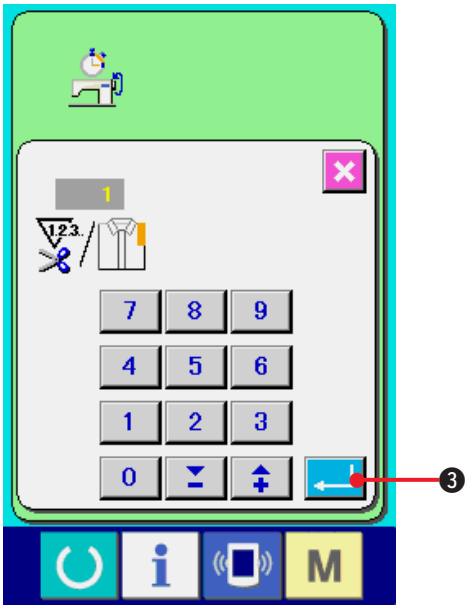
Ⓐ : The information is automatically displayed from the time of start of measuring the working ratio.

Ⓑ : The information is automatically displayed from the time of start of measuring the machine speed.

Ⓒ : The information is automatically displayed from the time of start of measuring the pitch time.

Ⓓ : The information is automatically displayed from the time of start of measuring the machine time.

Ⓔ : Number of times of thread trimming is Input the number of times referring to item 3) on the next page.



3) Input the number of times of thread trimming.

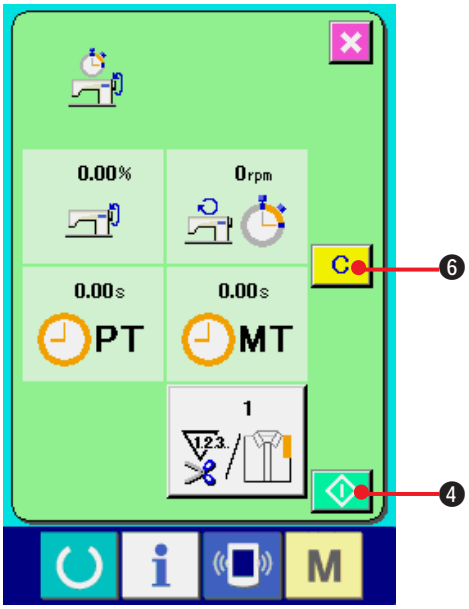
Next, input the number of times of thread trimming per process. When number of times of thread trimming button ❺ in the previous page is pressed, the number of times of thread trimming input screen is displayed.

Input the value you desire with ten keys or UP/DOWN buttons.

After the input, press ENTER button ❸.

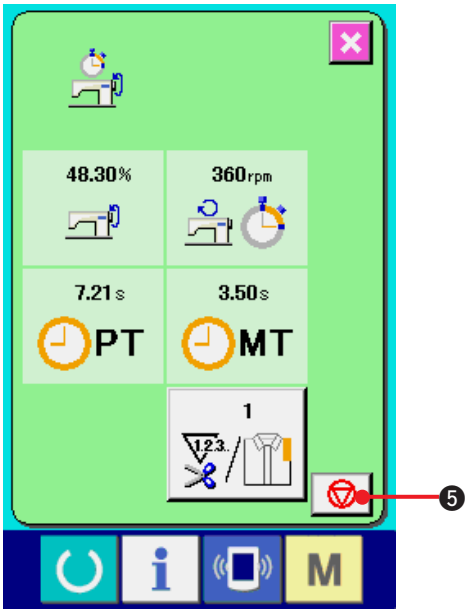
> **Reference**
>
> **When the input value is 0, count of the number of times of thread trimming is not performed. Use this function by connecting the external switch.**

* **For AMB, number of times of thread trimming is counted up by one when one pattern has been sewn.**



4) Start the measurement.

When START button ❹ is pressed, measurement of each data is started.

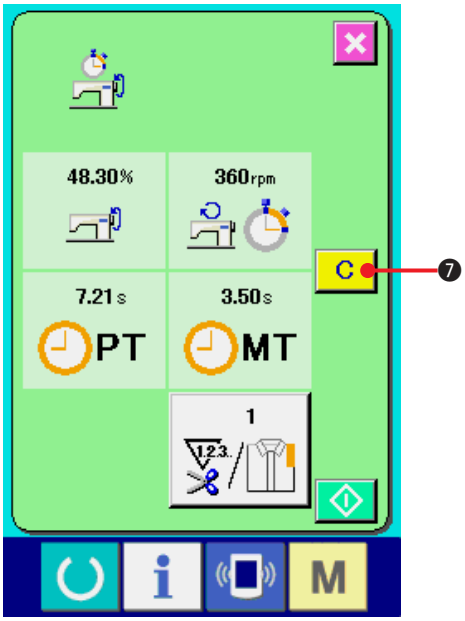


5) Stop the count.

Display the working measurement screen referring to 1) and 2) of "42. (6) Observing the working measurement information".

STOP switch ❺ is displayed when the measurement is being performed. When STOP switch ❺ is pressed, the measurement is stopped.

After the stop, START button ❹ is displayed at the position of STOP button. To continue measuring, press START button ❹ again. The measured value is not cleared until CLEAR button C ❻ is pressed.

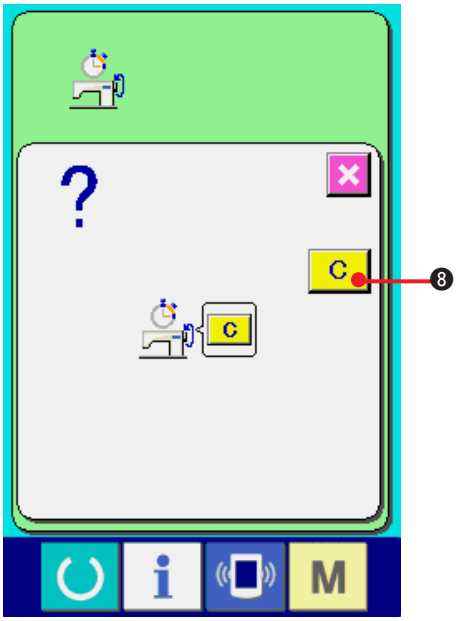


6) Clear the counted value.

When clearing the counted value, set the count to the stop state and press CLEAR button C ❼.

(Note)
CLEAR button is displayed in case of the stop state only.

When CLEAR button C ❼ is pressed, the clear confirmation screen is displayed.



When CLEAR button C ❽ is pressed in the clear confirmation screen, the counted value is cleared.

43. COMMUNICATION SCREEN OF MAINTENANCE PERSONNEL LEVEL

For the communication screen, the level which is normally used and the one which is used by the maintenance personnel are different in the kinds of data to be handled.

(1) Data which are possible to be handledIn case of the maintenance

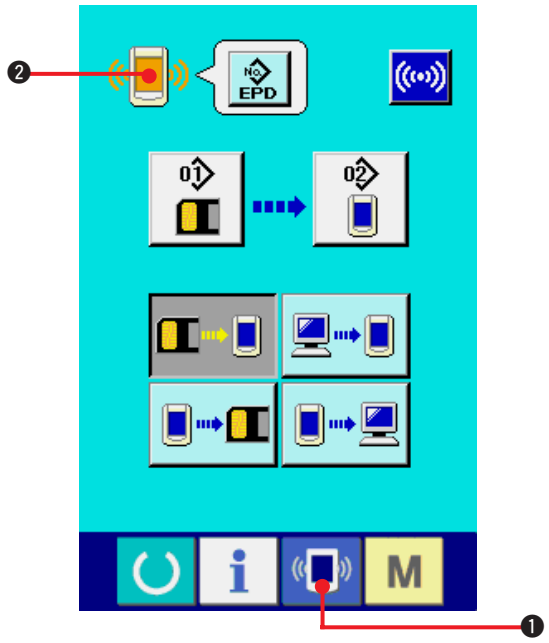
In case of the personnel level, it is possible to use 5 different kinds of data in addition to the normal one kinds.The respective data formats are as below.

Data name	Pictograph	Extension	Description of data
Adjustment data		Model name+00Δ Δ Δ.MSW Example) AMB00001.MSW	Data of memory switches 1 and 2
All sewing machine data		Model name+00Δ Δ Δ.MSP Example) AMB00001.MSP	All data which are held by sewing machine
Panel program data (*)		IP+RVL(6 digits).PRG IM+RVL(6 digits).BHD	Program data and display data of panel
Main program data (*)		MA+RVL(6 digits).PRG	Program data of main
Servo program data (*)		MT+RVL(6 digits).PRG	Program data of servo

Δ Δ Δ : File No.

*** For panel program data, main program data and servo program data, refer to the Engineer's Manual.**

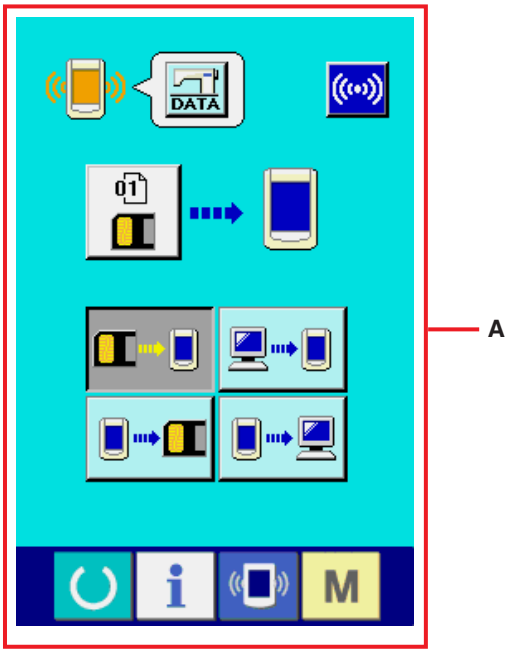
(2) Displaying maintenance personnel level



1) Display the communication screen of the maintenance personnel level.

When key ❶ is pressed as long as three seconds, the image located at the upper left position is changed to orange color ❷ and the communication screen of the maintenance personnel level is displayed.

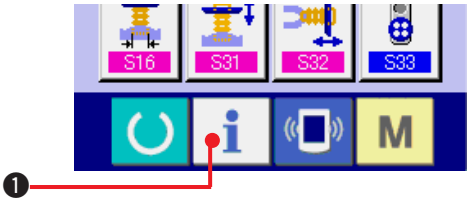
For the operating procedure, refer to "41. (4) Take-in of the data".



* **When the adjustment data or the all sewing machine data is selected, the display becomes as shown in the screen "A" and it is not necessary to specify No. on the panel side.**

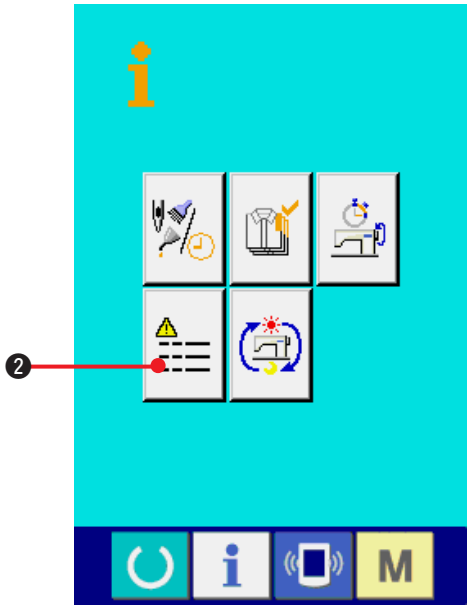
44. INFORMATION SCREEN OF THE MAINTENANCE PERSONNEL LEVEL

(1) Display of error record



1) Display the information screen of the maintenance personnel level.

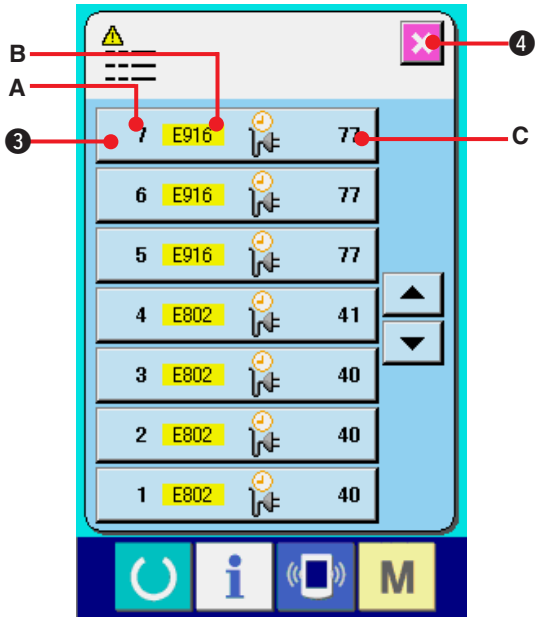
When INFORMATION key ❶ of switch seat section is pressed for approximately three seconds in the data input screen, the information screen of the maintenance personnel level is displayed. In case of the maintenance personnel level, the pictograph located at the upper left position changes from blue color to orange color, and 5 buttons are displayed.



2) Display the error record screen.

Press ERROR RECORD SCREEN DISPLAY button ❷ in the information screen. The error record screen is displayed.

Error record of the sewing machine you use is displayed in the error record screen, and you can check the error.

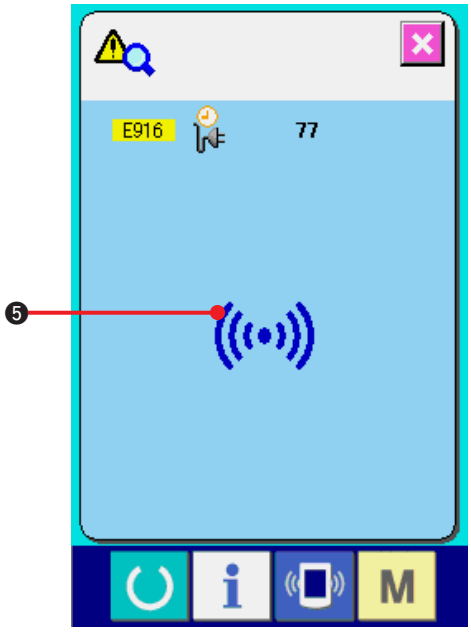


A : Order that error has occurred.
B : Error code
C : Cumulative current-carrying time (hour) at the time of occurrence of error

When CANCEL button ❹ is pressed, the error record screen is closed and the information screen is displayed.

3) Display the details of error.

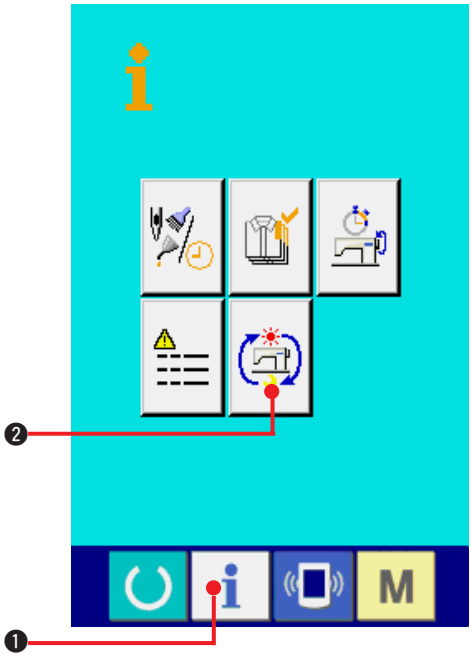
When you desire to know the details of error, press ERROR button 7 E916 77 ❸ you desire to know. The error detail screen is displayed.



Pictograph ❺ corresponding to the error code is displayed in the error detail screen.

Refer to "40. ERROR CODE LIST".

(2) Display of the cumulative working information

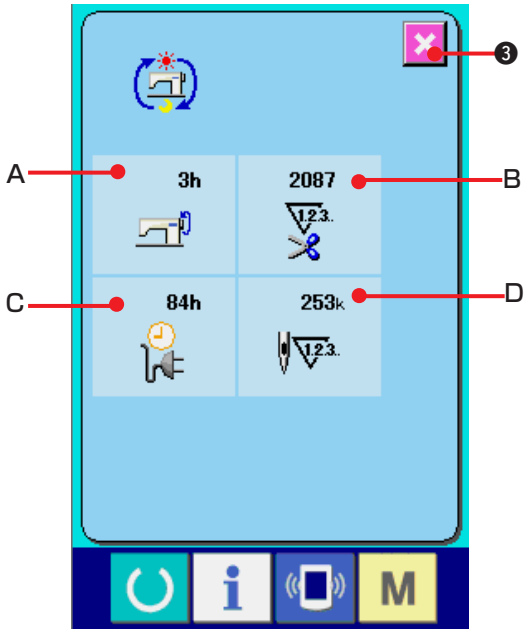


1) Display the information screen of the maintenance personnel level.

When INFORMATION key ❶ of switch seat section is pressed for approximately three seconds in the data input screen, the information screen of the maintenance personnel level is displayed. In case of the maintenance personnel level, the pictograph located at the upper left position changes from blue color to orange color, and 5 buttons are displayed.

2) Display the cumulative working information screen.

Press CUMULATIVE WORKING INFORMATION SCREEN DISPLAY button ❷ of the information screen. The cumulative working information screen is displayed.



Information on the following 4 items are displayed in the cumulative working information screen.

A : Cumulative working time (hour) of the sewing machine is displayed.
B : Number of cumulative times of thread trimming is displayed.
C : Cumulative current-carrying time (hour) of the sewing machine is displayed.
D : Number of cumulative stitches is displayed.(Unit : X1,000 stitches)

When CANCEL button ❸ is pressed, the cumulative working information screen is closed and the information screen is displayed.

Contents