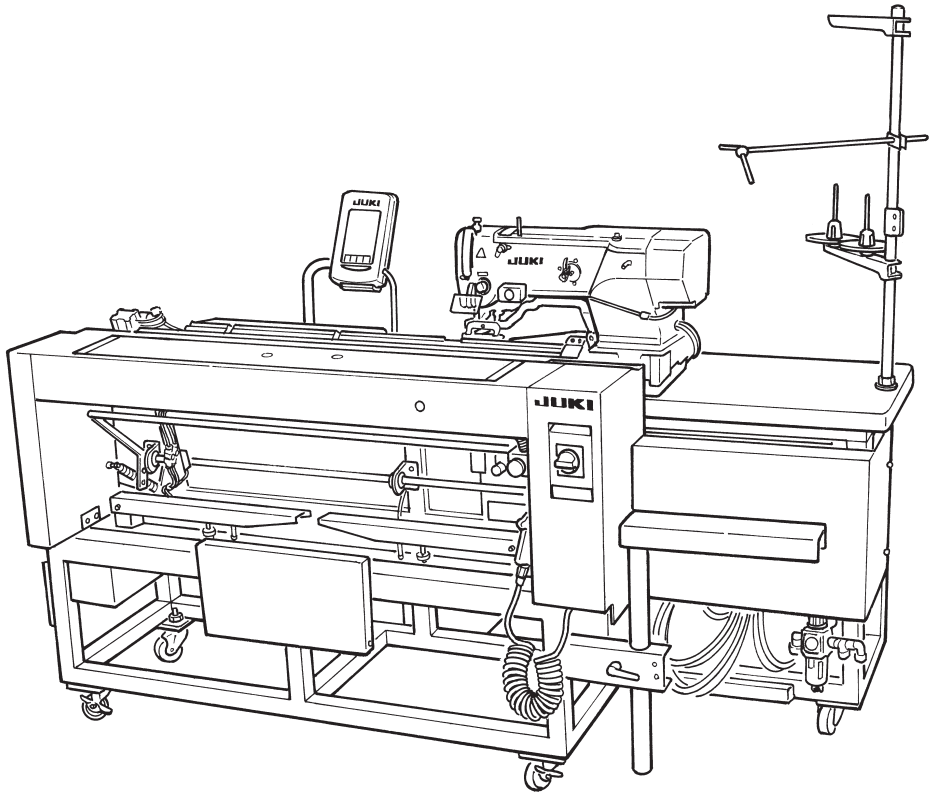
JUKI

1-Needle,Lockstitch,
Automatic buttonholing Machine

ACF-172-1790

INSTRUCTION MANUAL (PANEL OPERATION)



NOTE : Read safety instructions carefully and understand them before using.
Retain this Instruction Manual for future reference.

1. OPERATION TO DRIVE THE DEVICE (ACF MODE) 4
1-1. Name of each section of the operation panel 4
1-1-1. Body 4
1-1-2. Buttons to be used in common 6
1-2. BASIC OPERATION OF THE SEWING MACHINE 7
1-3. LCD display section under ACF mode 8
1-3-1. ACF data input screen 8
1-3-2. Automatic sewing screen 11
1-3-3. Manual sewing screen 13
1-4. Performing ACF pattern selection 14
1-5. Performing re-sewing 15
1-6. WINDING BOBBIN THREAD 17
1-7. Using counter 18
1-7-1. Setting procedure of the counter 18
1-7-2. Count-up releasing procedure 20
1-8. Performing new register of ACF pattern. 21
1-8-1. Performing the equal interval input 21
1-8-2. Performing the individual input. 24
1-9. Copying ACF pattern 27
1-10. Changeover of men's and ladies' wear. 29
1-11. Naming the pattern 30
2. OPERATION OF THE SINGLE UNIT OF SEWING MACHINE AND SETTING PROCEDURE (LBH MODE) 31
2-1. LCD display section at the time of independent sewing 31
2-1-1. LBH data input screen 31
2-1-2.Independent sewing screen 34
2-2. Performing LBH pattern No. selection 36
2-3. Performing sewing shape selection 37
2-4. Performing re-sewing under LBH mode 39
2-4-1. To continue performing sewing from some point in sewing 39
2-4-2. To perform sewing from the start 40
2-5. Performing new register of LBH pattern 41
2-6. SEWING SHAPE LIST 43
2-7. CHANGING SEWING DATA 44
2-7-1. Changing procedure of sewing data 44
2-7-2. Sewing data list 46
2-8. INPUTTING THE PRESSER TYPE 56
2-8-1 Setting procedure of the presser type 56
2-8-2. Table of presser type 57

2-9. CHANGING NEEDLE THREAD TENSION 58
2-10. SETTING PROCEDURE OF SEWING DATA WITH/WITHOUT EDIT 60
2-11. Copying LBH sewing pattern 61
2-12. REGISTERING SEWING DATA TO CUSTOMIZE BUTTON 63
2-12-1. How to register 63
2-12-2. Register state at the time of your purchase 64
2-13. CHANGING SEWING MODE 65
2-14. LCD DISPLAY SECTION AT THE TIME OF CONTINUOUS STITCHING 66
2-14-1. LBH continuous stitching data input screen 66
2-14-2. LBH continuous stitching sewing screen 68
2-15. Performing LBH continuous stitching 71
2-15-1. Selection of LBH continuous stitching data 71
2-15-2. Editing procedure of the LBH continuous stitching data 72
2-16. EXPLANATION OF PLURAL MOTIONS OF KNIFE 75
2-17. CHANGING MEMORY SWITCH DATA 78
2-17-1. Changing procedure of memory switch data 78
2-17-2. Memory switch data list 80
3. OTHER FUNCTIONS 87
3-1. USING COMMUNICATION FUNCTION 87
3-1-1. Handling possible data 87
3-1-2 Performing communication by using the smart media 89
3-1-3. Performing communication by using RS232C 92
3-1-4. Take-in of the data 93
3-2. INFORMATION FUNCTION 96
3-2-1. Observing the maintenance and inspection information 97
3-2-2. Inputting the inspection time 99
3-2-3. Releasing procedure of the warning 101
3-2-4. Observing the production control information 102
3-2-4-1. When displaying from the information screen 102
3-2-4-2. When displaying from the sewing screen 104
3-2-5. Performing setting of the production control information 105
3-2-6. Observing the working measurement information 108
3-3. TRIAL SEWING FUNCTION 111
3-3-1. Performing trial sewing 111
3-3-2. Vector parameter list 114
3-3-3. Thread tension value display color list 115
4. ERROR CODE LIST 116
5. MAINTENANCE MODE 126
5-1. PERFORMING KEY LOCK 126

5-2. DISPLAYING VERSION INFORMATION 128
5-3. USING CHECK PROGRAM 129
5-3-1. Displaying the check program screen 129
5-3-2. Performing needle thread trimmer origin adjustment 130
5-3-3. Performing bobbin thread trimmer origin adjustment 131
5-3-4. Performing sensor check 132
5-3-5. Performing LCD check 134
5-3-6. Performing touch panel compensation 135
5-4. Communication screen of maintenance personnel level 137
5-4-1. Data which are possible to be handled 137
5-4-2. Displaying the maintenance personnel level 138
5-5. Information screen of the maintenance personnel level 139
5-5-1. Display of error record 139
5-5-2. Display of the cumulative working information 141

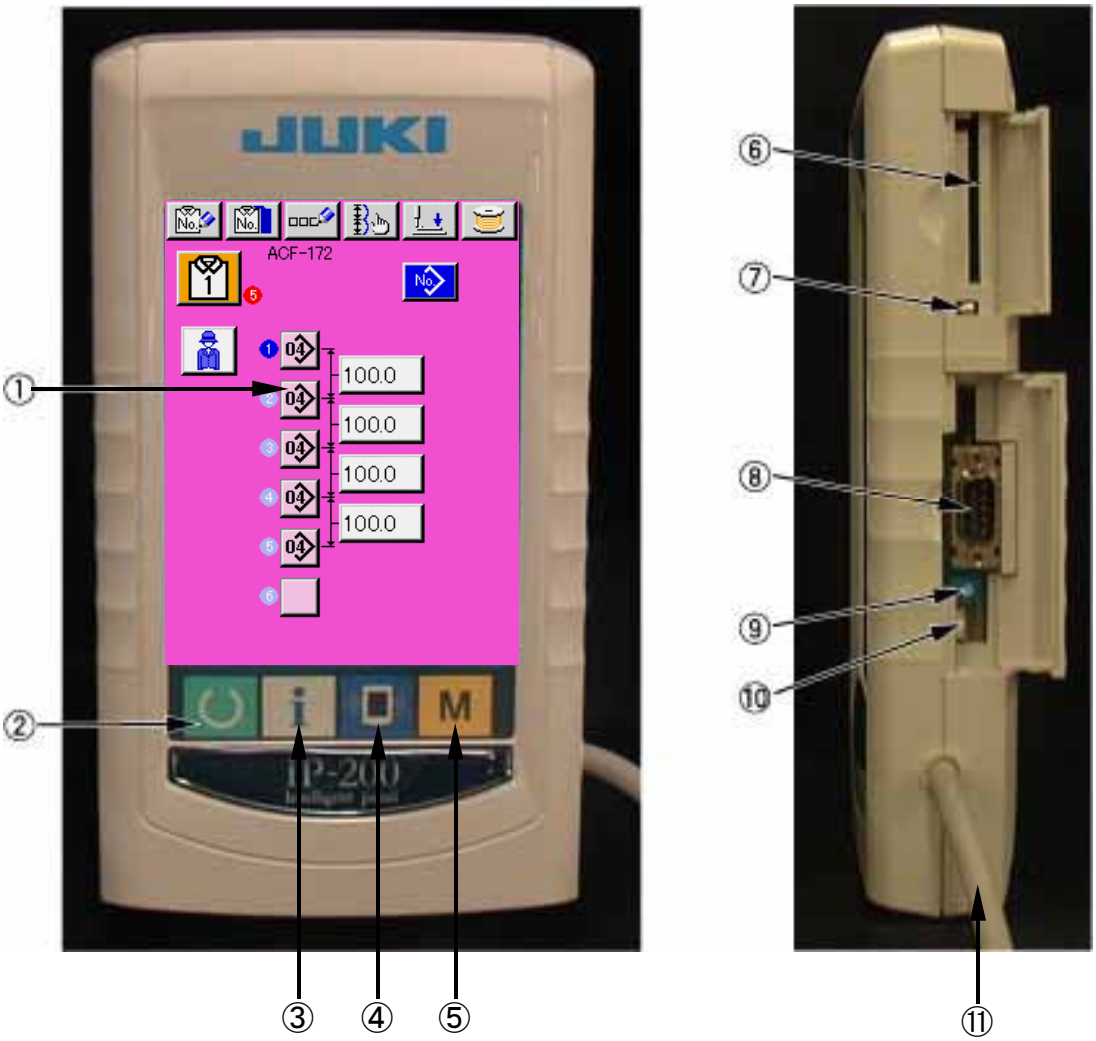
1. OPERATION TO DRIVE THE DEVICE (ACF MODE)

1-1. Name of each section of the operation panel

1-1-1. Body

(Front)

(Right side)



① **Touch panel · LCD display section**

②  **READY key** → Changeover of the data input screen and the sewing screen can be performed.

③  **INFORMATION key** → Changeover of the data input screen and the information screen can be performed.

④  **COMMUNICATION key** → Changeover of the data input screen and the communication screen can be performed.

⑤ 

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

⑥ **Smart media card slot (Close the cover for use.)**

⑦ **Slide switch (Not used. OFF)**

⑧ **Connector for RS232C communication**

⑨ **Variable resistor for color LCD screen contrast adjustment** → Screen contrast can be adjusted. Adjust it as you desire.

⑩ **Connector for external input**

⑪ **Cable**

1-1-2. Buttons to be used in common

The buttons which perform common operations in each screen of IP200 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 2-7.CHANGING SEWING DATA,p.44.

ACF PATTERN NAME setting → This button displays the character input screen.

→Refer to 1-11. Naming the pattern,p.30.

PRESSER DOWN button → This button lowers the presser and displays the presser down screen.

To raise the presser, press PRESSER UP button displayed in the presser down screen.

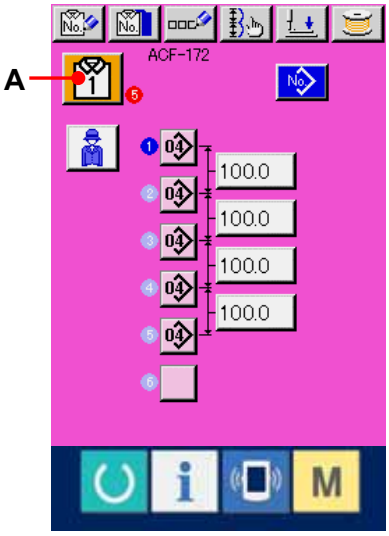
BOBBIN WINDER button → This button performs bobbin thread winding.

→Refer to 1-6. WINDING BOBBIN THREAD,p.17.

1-2. BASIC OPERATION OF THE SEWING MACHINE

① Turn ON the power switch.

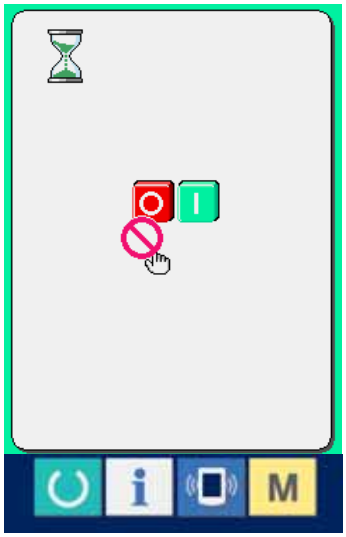
When the power is turned ON, the ACF data input screen is displayed.



② Select the pattern No. you desire to sew.

When ACF pattern selected button (A) which is selected at present is pressed, selection of ACF pattern No. can be performed. For the selecting procedure of ACF pattern No, refer to 1-4. Performing ACF pattern selection,p.14.

※ For the details of this screen, refer to 1-3-1. ACF data input screen,p.8.

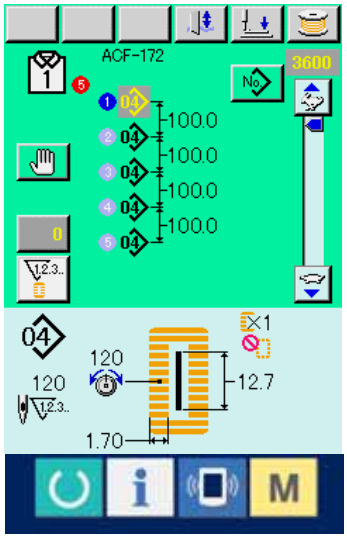


③ Set the sewing machine to sewing possible state.

When the sewing machine is set to sewing possible state, the back-light of LCD display changes to green color and ACF automatic sewing screen is displayed.

④ Start sewing.

Set the sewing product and press the knee switch or hand switch (switch set to the start switch).Then the sewing machine automatically starts and sewing starts.

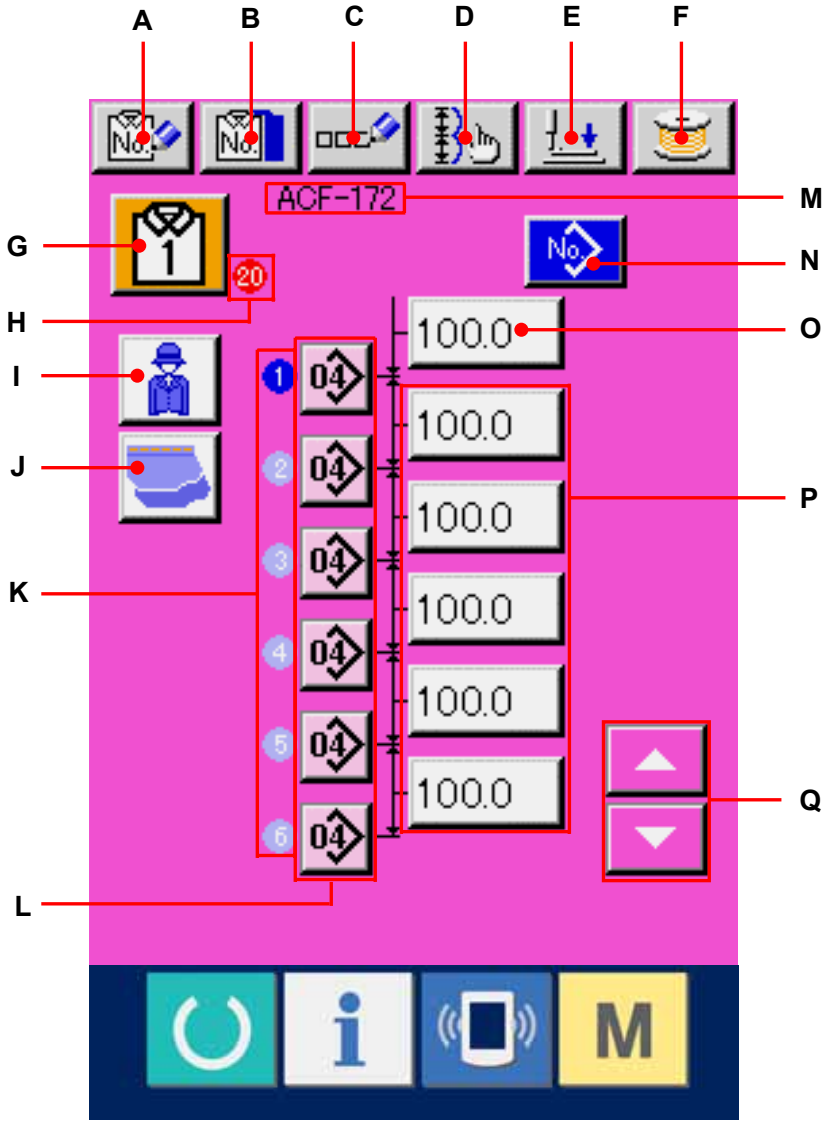


※ For the setting procedure of the start switch, refer to 2-17. CHANGING MEMORY SWITCH DATA,p.78.

※ For the detailed explanation of this screen, see 1-3-2. Automatic sewing screen,p.11.

1-3. LCD display section under ACF mode

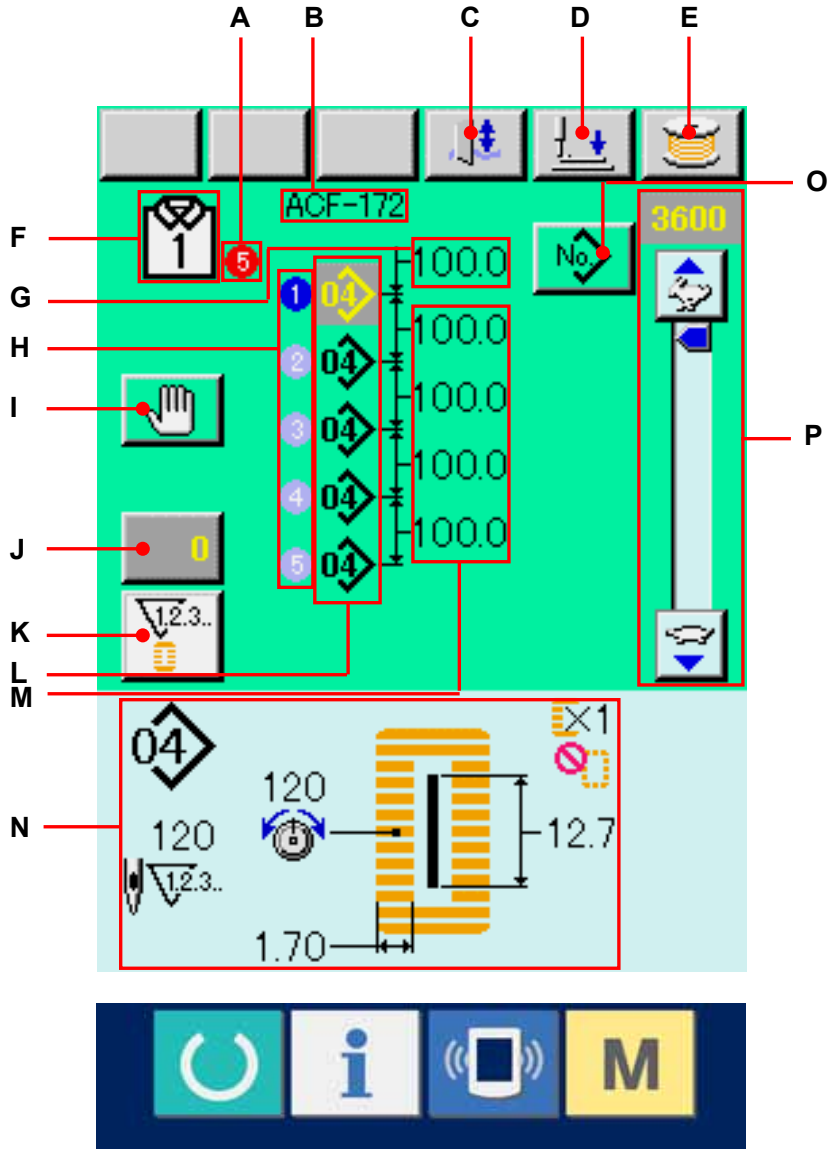
1-3-1. ACF data input screen



	Button and display	Description
A	ACF PATTERN NEW REGISTER button	ACF pattern No. new register screen is displayed. → Refer to 1-8. Performing new register of ACF pattern.,p.21.
B	ACF PATTERN COPY button	ACF pattern No. copy screen is displayed. → Refer to 1-9. Copying ACF pattern,p.27.
C	ACF PATTERN NAME SETTING button	Sewing pattern name input screen is displayed. → Refer to 1-11. Naming the pattern,p.30.
D	EQUAL INTERVAL INPUT button	Number of buttonholes input screen is displayed and ACF pattern data being selected at present can be edited. → Refer to 1-8-1.⑥Input the number of buttonholes,p.22.
E	PRESSER DOWN button	Presser can be lowered and the presser down screen is displayed. To raise the presser, press the presser up button which is displayed in the presser down screen.
F	BOBBIN WINDER button	Bobbin thread can be wound.→ Refer to 1-6. WINDING BOBBIN THREAD,p.17.
G	ACF PATTERN SELECTION button	ACF pattern No. being selected at present is displayed on this button and when this button is pressed, ACF pattern No. selection screen is displayed. → Refer to 1-4. Performing ACF pattern selection,p.13.
H	NUMBER OF BUTTONHOLES REGISTERED	Number of buttonholes registered to ACF pattern No. being selected at present is displayed.being selected at present.
I	MEN'S/LADIES' WEAR SELECTION button	Every time this button is pressed down, men's and ladies' wear can be changed over alternately. → Refer to 1-10. Changeover of men's and ladies' wear.p.29.
J	PAIR STACKING ON/OFF SELECTION button	Every time this button is pressed down, pair stacking ON/OFF can be changed over. This button is displayed only when the pair stacking use setting of memory switch data (level 1) U54 is ON. →Refer to 2-17. CHANGING MEMORY SWITCH DATA,p78.

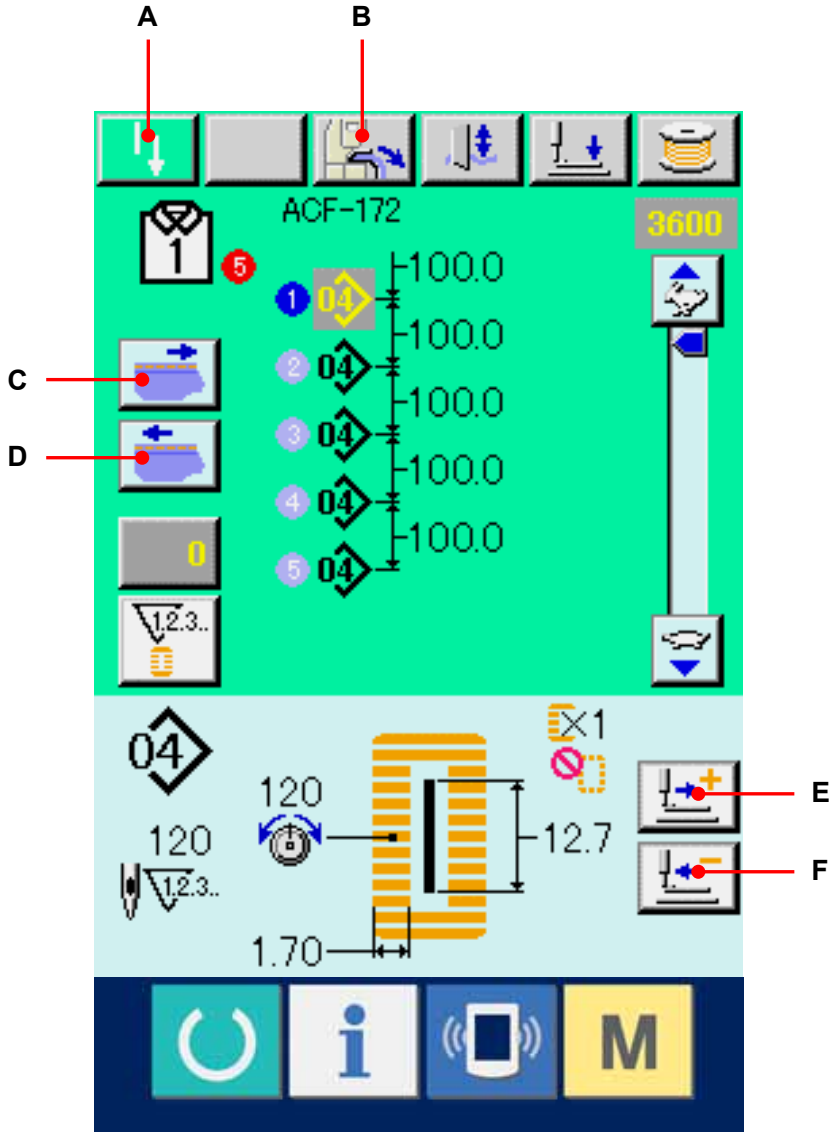
	Button and display	Description
K	SEWING ORDER display	Sewing order of the sewing data displayed on the right-hand side is displayed.
L	PATTERN BUTTONHOLE No. INPUT button	LBH sewing data No. registered to ACF pattern being selected at present is displayed on this button and when this button is pressed, LBH sewing data No. can be changed.
M	ACF PATTERN NAME display	Name registered to ACF pattern No. being selected is displayed. →Refer to 1-11. Naming the pattern,p.30.
N	ACF MODE AND LBH MODE CHANGEOVER button	When this button is pressed down, LBH data input screen is displayed and operation or setting of the single unit of the sewing machine is possible. →Refer to 2. OPERATION OF THE SINGLE UNIT OF SEWING MACHINE AND SETTING PROCEDURE (LBH MODE),p.31.
O	JUMP FEED AMOUNT INPUT button	Inputted jump feed amount is displayed on the button. In addition, when the button is pressed down, the jump feed amount input screen is displayed and edit of data can be performed. This button is displayed only when with/without jump feed input selection of memory switch data (level 1) U53 is ON. → Refer to 2-17-2. Memory switch data list,p.80.
P	FEED AMOUNT INPUT button	When this button is pressed down, the feed amount input screen is displayed and edit of the data can be performed.
Q	TURN PAGE button	displayed only when 7 or more of the sewing patterns are registered and it is possible to observe the sewing data not displayed on the sewing screen.

1-3-2. Automatic sewing screen



	Button and display	Description
A	NUMBER OF BUTTONHOLES REGISTERED	Number of buttonholes registered to ACF pattern No. being selected at present is displayed.
B	ACF PATTERN NAME display	Name registered to ACF pattern No. during sewing is displayed.
C	KNIFE CANCEL button	Every time this button is pressed down, dropping of knife and non-dropping of knife can be changed over alternately.
D	PRESSRER DOWN button	Presser can be lowered and the presser down screen is displayed. To raise the presser, press the presser up button which is displayed in the presser down screen.
E	BOBBIN WINDER button	Bobbin thread can be wound. →Refer to 1-6. WINDING BOBBIN THREAD,p.17.
F	ACF PATTERN No. display	ACF pattern No. during sewing is displayed.
G	JUMP FEED AMOUNT display	Only when jump feed is set, the amount is displayed.
H	SEWING ORDER display	Sewing order of respective sewing patterns is displayed.
I	MANUAL SEWING CHANGEOVER button	When this button is pressed down, the mode is changed to the manual sewing mode and the manual sewing screen is displayed. Note) Be careful since the pre-set is actuated.
J	COUNTER display	Existing counter value is displayed.
K	COUNTER CHANGEOVER button	Every time this button is pressed down, sewing counter and No. of pcs. counter can be changed over.
L	PATTERN No. display	LBH sewing pattern No. registered to ACF data is displayed.
M	FEED AMOUNT display	Feed amount is displayed.
N	CONTENTS OF PATTERN DURING SEWING (BUTTONHOLE) display	Sewing shape, cloth cutting length, width of left parallel section, thread tension, with/without double stitching, number of times of basting, number of stitches of LBH pattern No. being sewn at present are displayed.
O	ACF MODE AND LBH MODE CHANGEOVER button	When this button is pressed down, the LBH independent sewing screen is displayed and independent sewing is possible.
P	SEWING SPEED variable resistor	Number of rotation of sewing machine can be changed.

1-3-3. Manual sewing screen

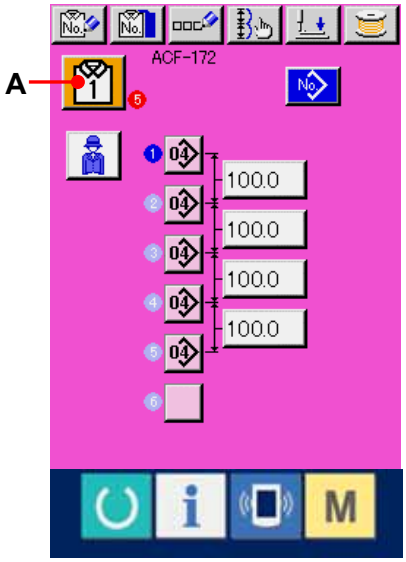


	Button and display	Description
A	SEWING MACHINE START button	When the button is pressed down, sewing of LBH pattern data set to the step fed at C or D starts.
B	CARRIAGE TILT/RAISE button	This button is displayed only when the carriage is located at the position of origin. Every time the button is pressed down, tilt of carriage and raise of carriage can be changed over alternately.
C	CLOTH FEED, RIGHT button	In case of men's wear, carriage is returned to the previous LBH pattern data. In case of ladies' wear, carriage is advanced to the next LBH pattern data.
D	CLOTH FEED, LEFT button	In case of men's wear, carriage is advanced to the next LBH pattern data. In case of ladies' wear, carriage is returned to the previous LBH pattern data.
E	ONE STITCH FEED button	LBH pattern data set to the step fed at C or D is advanced by one stitch.
F	ONE STITCH RETURN switch	LBH pattern data set to the step fed at C or D is returned by one stitch.

1-4. Performing ACF pattern selection

① Display the data input screen.

Only in case of the ACF data input screen (pink), ACF pattern No. can be selected. In case of the sewing screen (green), press READY key and display the data input screen.



② Call the ACF pattern selection screen.

When ACF PATTERN SELECTION button (A) is pressed down, the ACF pattern selection screen is displayed.

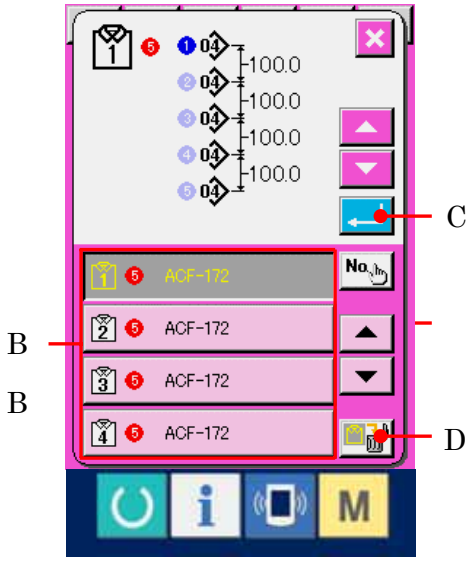
③ Select the pattern No.

Press ACF pattern No. button (B) you desire to select.

④ Determine the pattern No.

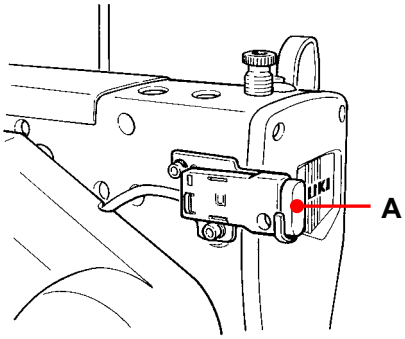
When ENTER button (C) is pressed, the ACF pattern No. selection screen is closed. Then the selection has been finished.

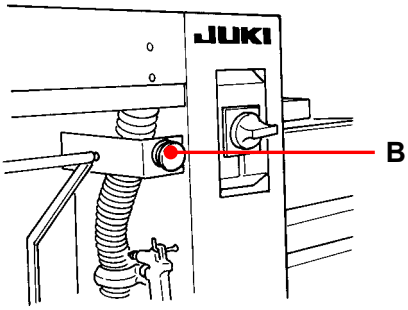
※ When you desire to delete the registered ACF pattern, press DELETE button (D).



1-5. Performing re-sewing

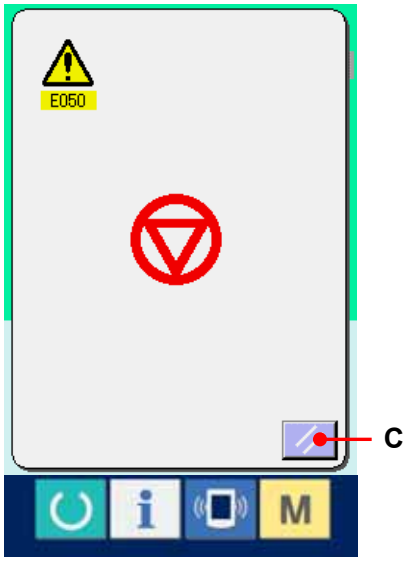
When temporary stop switch (A) or (B) is pressed during sewing under ACF mode, the sewing machine interrupts sewing and stops. At this time, the error screen is displayed to inform that the temporary stop switch is pressed.





① **Release the error.**

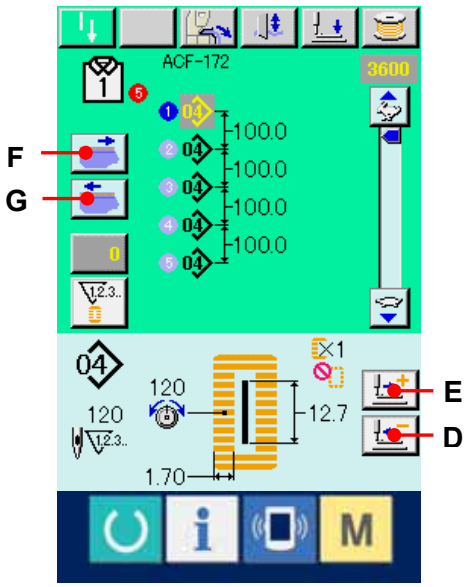
Press RESET button (C) to release the error. Then the manual sewing screen is automatically displayed.



② **Return the presser.**

Press BACKWARD button (D), and the presser returns stitch by stitch. Press FORWARD key (E), and the presser advances stitch by stitch. In addition, when CLOTH FEED, RIGHT button (F) is pressed, sewing data returns by one, and when CLOTH FEED, LEFT button (G) is pressed, sewing data advances by one.

Return the presser to the re-sewing position.



③ **Perform again the sewing work from the start.**

When the knee switch or hand switch (set to the start switch) is pressed, sewing starts again.

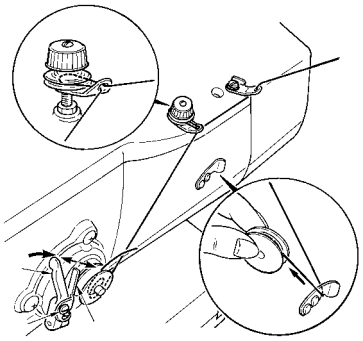
※ For the setting procedure of the start switch, refer to 2-17. CHANGING MEMORY SWITCH DATA,p.78.

Note) When taking out the cloth and performing re-sewing, advance the carriage up to the last with CLOTH FEED, RIGHT / CLOTH FEED, LEFT button (F and G).

1-6. WINDING BOBBIN THREAD

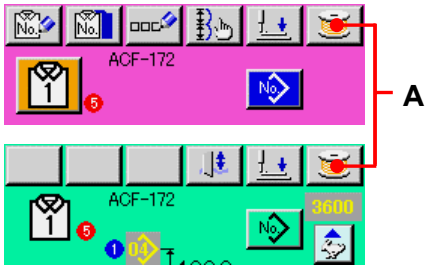
① Set the bobbin.

Fit a bobbin fully onto the bobbin winder shaft. Then push the bobbin thread guide in the direction of the arrow mark.



② Display the bobbin winding screen.

Press BOBBIN WINDER button  (A) in the ACF data input screen (pink), the automatic sewing screen or manual sewing screen (green) and the bobbin winding screen is displayed.



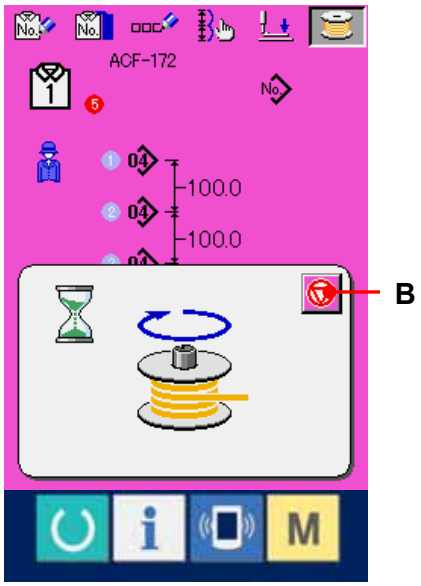
③ Start bobbin winding.

When the switch set to the start switch is pressed with the knee switch or hand switch, the sewing machine rotates and starts winding bobbin thread.

④ Stop the sewing machine.

Press STOP button  (B) and the sewing machine stops and returns to the normal mode. In addition, the sewing machine stops even when the temporary stop switch is pressed. However, the error screen is displayed to inform that the temporary stop switch is pressed.

→ Refer to 1-5. Performing re-sewing,p.15. and 2-4. Performing re-sewing under LBH mode,p.39.



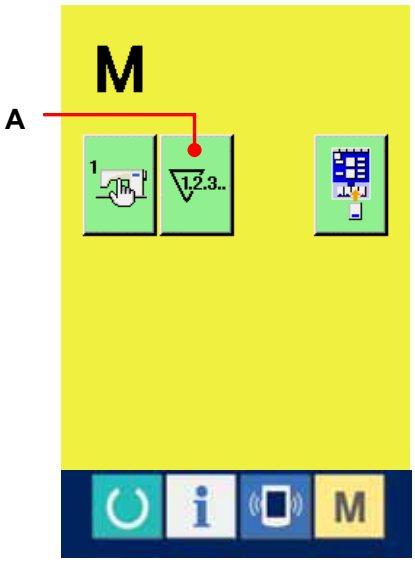
Note) Remove needle thread from the thread take-up to needle before winding bobbin thread.

1-7. Using counter

1-7-1. Setting procedure of the counter

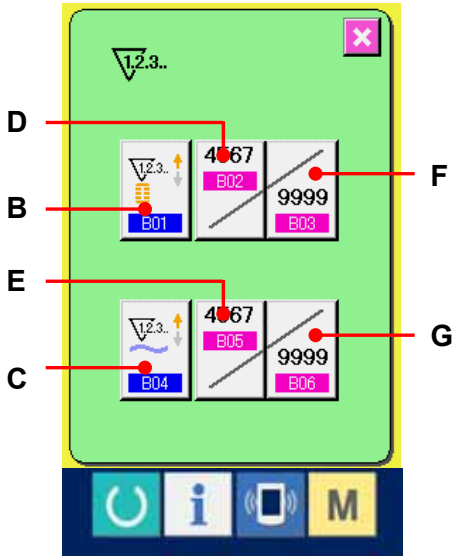
① Display the counter setting screen.

When MODE key  is pressed from the ACF data input screen (pink), COUNTER SETTING button  (A) is displayed on the screen. When this button is pressed, the counter setting screen is displayed.

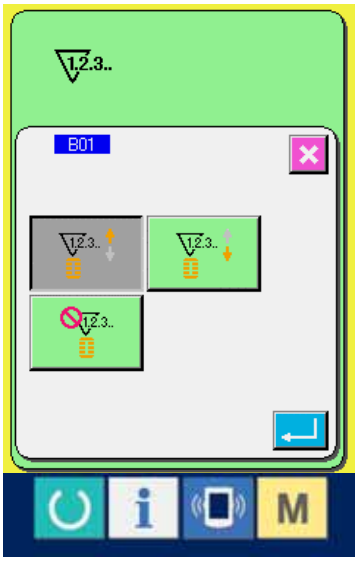


② Selection of the kinds of counters.

This sewing machine has two kinds of counters, i.e., sewing counter and No. of pcs. counter. Press SEWING COUNTER KIND SELECTION button  (B) or NO> OF PCS. KIND SELECTION button  (C) to display the counter kind selection screen. The kinds of respective counters can be set separately.



【 Sewing counter 】



UP counter  :

Every time the sewing of one shape is performed, the existing value is plussed by one. 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 minus by one. 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 the sewing of one ACF data is performed, the existing value is pulsed by one. When the existing value is equal to the set value, the count-up screen is displayed.

DOWN counter  :

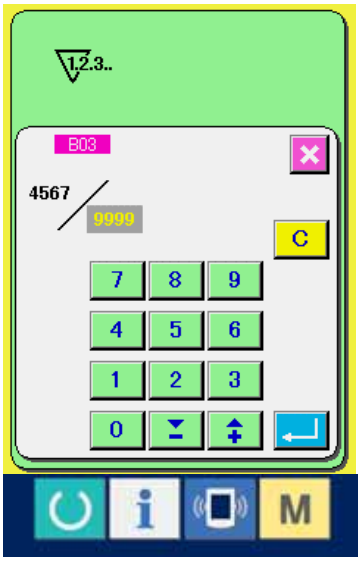
Every time the sewing of one ACF data is performed, the existing value is minus by one. When the existing value is reached to "0", the count-up screen is displayed.

Counter not used 

③ Change of counter set value

In case of the sewing counter, press button  (F) and in case of the No. of pcs. counter, press button  (G) and the set value input screen is displayed.

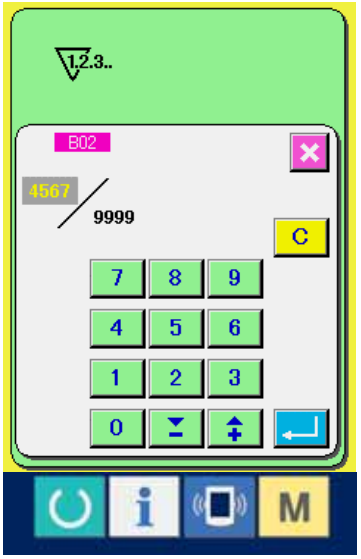
Here, input the set value.



④ Change of counter existing value

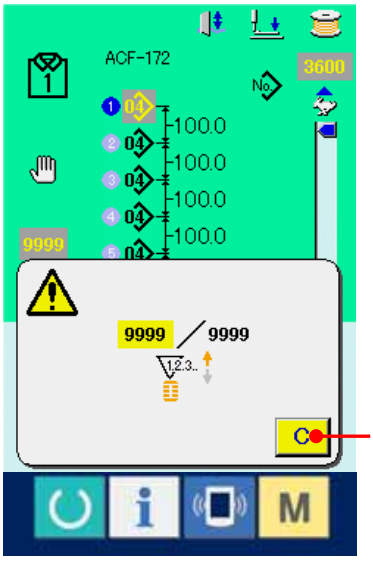
In case of the sewing counter, press button  (D) and in case of the No. of pcs. counter, press button  (E) and the existing value input screen is displayed.

Here, input the existing value.



1-7-2. Count-up releasing procedure

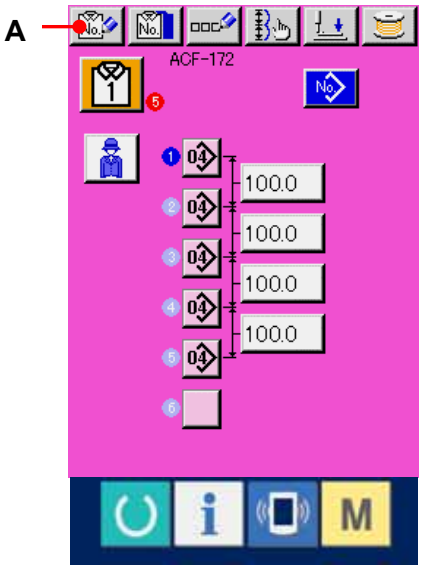
When count-up condition is reached during sewing work, the count-up screen is displayed. CLEAR button C (H) to reset the counter and the screen returns to the sewing screen. Then the counter starts counting again.



1-8. Performing new register of ACF pattern.

For the way of performing new register of ACF pattern, there are the equal interval input to set the number of buttonholes and the interval of buttons, and the individual input to individually set the buttonholes one by one.

1-8-1. Performing the equal interval input



① Display the data input screen.

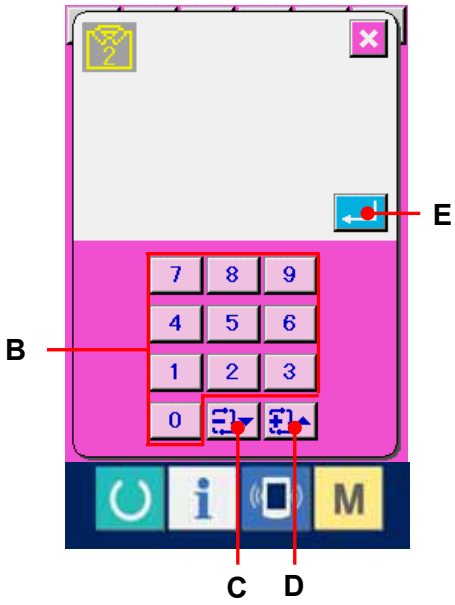
Only in case of ACF data input screen (pink), new register of the ACF pattern can be performed.

② Call ACF pattern new register screen.

Press NEW ACF REGISTER button (A) and the ACF pattern new register screen is displayed.

③ Input the pattern No.

Input ACF pattern No. you desire to newly register with the ten keys (B). When ACF pattern No. which has been already registered is inputted, the sewing data which has been registered is displayed in the upper part of the screen. Select ACF pattern No. which is not displayed and has not been registered. New register to ACF pattern No. which has been already registered is prohibited.It is possible to retrieve ACF pattern No. which has not been registered with the -/+ buttons (C ・D).



Note) It is possible for ACF patterns No. to use 20 patterns from 1 to 20.

④ Determine pattern No.

Press ENTER button (E) to determine the ACF pattern No. to be newly registered and the equal interval input selection screen is displayed.

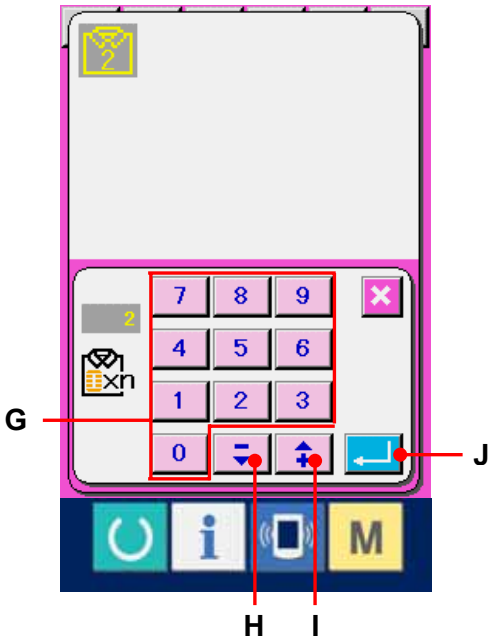
⑤ Select the equal interval input.

Press ENTER button (F) to select the equal interval input, and the number of buttonholes input screen is displayed.

⑥ Input the number of buttonholes.

Input the number of buttonholes to continuously sew with the ten keys (G). It is possible to input from -/+ buttons (H ・ I) as well.

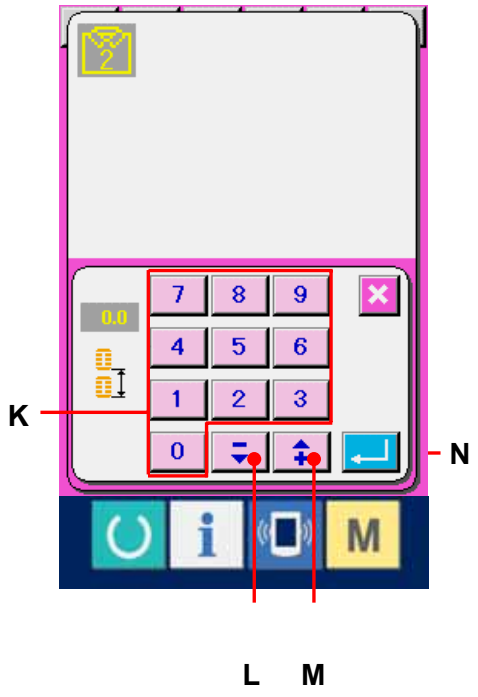
Press ENTER button (J) to determine the number of buttonholes and the feed amount input screen is displayed.



⑦ Input the feed amount.

Input the feed amount with the ten keys (K). It is possible to input from -/+ buttons (L ・ M).

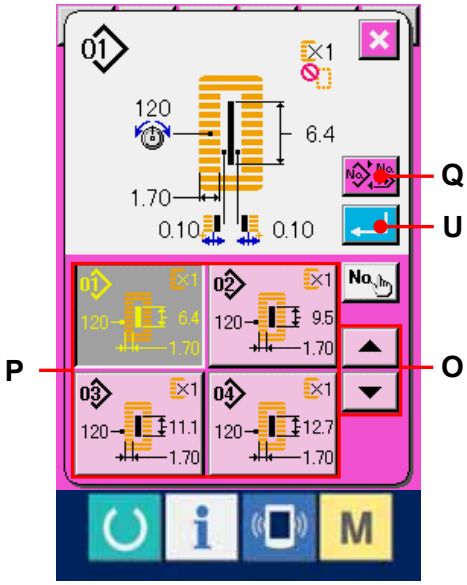
Press ENTER button (N) to determine the feed amount and the LBH pattern selection screen is displayed.



⑧ Select LBH sewing pattern No.

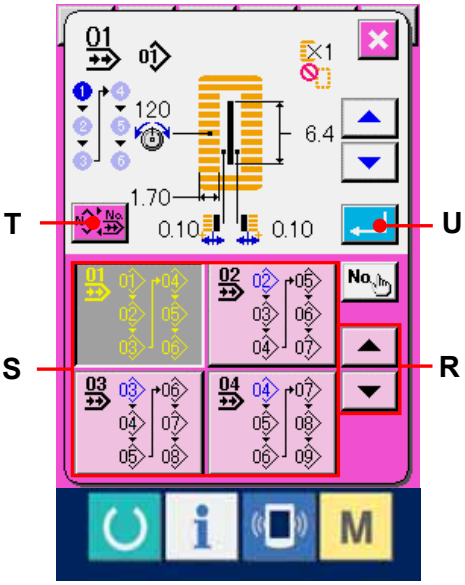
Press UP/DOWN SCROLL buttons (O) and LBH sewing pattern No. buttons (P) which have been registered are changed over by turns. LBH sewing pattern No. and the contents of the sewing data are displayed in the buttons. Here, press the LBH sewing pattern No. you desire to select.

When INDEPENDANT SEWING/CONTINUOUS SEWING SELECTION CHANGEOVER button (Q) is pressed, the screen is changed over to the LBH continuous sewing pattern selection screen.



⑨ Select the LBH continuous sewing pattern No.

Press UP/DOWN SCROLL buttons (R) and LBH continuous sewing pattern No. buttons (S) which have been registered are changed over by turns. The contents of continuous sewing pattern are displayed in the buttons. Here, press the LBH continuous sewing pattern No. you desire to select.When INDEPENDENT SEWING/CONTINUOUS SEWING SELECTION CHANGEOVER button (T) is pressed, the screen is changed over to the LBH CONTINUOUS SEWING pattern selection screen.



⑩ Determine pattern No.

When ENTER button (U) is pressed in the LBH pattern selection screen or LBH continuous sewing pattern selection screen, the data is determined and the selection has been finished.

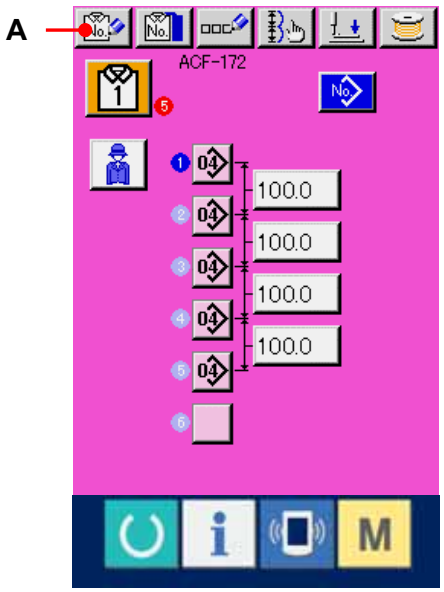
1-8-2. Performing the individual input.

① Display the data input screen.

Only in case of the data input screen (pink), new register of ACF pattern can be performed.

② Call ACF pattern new register screen.

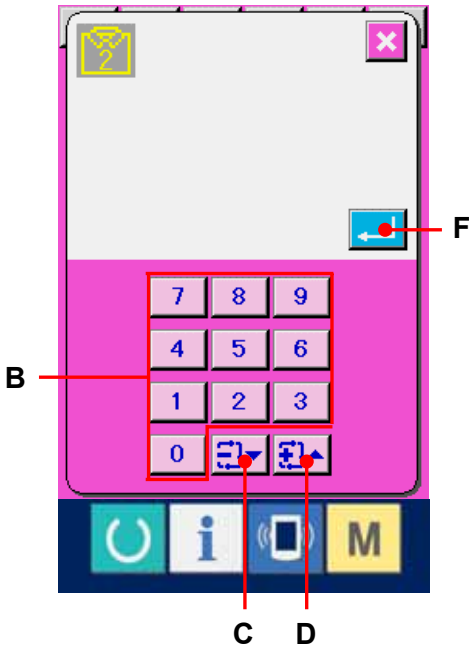
Press NEW ACF REGISTER button (A) and the ACF pattern new register screen is displayed.



③ Input pattern No.

Input ACF pattern No. you desire to newly register with the ten keys (B). When ACF pattern No. which has been already registered is inputted, the sewing data which has been registered is displayed in the upper part of the screen. Select ACF pattern No. which is not displayed and has not been registered. New register to ACF pattern No. which has been already registered is prohibited.
It is possible to retrieve ACF pattern No. which has not been registered with -/+ buttons (C ・ D).

Note) It is possible for ACF patterns No. to use 20 patterns from 1 to 20.

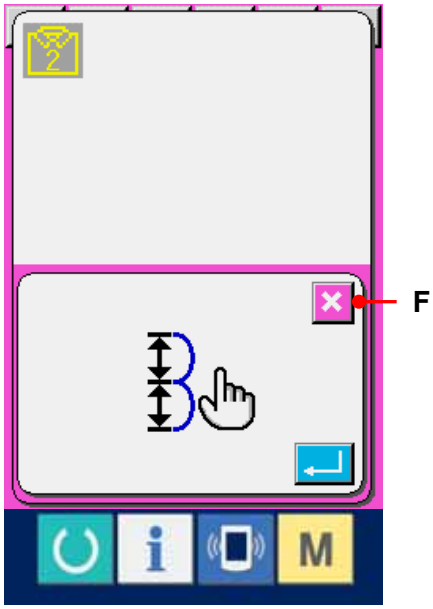


④ Determine pattern No.

Press ENTER button (E) to determine ACF pattern No. to be newly registered and the equal interval input selection screen is displayed.

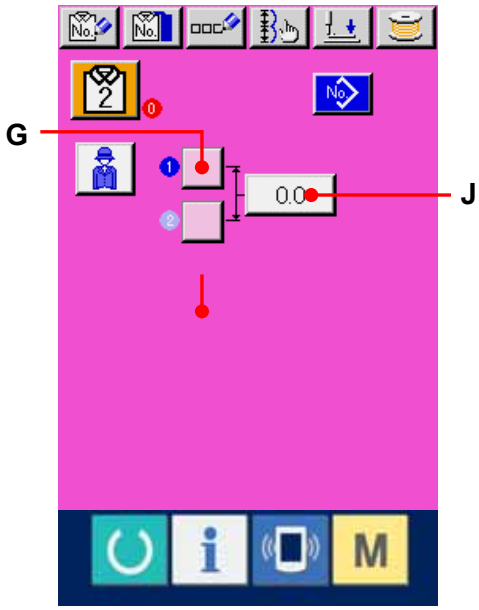
⑤ **Select the individual input.**

When CANCEL button (F) is pressed, it means that the individual input is selected, and the ACF data input screen is displayed.



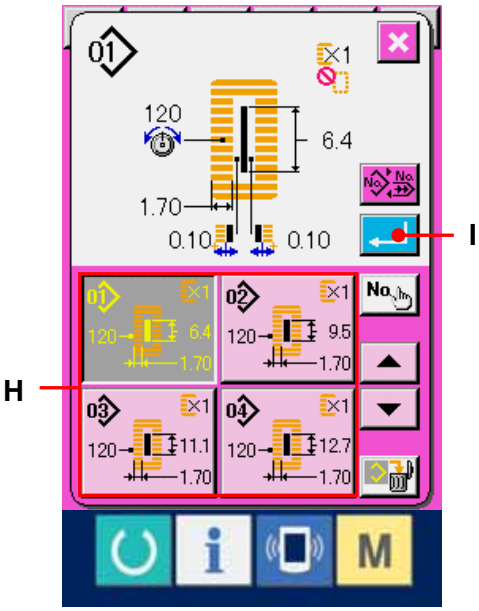
⑥ **Select LBH pattern No.**

When LBH PATTERN BUTTONHOLE No. INPUT button (G) is pressed, the LBH pattern selection screen is displayed.



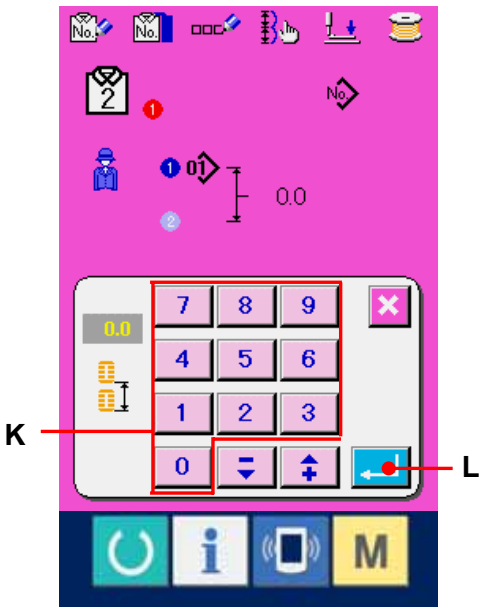
⑦ **Determine LBH pattern No.**

Press LBH pattern No. you desire to sew from among LBH pattern Nos. (H) located at the bottom of LBH pattern No. selection screen. Press ENTER button (I) to determine LBH pattern No. and the ACF data input screen is displayed.



⑧ **Input the feed amount.**

When FEED AMOUNT INPUT button 0.0 (J) is pressed from ACF data input screen, the feed amount input screen is displayed. Input the feed amount from the ten keys (K). Press ENTER button (L) to determine the feed amount value and the ACF data input screen is displayed.



⑨ **Register plural LBH pattern Nos.**

In order to register plural LBH pattern Nos. to the ACF pattern data, repeat the operation of ⑥ through ⑧.

1-9. Copying ACF pattern

The data of ACF pattern No. which has been already registered can be copied to ACF pattern No. which has not been registered.

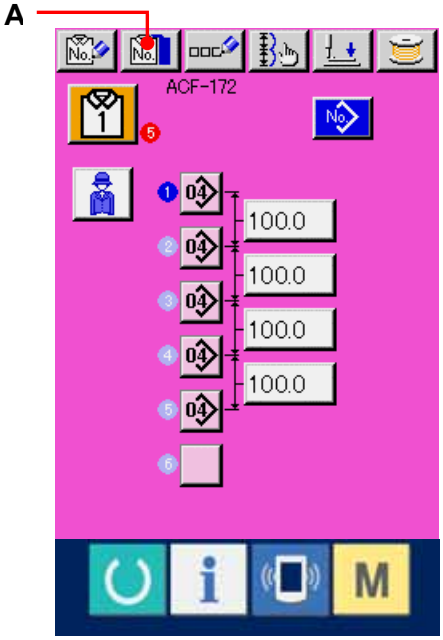
Overwriting copy of the pattern is prohibited. When you desire to overwrite, perform it after deleting the pattern once.

① Display ACF data input screen.

Only in case of ACF data input screen (pink), it is possible to copy ACF pattern.

② Call ACF pattern copy source selection screen.

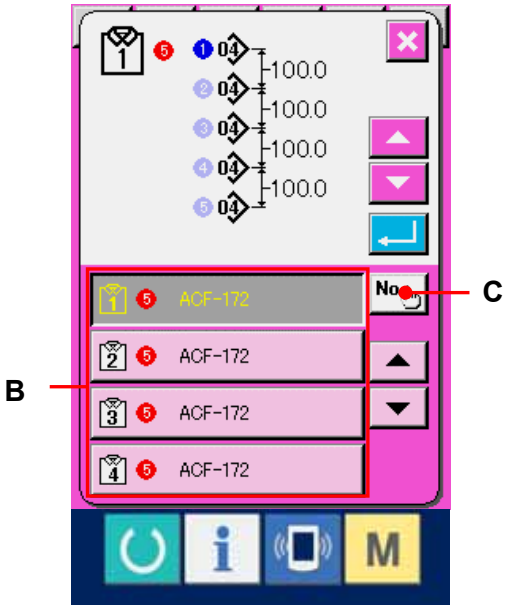
When ACF PATTERN COPY button  (A) is pressed, the ACF pattern copy source selection screen is displayed.



③ Select ACF pattern No. of copy source.

Select ACF pattern No. of copy source from among ACF pattern list buttons (B).

Next, press COPY DESTINATION INPUT button  (C) and the ACF pattern copy destination input screen is displayed.

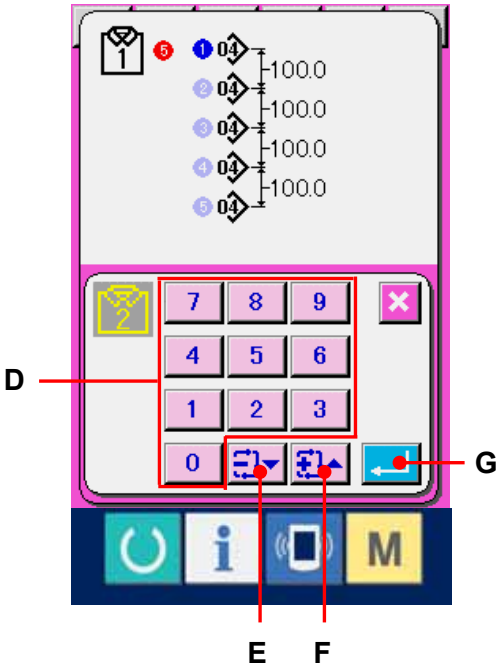


④ **Input ACF pattern No. of copy destination.**

Input ACF pattern No. of copy destination from the ten keys (D). It is possible to retrieve the unused ACF pattern No. with -/+ buttons  (E ・ F).

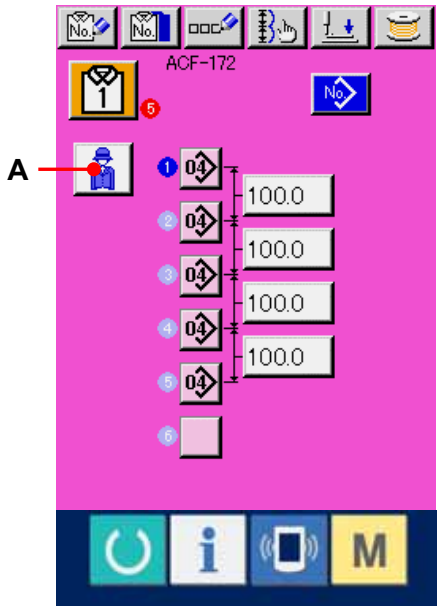
⑤ **Start copying.**

When ENTER button  (G) is pressed, copying starts. The screen returns to ACF pattern copy source selection screen in the state that the copied ACF pattern No. has been selected after approximately two seconds.



1-10. Changeover of men's and ladies' wear.

Perform changeover of men's and ladies' wear since men's and ladies' wear are different in the carriage direction of sewing products.



① Display ACF data input screen.

Display the ACF data input screen (pink) of ACF pattern No. you desire to sew.

② Perform changeover of men's and ladies' wear.

When MEN'S/LADIES' WEAR SELECT button  (A) is pressed, changeover of men's and ladies' wear can be performed.

Men's wear : 

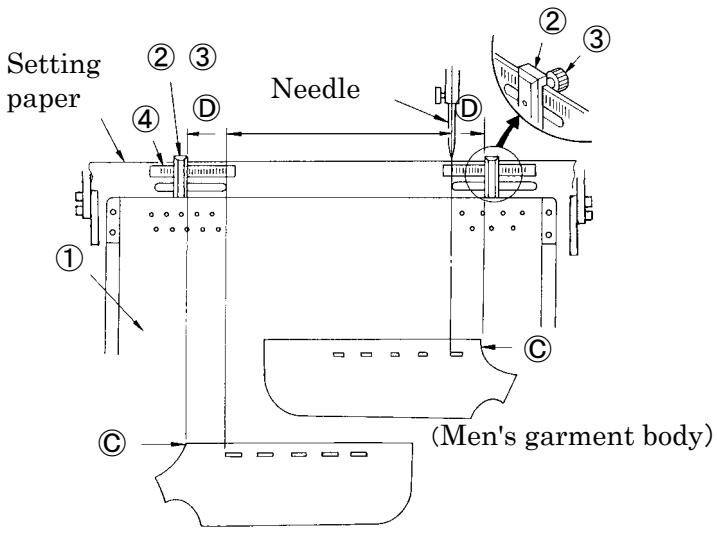
Ladies' wear : 

【 Setting procedure of cloth 】

In case of men's wear, the position where sewing products are preset is the sewing start position of the first sewing pattern. In case of ladies' wear, the place moved to the right-hand by 600 mm from the position where sewing products are preset is the sewing start position of the first sewing pattern. For both men's and ladies' wear, the sewing start position can be moved to the left-hand or right-hand by jump feed before sewing U53.

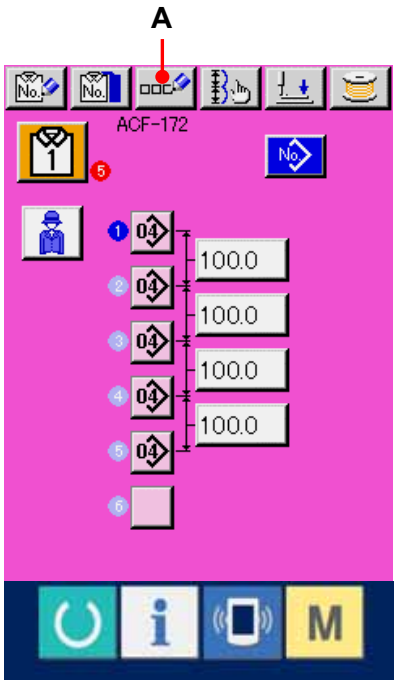
(Reference)

1) Loosen thumbscrew ③ of gauge ② of preset table ①, move to the set place of scale ④ and fix it.
2) Afterwards, adjust top end Ⓒ of cloth to inside Ⓓ of the pointer and set the cloth to position it. (For the ladies' wear, similarly adjust with the pointer and scale on the left side.)



1-11. Naming the pattern

As many as 14 characters can be inputted in each ACF pattern.



① Display the ACF data input screen.

Only in case of the ACF data input screen (pink), it is possible to input the name of pattern.

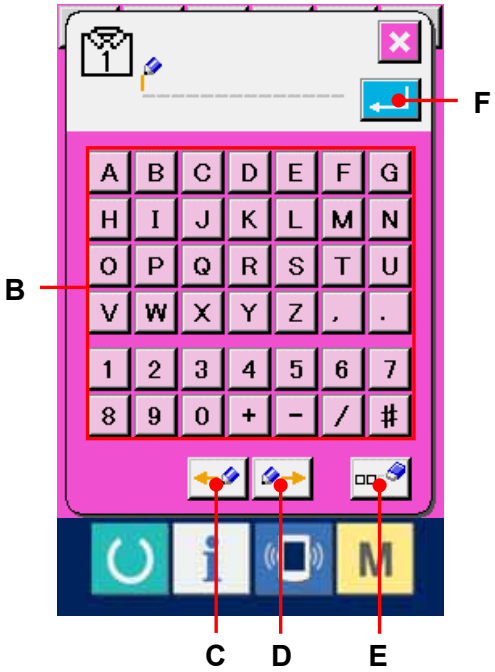
② Call the character input screen.

Press ACF PATTERN NAME setting button (A) and the character input screen is displayed.

③ Input the character.

Press CHARACTER button (B) you desire to input and the input of character can be performed.
As many as 14 characters of characters (A to Z and 0 to 9) and symbols (+, -, /, #, ,, .) can be inputted.
In case of inputting between characters, the inputted character is inserted.

The cursor can travel with CURSOR LEFT TRAVEL button (C) and CURSOR RIGHT TRAVEL button (D). 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 (E).



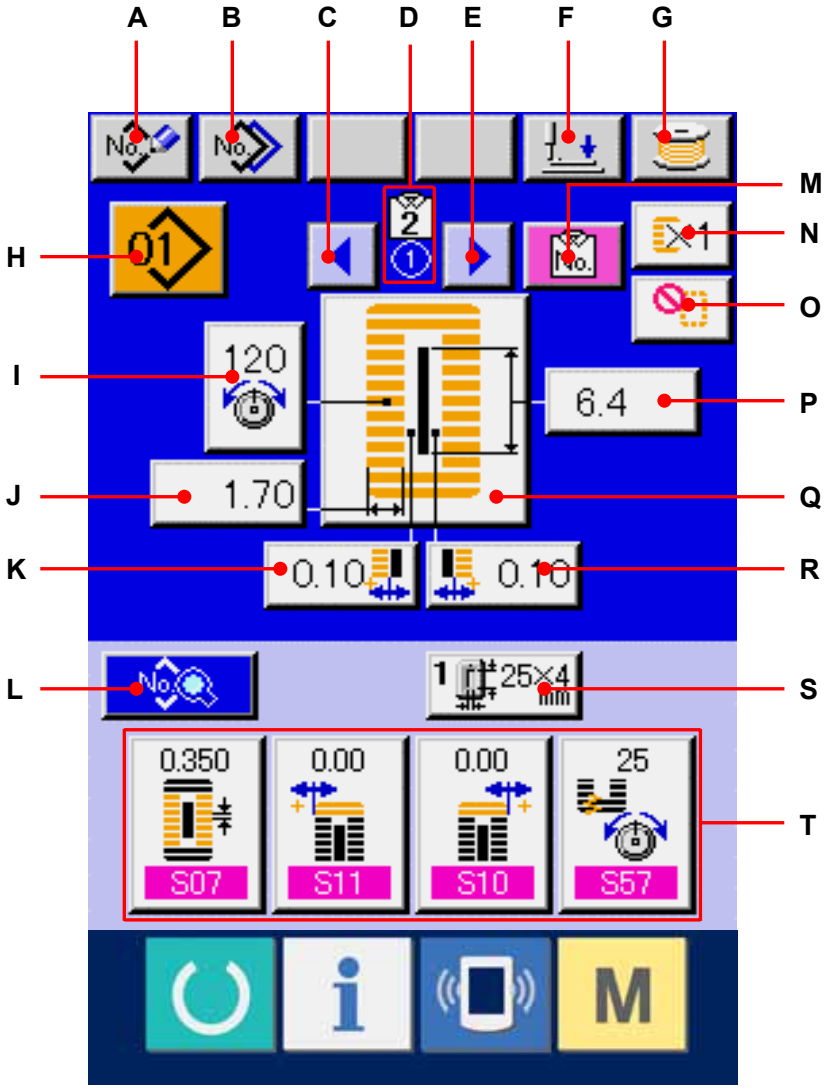
④ Finish inputting the character.

Press ENTER button (F) and inputting the character is finished. After the finish, the inputted character is displayed on the upper part of the ACF data input screen (pink).

2. OPERATION OF THE SINGLE UNIT OF SEWING MACHINE AND SETTING PROCEDURE (LBH MODE)

2-1. LCD display section at the time of independent sewing

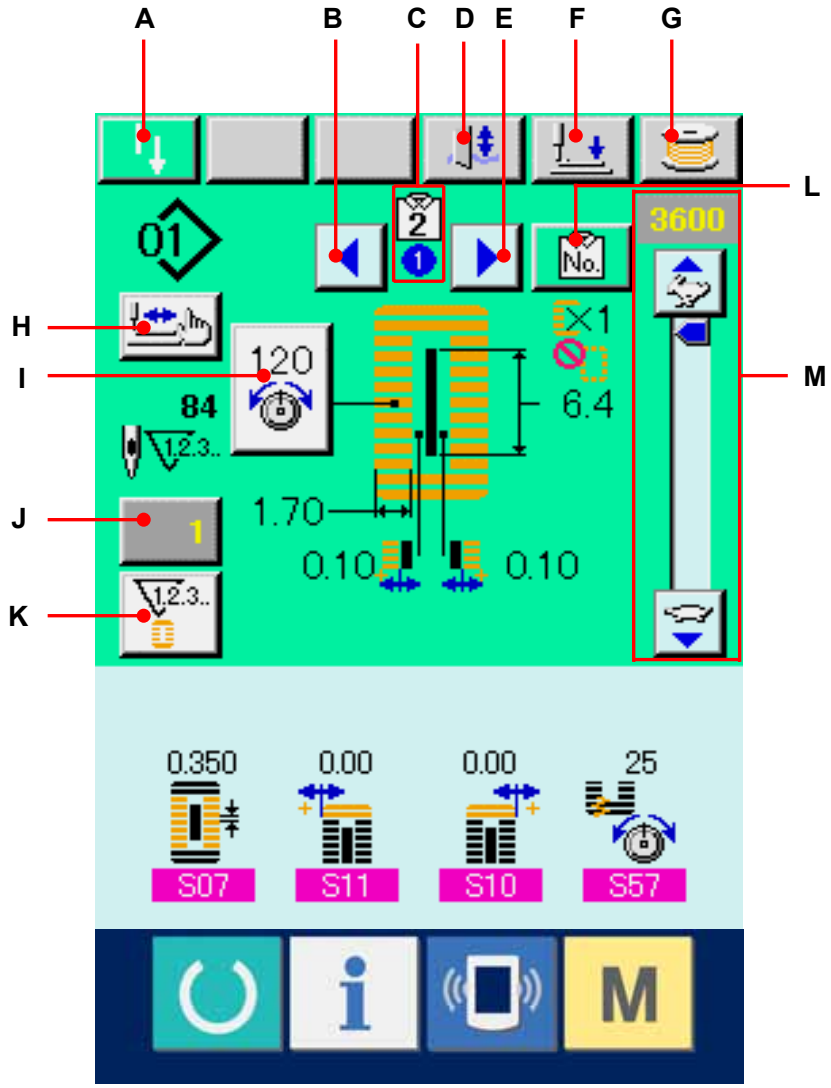
2-1-1. LBH data input screen



	Button and display	Description
A	LBH PATTERN NEW REGISTER button	LBH pattern No. new register screen is displayed. → Refer to 2-5. Performing new register of LBH pattern,p.41.
B	LBH PATTERN COPY button	LBH sewing data copy screen is displayed. → Refer to 2-11. Copying LBH sewing pattern,p.61.
C	LBH PATTERN DATA AUTOMATIC TURN button (to return)	LBH pattern data used in the ACF pattern data being selected at present is automatically turned.
D	ACF PATTERN No. AND SEWING ORDER display	ACF pattern No. being selected and sewing order are displayed. LBH pattern Nos. which are set in the displayed sewing order are in the state of selection.
E	LBH PATTERN DATA AUTOMATIC TURN button (to advance)	LBH pattern data used in the ACF pattern data being selected at present is automatically turned.
F	PRESSER DOWN button	Presser can be lowered and the presser down screen is displayed. To raise the presser, press the presser up button displayed in the presser down screen.
G	BOBBIN WINDING button	Bobbin thread can be wound. → Refer to 1-6. WINDING BOBBIN THREAD,p.17.
H	LBH PATTERN SELECION button	LBH pattern No. being selected at present is displayed on the button, and when the button is pressed, the LBH pattern No. change screen is displayed. → Refer to 2-2. Performing LBH pattern No. selection,p.36.
I	NEEDLE THREAD TENSION SETTING button	Needle thread tension value which is set to LBH pattern data being selected at present is displayed on the button, and when the button is pressed, the needle thread tension change screen is displayed. → Refer to 2-9. CHANGING NEEDLE THREAD TENSION,p.58.
J	OVEREDGING WIDTH, LEFT SETTING button	Overedging width, left which is set to LBH pattern data being selected at present is displayed on the button, and when the button is pressed, the overedging width, left change screen is displayed.
K	KNIFE GROOVE WIDTH, LEFT SETTING button	Knife groove width, left which is set to LBH pattern data being selected at present is displayed on the button, and when the button is pressed, the knife groove width, left change screen is displayed.

	Button and display	Description
L	SEWING DATA CHANGE button	Sewing data list screen is displayed. → Refer to 2-17. CHANGING MEMORY SWITCH DATA,p.28..
M	CHANGEOVER OF ACF MODE AND LBH MODE button	When the button is pressed, ACF data input screen is displayed, and operation and setting of ACF can be performed.
N	WITH/WITHOUT DOUBLE STITCHING SETTING button	With/without double stitching which is set to LBH pattern data being selected at present is displayed on the button, and when the button is pressed, the with/without double stitching change screen is displayed.
O	NUMBER OF TIMES OF BASTING SETTING button	Number of times of basting which is set to LBH pattern data being selected at present is displayed on the button, and when the button is pressed, the number of times of basting change screen is displayed.
P	CLOTH CUTTING LENGTH SETTING button	Cloth cutting length which is set to LBH pattern data being selected at present is displayed on the button, and when the button is pressed, the cloth cutting length change screen is displayed.
Q	SEWING SHAPE SELECTION button	Sewing shape which is set to LBH pattern data being selected at present is displayed on the button, and when the button is pressed, the sewing shape change screen is displayed. → Refer to 2-3. Performing sewing shape selection,p.37.
R	KNIFE GROOVE WIDTH, RIGHT SETTING button	Knife groove width, right which is set to LBH pattern data being selected at present is displayed on the button, and when the button is pressed, the knife groove width, right change screen is displayed.
S	PRESSER TYPE SELECTION button	Presser type being selected at present is displayed on the button, and when the button is pressed, the presser type change screen is displayed. → Refer to 2-8. INPUTTING THE PRESSER TYPE,p.56.
T	CUSTOMIZE button	sewing data which are more frequently used can be laid out to four buttons. When the button is pressed, the laid-out sewing data change screen is displayed. → Refer to 2-12. REGISTERING SEWING DATA TO CUSTOMIZE BUTTON,p.63.

2-1-2.Independent sewing screen

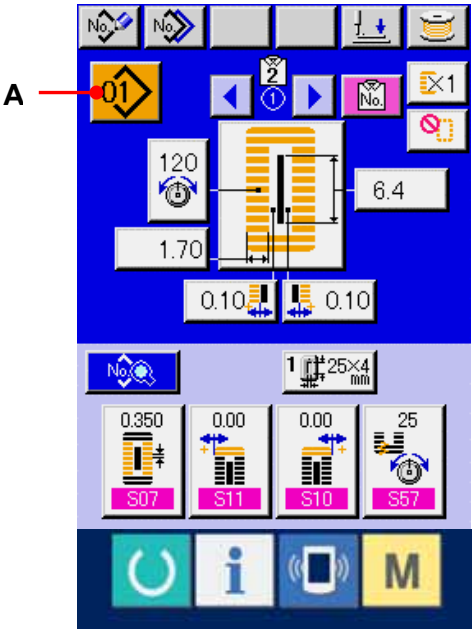


	Button and display	Description
A	SEWING MACHINE START button	Sewing of the selected LBH pattern is started.
B	LBH PATTERN DATA AUTOMATIC TURN button (to return)	LBH pattern data which is used in ACF pattern data being selected at present is automatically turned.
C	ACF PATTERN AND SEWING ORDER display	ACF pattern No. being selected and sewing order are displayed. LBH pattern Nos. which are set in the displayed sewing order is in the state of selection.
D	KNIFE CANCEL button	Every time the button is pressed, dropping of knife and non-dropping of knife can be changed over alternately.
E	LBH PATTERN DATA AUTOMATIC TURN button (to advance)	LBH pattern data which is used in ACF pattern data being selected at present is automatically turned.
F	PRESSER DOWN button	Presser can be lowered and the presser down screen is displayed. To raise the presser, press the presser up button which is displayed in the presser down screen.
G	BOBBIN WINDER button	bobbin thread can be wound. → Refer to 1-6. WINDING BOBBIN THREAD,p.17.
H	STEP STITCHING button	When the button is pressed, the screen of step stitching to check needle entry point and to perform re-sewing is displayed. → Refer to 2-4. Performing re-sewing under LBH mode,p.39.
I	NEEDLE THREAD TENSION button	Needle thread tension which is set to the pattern data during sewing is displayed, and when the button is pressed, the needle thread tension change screen is displayed. → Refer to 2-9. CHANGING NEEDLE THREAD TENSION,p.58.
J	COUNTER VALUE CHANGE button	Existing counter value is displayed on the button, and when the button is pressed, the counter value change screen is displayed. → Refer to 1-7. Using counter,p.18.
K	COUNTER CHANGEOVER button	Display of sewing counter/No. of pcs. counter can be changed over. → Refer to 1-7. Using counter,p.18..
L	CHANGEOVER OF ACF MODE AND LBH MODE button	When the button is pressed, the ACF automatic sewing screen is displayed and automatic sewing can be performed.
M	SEWING SPEED variable resistor	Number of rotation of sewing machine can be changed.

2-2. Performing LBH pattern No. selection

① Display the LBH data input screen.

Only in case of the LBH data input screen (blue), LBH pattern No. selection can be performed. In case of the sewing screen (green), press READY key and in case of the ACF data input screen (pink), press CHANGEOVER OF ACF MODE AND LBH MODE button to display the LBH data input screen.



② Call the LBH pattern selection screen.

When LBH PATTERN SELECTION button (A) is pressed, the LBH pattern selection screen is displayed.

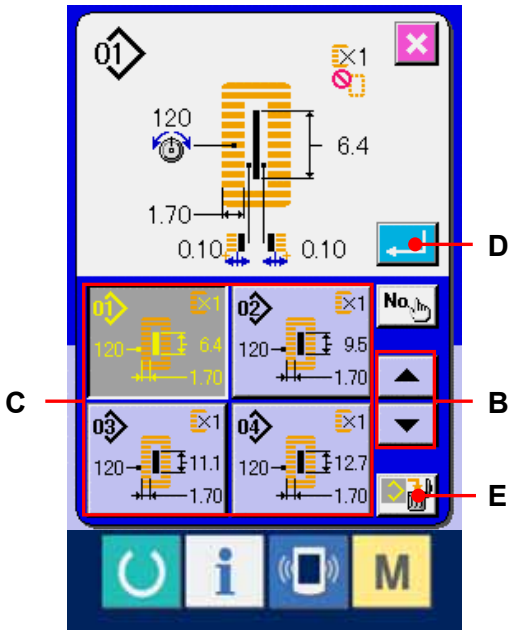
③ Select the pattern No.

When UP or DOWN SCROLL button (B) is pressed, LBH pattern No. buttons (C) which have been registered are changed over in order. LBH pattern No. and the contents are displayed in the button. Here, press the LBH pattern No. button you desire to select.

④ Determine the pattern No.

Press ENTER button (D), and the LBH pattern No. is determined. Then the selection has been finished.

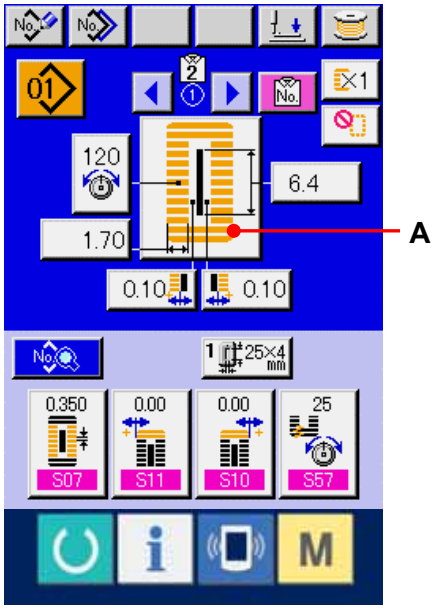
※ When you desire to delete the registered LBH pattern, press DELETE button (E).



2-3. Performing sewing shape selection

① Display the LBH data input screen.

Only in case of the LBH data input screen (blue), the selection of the sewing shape can be performed.

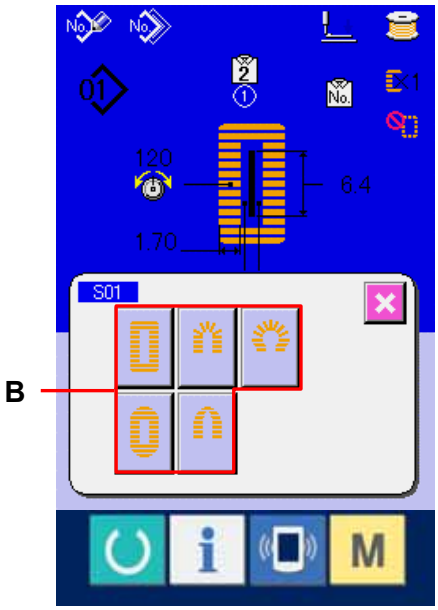


② Call the sewing shape selection screen.

Press SEWING SHAPE button  (A) and the sewing shape selection screen is displayed.

③ Select the 1st bar-tacking section.

Select the shape you desire to sew from among 5 kinds of the 1st bar-tacking shape buttons (B). When it is selected, the total sewing shape in which the selected 1st bar-tacking is used is displayed.



④ **Select the sewing shape.**

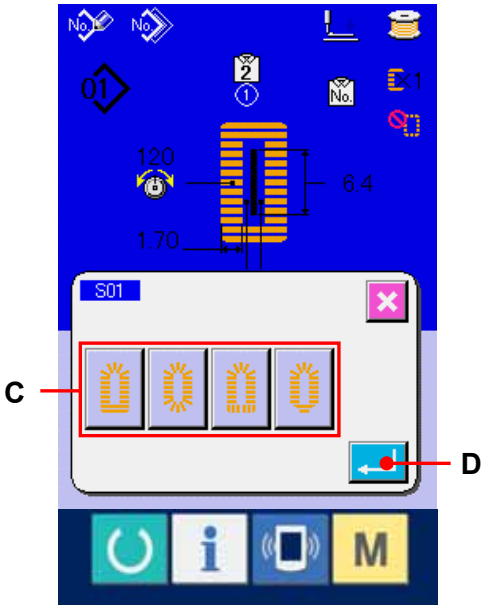
Select SEWING SHAPE button (C) you desire to sew.

⑤ **Finish the sewing shape selection.**

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

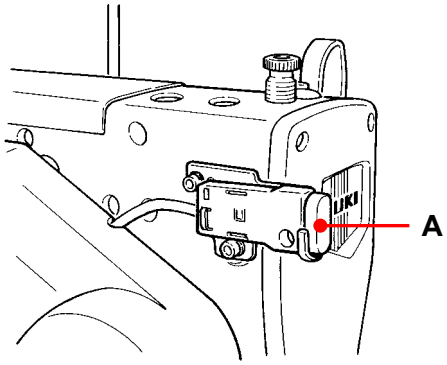
Note) The number of sewing shapes to be displayed changes according to the level selected in the sewing shape selection level of memory switch data (level 2) K04.

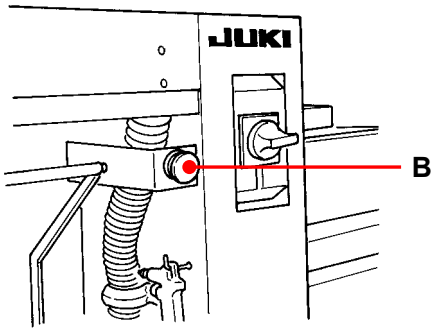
→Refer to 2-17. CHANGING MEMORY SWITCH DATA,p.78.



2-4. Performing re-sewing under LBH mode

When temporary stop switch (A) or (B) is pressed during sewing under LBH mode, the sewing machine interrupts sewing and stops. At this time, the error screen is displayed to inform that the temporary stop switch is pressed.

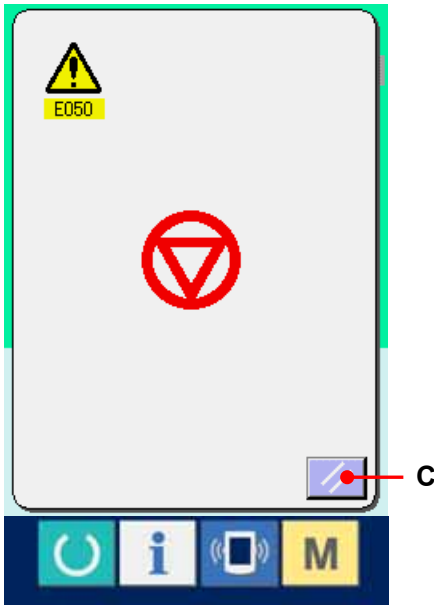




2-4-1. To continue performing sewing from some point in sewing

① **Release the error.**

Press RESET button  (C) to release the error. Then the step motion screen is displayed.



② **Return the presser.**

Press ONE STITCH RETURN button (D), and the presser returns stitch by stitch.

Press ONE STITCH FEED button (E), and the presser advances stitch by stitch. Return the presser to the re-sewing position.

③ **Start sewing again.**

When the SEWING MACHINE START button is pressed, sewing starts again.

※ For the setting procedure of the start switch, refer to 2-17. CHANGING MEMORY SWITCH DATA,p.78.

2-4-2. To perform sewing from the start

① **Release the error.**

Press RESET button (B) to release the error, Then the step motion screen is displayed.

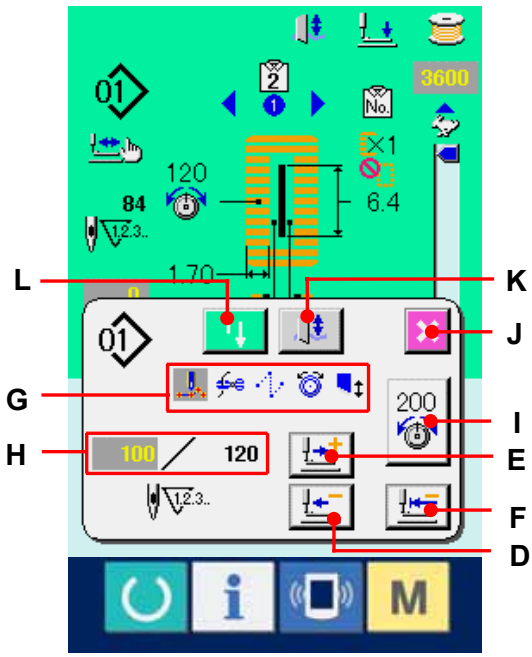
② **Return the sewing product to the setting position.**

Press INITIAL POSITION TRAVEL button, (E) and the presser returns to the sewing product setting position (start position).

Press CANCEL button (I) to close the pop-up and the presser returns to the sewing product setting position (start position).

③ **Perform again the sewing work from the start.**

When the knee switch or hand switch (switch set to the start switch) is pressed, sewing starts again.



※ **The existing sewing commands are shown in reverse video in section G. The kinds of commands are 5 kinds below.**

: Sewing command
: Thread trimming command
: Jump feed
: Thread tension
: Knife drive

※ The existing **number of stitches/ number of total stitches** are displayed in section **H.**

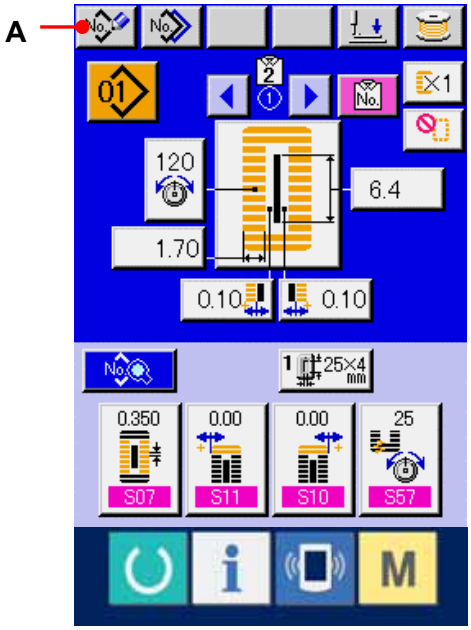
※ Thread tension value is displayed in section I. When thread tension command is inputted in the needle entry point by means of the external input device, the button is displayed and thread tension can be changed.

※ Knife can be cancelled with (K).

2-5. Performing new register of LBH pattern

① Display the LBH data input screen.

Only in case of the LBH data input screen (blue), new register of the LBH pattern can be performed.



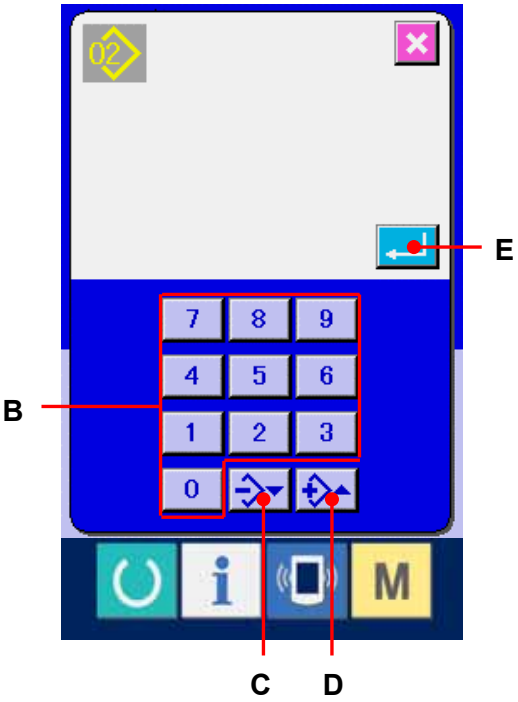
② Call the LBH pattern new register screen.

Press NEW LBH PATTERN REGISTER button  (A) and the LBH pattern new register screen is displayed.

③ Input the pattern No.

Input the LBH pattern No. you desire to newly register with the ten keys (B). When the LBH 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 LBH pattern No. which is not displayed and has not been registered. New register to the LBH pattern No. which has been already registered is prohibited.

It is possible to retrieve the pattern No. which has not been registered with -/+ buttons  (C ・ D).

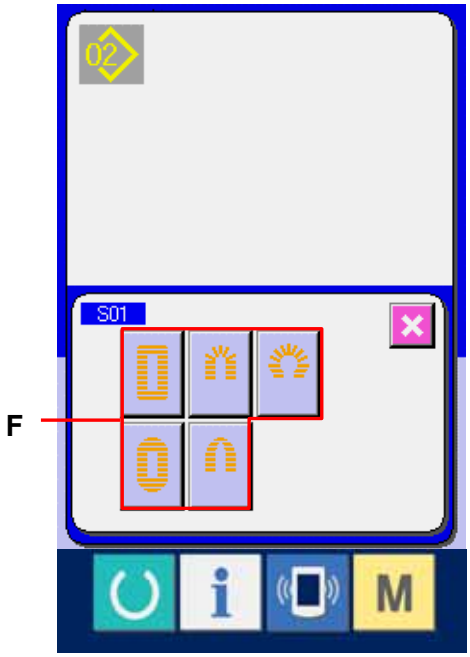


④ Determine pattern No.

Press ENTER button  (E) to determine the LBH pattern No. to be newly registered and the screen of 1st bar-tacking shape list is displayed.

⑤ **Select the 1st bar-tacking shape.**

Select the shape you desire to sew from among 5 kinds of the 1st bar-tacking shape buttons (F). When it is selected, the total sewing shape in which the 1st bar-tacking shape is used is displayed.

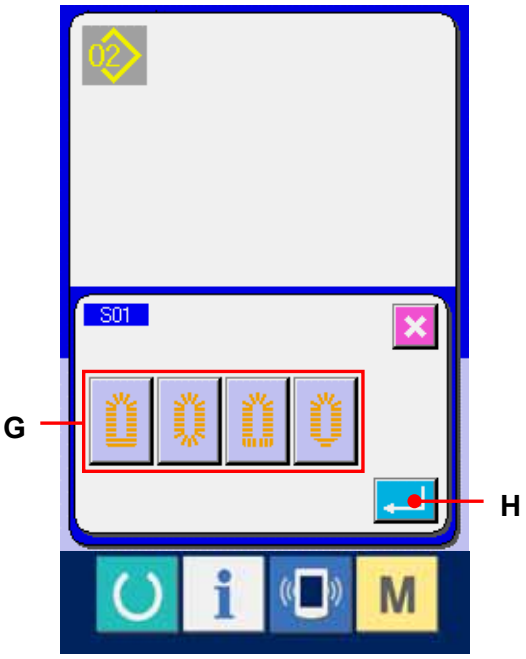


⑥ **Select the sewing shape.**

Select SEWING SHAPE button (G) you desire to sew.

⑦ **Finish the selection of sewing shape.**

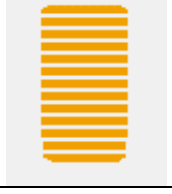
Press ENTER button (H) to finish the selection of the shape. Then the sewing shape which has been selected is displayed in the LBH data input screen (blue). The initial value of sewing data is inputted according to the selected sewing shape.



Note) Number of sewing shapes to be displayed changes according to the level selected in the K04 sewing shape selection level of memory switch data (level 2).

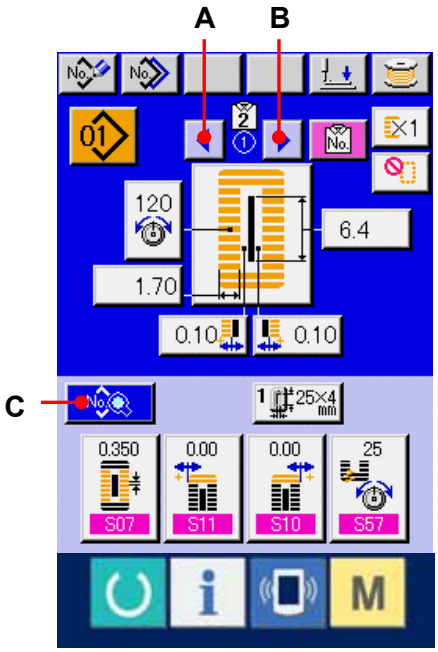
→ Refer to 2-17. CHANGING MEMORY SWITCH DATA,p.78.

2-6. SEWING SHAPE LIST

1)Square type 	2)Round type 	3)Radial square type 	4)Radial type 	5)Radial straight bar-tacking type 
6)Radial taper bar-tacking type 	7)Eyelet square type 	8)Eyelet radial type 	9)Eyelet straight bar-tacking type 	10)Eyelet taper bar-tacking type 
11)Semilunar type 	12)Round square type 	13)Semilunar square type 	14)Semilunar straight bar-tacking type 	15)Semilunar taper bar-tacking type 
16)Eyelet semilunar type 	17)Eyelet round type 	18)Square radial type 	19)Square semilunar type 	20)Square round type 
21)Square straight bar-tacking type 	22)Square taper bar-tacking type 	23)Radial semilunar type 	24)Radial round type 	25)Semilunar radial type 
26)Semilunar round type 	27)Bar-tacking 	28)Bar-tacking, right cut 	29)Bar-tacking, left cut 	30)Bar-tacking, center cut 

2-7. CHANGING SEWING DATA

2-7-1. Changing procedure of sewing data



① Display the LBH data input screen.

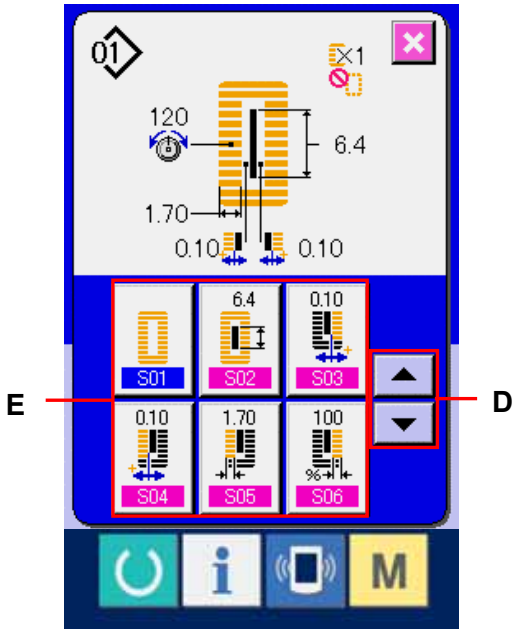
Only in case of the LBH data input screen (blue), change of the sewing data can be performed.

② Select the LBH pattern data.

When LBH PATTERN DATA AUTOMATIC TURN button (A or B) is pressed, LBH pattern Nos. which have been registered to ACF pattern which is selected at present can be changed over in order.

③ Call the sewing data screen.

Press SEWING DATA CHANGE button (C) and the sewing data list screen is displayed.



④ Select the sewing data to be changed.

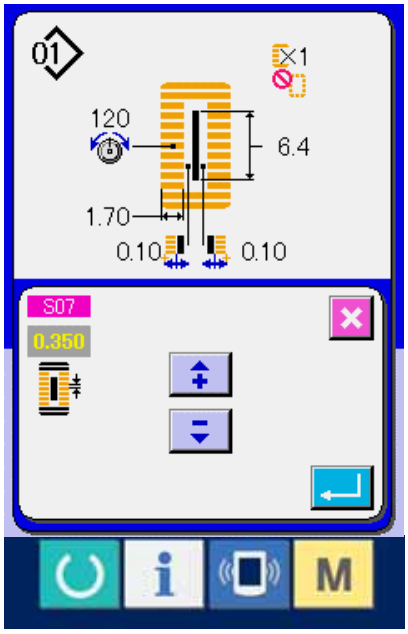
Press UP/DOWN SCROLL button (D) and select SEWING DATA ITEM button (E) you desire to change. Data item not used according to the shape and data item which is set to without function are not displayed. So, be careful.

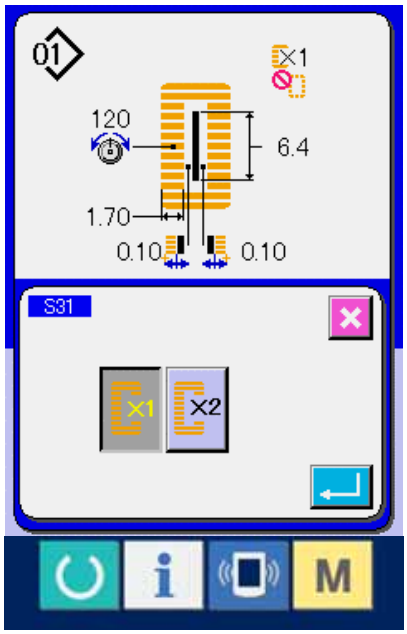
→Refer to 2-10. SETTING PROCEDURE OF SEWING DATA WITH/WITHOUT EDIT,p.60.

⑤ **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 S02 is put on the data item to change the numeral and the set value can be changed with the +/- button which is displayed in the change screen. No. in blue color such as S20 is put on the data item to select the pictograph and the pictograph which is displayed in the change screen. For the details of the sewing data.

→refer to 2-7-2. Sewing data list,p.46.





2-7-2. Sewing data list

Sewing data are those that can be inputted to 99 LBH patterns from LBH pattern 1 to 99 and can be inputted to each LBH pattern.

The sewing machine has been set in the state that the data which is necessary to set "With/ without edit" cannot be set at the time of your purchase. Change over the function to "With edit" if necessary for use.

→Refer to 2-10. SETTING PROCEDURE OF SEWING DATA WITH/WITHOUT EDIT,p.61.

NO.	Item	Setting range	Edit unit	Remarks
S01	**Sewing shape** This item selects the shape from among the sewing shapes of 30 different kinds which the sewing machine has.→ Refer to → 2-6. SEWING SHAPE LIST,p.43.  1 ～  30 ※Only 12 kinds of standard sewing shapes can be selected at the time of your purchase. When increasing the kinds of shapes, perform setting of K04 Sewing shape selection level of memory switch data.→ Refer to → 2-17-2. Memory switch data list,p.78.	1～30	1	---
S02	**Cloth cut length** This item sets the length of cloth that is cut by cloth cutting knife. However, in case of bar-tack shape (Nos. 27, 28, 29 and 30 of S01), sewing length is set.  By making effective U19 Function of plural motions of cloth cutting knife of memory switch data, make the plural motions of knife by the knife size set in the item U18 Cloth cutting knife size, and the sewing product is cut. →Refer to 2-17-2. Memory switch data list,p.78.	3.0～120.0	0.1mm	---

(Remarks)

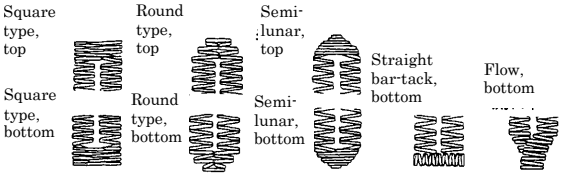
※ 1 : Displayed according to the shape.

※ 2 : Displayed when it is set to with edit. Refer to 2-10. SETTING PROCEDURE OF SEWING DATA WITH/WITHOUT EDIT,p.60.

※ 3 : Displayed when the function is selected

NO.	Item	Setting range	Edit unit	Remarks
S03	**Knife groove width, left** This item sets the clearance between cloth cutting knife and left parallel section. 	-2.00～2.00	0.05mm	---
S04	**Overedging width, left** This item sets the overedging width of left parallel section. 	-2.00～2.00	0.05mm	---
S05	**Ratio of right and left shapes** This item sets enlargement/reduction ratio of right side shape making the knife position as the center. 	0.10～5.00	0.05mm	---
S06	**Pitch at parallel section** This item sets sewing pitch of left and right parallel sections. 	50～150	1%	---
S07	**2nd bar-tacking length** This item sets length of bar-tacking on the front side. 	0.200～2.500	0.025mm	---
S08	**2nd bar-tacking length** This item sets length of bar-tacking on the front side. Square type, bottom  Straight bar-tack, bottom  Flow, bottom  	0.2～5.0	0.1mm	---
S09	**1st bar-tacking length** This item sets length of bar-tacking on the rear side。 Square type, top  	0.2～5.0	0.1mm	---
S10	**Compensation of bar-tacking width, right** This item adjusts left side outer shape of bar-tacking section in terms of overedging section. Both 1st and 2nd bar-tacking can be compensated. Square type, top  Square type, bottom  Straight bar-tack, bottom  	-1.00～1.00	0.05mm	---
S11	**Compensation of bar-tacking width, left** This item adjusts left side outer shape of bar-tacking in terms of overedging section. 	-1.00～1.00	0.05mm	---

NO.	Item	Setting range	Edit unit	Remarks
S12	**Flow bar-tacking offset, left** This item sets length to form bar-tacking section of flow bar-tacking shape. 	0.00～3.00	0.05mm	※1
S13	**Flow bar-tacking offset, right** This item sets length to form bar-tacking section of flow bar-tacking shape. 	0.00～3.00	0.05mm	※1
S14	**Eyelet shape length** This item sets upper side length from center of eyelet of eyelet shape. 	1.0～10.0	0.1mm	※1
S15	**Number of stitches of eyelet shape** This item sets number of stitches in the upper 90 ° of eyelet shape. 	1～8	1	※1
S16	**Eyelet width** This item sets crosswise size of the inside of eyelet shape. Actual needle entry point is the dimension to which S04 Knife groove width, left is added. 	1.0～10.0	0.1mm	※1
S17	**Eyelet length** This item sets lengthwise size of the inside of eyelet shape. 	1.0～10.0	0.1mm	※1
S18	**Round type shape length** This item sets upper side length from the center of round type shape. Round type, top / Radial, top / Semilunar, top Round type, bottom / Radial, bottom / Semilunar, bottom 	1.0～5.0	0.1mm	※1
S19	**Number of stitches of radial shape** This item sets number of stitches in the upper 90 ° of radial shape. 	1～8	1	※1

NO.	Item	Setting range	Edit unit	Remarks
S20	**Reinforcement of radial shape** This item sets ? with ? without reinforcement stitching of radial shape.With Without.  : With  : Without	---	---	※1、※2
S21	**Pitch at bar-tacking section** This item sets sewing pitch of bar-tacking section.  	0.200～ 2.500	0.025mm	---
S22	**1st clearance** This item sets the clearance between 1st bar-tacking and knife groove. This item is applied to all shapes. 	0.0～4.0	0.1mm	---
S23	**2nd clearance** This item sets the clearance between 2nd bar-tacking and knife groove. This item is applied to all shapes. 	0.0～4.0	0.1mm	---
S31	**Single/double stitching** This item selects single or double stitching.  :Single stitching  :Double stitching	---	---	---

NO.	Item	Setting range	Edit unit	Remarks
S32	**Double stitching cross selection** This item selects overlapped stitching or cross stitching at the needle entry of parallel section when setting double stitching.  :Overlapped stitching  :Cross stitching	---	---	※3
S33	**Compensation of double stitching width** This item sets amount to narrow overedging width of 1st cycle when setting double stitching. 	0.0～2.0	0.1mm	※3
S34	**Number of times of basting** This item sets number of times of basting.  : Without basting  : 1 to 9 times	0～9	1回	---
S35	**Basting pitch** This item sets pitch at the time of performing basting. 	1.0～5.0	0.1mm	※3
S36	**Rolling length of basting** This item sets rolling length of needle thread when performing basting. 	2.0～20.0	0.1mm	※3
S37	**Rolling pitch of basting** This item sets rolling pitch of needle thread when performing basting. 	0.2～5.0	0.1mm	※3
S38	**Rolling width of basting** This item sets rolling width of needle thread when performing basting. 	0.0～4.0	0.1mm	※3
S39	**Lengthwise compensation of needle entry of basting** This item sets the amount to move needle entry position back and forth when performing basting more than two cycles. 	0.0～2.5	0.1mm	※2、※3

NO.	Item	Setting range	Edit unit	Remarks
S40	**Crosswise compensation of needle entry of basting** This item sets the amount to move needle entry position to the right or left when performing basting more than two cycles. 	0.0～1.0	0.1mm	※3
S41	**Compensation of left side position of basting** This item sets the amount to move the sewing reference position of basting from the center of left overedging to the right or left. 	-2.0～2.0	0.1mm	※2、※3
S42	**Compensation of right side position of basting** This item sets the amount to move the sewing reference position of basting from the center of right overedging to the right or left. 	-2.0～2.0	0.1mm	※2、※3
S44	**Speed setting of basting** This item sets speed of basting. 	400～2000	100rpm	※3
S45	**Sewing together function** This item selects the function when performing sewing together first.  : Without sewing together  : With sewing together When "With sewing together" is selected : Sewing is performed in the order of sewing together -> basting -> normal sewing.	---	---	---
S46	**Width of sewing together** This item sets sewing width when performing sewing together. 	1.0～10.0	0.1mm	※2、※3
S47	**Pitch of sewing together** This item sets sewing pitch when performing sewing together. 	0.2～5.0	0.1mm	※2、※3

NO.	Item	Setting range	Edit unit	Remarks
S51	**Left parallel section tension** This item sets needle thread tension at left parallel section. 	0～200	1	---
S52	**Right parallel section tension** This item sets needle thread tension at right parallel section. 	0～200	1	※2
S53	**Left parallel section tension (1st cycle of double stitching)** This item sets needle thread tension at left parallel section of 1st cycle at the time of double stitching. 	0～200	1	※2、※3
S54	**Right parallel section tension (1st cycle of double stitching)** This item sets needle thread tension at right parallel section of 1st cycle at the time of double stitching. 	0～200	1	※2、※3
S55	**Tension at 1st bar-tacking section** This item sets needle thread tension at 1st bar-tacking section. 	0～200	1	---
S56	**Tension at 2nd bar-tacking section** This item sets needle thread tension at 2nd bar-tacking section. 	0～200	1	※2
S57	**Setting of needle thread tension at the start of sewing** This item sets needle thread tension of tie stitching at the start of sewing. 	0～200	1	---
S58	**Setting of needle thread tension of basting** This item sets needle thread tension of basting. 	0～200	1	※3

NO.	Item	Setting range	Edit unit	Remarks
S59	**ACT timing adjustment at the start of 1st bar-tacking** This item adjusts needle thread tension output start timing at 1st bar-tacking section. 	-5～5	1 stitch	※2
S60	**ACT timing adjustment at the start of right overedging** This item adjusts needle thread tension output start timing at right overedging section. 	-5～5	1 stitch	※2
S61	**ACT timing adjustment at the start of 2nd bar-tacking** This item adjusts needle thread tension output start timing at 2nd bar-tacking section. 	-5～5	1 stitch	※2
S62	**Number of stitches of tie stitching at the start of sewing** This item sets number of stitches of tie stitching at the start of sewing. 	0～8	1 stitch	---
S63	**Sewing pitch of tie stitching at the start of sewing** This item sets sewing pitch of tie stitching at the start of sewing. 	0.00～0.70	0.05mm	※2
S64	**Tie stitching width at the start of sewing** This item sets tie stitching width at the start of sewing. 	0.0～3.0	0.1mm	---
S65	**Lengthwise compensation of tie stitching at the start of sewing** This item sets start position of tie stitching in lengthwise direction at the start of sewing. 	0.0～5.0	0.1mm	※2
S66	**Crosswise compensation of tie stitching at the start of sewing** This item sets start position of tie stitching in crosswise direction at the start of sewing. 	0.0～2.0	0.1mm	※2

NO.	Item	Setting range	Edit unit	Remarks
S67	**Tie stitching width at the end of sewing** This item sets tie stitching width at the end of sewing. 	0.1～1.5	0.1mm	---
S68	**Number of stitches of tie stitching at the end of sewing** This item sets number of stitches of tie stitching at the end of sewing. 	0～8	1 stitch	---
S69	**Lengthwise compensation of tie stitching at the end of sewing** This item sets start position of tie stitching in lengthwise direction at the end of sewing. 	0.0～5.0	0.1mm	※2
S70	**Crosswise compensation of tie stitching at the end of sewing** This item sets start position of tie stitching in crosswise direction at the end of sewing. 	0.0～2.0	0.1mm	※2
S81	**Knife motion** This item sets "With/without motion" of normal cloth cutting knife.  : Normal knife motion Off  : Normal knife motion ON	---	---	---
S83	**Knife motion at 1st cycle of double stitching** 2 This item sets "With/without motion" of cloth cutting knife at 1st cycle when double stitching is performed.  : Normal knife motion Off  : Normal knife motion ON	---	---	※2、※3
S84	**Maximum speed limitation** This item sets max. number of revolutions of the sewing machine. The maximum value of data edit is equal to the number of revolutions of K07 Maximum speed limitation of the memory switch data. → Refer to → 2-17-2. Memory switch data list,p.80. 	400～4200	100rpm	---

NO.	Item	Setting range	Edit unit	Remarks
S86	**Pitch of going** This item sets sewing pitch of going side of bar-tacking shape (Shape Nos. 27, 28, 29 and 30 of S01). 	0.200～2.500	0.025mm	---
S87	**Width of going** This item sets width of going side of bar-tacking shape (Shape Nos. 27, 28, 29 and 30 of S01). 	0.1～3.0	0.05mm	---
S88	**Pitch of returning** This item sets sewing pitch of retuning side of bar-tacking shape (Shape Nos. 27, 28, 29 and 30 of S01). 	0.200～2.500	0.025mm	---
S89	**Width of returning** This item sets width of returning side of bar-tacking shape (Shape Nos. 27, 28, 29 and 30 of S01). 	0.1～3.0	0.05mm	---

2-8. INPUTTING THE PRESSER TYPE

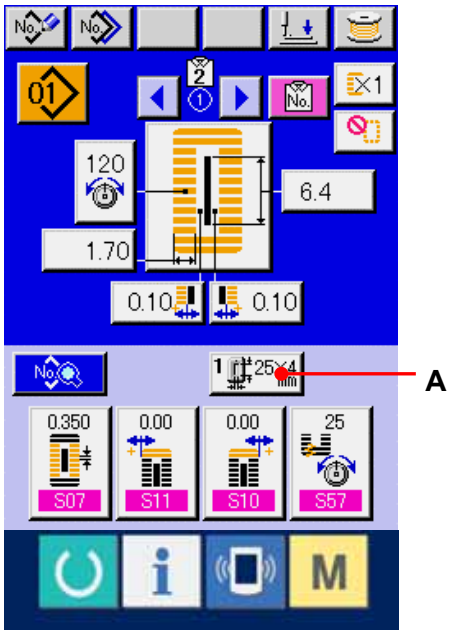
2-8-1 Setting procedure of the presser type

① Display the LBH data input screen.

Only in case of the LBH data input screen (blue), the contents of setting can be changed.

② Call the presser type selection screen.

Press PRESSER TYPE SELECTION button  (A) and the presser type selection screen is displayed.

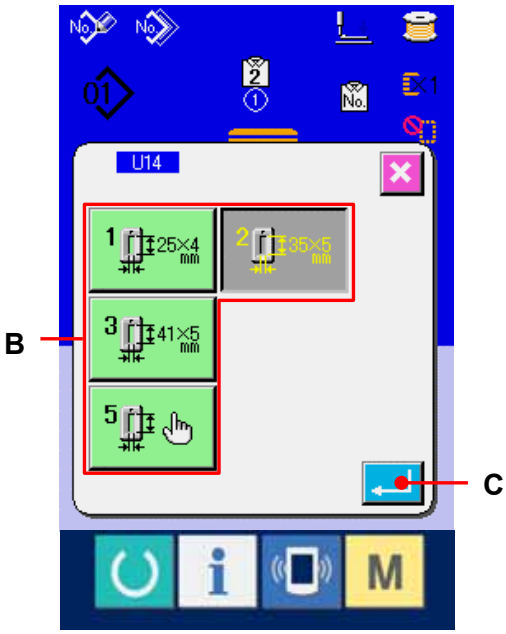


③ Select the presser type.

Press button (B) of the presser type mounted on the sewing machine. The button pressed is shown in reverse video. Set the presser type referring to Table of presser type described later.

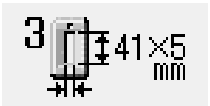
④ Determine the presser type.

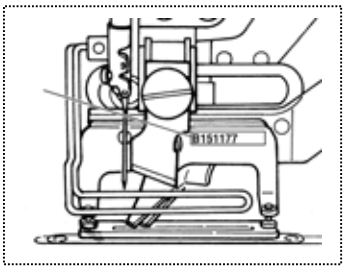
Press ENTER button  (C) and the presser type change screen is closed. Then the change has been finished.



2-8-2. Table of presser type

Make the number in the frame of engraved part number of presser foot correspond to the type of presser.

	Type	Part No. of presser foot
	Type 1	B 1 5 1 1 7 7 **1** 0 0 0 *
	Type 2	B 1 5 1 1 7 7 **2** 0 0 0 *
	Type 3	B 1 5 1 1 7 7 **3** 0 0 0 *
	Type 5	—



※ Set type 5 when using the presser foot other than type 1 to 3. Change U15 Presser size width and U16 Presser size length of the memory switch (level 1) to adjust to the presser to be used.
→Refer to .2-17. CHANGING MEMORY SWITCH DATA,p.78.

※ When using type 5 with stitch width of 6 mm or more and 41 mm or more in length, it is necessary to replace components such as presser arm, feed plate, etc.

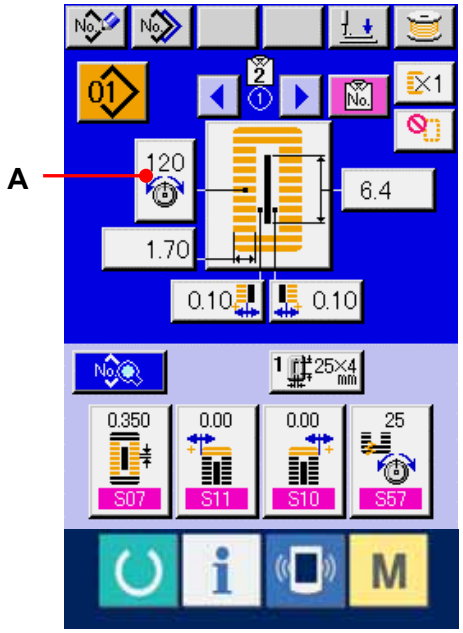
2-9. CHANGING NEEDLE THREAD TENSION

① Display the LBH data input screen.

Only in case of the LBH data input screen (blue), needle thread tension can be changed.

② Call the needle thread tension change screen.

Press NEEDLE THREAD TENSION button  (A) and the needle thread tension change screen is displayed.

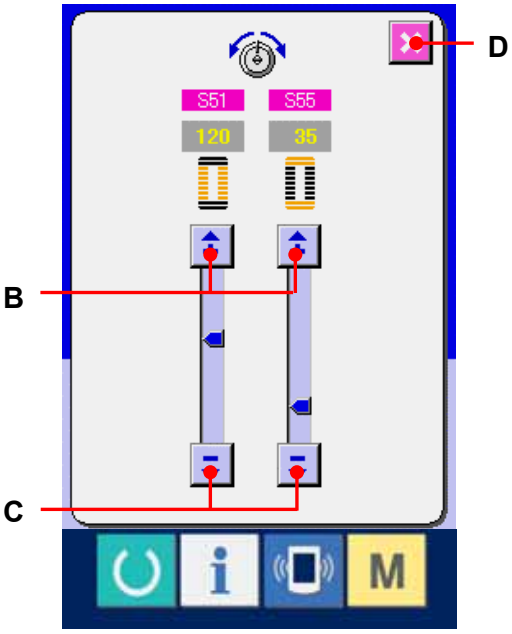


③ Change the needle thread tension.

Needle thread tension at the parallel section and that at the bar-tacking section can be changed in the needle thread tension change screen. Change the tension value with UP button  (B) or DOWN button  (C) corresponding to the respective sections.

④ Finish the change of needle thread tension.

Press CANCEL button  (D) and the needle thread tension change screen is closed. Then the change has been finished.



* Number of items to be displayed on the needle thread tension change screen according to the sewing data with/without edit.
-> Refer to 2-10. SETTING PROCEDURE OF SEWING DATA WITH/WITHOUT EDIT,p.60.

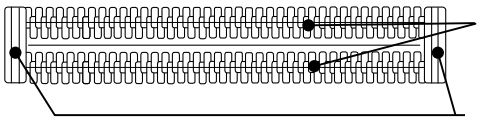
※For the tension other than that at parallel section and at bar-tacking section, refer to 2-7. CHANGING SEWING DATA,p.44. and 2-17. CHANGING MEMORY SWITCH DATA,p78.

Set value of tension at ① parallel section and ② bar-tacking section

	Set value on panel			
		⊖	Initial value	⊕
Purl stitch	①Parallel section tension	Crest is lowered.	１２０	Crest is raised.
	②Bar-tacking tension	Thread tension is decreased.	３５	Thread tension is increased.
Whip stitch	①Parallel section tension	Thread tension is decreased.	６０	Thread tension is increased.
	②Bar-tacking tension	Thread tension is decreased.	６０	Thread tension is increased.

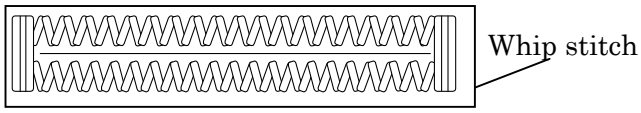
In case of the radial eyelet shape, set the bar-tacking tension first to approximately 120 and make the balance of stitches.

Purl stitch and Whip stitch



Purl stitch

When applying higher tension to the needle thread to permit it to pass straight through fabric, the purl stitch is formed by the bobbin thread which is pulled over from both sides to the center line.



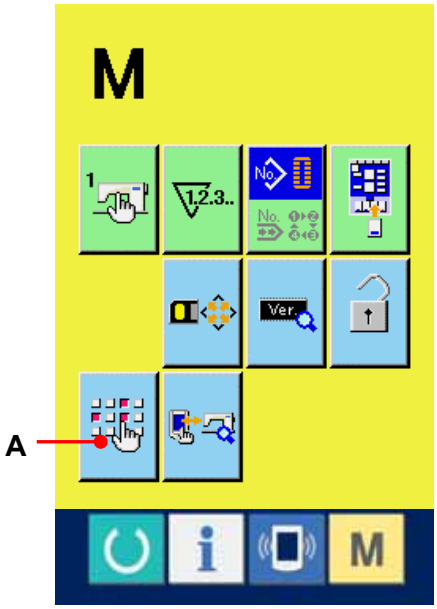
Whip stitch

The whip stitch is formed in zigzag showing the needle thread only on top of fabric, and the bobbin thread on the bottom.

2-10. SETTING PROCEDURE OF SEWING DATA WITH/WITHOUT EDIT

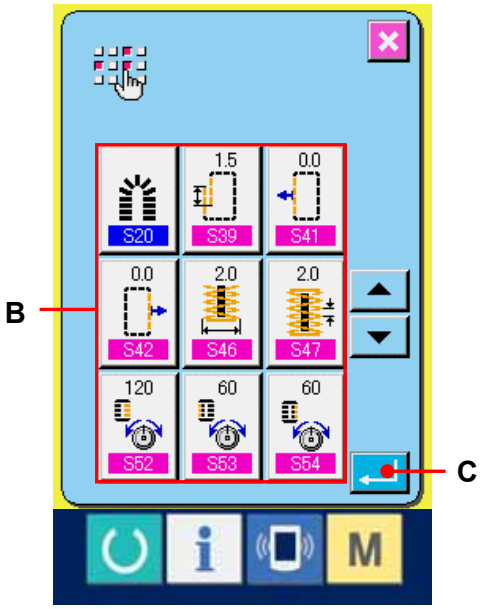
① Display the sewing data with/without edit setting screen.

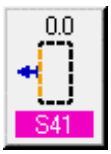
When continuing pressing M switch for three seconds, the sewing data with/without edit setting button (A) is displayed on the screen.When this button is pressed, the sewing data with/without edit setting screen is displayed.

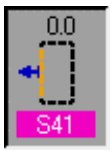


② Select the sewing data with/without edit.

The list of data item buttons (B) which are possible to set the data with/without edit among the sewing data is displayed. When the button is pressed, reverse display/normal display changes over alternately.
When you desire to set "With edit", set the reverse display.When you desire to set "Without edit", set the normal display.





: Without edit 

: With edit

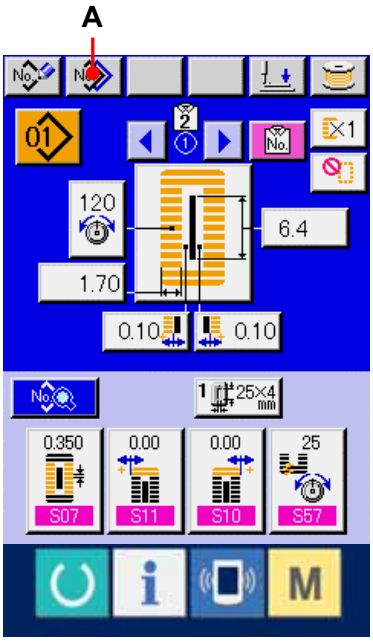
③ Determine the sewing data with/without edit.

When ENTER button (C) is pressed, the state of with/without edit of the sewing data item which has been set is determined.

2-11. Copying LBH sewing pattern

The sewing data of LBH pattern No. which has been already registered can be copied to LBH 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.



① Display the LBH data input screen.

Only in case of the LBH data input screen (blue), copying is possible. In case of the sewing screen (green), press READY key , and in case of the ACF data input screen (pink), press CHANGEOVER OF ACF MODE AND LBH MODE button to display the LBH data input screen.

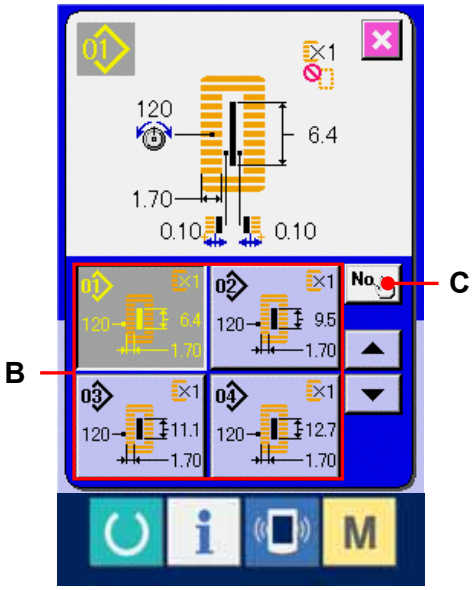
② Call the LBH pattern copy source selection screen.

When LBH PATTERN COPY button (A) is pressed, the LBH pattern copy source selection screen is displayed.

③ Select the pattern No. of copy source.

Select the LBH pattern No. of copy source from LBH PATTERN LIST buttons (B).

Then press COPY DESTINATION INPUT button (C) and the LBH pattern copy destination input screen is displayed.

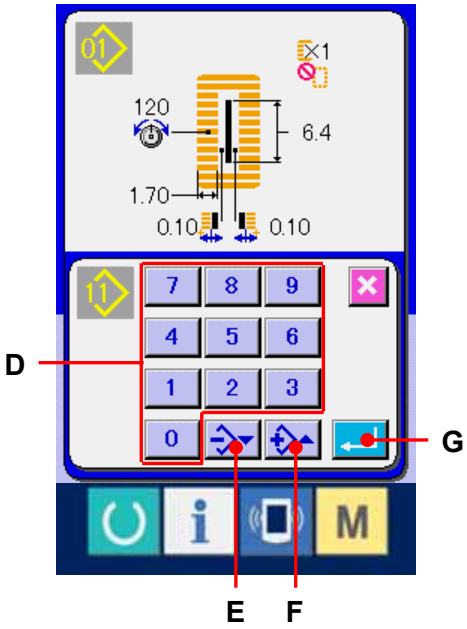


④ **Input the pattern No. of copy destination.**

Input LBH pattern No. of copy destination with the ten keys (D). It is possible to retrieve the LBH pattern No. which is not used with  buttons (E ・ F).

⑤ **Start copying.**

Press ENTER button  (G) and copying starts. LBH pattern No. which has been copied in the selected state returns to LBH pattern copy source selection screen after approximately two seconds.



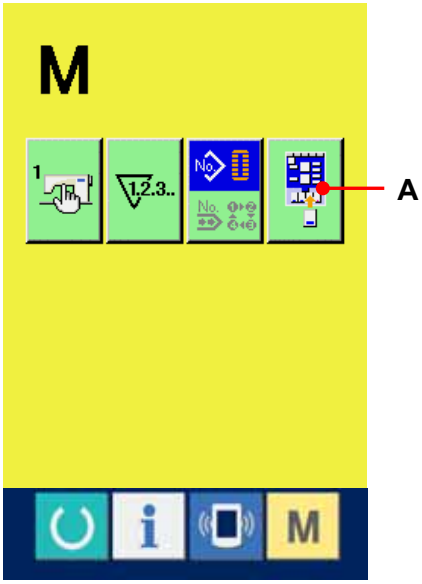
2-12. REGISTERING SEWING DATA TO CUSTOMIZE BUTTON

Register parameters which are frequently used to CUSTOMIZE button and use them. Screen of the change of parameters which have been registered can be displayed by press only CUSTOMIZE button in the LBH data input screen (blue).

2-12-1. How to register

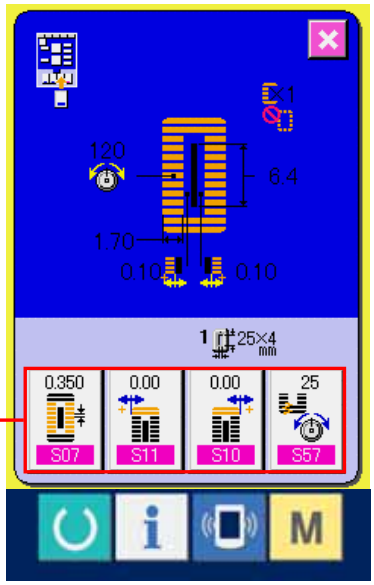
① Display the customize pattern register screen.

When M switch is pressed, the customize pattern register button (A) is displayed on the screen. When this button is pressed, the customize pattern register screen is displayed.



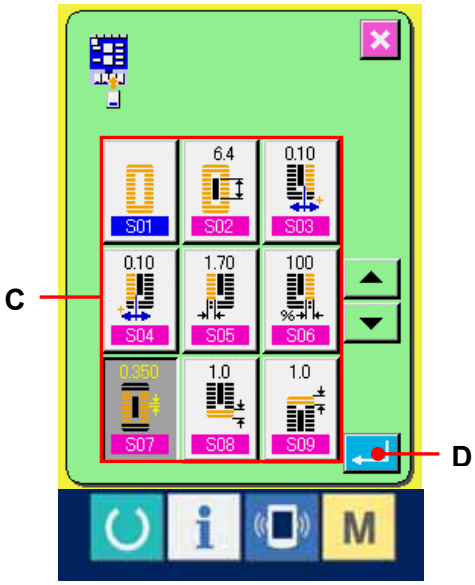
② Select the button to be registered.

The customize buttons can be registered up to four buttons. Four costomize register buttons (B) are displayed on the screen. When the button located on the position you desire to register is pressed, the sewing data list screen is displayed.



③ Select the sewing data to be registered.

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



④ Register to the customize button.

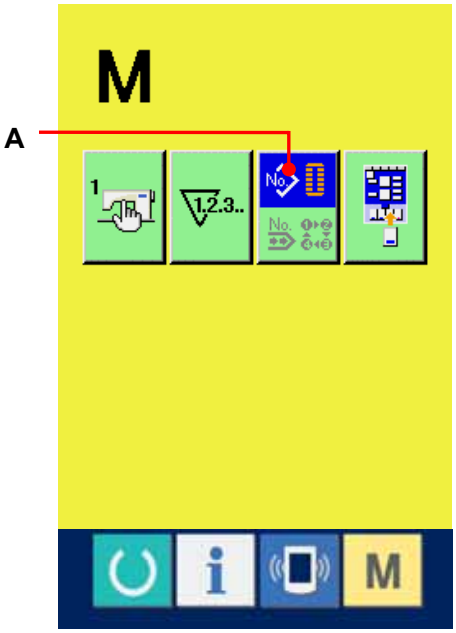
When ENTER button (D) is pressed, register to the customize button is finished and the customize button register screen is displayed. The registered sewing data is displayed on the customize button.

2-12-2. Register state at the time of your purchase

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

S07	Pitch at parallel section	
S11	Compensation of bar-tacking width, left	
S10	Compensation of bar-tacking width, right	
S57	Setting of needle thread tension at the start of sewing	

2-13. CHANGING SEWING MODE



① Select the sewing mode.

Press MODE key M from the LBH data input screen, and SEWING MODE SELECTION button (A) is displayed.

LBH Press this button and changeover of independent sewing and continuous stitching can be performed.

Independent sewing button (B) :

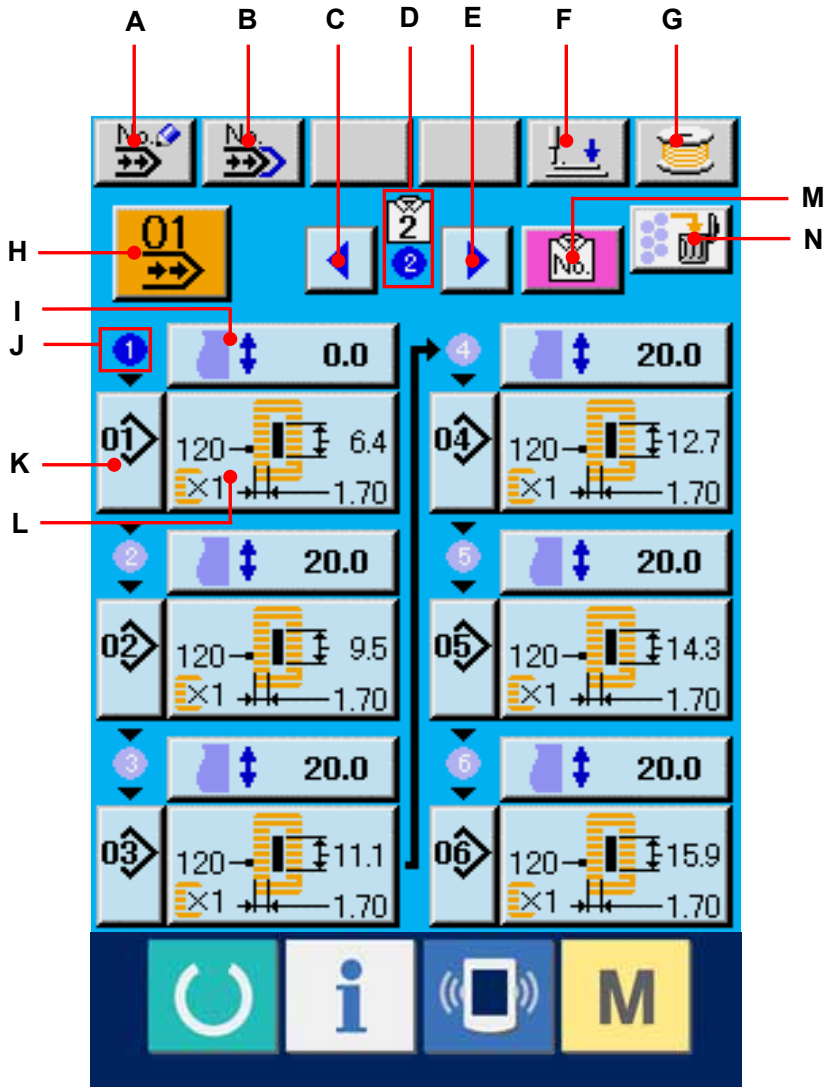
Continuous stitching button (D) :

② Determine the sewing mode.

Press MODE key M after changing over the sewing mode. LBH data input screen of the selected sewing mode is displayed.

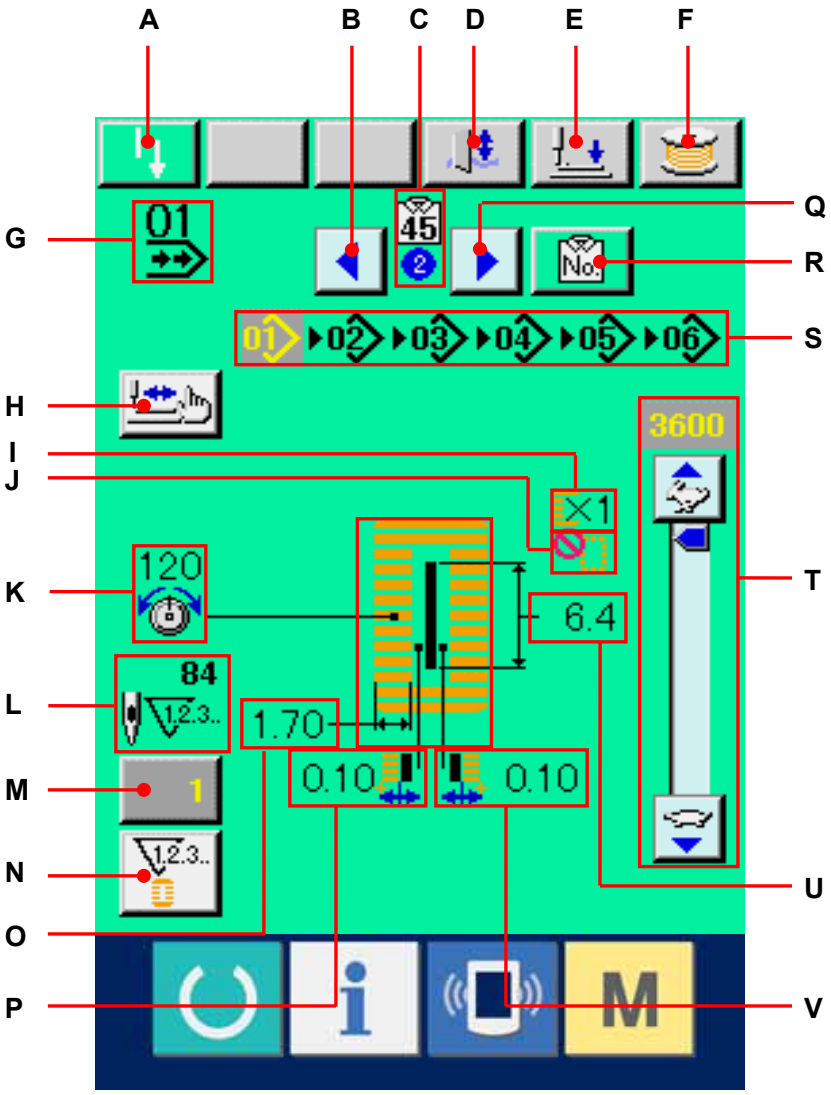
2-14. LCD DISPLAY SECTION AT THE TIME OF CONTINUOUS STITCHING

2-14-1. LBH continuous stitching data input screen



	Button and display	Description
A	LBH CONTINUOUS STITCHING DATA NEW REGISTER button	LBH continuous stitching data new register screen is displayed.
B	LBH CONTINUOUS STITCHING DATA COPY button	LBH continuous stitching data copy screen is displayed.
C	LBH PATTERN DATA AUTOMATIC TURN button (to return)	LBH pattern data which are used in ACF pattern data being selected at present are automatically turned.
D	ACF PATTERN NO. AND SEWING ORDER display	ACF pattern No. being selected and the present sewing order are displayed. LBH pattern Nos. which are set in the displayed sewing order are in the state of selection.
E	LBH PATTERN DATA AUTOMATIC TURN button (to advance)	LBH pattern data which are used in ACF pattern data being selected at present are automatically turned.
F	PRESSER DOWN button	Presser can be lowered and the presser down screen is displayed. To raise the presser, press the presser up button displayed in the presser down screen.
G	BOBBIN WINDER button	Bobbin thread can be wound. →Refer to 1-6. WINDING BOBBIN THREAD,p.17.
H	LBH CONTINUOUS STITCHING DATA NO. SELECTION button	LBH continuous stitching data No. being selected at present is displayed in the button. When it is pressed, the LBH continuous stitching data No. selection screen is displayed.
I	FEED AMOUNT INPUT button	Cloth feed amount before sewing is displayed. When the button is pressed, feed amount input screen is displayed.
J	SEWING ORDER display	Sewing order of the inputted LBH pattern data is displayed.
K	LBH PATTERN NO. SELECTION button	LBH pattern No. which has been inputted is displayed. When the button is pressed, the LBH pattern No. list screen is displayed and LBH pattern No. selection can be performed.
L	SEWING DATA EDIT button	Sewing data information such as LBH pattern No., shape, cloth cutting length, etc. which have been inputted is displayed.
M	CHANGEOVER OF ACF MODE AND LBH MODE button	When the button is pressed, the ACF data input screen is displayed and operation and setting of ACF can be performed.
N	ALL DELETE button	Contents inputted to LBH continuous stitching data being selected at present are deleted.

2-14-2. LBH continuous stitching sewing screen

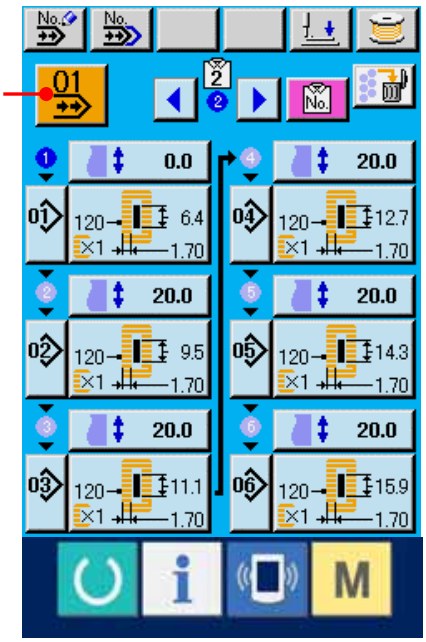


	Button and display	Description
A	SEWING MACHINE START switch	Sewing of the selected LBH pattern is started.
B	LBH PATTERN DATA AUTOMATIC TURN button (to return)	LBH pattern data which are used in ACF pattern data being selected at present are automatically turned.
C	ACF PATTERN NO. AND SEWING ORDER display	ACF pattern No. and the present sewing order are displayed.
D	KNIFE CANCEL button	Every time the button is pressed, dropping/non-dropping knife is changed over alternately.
E	PRESSER DOWN button	Presser can be lowered and the knife down screen is displayed. To raise the presser, press the presser up button displayed in the presser down screen.
F	BOBBIN WINER button	Bobbin thread can be wound. →Refer to 1-6. WINDING BOBBIN THREAD,p.17.
G	LBH CONTINUOUS STITCHING PATTERN NO. display	LBH continuous stitching data No. during sewing is displayed.
H	STEP STITCHING button	When the button is pressed, the step stitching screen to check the needle entry point and to perform re-sewing is displayed. →Refer to 2-4. Performing re-sewing under LBH mode,p.40.
□	WITH/WITHOUT DOUBLE STITCHING display	With/without double stitching which is set to LBH pattern data during sewing is displayed.
J	NUMBER OF TIMES OF BASTING display	Number of times of basting which is set to the LBH pattern data during sewing is displayed.
K	NEEDLE THREAD TENSION display	Needle thread tension which is set to the LBH pattern data during sewing is displayed.
L	NUMBER OF TOTAL STITCHES display	Number of total stitches of the LBH continuous stitching data during sewing is displayed.
M	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 1-7. Using counter,p.18.
N	COUNTER CHANGE OVER button	Display of sewing counter/No. of pcs. counter can be changed over. → Refer to 1-7. Using counter,p.18.
O	OVEREDGING WIDTH, LEFT display	Overedging width, left which is set to the LBH pattern data during sewing is displayed
P	KNIFE GROOVE WIDTH, LEFT display	Knife groove width, left which is set to the LBH pattern data during sewing is displayed.

	Button and display	Description
Q	LBH PATTERN DATA AUTOMATIC TURN button (to advance)	LBH pattern data which are used in ACF pattern data being sewn at present are automatically turned.
R	CHANGEOVER OF ACF MODE AND LBH MODE button	When the button is pressed, the ACF automatic sewing screen is displayed and automatic sewing can be performed.
S	PATTERN NO. display	LBH pattern No. inputted to LBH continuous stitching data during sewing is displayed. LBH pattern No. being sewn at present is displayed in reverse video.
T	SPEED variable resistor	Number of rotation of sewing machine can be changed. The number of rotation which is set is displayed.
U	CLOTH CUTTING LENGTH display	Cloth cutting length which is set to the LBH pattern data during sewing is displayed.
V	KNIFE GROOVE WIDTH, RIGHT display	Knife groove width, right which is set to the LBH pattern data during sewing is displayed.

2-15. Performing LBH continuous stitching

Change the sewing mode to the continuous stitching mode before performing setting.
-> Refer to 2-13. CHANGING SEWING MODE,p.65.



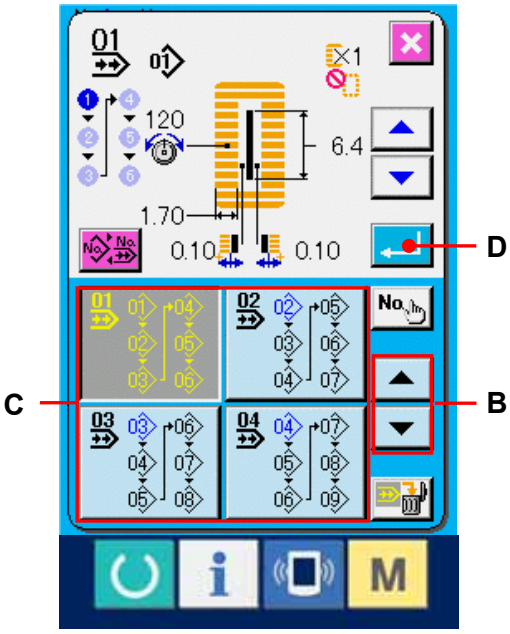
2-15-1. Selection of LBH continuous stitching data

① Display the LBH continuous stitching data input screen.

Only in case of the LBH continuous stitching data input screen (light blue), it is possible to select LBH continuous stitching data No. In case of the sewing screen (green), press READY key and display the LBH continuous stitching data input screen (light blue).

② Call the LBH continuous stitching data No. selection screen.

When LBH CONTINUOUS STITCHING DATA NO. SELECTION button (A) is pressed, the LBH continuous stitching data No. selection screen is displayed. LBH continuous stitching data No. selected at present and the contents are displayed in the upper part of the screen, and other LBH continuous stitching data No. buttons which have been registered are displayed in the lower part of the screen.



③ Select the LBH continuous stitching data No.

When UP or DOWN SCROLL button (B) is pressed, the registered LBH continuous stitching data No. buttons changes over in order. Contents registered to the LBH continuous stitching data are displayed in the buttons. Here, press the LBH continuous stitching data button (C) you desire to select.

④ Determine the LBH continuous stitching data No.

When ENTER button (D) is pressed, the LBH continuous stitching data No. selection screen is closed and the selection has been finished.

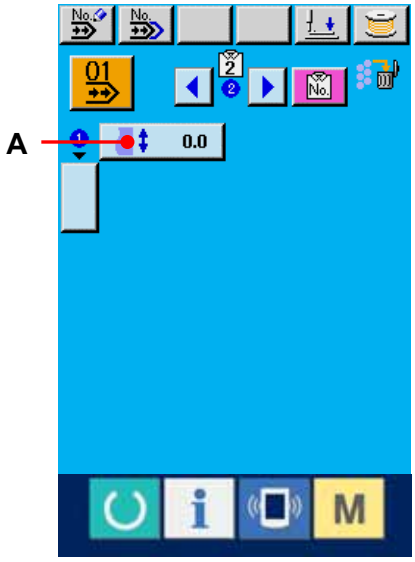
2-15-2. Editing procedure of the LBH continuous stitching data

① Display the LBH continuous stitching data input screen.

Only in case of the LBH continuous stitching input screen (light blue), it is possible to change the continuous stitching data. In case of the sewing screen (green), press READY key and display the LBH continuous stitching data input screen (light blue).

After the screen is displayed, select the LBH continuous stitching data No. you desire to edit referring to 2-15-1. Selection of LBH continuous stitching data,p.71.

LBH continuous stitching data No. 1 only has been registered at the time of your purchase. However, LBH pattern No. has not been inputted and the screen is displayed as shown in the figure on the right side.



② Display the feed amount input screen.

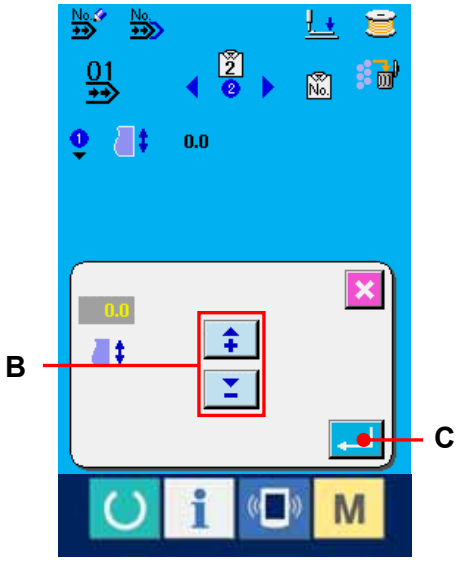
When FEED AMOUNT button 0.0 (A) is pressed, the feed amount input screen is displayed.

③ Input the feed amount.

Input the feed amount with plus/minus buttons (B). Input range changes according to the presser size which has been set.

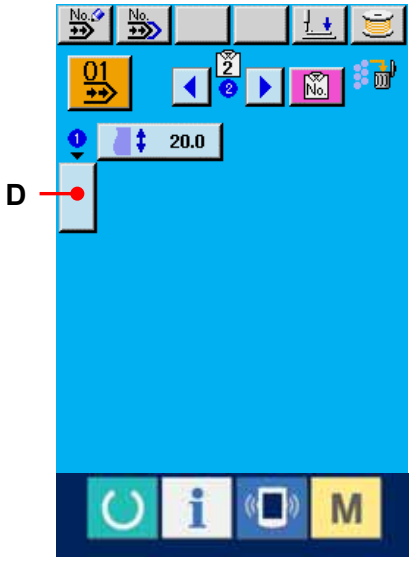
④ Determine the feed amount.

When ENTER button (C) is pressed, the feed amount input screen is closed and input has been completed.



⑤ **Call the LBH pattern No. selection screen.**

Press button (D) displayed under the sewing order display. LBH pattern No. to sew first screen is displayed.

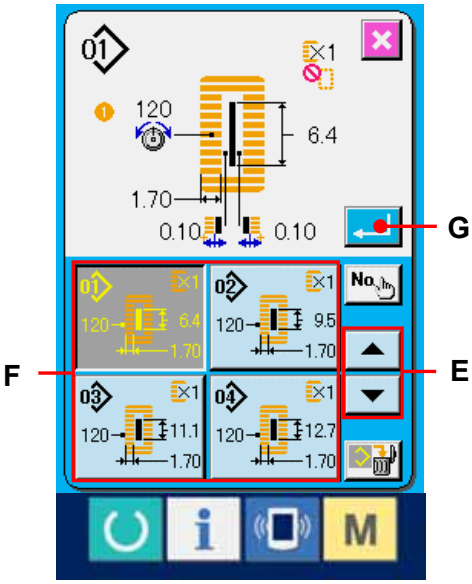


⑥ **Select the LBH pattern No.**

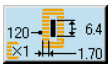
When UP or DOWN SCROLL button (E) is pressed, the registered LBH pattern No. buttons (F) change over in order. Contents of sewing data are displayed in the buttons. Here, press the LBH pattern No. button you desire to select.

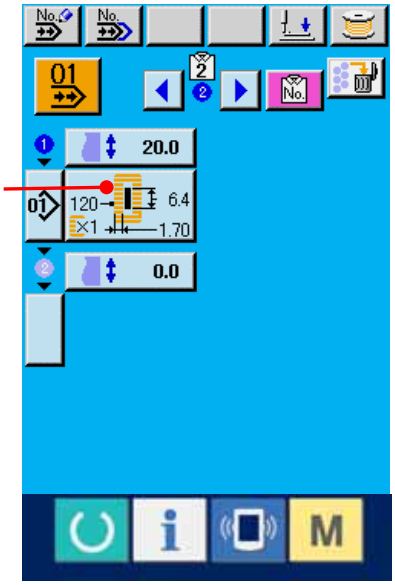
⑦ **Determine the LBH pattern No.**

When ENTER button (G) is pressed, the LBH continuous stitcing data No. selection screen is closed and the selection has been finished.



⑧ Edit the sewing data of LBH pattern inputted to LBH continuous stitching data.

When the LBH pattern No. is selected, SEWING DATA button  (H) displayed the contents of the sewing data inputted to the selected LBH pattern No. is displayed. When the button is pressed, the sewing data input screen is displayed.



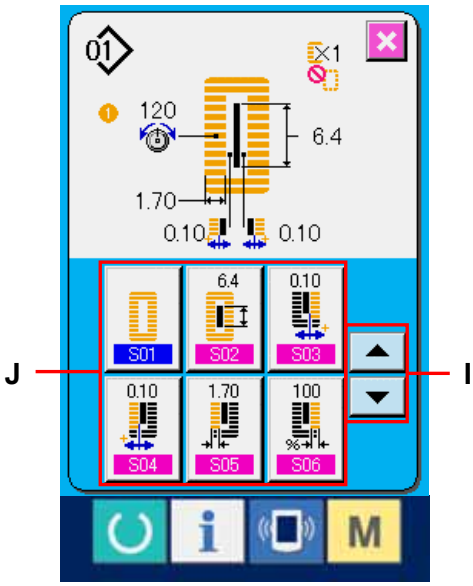
⑨ Select the sewing data to be changed.

Press UP/DOWN SCROOLl button ▲ ▼ (I) and select the data item button (J) you desire to change. Data items which are not used according to the shapes and those which have been set to "Without function" are not displayed. So, be careful.

⑩ 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 S02 is put on the data items to change numerals and the set value can be changed with +/- button displayed in the change screen. No. in blue color such as S20 is put on the data items to select pictographs and the pictographs displayed in the change screen can be selected. For the details of the sewing data, refer to 2-7-2. Sewing data list,p.46.

Repeat steps ② through ⑩ and edit the data.



※ Now, input has been completed. However, for the continuous stitching, enter all data within the range of the presser size. When the data is outside the range, error is displayed. Be sure to correctly input the presser size. →Refer to 2-8. INPUTTING THE PRESSER TYPE,p.56.

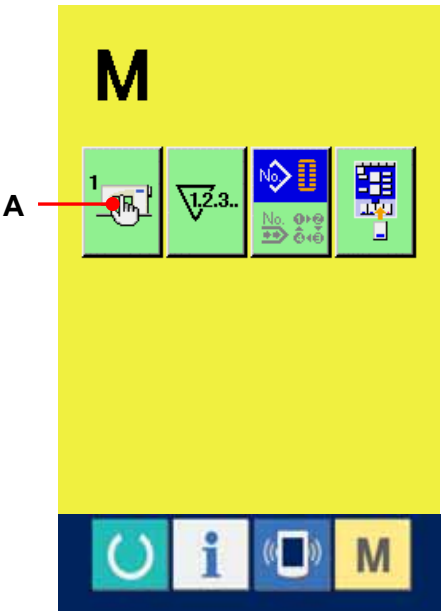
2-16. EXPLANATION OF PLURAL MOTIONS OF KNIFE

This sewing machine can automatically actuate the knife plural times and sew a buttonhole larger than the size of knife by setting the size of knife attached from the operation panel. Set and use this function when sewing various sewing shapes without replacing the knife.

① Display the memory switch list screen.

When MODE key [M] is pressed, MEMORY SWITCH button [1] (A) is displayed on the screen.

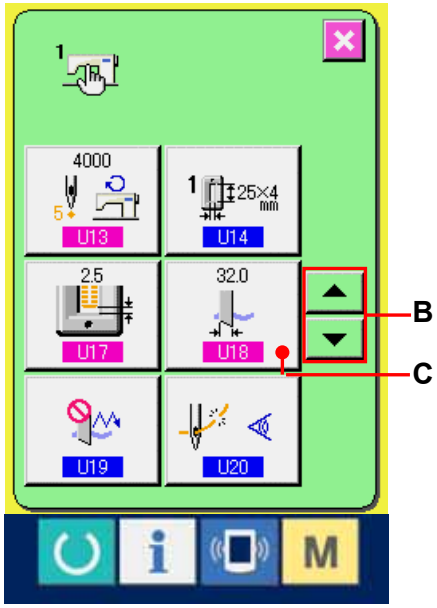
When this button is pressed, the memory switch list screen is displayed.



② Select U18 Cloth cutting knife size button.

Press UP/DOWN SCROOL button [▲] [▼] (B) and select U18 Cloth cutting knife size button [32.0 U18] (C).

The cloth cutting knife size input screen is displayed.

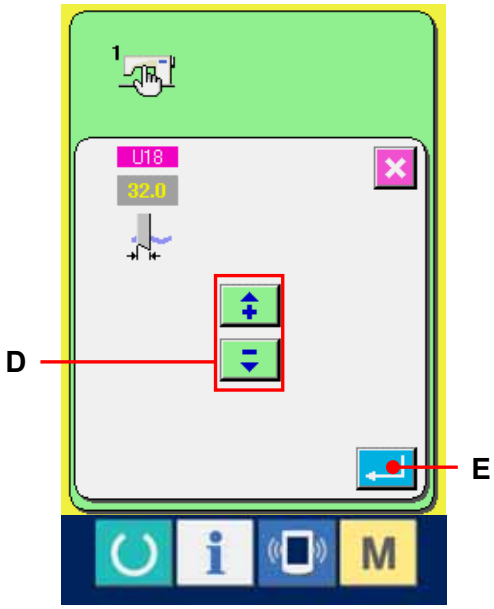


③ Input the cloth cutting knife size.

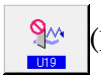
Press plus/minus buttons  (D) and input the size of knife attached.

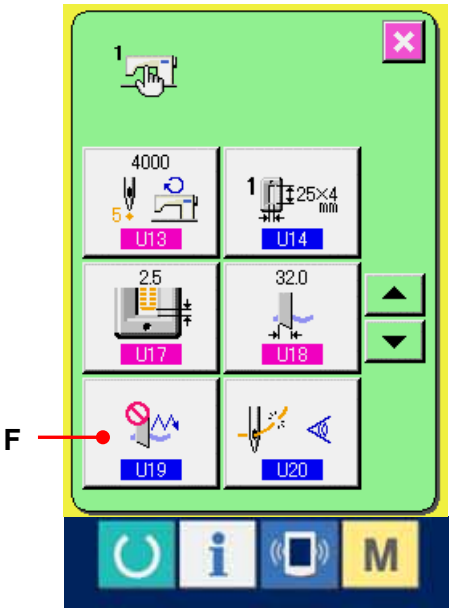
④ Determine the cloth cutting knife size.

When ENTER button  (E) is pressed, the cloth cutting knife size input screen is closed and the input has been completed. Then the screen returns to the memory switch list screen.



⑤ Select U19 Function of plural motions of cloth cutting knife button.

Press UP/DOWN SCROOL button and select U19 Function of plural motions of cloth cutting knife button  (F). The function of plural motions of cloth cutting knife selection screen is displayed.



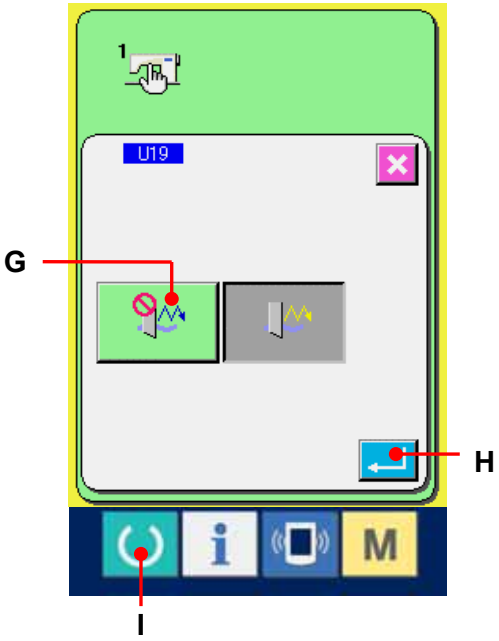
⑥ Make effective the function of plural motions of cloth cutting knife.

Select the effective button (G).

⑦ Determine the function of plural motions of cloth cutting knife.

When ENTER button  (H) is pressed, the function of plural motions of cloth cutting knife screen is closed and the selection of the function of plural motions of cloth cutting knife has been completed.

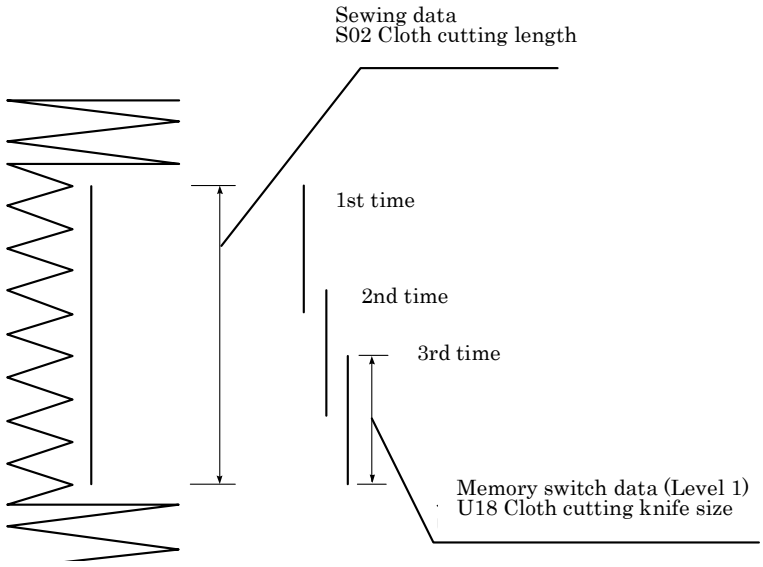
Then the screen returns to the memory switch list screen.



⑧ Perform sewing.

When READY switch (I) is pressed, the sewing screen (green) is displayed. At this time, when S02 Cloth cut length is set to larger than U18 Cloth cutting knife size which has been set in step ③, the sewing machine automatically actuates plural motions of knife and performs sewing.

※ When you desire to sew the hole shape smaller than the size of knife attached, error 489 appears.

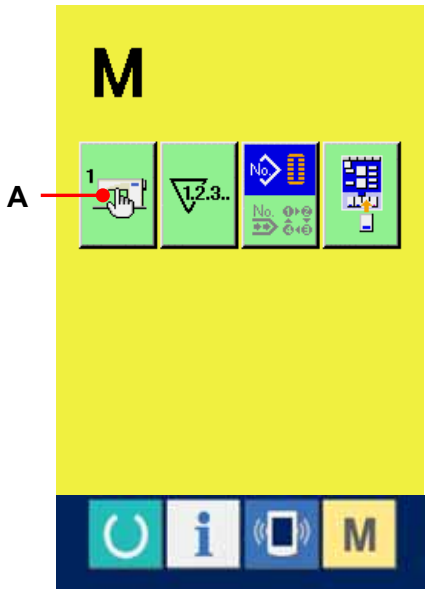


2-17. CHANGING MEMORY SWITCH DATA

2-17-1. Changing procedure of memory switch data

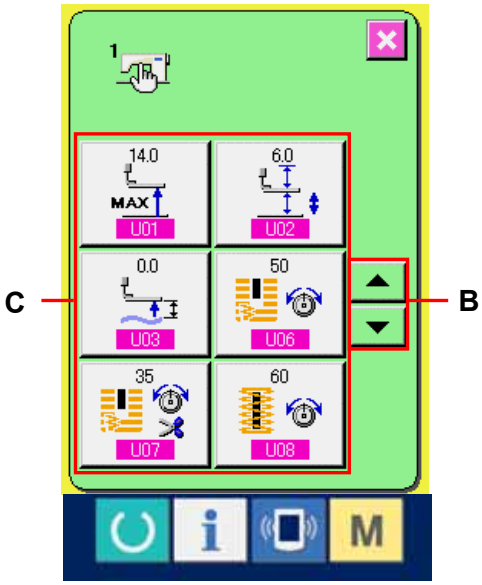
① Display the memory switch data list screen.

When MODE key M is pressed, MEMORY SWITCH button (A) is displayed on the screen.



② Select the memory switch button you desire to change.

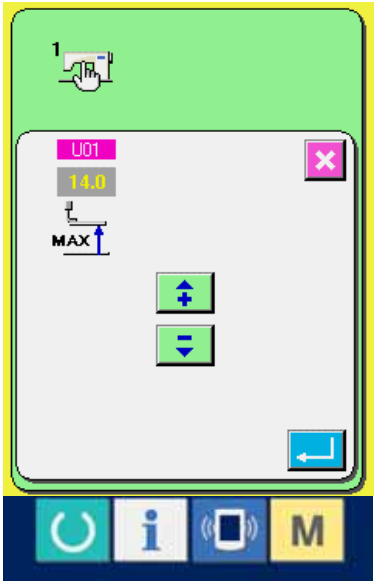
Press UP/DOWN SCROOL button (B) and select the data item button (C) you desire to change.

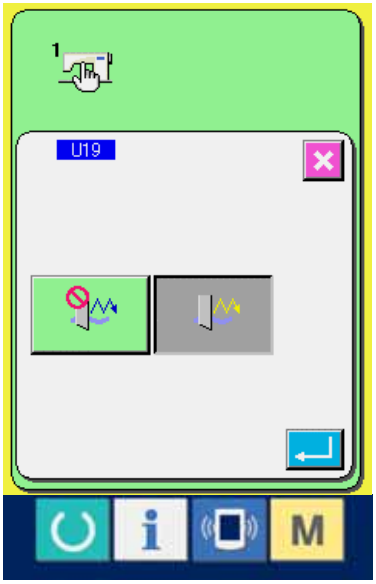


③ Change the memory switch data.

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 U19 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 2-17-2. Memory switch data list,p.80.

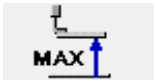
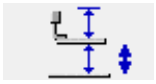




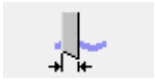
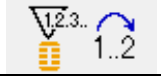
2-17-2. Memory switch data list

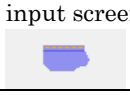
① Level 1

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.

NO.	Item	Setting range	Edit unit	Initial display
U01	**Presser lifter maximum position** Height of maximum position of pedal operation is set. 	0～14.0	0.1mm	14.0mm
U02	**Presser lifter intermediate position** Height of intermediate position of pedal operation is set. 	0～14.0	0.1mm	6.0mm
U03	**Presser lifter cloth setting position** Height of cloth setting position of pedal operation is set. 	0～14.0	0.1mm	0.0mm
U06	**Needle thread tension at sewing end setting** 	0～200	1	50
U07	**Needle thread tension at thread trimming** 	0～200	1	35
U08	**Needle thread tension of basting for sewing together setting** 	0～200	1	60

NO.	Item	Setting range	Edit unit	Initial display
U09	**Soft-start speed setting 1st stitch** 	400～4200	100rpm	800rpm
U10	**Soft-start speed setting 2st stitch** 	400～4200	100rpm	800rpm
U11	**Soft-start speed setting 3st stitch** 	400～4200	100rpm	2000rpm
U12	**Soft-start speed setting 4st stitch** 	400～4200	100rpm	3000rpm
U13	**Soft-start speed setting 5st stitch** 	400～4200	100rpm	4000rpm
U14	**Kind of presser** Set the kind of the presser.→Refer to2-8. INPUTTING THE PRESSER TYPE,p.56. 	---	---	Type 1
U15	**Presser size width (Type 5)** When type 5 of U14 Kind of presser is set, input the width of the presser. 	3.0～10.0	0.1mm	3.0mm

NO.	Item	Setting range	Edit unit	Initial display
U16	**Presser size length (Type 5)** When type 5 of U14 Kind of presser is set, input the length of the presser. 	10.0～120.0	0.5mm	10.0mm
U17	**Sewing start position (Feed direction)** Sewing start position in terms of presser is set. Set this item when starting position is desired to be shifted due to overlapped section or the like. 	2.5～110.0	0.1mm	2.5mm
U18	**Cloth cutting knife size** When U19 Function of plural motions of cloth cutting knife is set to Effective, input knife size used. 	3.0～32.0	0.1mm	32.0mm
U19	**Function of plural motions of cloth cutting knife Ineffective/effective**  : Ineffective  : Effective	---	---	Ineffective
U20	**Function of thread breakage detection Ineffective/effective**  : Ineffective  : Effective	---	---	Effective
U23	**Needle thread trimming release motion start distance** Distance from start of sewing to start of trimmer release motion of needle thread trimmer motor is inputted. 	0～15.0	0.1mm	1.0mm
U24	**Bobbin thread trimming release motion start distance** Distance from start of sewing to start of trimmer release motion of bobbin thread trimmer motor is inputted. 	0～15.0	0.1mm	1.5mm
U25	**Counter updating unit** Unit to update sewing counter is set. 	1～30	1	1

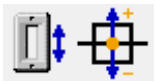
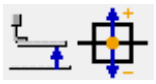
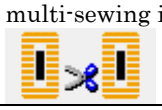
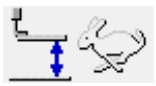
NO.	Item	Setting range	Edit unit	Initial display
U51	**Selection of start switch** When knee switch is selected, perform start of presetting with knee switch and cancel of presetting is performed with hand switch. (A mode) When hand switch is selected, perform start of presetting with hand switch and cancel of presetting is performed with knee switch. (B mode)  : Knee switch  : Hand switch	---	---	Knee switch
U52	**Selection of use/non-use of cloth detection sensor** When "with cloth detection" is selected, start of presetting is not performed unless cloth is set on cloth detection sensor. When "without cloth detection" is selected, presetting is started even when cloth is not set on cloth detection sensor.  : With cloth detection  : Without cloth detection	---	---	With cloth detection
U53	**Selection of jump feed function** When "with jump feed" is selected, jump feed amount can be inputted before the 1st sewing pattern.  : Without jump feed  : With jump feed	---	---	Without jump feed
U54	**Pair stacking use setting** When "with pair stacking selection" is selected, selection of effective/ineffective of pair stacking can be performed in input screen.  : With selection  : Without selection	---	---	Without selection

② **Level 2**

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
K03	**Function of prohibition of selection of kind of presser Permitted/Prohibited** Prohibition of change of U14 Kind of presser is  : Change permitted  : Change prohibited	---	---	Change permitted
K04	**Sewing shape selection level** Number of sewing shapes which can be sewn can be increased. (Max. 30 shapes)  : 12 shapes  : 20 shapes  : 30 shapes	---	---	12 shapes
K05	**Cloth cutting knife power** Output power of cloth cutting knife is set. 0 : Min. power → 3 : Max. power 	0～3	1	1
K06	**Selection of machine type** Type of sewing machine head is set. 0 : Standard type 1 : Dry head type 	0～1	1	0 (Standard type)
K07	**Max. speed limitation speed setting** Max. speed of sewing machine can be limited. When K06 Selection of machine type is set to dry head type, max. speed is automatically limited to 3,300 rpm. 	400～ 4200	100rpm	3600rpm

NO.	Item	Setting range	Edit unit	Initial display
K08	**Compensation of unsteady needle thread tension** Output value of needle thread tension is wholly offset and compensated. 	-30～30	1	0
K09	**Output time of needle thread tension changed value** When data related to needle thread tension is changed, the changed value is output as long as the set-up time.  : Without output  : Output of set-up time	0～20	1s	Without output
K10	**Function of origin retrieval each time** Origin retrieval is performed after completion of sewing.  : Without  : After end of sewing  : After end of cycle	---	---	Without output
K12	**Knife solenoid lowering time setting** 	25～100	5ms	35
K13	**Knife solenoid lifting time setting** 	5～100	5ms	15

NO.	Item	Setting range	Edit unit	Initial display
K14	**Knife cylinder lowering time (Optional)** 	5～300	5ms	70
K15	**Y-feed motor origin compensation** 	-120～400	1 pulse (0.025 mm)	0
K16	**Needle-rocking motor origin compensation** 	-10～10	1 pulse (0.05 mm)	0
K17	**Presser lifter motor origin compensation** 	-100～10	1 pulse (0.05 mm)	0
K19	**Thread trimming on the way in continuous stitching Permitted/ Prohibited.** In case of prohibited, jump feed setting becomes invalid, and the registered pattern is sewn at the same position. Then multi-sewing is possible.  : Permitt  : Prohibit	---	---	Permitted
K20	**Changeover of cloth cutting knife return power** This item sets output power at the time of returning the cloth cutting knife As set value is increased, power of return knife becomes more stronger. 	0～3	1	0
K21	**Release amount of bobbin thread trimmer at the start of sewing** this item sets the amount of releasing the bobbin thread trimmer at the start of sewing. 	1～15	1 pulse	8
K22	**Presser lifter speed selection** As set value is increased, presser lifting speed becomes faster. 	1～3	1	1

3. OTHER FUNCTIONS

3-1. USING COMMUNICATION FUNCTION

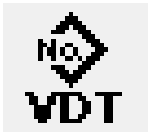
Communication function can download the sewing data created with other sewing machine, creation of sewing data and sewing data created by editing device PM-1 to the sewing machine. In addition, the function can upload the aforementioned data to the smart media or personal computer.

Smart media and RS232C port are prepared as the vehicle to communicate.

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

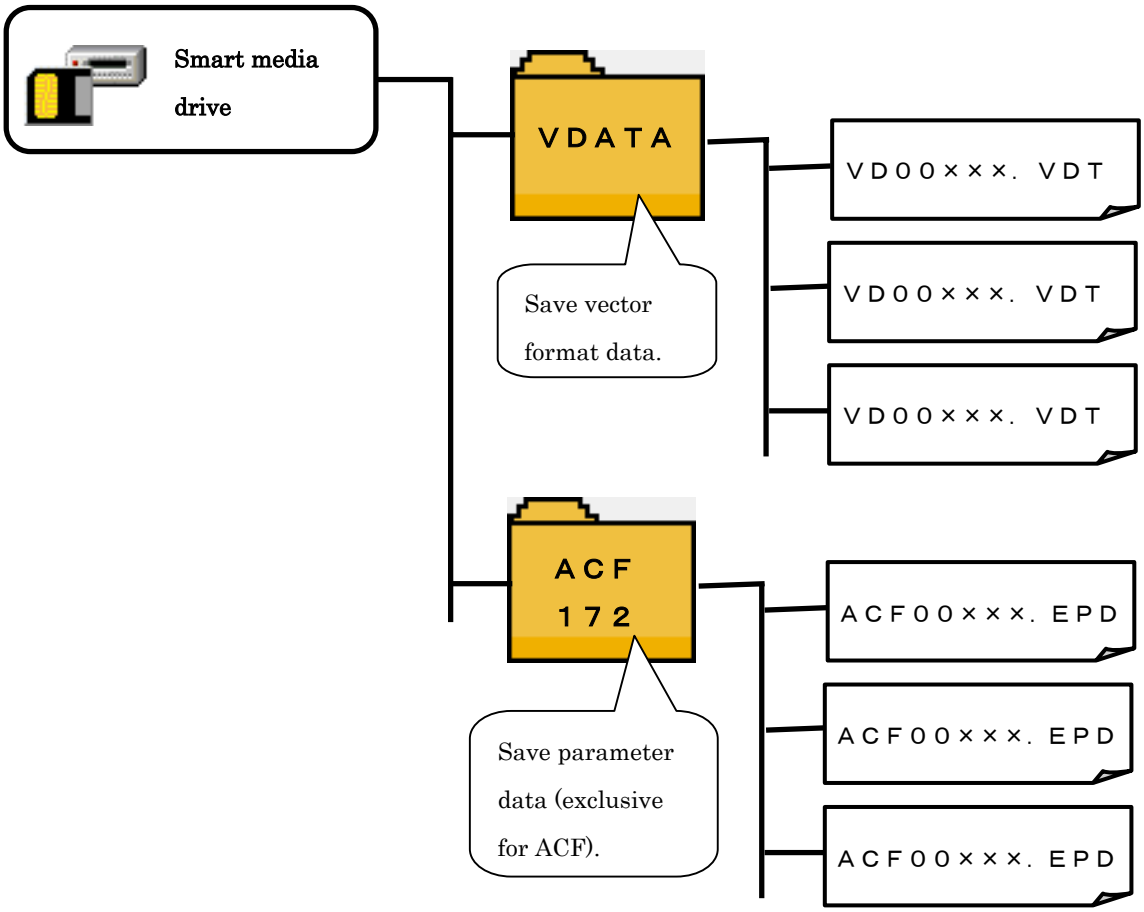
3-1-1. Handling possible data

Handling possible sewing data are two kinds below. The respective data formats are as described below.

Data name		Extension	Description of data
Vector format data		VD00 XXX. VDT	Data of the needle entry point created with PM-1 Format of the data which can be used in common among JUKI sewing machines.
Parameter data		LBH00 XXX. EPD	Format of the data of sewing proper to LBH such as sewing shape, cloth cutting length, overedging width, etc. created with the sewing machine

XXX：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.

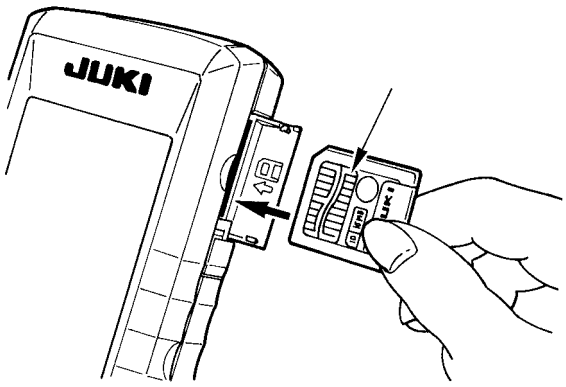


※ There is beforehand the PROG folder in the Smart media purchased from our company. Do not delete it.

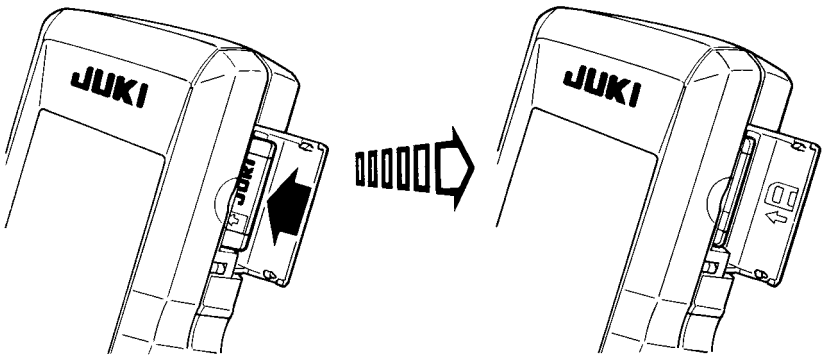
3-1-2 Performing communication by using the smart media

[Setting procedure]

hen 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



① 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.



② After completion of setting of the card, close the smart media cover. By closing the cover, it is possible to perform communication.

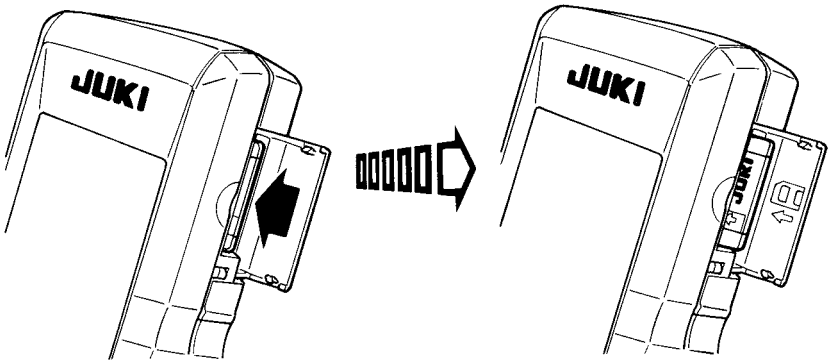
If the smart media card and the cover come in contact with each other and the cover is not closed, check the following matters.

- 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.

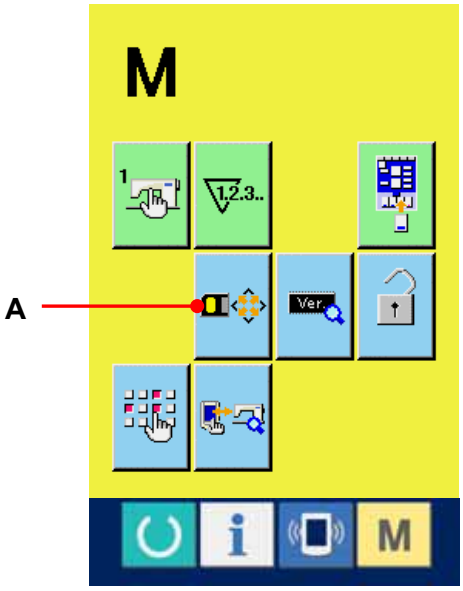


[Performing format]

In case of re-formating the smart media, be sure to perform it with IP200. The smart media formated with the personal computer cannot be read with IP200.

① Display the smart media format screen.

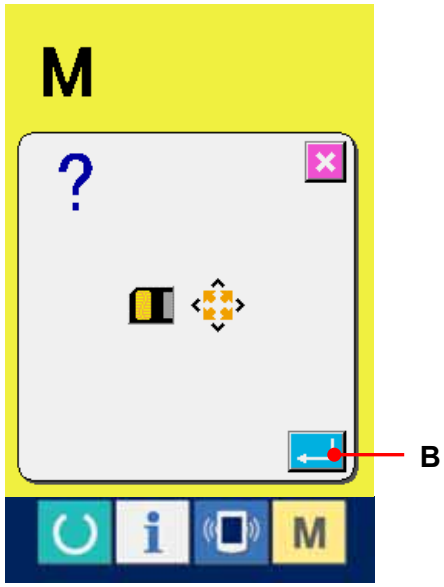
When MODE key M is held pressed for three seconds, SMART MEDIA FORMAT button is displayed on the screen. When this button is pressed, the smart media format screen is displayed.



② **Start formating of the smart media**

Set the smart media you desire to format to the smart media slot, close the cover, press button (B) 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.

3-1-3. Performing communication by using RS232C

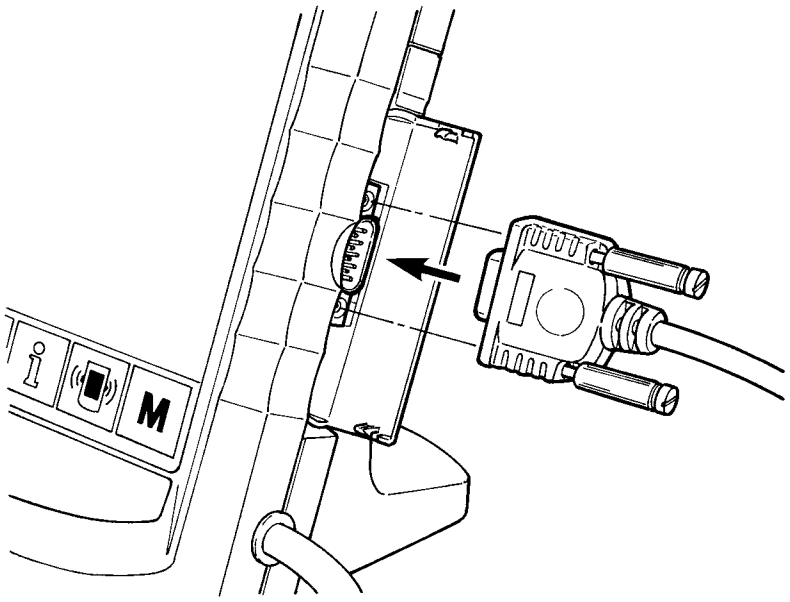
[Setting procedure]

It is possible to send and receive the data, by using RS232C 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.

Caution : 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.

(Setting procedure)

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.



3-1-4. Take-in of the data

① Display the communication screen

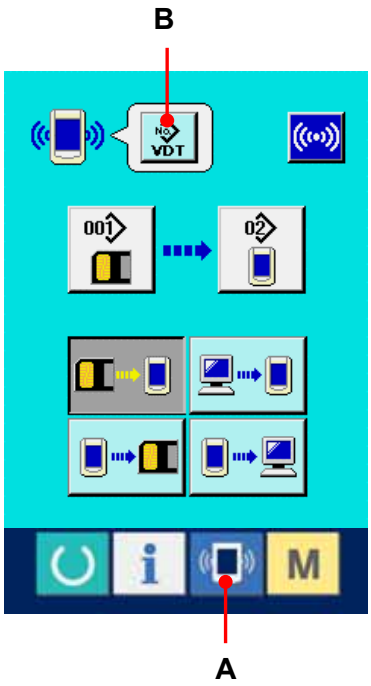
When communication switch (A) of switch seat section is pressed in the data input screen, the communication screen is displayed.

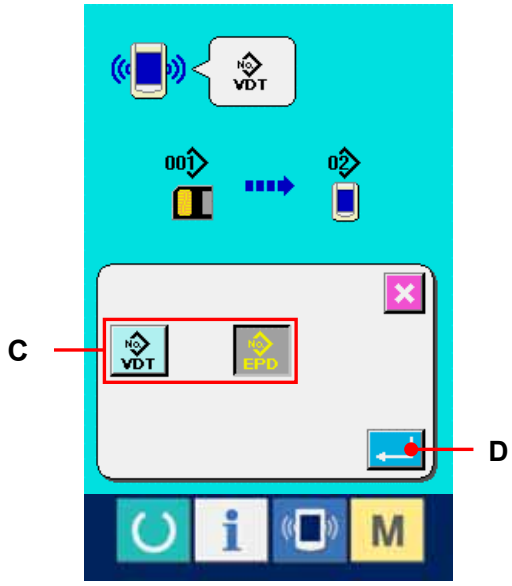
② Select the kind of data.

When data selection button (B) is pressed, the data selection screen is displayed. Select button (C) of kind of data to be communicated. The selected button is displayed in reverse video.

③ Determine the kind of data.

When ENTER button (D) is pressed, the kind of data selection screen is closed and the selection of the kind of data has been completed.



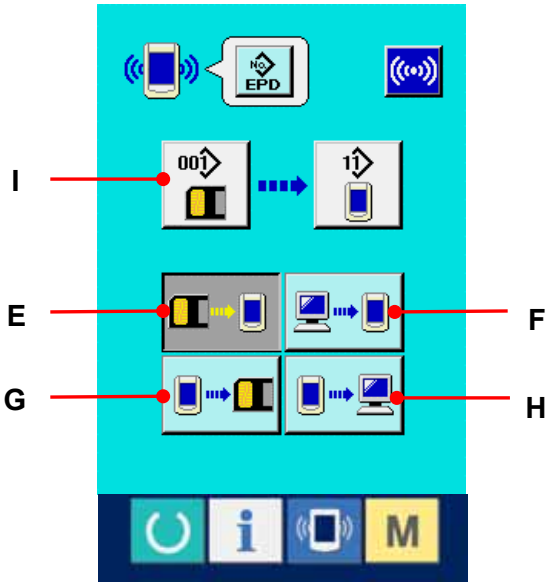


④ **Select the communication procedure.**

There are four communication procedures as described below.

(E)Writing data from smart media to panel
(F)Writing data from personal computer (server) to panel
(G)Writing data from panel to smart media
(H)Writing data from panel to personal computer (server)

Select the button of communication procedure you desire.

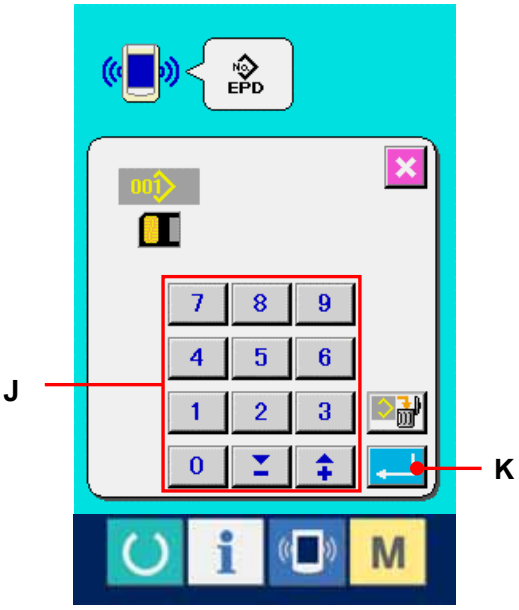


⑤ **Select the data No.**

When  (I) 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 xxx of VD00xxx 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。

Designation of the LBH pattern No. of writing destination can be performed in the same way. When the writing destination is the panel, LBH pattern Nos. which have not been registered are displayed.

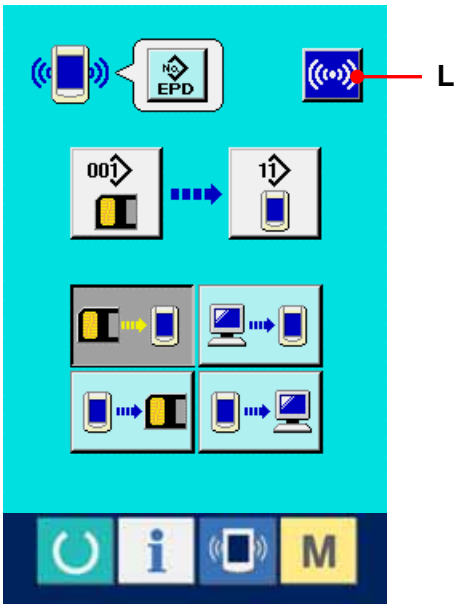


⑥ **Determine the data No**

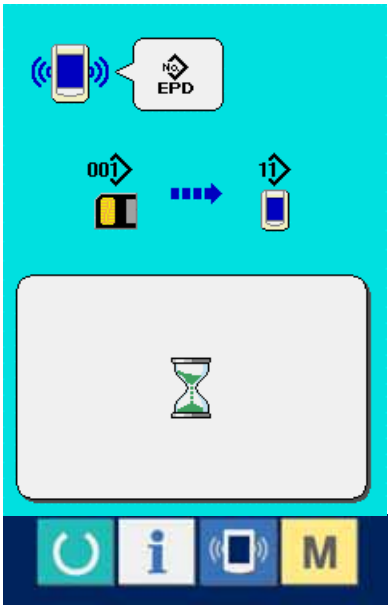
When ENTER button  (K) is pressed, the data No. selection screen is closed and the selection of the data No. has been completed.

⑦ **Start communication.**

When communication button  (L) is pressed, the data communication starts. The communication screen 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.



3-2. INFORMATION FUNCTION

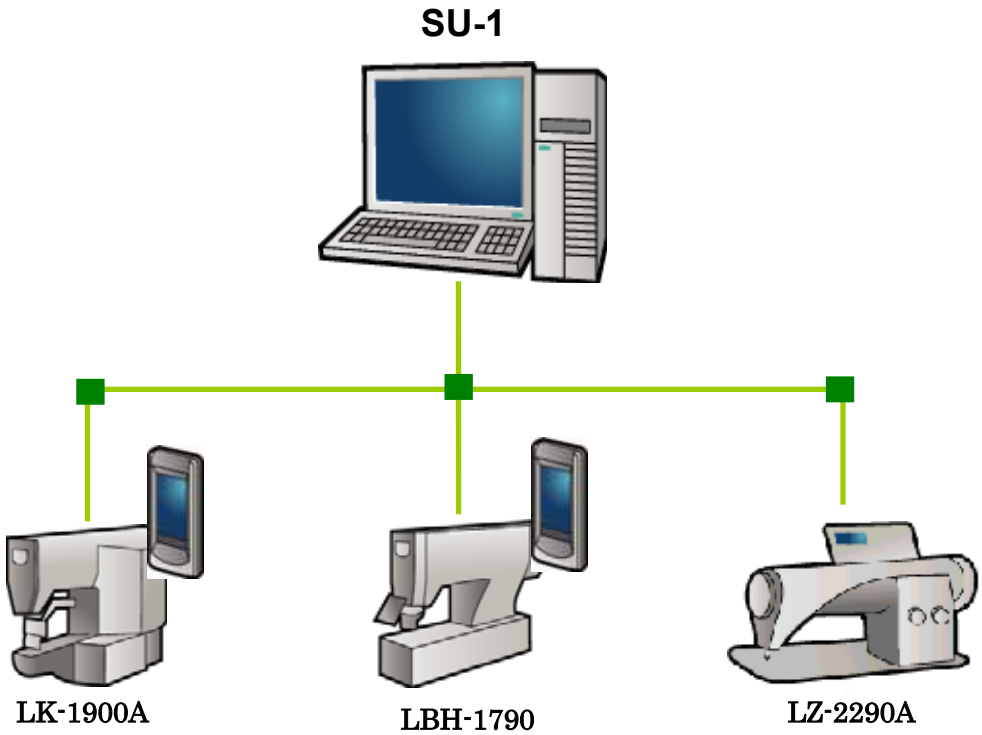
There are three functions below in the information function.

1） Oil replacement time, needle replacement time, cleaning time, etc. are designated and the warning notice is performed when the designated time has passed.
→ Refer to 3-2-1. Observing the maintenance and inspection information,p.97. and 3-2-2. Inputting the inspection time,p.99.

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 3-2-4. Observing the production control information,p.102. and 3-2-5. Performing setting of the production control information,p.105.

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 3-2-6. Observing the working measurement information,p.108.

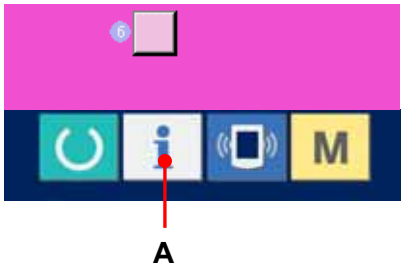
In addition, information on plural sewing machines can be controlled by the server when this function is used by connecting SU-1 (sewing machine data server utility) with the sewing machines.



3-2-1. Observing the maintenance and inspection information

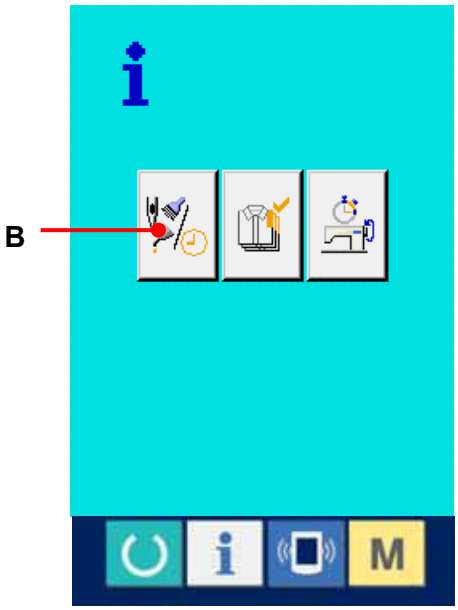
① **Display the information screen.**

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



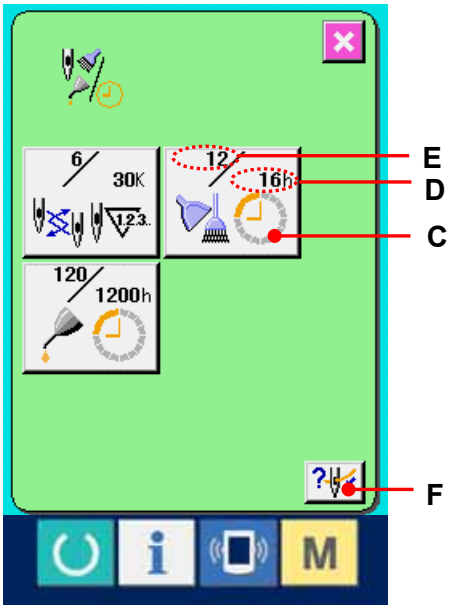
② **Display the maintenance and inspection information screen.**

Press maintenance and inspection informationscreen display button (B) 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) :



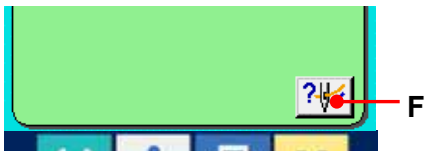
The interval to inform of the inspection for each item in button (C) is displayed at (D), and remaining time up to the replacement is displayed at (E). In addition, remaining time up to the replacement can be cleared.

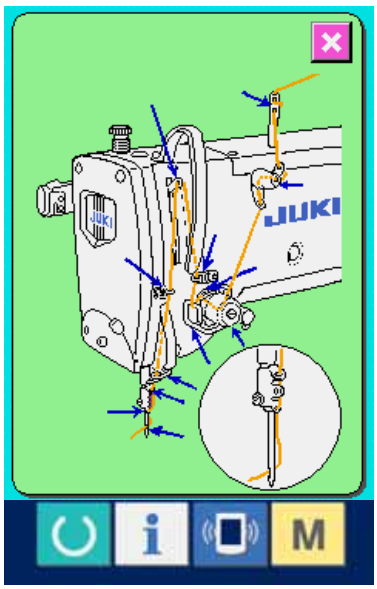
③ **Perform clearing remaining time up to the replacement.**

When button (C) of the item you desire to clear is pressed, the time of replacement clear screen is displayed. When ENTER button C (G) is pressed, the remaining time up to the replacement is cleared.

④ **Display the threading diagram.**

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

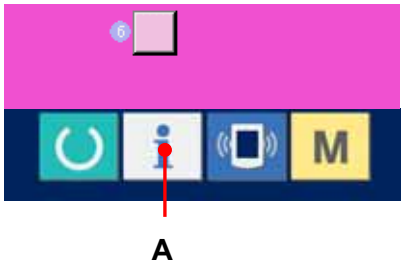




3-2-2. Inputting the inspection time

① Display the information screen (maintenance personnel level).

When information key  (A) 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.

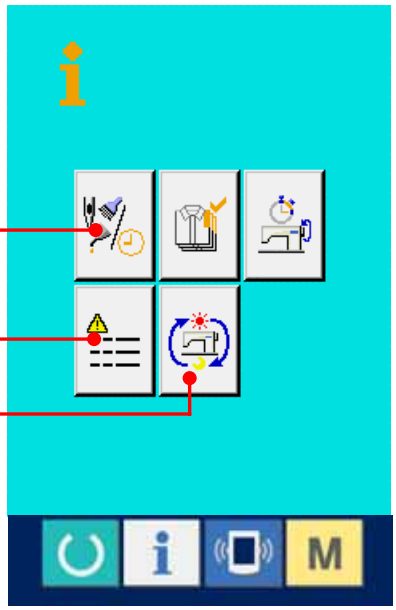


② Display the maintenance and inspection information screen.

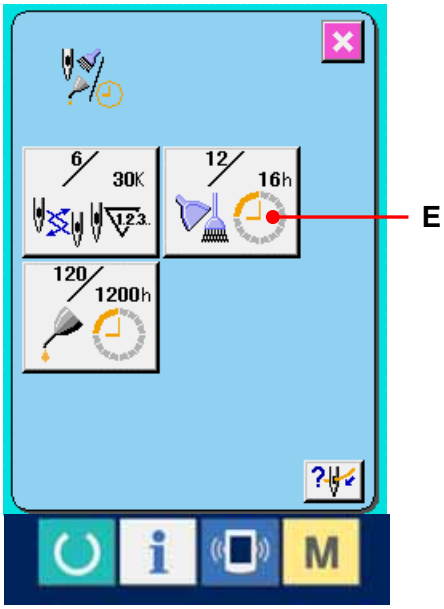
Press maintenance and inspection information screen display button  (B) in the information screen.

*For the details of ERROR RECORD SCREEN DISPLAY button  (C), refer to 5-5-1. Display of error record,p.139.

For the details of CUMULATIVE WORKING INFORMATION SCREEN DISPLAY button  (D), refer to 5-5-2. Display of the cumulative working information,p.141.



The same information as that in the normal maintenance and inspection information screen is displayed in the maintenance and inspection information screen.
When button (E) of the item you desire to change the inspection time is pressed, the inspection time input screen is displayed.

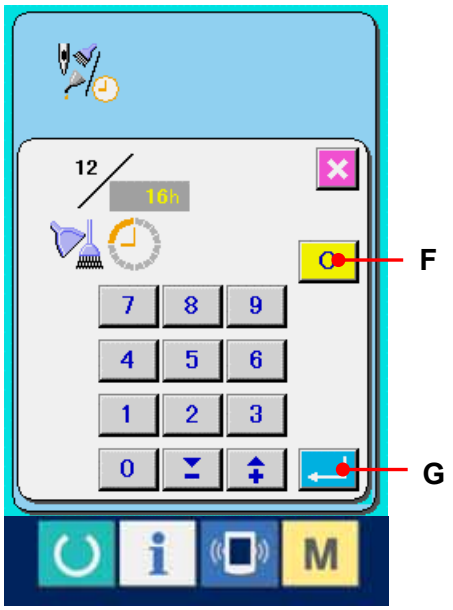


③ Input the inspection time.

Input the inspection time.
When the inspection time is set to "0", the warning function stops.
When clear button C (F) is pressed, the value returns to the initial value. The initial values of the inspection time of respective items are as follows.

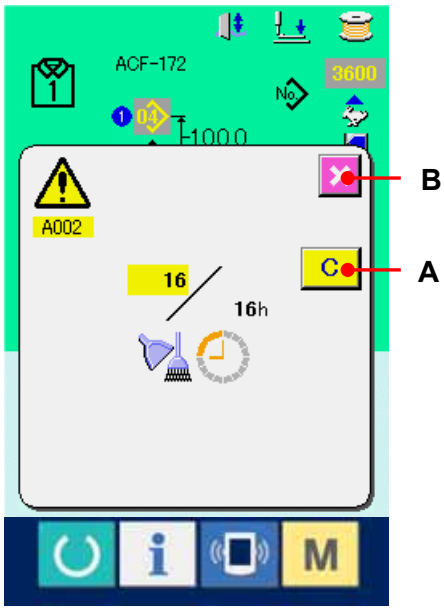
- Needle replacement : 0 (1,000 stitches)
- Cleaning time : 0 (hour)
- Oil replacement time : 200 (hour)

When ENTER (G) button is pressed, the inputted value is determined.



3-2-3. 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 (A). The inspection time is cleared and the pop-up is closed. In case of not clearing the inspection time, press CANCEL button (B) 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 : A001
- Cleaning time : A002
- Oil replacement time : A003

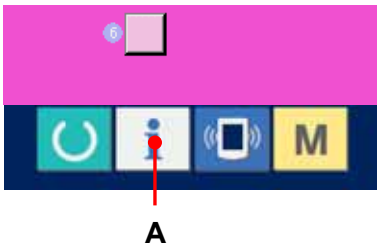
3-2-4. Observing the production control information

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.

3-2-4-1. When displaying from the information screen

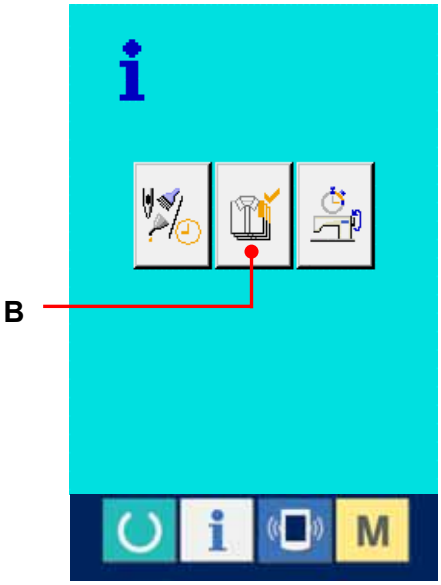
① Display the information screen

When information key (A) 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 (B) 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.

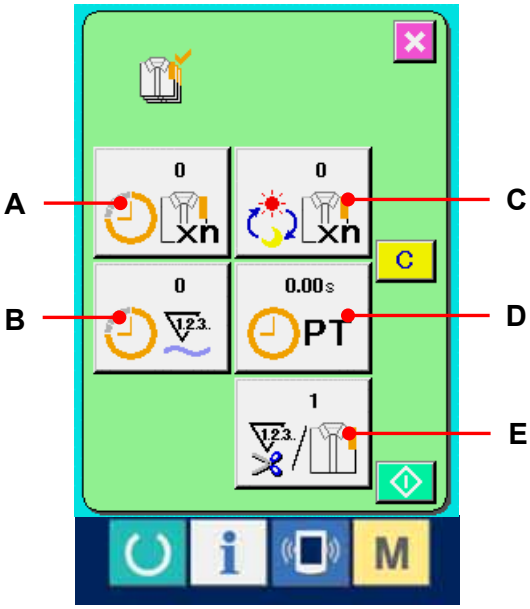
B : Actual results value

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 3-2-5. Performing setting of the production control information,p.105.



D : Pitch time

Time (second) required for one process is displayed.

Input the time (unit : second) referring to 3-2-5. Performing setting of the production control information,p.105.

E : Number of times of thread trimming

Number of times of thread trimming per process is displayed.

Input the number of times referring to 3-2-5. Performing setting of the production control information,p.105.

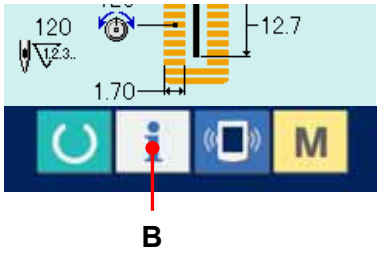
3-2-4-2. When displaying from the sewing screen

① Display the sewing screen.

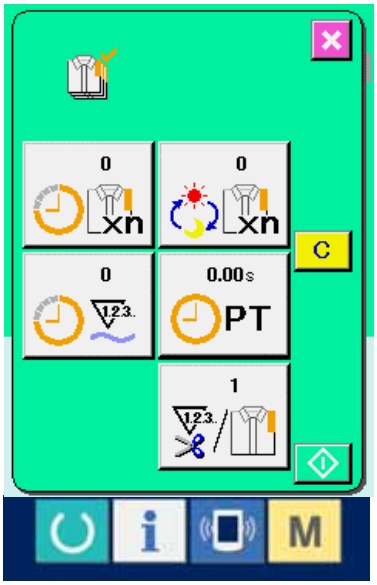
When READY key (A) of the switch seat section is pressed in the ACF data input screen, the automatic sewing screen is displayed.

② Display the production control screen.

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



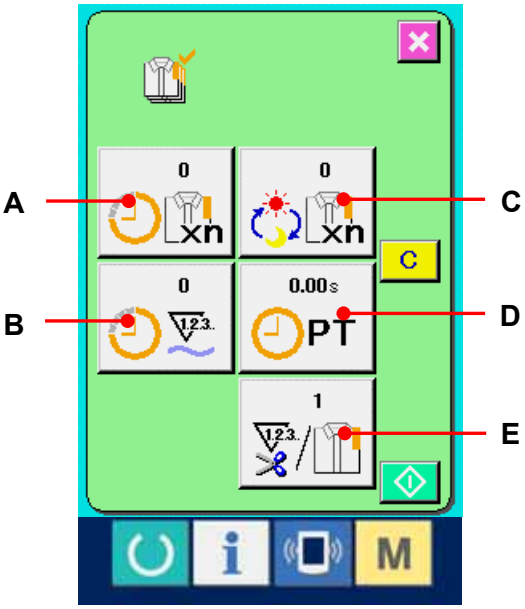
※ The contents of display and the functions are common to 3-2-4-1. When displaying from the information screen,p.102.



3-2-5. Performing setting of the production control information

① **Display the production control screen.**

Display the production control screen referring to 3-2-4. Observing the production control information,p.102.



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  (C) 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  (F).

③ **Input the pitch time.**

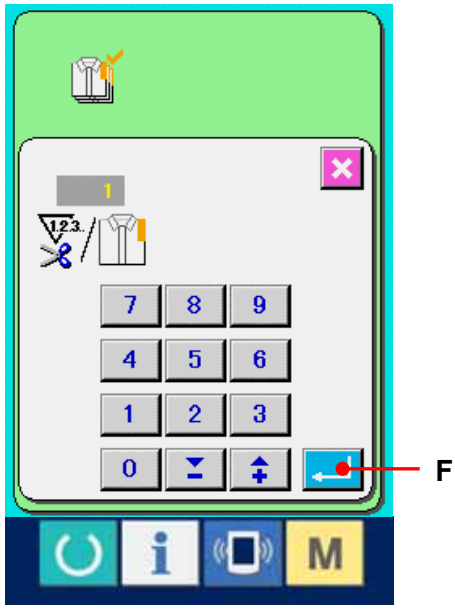
Next, input the pitch time required for one process. When pitch time button 

(D) in the previous page is pressed, the pitch time input screen is displayed.
Input the value you desire with ten keys or -/+ buttons.
After the input, press ENTER button  (F).

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

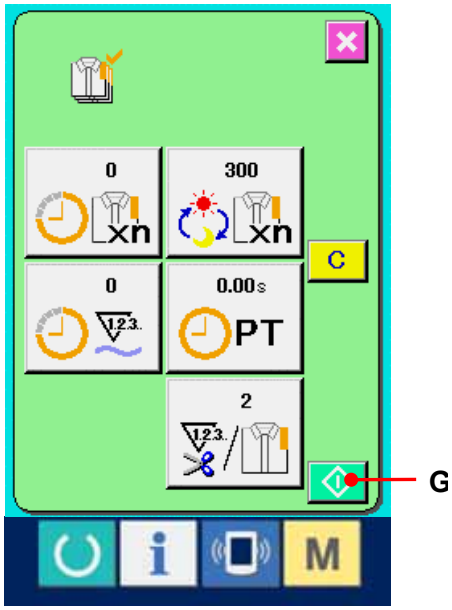
Next, input the number of times of thread trimming per process. When number of times of thread trimming button  (E) in the previous page is pressed, the number of times of thread trimming input screen is displayed. Input the value you desire with ten keys or -/+ buttons. After the input, press ENTER button  (F).

* 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.



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

When START button  (G) is pressed, the count of number of pieces of production is started.

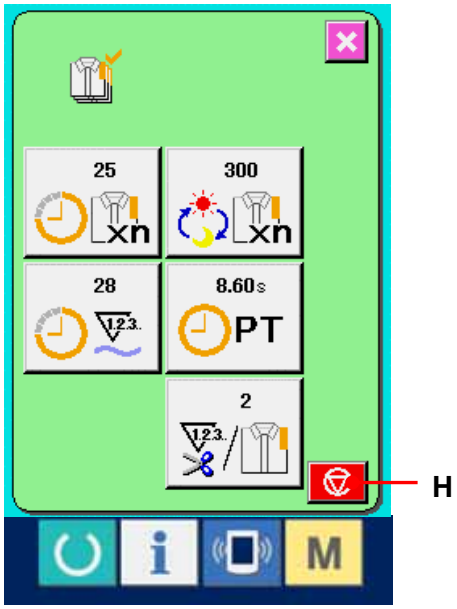


⑥ **Stop the count.**

Display the production control screen referring to 3-2-4. Observing the production control information,p.102.

When the count is being performed, STOP button  (H) is displayed. When STOP button  (H) is pressed, the count is stopped.

After the stop, START button 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 is pressed.



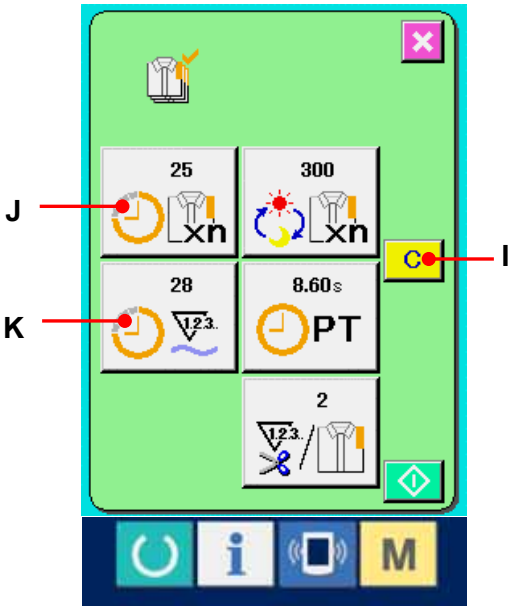
⑦ **Clear the counted value.**

When clearing the counted value, set the count to the stop state and press CLEAR button  (I).

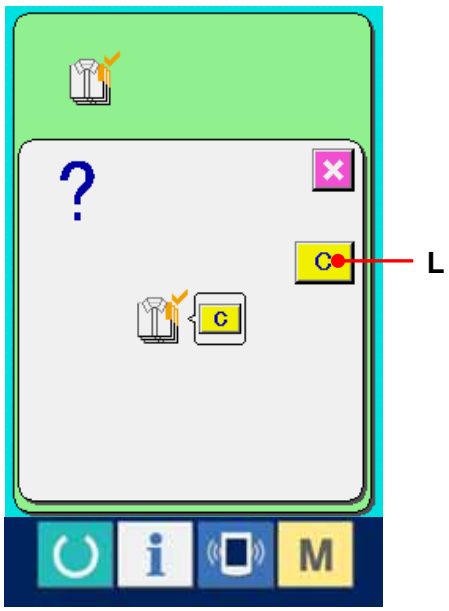
The value to be cleared is the present target value (J) and actual results value (K) only.

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

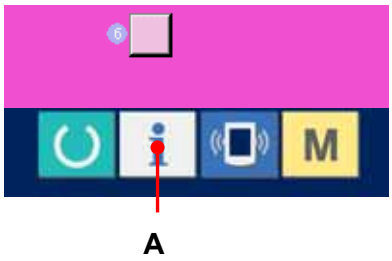
When CLEAR button (I) is pressed, the clear confirmation screen is displayed.



When CLEAR button  (L) is pressed in the clear confirmation screen. the counted value is cleared.

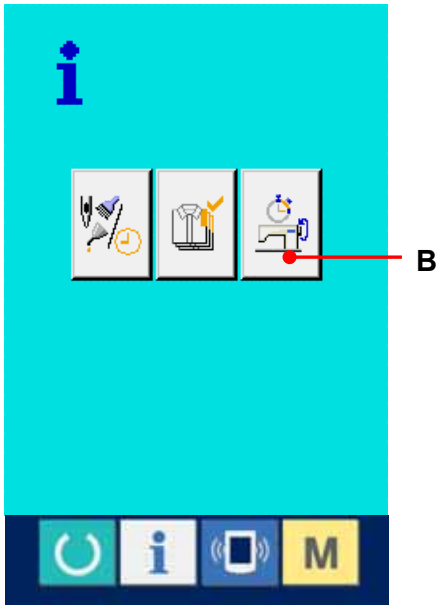


3-2-6. Observing the working measurement information



① **Display the information screen.**

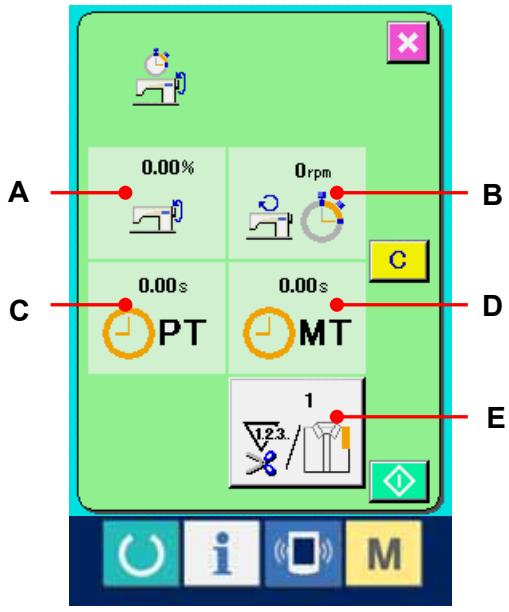
When INFORMATION key (A) of the switch seat section in the ACF data input screen is pressed, the information screen is displayed.



② **Display the working measurement screen.**

Press working measurement screen display button (B) in the information screen. The working measurement screen is displayed.

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



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

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

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

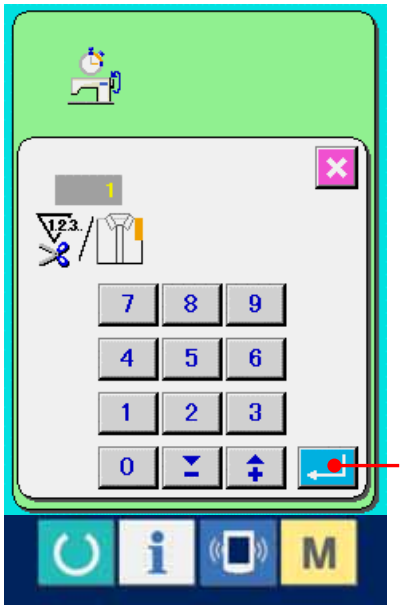
D: The information is automatically displayed from the time of start of measuring the machine time.

E: Number of times of thread trimming is displayed. Input the number of times referring to the next ③.

③ **Input the number of times of thread trimming.**

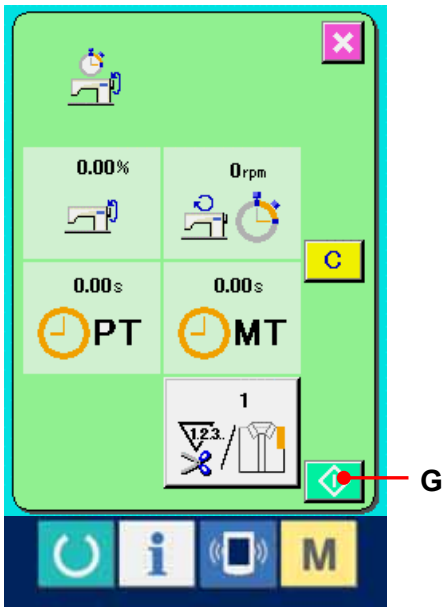
Next, input the number of times of thread trimming per process. When number of times of thread trimming button  (E) in the previous page is pressed, the number of times of thread trimming input screen is displayed. Input the value you desire with ten keys or -/+ buttons. After the input, press ENTER button  (F).

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.



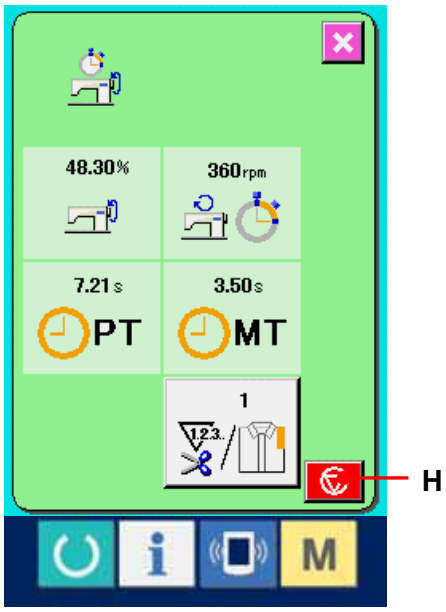
④ **Start the measurement.**

When START button  (G) is pressed, measurement of each data is started.



⑤ **Stop the count**

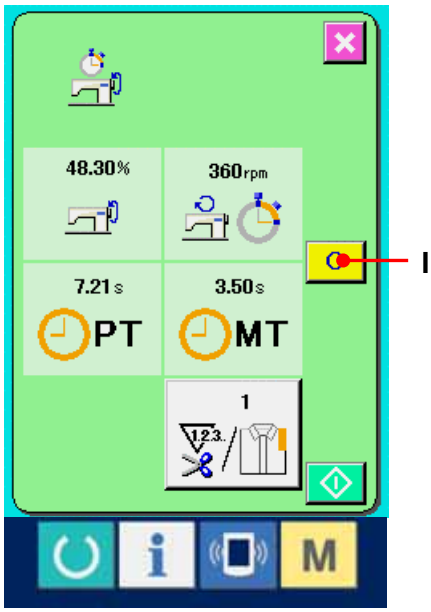
Display the working measurement screen referring to ① and ② of 3-2-6. Observing the working measurement information,p108. STOP switch (H) is displayed when the measurement is being performed. When STOP switch (H) is pressed, the measurement is stopped. After the stop, START button is displayed at the position of STOP button. To continue measuring, press START button again. The measured value is not cleared until CLEAR button C is pressed.



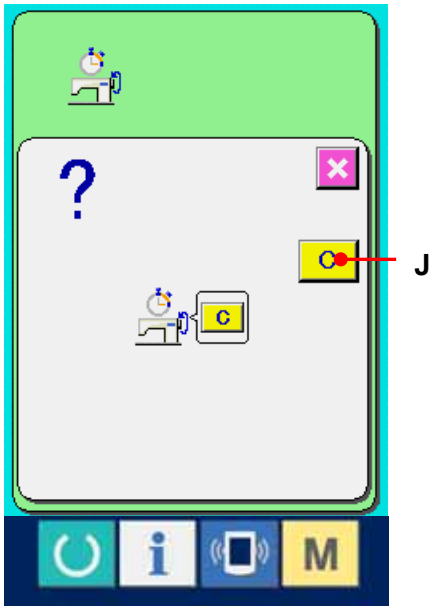
⑥ **Clear the counted value.**

When clearing the counted value, set the count to the stop state and press CLEAR button C (I). (Note : CLEAR button is displayed in case of the stop state only.)

When CLEAR button C (I)is pressed, the clear confirmation screen is displayed.

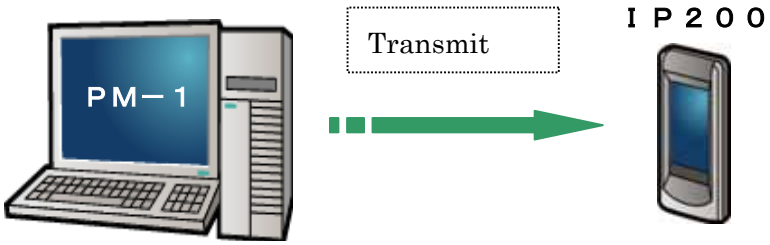


When CLEAR button C (J) is pressed in the clear confirmation screen, the counted value is cleared.



3-3. TRIAL SEWING FUNCTION

Data created with PM-1 (sewing data creation and edit software) can be sewn on trial by on-line connection of the personal computer with the sewing machine.



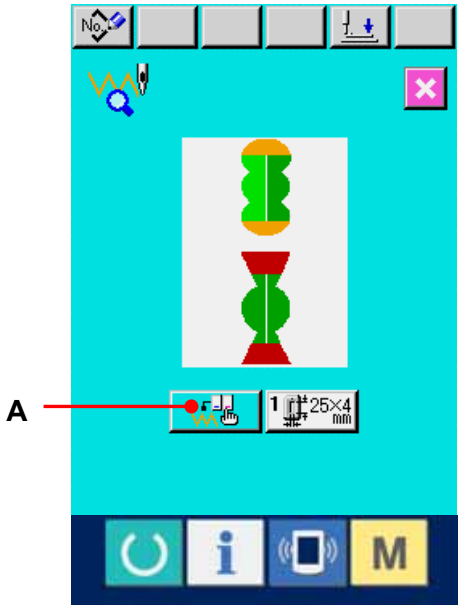
Connect the personal computer with IP200 and transmit data to the sewing machine after creation of data with PM-1. When IP200 becomes the data input screen, automatically the trial sewing screen is displayed. For the operating procedure of PM-1, see HELP of PM-1 or the like.

3-3-1. Performing trial sewing

① Performing trial sewing

When the trial sewing data (vector format data) is transmitted from PM-1, the screen on the right side is displayed, and the needle entry diagram of the transmitted data is displayed in the center of the screen.

The display color of the needle entry diagram is different according to the thread tension value. When the number of stitches of the transmitted data is excessive, the needle entry diagram is not displayed.

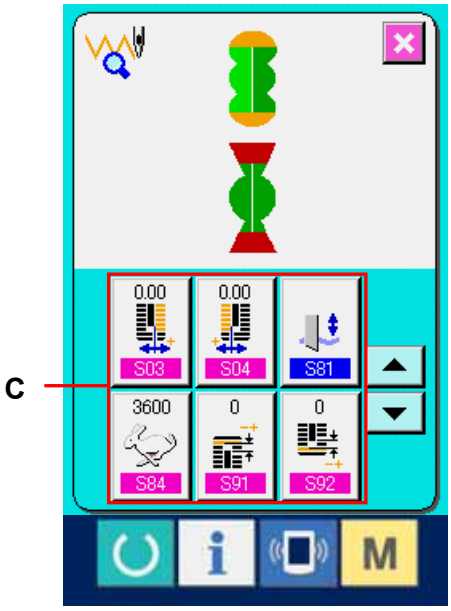


② Edit the vector parameter.

Sewing can be performed by adding the vector parameter which can be set by the sewing machine to the vector format data transmitted from PM-1. When sewing data setting button  (A) is pressed, the vector parameter edit screen is displayed. When setting is not performed, the vector parameter becomes the initial value.

③ **Select the vector parameter to be changed.**

Press UP/DOWN scroll button and select the parameter item you desire to change.



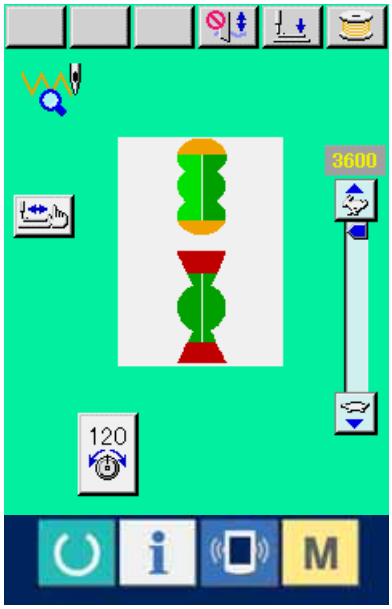
④ **Change the data.**

There are data item to change numerals and that to select pictographs in the sewing data. NO. in pink color such as S03 is put on the data item to change numerals and the set value can be changed with buttons displayed in the change screen. NO. in blue color such as S81 is put on the data item to select pictographs and the pictographs displayed in the change screen can be selected. For the details of sewing data, refer to 3-3-2. Vector parameter list,p.114.

⑤ **Perform trial sewing**

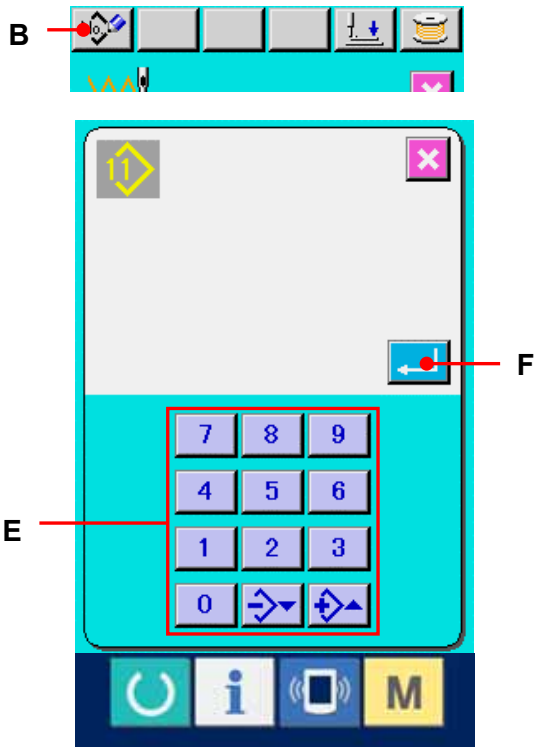
When READY switch is pressed, the trial sewing screen is displayed.

Trial sewing can be performed in this state.



⑥ **Register the data to the pattern.**

When the data which has been sewn on trial is registered to the panel, press REGISTER button  (B) displayed in the trial sewing screen, and the register screen is displayed. Input the pattern No. you desire to register with ten keys (E). Input the LBH pattern No. you desire to register with ten keys (E).

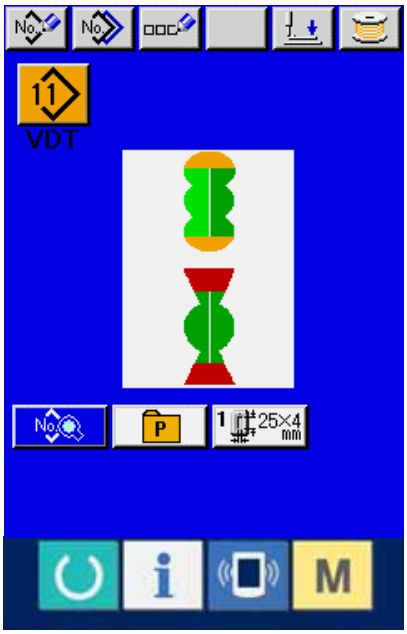


⑦ **Determine the register of the data.**

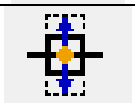
When ENTER button  (F) is pressed, the register screen is closed and the register has been completed.

⑧ **Display the data input screen.**

After completion of the register, automatically the data input screen is displayed.



3-3-2. Vector parameter list

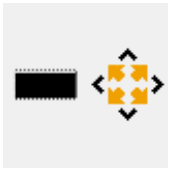
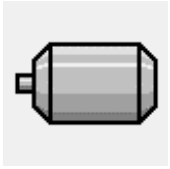
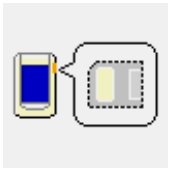
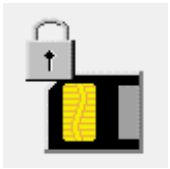
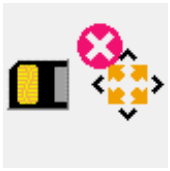
NO.	Item	Setting range	Edit unit	Initial display
S03	Knife groove width, right 	-2.00～2.00	0.05mm	0
S04	Knife groove width, left 	-2.00～2.00	0.05mm	0
S81	With/without knife 	0～1	---	0
S84	Max. speed limitation 	400～4200	100rpm	---
S91	1st clearance compensation 	-9～9	1 stitch	0
S92	2nd clearance compensation 	-9～9	1 stitch	0
S93	Increase/decrease ratio (X direction) 	20～200	1%	100
S94	Increase/decrease ratio (Y direction) 	20～200	1%	100
S95	ACTIVE tension reference value 	0～200	1	0

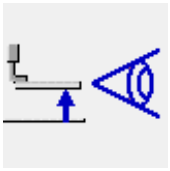
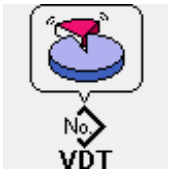
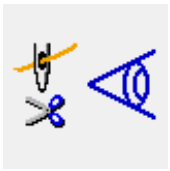
3-3-3. Thread tension value display color list

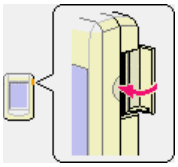
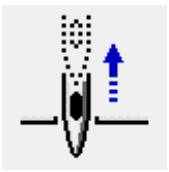
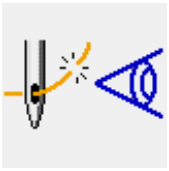
Needle entry diagram to be displayed is different according to the thread tension value which is set to the needle entry point. The color displayed according to the thread tension is as described below.

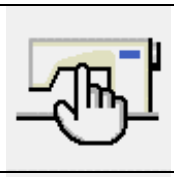
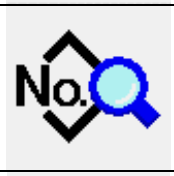
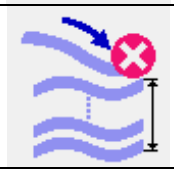
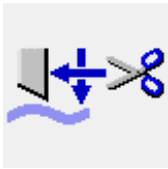
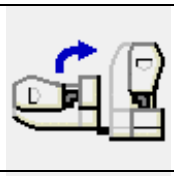
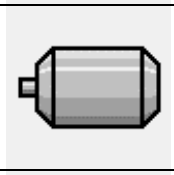
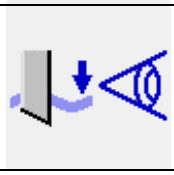
Thread tension value	Display color
0 to 20	: Gray
21 to 40	: Purple
41 to 60	: Blue
61 to 80	: Light blue
81 to 100	: Green
101 to 120	: Yellow green
121 to 140	: Orange
141 to 160	: Red
161 to 180	: Pink
181 to 200	: Black

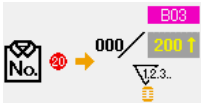
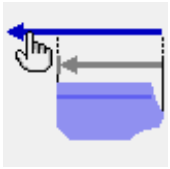
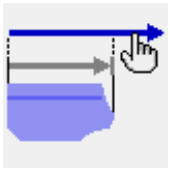
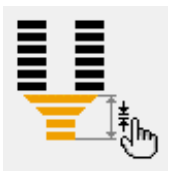
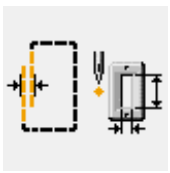
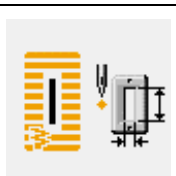
4. ERROR CODE LIST

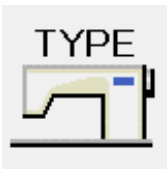
Error code		Description of error	How to recover	Place of recovery
E 0 0 1		Contact of initialization of EEP-ROM of MAIN CONTROL p.c.b. When data is not written in EEP-ROM or data is broken, data is automatically initialized and the initialization is informed.	Turn OFF the power.	
E 0 0 7		Main shaft motor-lock When large needle resistance sewing product is sewn	Turn OFF the power.	
E 0 1 1		External media not inserted External media is not inserted.	Possible to re-enter after reset.	
E 0 1 2		Read error Data read from external media cannot be performed.	Possible to re-start after reset.	Previous screen
E 0 1 3		Write error Data write from external media cannot be performed.	Possible to re-start after reset.	Previous screen
E 0 1 4		Write protect External media is in the write prohibition state	Possible to re-start after reset.	Previous screen
E 0 1 5		Format error Format cannot be performed.	Possible to re-start after reset.	Previous screen
E 0 1 6		External media capacity over Capacity of external media is short.	Possible to re-start after reset.	Previous screen

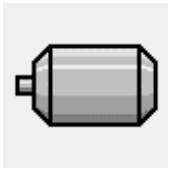
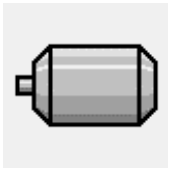
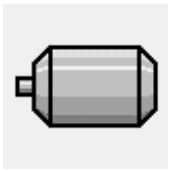
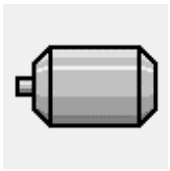
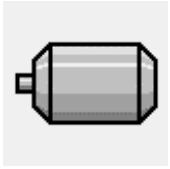
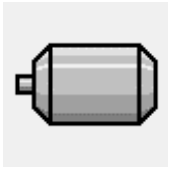
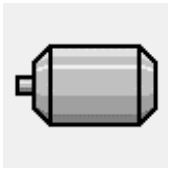
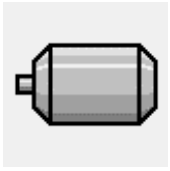
Error code		Description of error	How to recover	Place of recovery
E 0 1 7		EEP-ROM capacity over Capacity of EEP-ROM is short.	Possible to re-start after reset.	Previous screen
E 0 1 8		Type of EEP-ROM is different. When the mounted EEP-ROM is different in type.		Previous screen
E 0 1 9		File size over File is too large.	Possible to re-start after reset.	Previous screen
E 0 2 2		File No. error Designated file is not in server or smart media.	Possible to re-start after reset.	Previous screen
E 0 2 3		Detection of step-out of presser lifting motor When step-out of motor is detected at the time when presser lifting motor passes origin sensor or starts operation.	Possible to re-start after reset.	Data input screen
E 0 2 4		Pattern data size over When sewing cannot be performed since total size of continuous stitching data or size of downloaded data is too large.	Possible to re-start after reset.	Data input screen
E 0 2 5		Detection of step-out of needle thread trimmer motor When step-out of motor is detected at the time when needle thread trimmer motor passes origin sensor or starts operation.	Possible to re-start after reset.	Data input screen
E 0 2 6		Detection of step-out of bobbin thread trimmer motor When step-out of motor is detected at the time when bobbin thread trimmer motor passes origin sensor or starts operation.	Possible to re-start after reset.	Data input screen

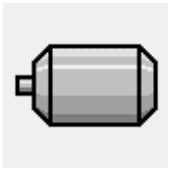
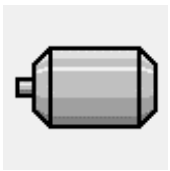
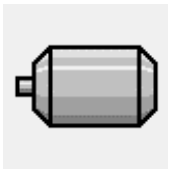
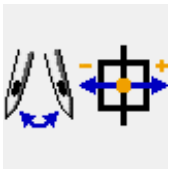
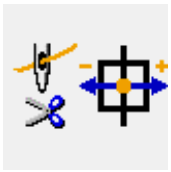
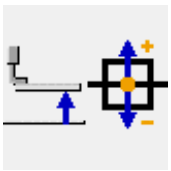
Error code		Description of error	How to recover	Place of recovery
E027		Read error Data read from server cannot be performed.	Possible to re-start after reset.	Previous screen
E028		Write error Data write from server cannot be performed.	Possible to re-start after reset.	Previous screen
E029		Lid of smart media slot is open.	Possible to re-start after reset.	Previous screen
E030		Needle bar upper position failure When needle does not stop at UP position even with needle UP operation at the time of starting sewing machine.	Possible to re-start after reset.	Data input screen
E042		Operation error peration of sewing data cannot be performed.	Possible to re-start after reset.	Data input screen
E043		Enlarging error Sewing pitch exceeds 5 mm.	Possible to re-start after reset.	Data input screen
E050		Pause switch When stop switch is pressed during machine running.	Possible to re-start after reset.	Step screen
E052		Thread breakage detection error When thread breakage has occurred during machine running.	Possible to re-start after reset.	Step screen

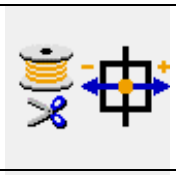
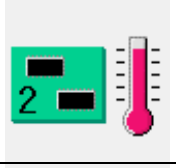
Error code		Description of error	How to recover	Place of recovery
E061		Memory switch data error When memory switch data is broken or revision is old.	Turn OFF the power.	
E062		Sewing data error When sewing data is broken or revision is old.	Turn OFF the power.	
E089		When sewing products are stacked and passing. Remove sewing products.	Possible to re-start after reset.	automatic sewing screen
E099		Interference of knife lowering command with thread trimming motion When inserting position of knife command is improper and knife command interferes with thread trimming motion in case of motion from external data.	Possible to re-start after reset.	Data input screen
E302		Confirmation of tilt of machine head When tilt of machine head sensor is OFF.	Possible to re-start after reset.	Data input screen
E303		Main shaft semilunar plate sensor error Semilunar plate of sewing machine motor is abnormal.	Turn OFF the power.	
E304		Cloth cutting knife sensor error When knife is held lowered or sensor is not OFF when knife is lowered.	Turn OFF the power.	
E401		Copy disapproval error When trying to perform copying to the pattern No. which has been registered.  : In case of continuous stitching  : In case of cycle stitching	Possible to re-start after pressing cancel button.	Pattern list screen
E402		Pattern deletion error When trying to perform deletion in case the remaining pattern No. which has been registered is only one.  : In case of continuous stitching  : In case of cycle stitching	Possible to re-start after pressing cancel button.	Pattern list screen

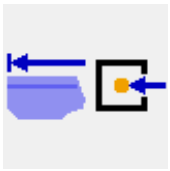
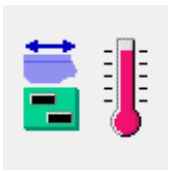
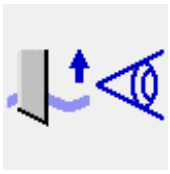
Error code		Description of error	How to recover	Place of recovery
E 4 1 0		When sewing counter set value is smaller than the number of times of sewing of the sewing pattern which is selected at present.	Possible to re-start after reset.	ACF data input screen
E 4 7 8		Carriage movable range over error, left Feed amount of sewing pattern is over the movable range of carriage (left side). set the jump feed amount and sewing length so that the left traveling amount of carriage is within 25 mm.	Possible to re-start after reset.	ACF data input screen
E 4 7 9		Carriage movable range over error (right) Feed amount of sewing pattern is over the movable range of carriage (right side). Set the jump feed amount and sewing length so that the right traveling amount of carriage is within 610 mm.	Possible to re-start after reset.	ACF data input screen
E 4 8 6		Eyelet knife length error When the shape is not formed since the eyelet knife length is too short in case of eyelet shape.	Possible to re-start after reset.	Sewing data input screen S17
E 4 8 7		Eyelet shape length error Eyelet shape length is too short to form the shape in case of eyelet shape.	Possible to re-start after reset.	Sewing data input screen S14
E 4 8 8		Flow bar-tacking compensation error When bar-tacking length is too short to form the shape in case of flow bar-tacking shape.	Possible to re-start after reset.	Sewing data input screen S08
E 4 8 9		Knife size error (at the time of plural motions of knife) When knife size is larger than cloth cutting knife size.	Possible to re-start after reset.	Sewing data input screen S02
E 4 9 2		Presser size over of basting When stitching data of basting exceeds presser size.	Possible to re-start after reset.	Sewing data input screen S40
E 4 9 3		Presser size over of tie stitching at sewing end When stitching data of tie stitching at sewing end exceeds presser size.	Possible to re-start after reset.	Sewing data input screen S67

Error code		Description of error	How to recover	Place of recovery
E 4 9 4		Presser size over of tie stitching at sewing start When stitching data of tie stitching at sewing start exceeds presser size.	Possible to re-start after reset.	Sewing data input screen S64
E 4 9 5		Presser size error (Width direction : right only) When stitching data exceeds the size of right only of width direction of presser.	Possible to re-start after reset.	Sewing data input screen S03 S06
E 4 9 6		Presser size error (Width direction : left only) When stitching data exceeds the size of left only of width direction of presser.	Possible to re-start after reset.	Sewing data input screen
E 4 9 7		Presser size error (Length direction : front) When stitching data exceeds the size of front of length direction of presser.	Possible to re-start after reset.	Sewing data input screen
E 4 9 8		Presser size error (Width direction : right and left) When stitching data exceeds the size of both right and left of width direction of presser.	Possible to re-start after reset.	Sewing data input screen S05
E 4 9 9		Presser size error (Length direction : rear) When stitching data exceeds the size of rear of length direction of presser.	Possible to re-start after reset.	Sewing data input screen S02
E 7 0 3		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.	Turn OFF the power.	Communication screen
E 7 0 4		Nonagreement of system version When version of system software is improper in case of initial communication.	Turn OFF the power.	Communication screen

Error code		Description of error	How to recover	Place of recovery
E 7 3 0		Main shaft motor encoder defectiveness or phase-out When encoder of sewing machine motor is abnormal.	Turn OFF the power.	
E 7 3 1		Main motor hole sensor defectiveness or position sensor defectiveness When hole sensor or position sensor of sewing machine is defective.	Turn OFF the power.	
E 7 3 3		Reverse rotation of main shaft motor When sewing machine motor rotates in reverse direction.	Turn OFF the power.	
E 8 0 1		Phase-lack of power When phase-lack of input power occurs.	Turn OFF the power.	
E 8 0 2		Power instantaneous cut detection When input power is instantaneously OFF.	Turn OFF the power.	
E 8 1 1		Overvoltage When input voltage is 280V or more.	Turn OFF the power.	
E 8 1 3		Low voltage When input voltage is 150v or less.	Turn OFF the power.	
E 9 0 1		Abnormality of main shaft motor IPM When IPM of servo control p.c.b. is abnormal.	Turn OFF the power.	

Error code		Description of error	How to recover	Place of recovery
E 9 0 2		Overcurrent of main shaft motor When current flows excessively to sewing machine motor.	Turn OFF the power.	
E 9 0 3		Abnormality of stepping motor power When stepping motor power of servo control p.c.b. fluctuates ±15% or more.	Turn OFF the power.	
E 9 0 4		Abnormality of solenoid power When solenoid power of servo control p.c.b. fluctuates ±15% or more.	Turn OFF the power.	
E 9 0 5		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.	
E 9 0 7		Zigzag width motor origin retrieval error When origin sensor signal is not inputted at the time of origin retrieval motion.	Turn OFF the power.	
E 9 0 8		Y-feed motor origin retrieval error When origin sensor signal is not inputted at the time of origin retrieval motion.	Turn OFF the power.	
E 9 0 9		Needle thread trimmer motor origin retrieval error When origin sensor signal is not inputted at the time of origin retrieval motion.	Turn OFF the power.	
E 9 1 0		Presser motor origin retrieval error When origin sensor signal is not inputted at the time of origin retrieval motion.	Turn OFF the power.	

Error code		Description of error	How to recover	Place of recovery
E911		Bobbin thread trimmer 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.	
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 temperature of heat sink for main control p.c.b. When temperature of heat sink of main control p.c.b. is 85 ° C or more.	Turn OFF the power.	
E943		Defectiveness of EEP-ROM of main control p.c.b. When data writing to EEP-ROM is not performed.	Turn OFF the power.	
E946		Defectiveness of writing to EEP-ROM of head relay p.c.b. When data writing to EEP-ROM is not 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.	
E983		When carriage does not pass sensor even when three seconds or more have passed from command to move carriage to the sewing machine side.	Turn OFF the power.	

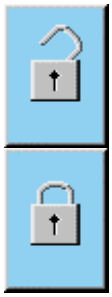
Error code		Description of error	How to recover	Place of recovery
E 9 8 4		When carriage does not pass sensor even when three seconds or more have passed from command to move carriage to Preset side.	Turn OFF the power.	
E 9 8 5		Preset is not advanced. Preset is not advanced even when a specified period of time has passed from the preset advance command.	Turn OFF the power.	
E 9 8 6		Preset is not returned. Preset is not returned even when a specified period of time has passed from the preset return command.	Turn OFF the power.	
E 9 8 7		Motion error of cloth sweeping bar Cloth sweeping bar does not move to the predetermined position even when a specified period of time has passed from the cloth sweeping bar motion command.	Turn OFF the power.	
E 9 8 8		Carriage origin retrieval error Pulses beyond the range are output at the time of carriage origin retrieval.	Turn OFF the power.	
E 9 8 9		Carriage motor drive temperature error Temperature of the carriage motor drive is abnormal	Turn OFF the power.	
E 9 9 9		When cloth cutting knife does not return When cloth cutting knife does not return after the lapse of predetermined time.	Turn OFF the power.	

5. MAINTENANCE MODE

5-1. PERFORMING KEY LOCK

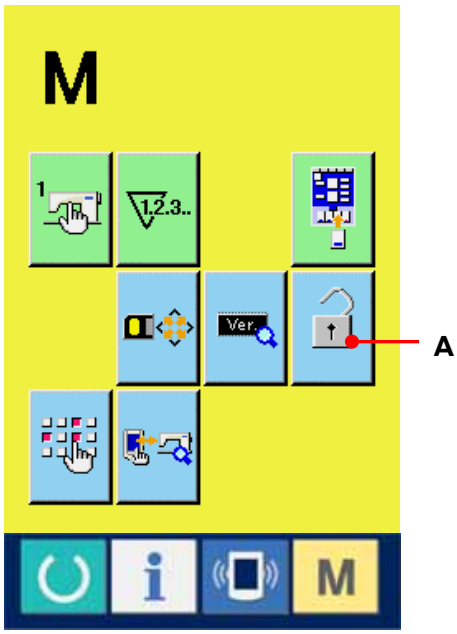
① Display the key lock screen.

Press M key for three seconds, and the KEY LOCK button (A) 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.



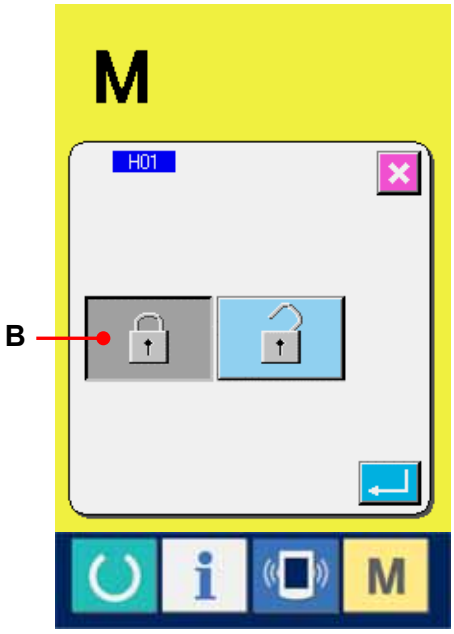
: State that key lock is not set

: State that key lock is set



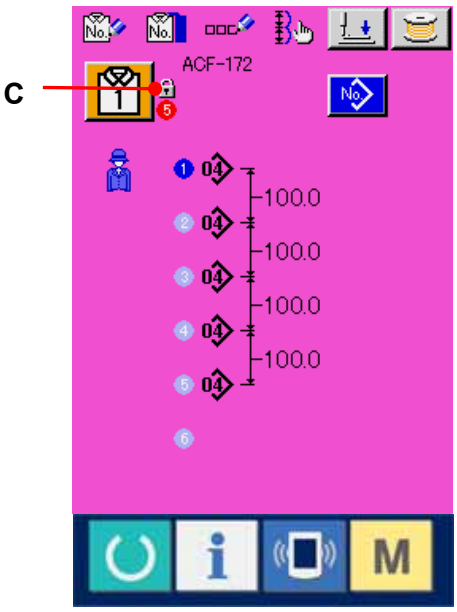
② Select and determine the key lock state.

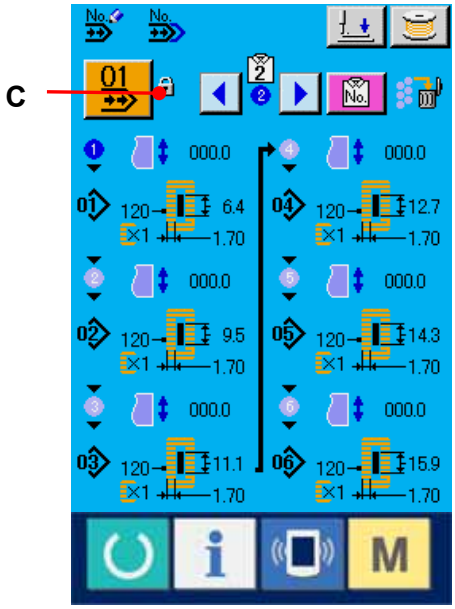
Select the key lock state button (B) in the key lock setting screen, and press . Then the key lock setting screen is closed and the key lock state is set.

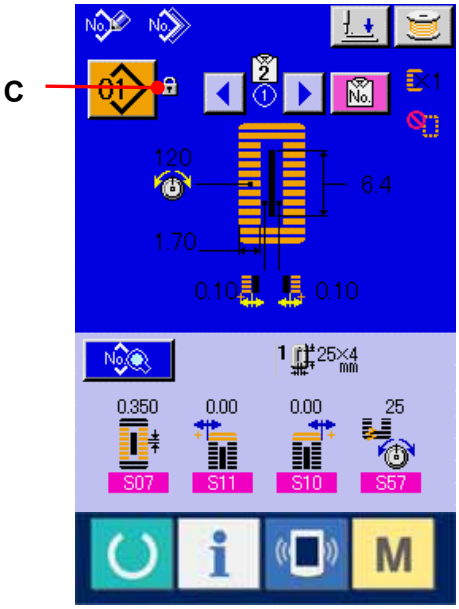


③ **Close the mode screen and display the data input screen.**

When the mode screen is closed and the data input screen is displayed, pictograph (C) 0 q 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.





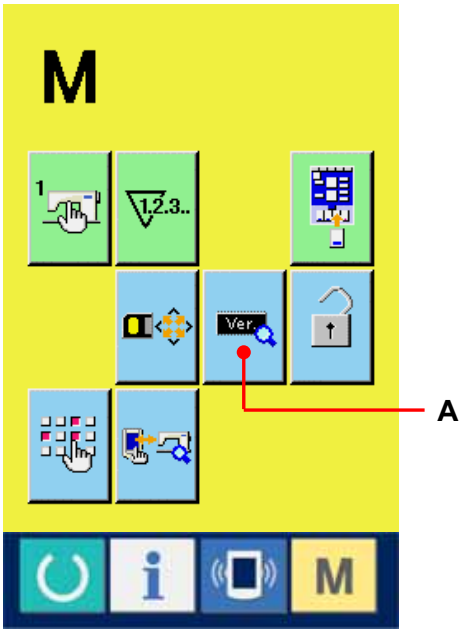


5-2. DISPLAYING VERSION INFORMATION

① Display the version information screen.

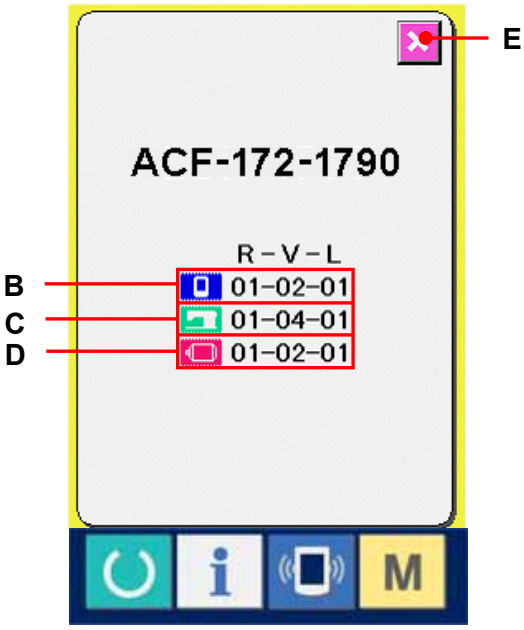
When MODE key [M] is held pressed for three seconds, VERSION INFORMATION button [Ver] (A) is displayed on the screen.

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



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

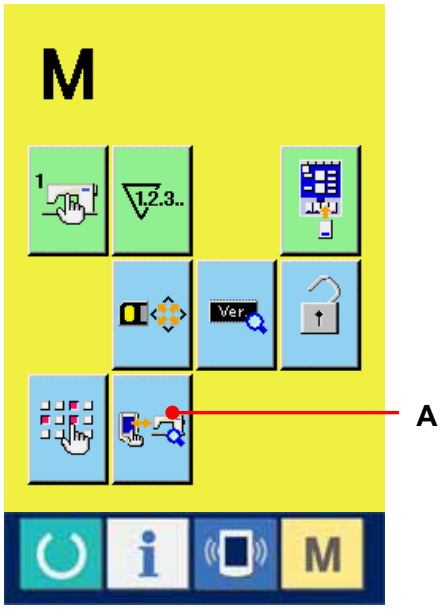
When CANCEL button [X] (E) is pressed, the version information screen is closed and the mode screen is displayed.



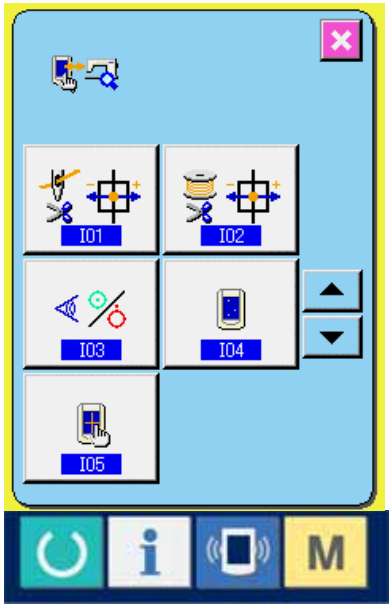
5-3. USING CHECK PROGRAM

5-3-1. Displaying the check program screen

When MODE key M is held pressed for three seconds, CHECK PROGRAM button (A) is displayed on the screen.



For the check program, there are 5 items below.



I01 Needle thread trimmer origin adjustment
-> Refer to 5-3-2. Performing needle thread trimmer origin adjustment,p.130.

I02 Bobbin thread trimmer origin adjustment
-> Refer to 5-3-3. Performing bobbin thread trimmer origin adjustment

I03 Sensor check
-> Refer to 5-3-4. Performing sensor check,p.132.

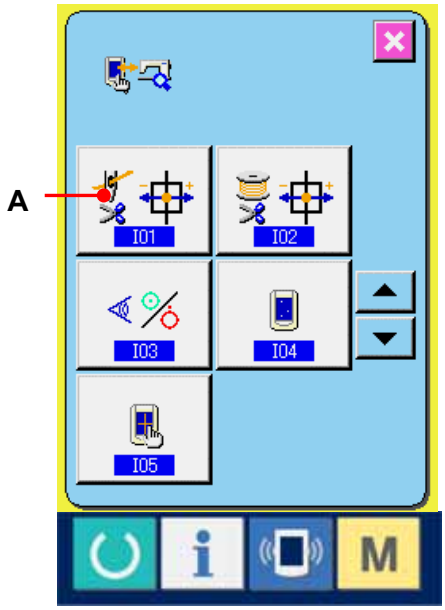
I04 LCD check
-> Refer to 5-3-5. Performing LCD check,p.134.

I05 Touch panel compensation
-> Refer to 5-3-6. Performing touch panel compensation,p.135.

5-3-2. Performing needle thread trimmer origin adjustment

① Display the needle thread trimmer origin adjustment screen.

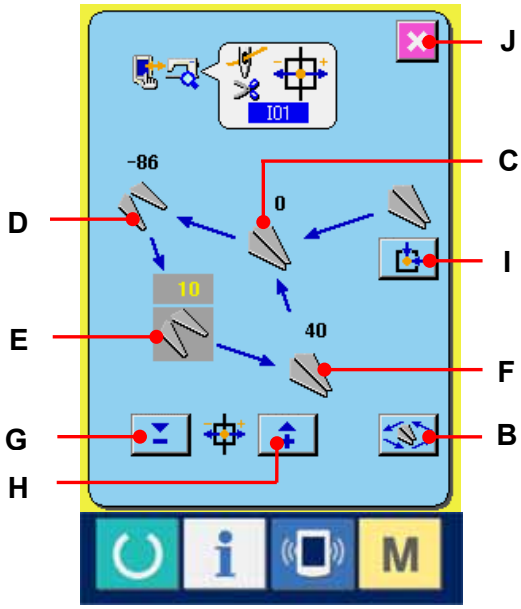
When NEEDLE THREAD TRIMMER ORIGIN ADJUSTMENT button  $ (A) is pressed, the needle thread trimmer origin adjustment screen is displayed.

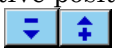


② Perform the needle thread trimmer origin adjustment.

When OPERATION button  (B) is pressed, the needle thread trimmer is actuated to the positions below and the pictograph showing the position is displayed in gray.

C : Thread holding position (Initial value : 0 pulse)
D : Release position (Initial position : -86 pulses)
E : Waiting position (Initial position : 10 pulses)
F : Thread trimming position (Initial position : 40 pulses)



Data of the respective positions can be changed with - or + button  (G ・ H).

When ORIGIN RETRIEVAL button  (I) is pressed, origin retrieval can be performed from any position.

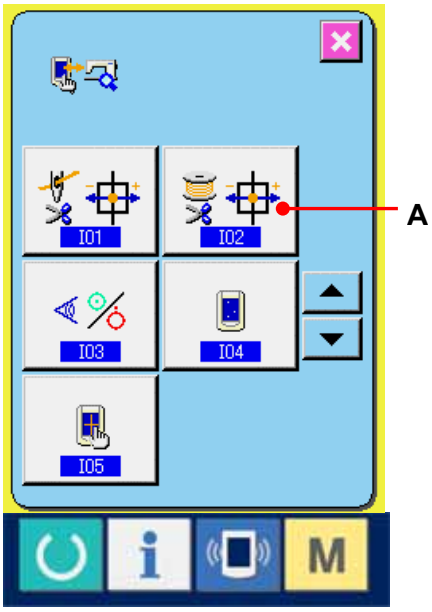
When CANCEL button  (J) is pressed, the contents of change can be memorized in EEPROM of the machine head and the screen returns to the check program.

* For the details of adjustment, refer to the Engineer's Manual for LBH-1790.

5-3-3. Performing bobbin thread trimmer origin adjustment

① Display the bobbin thread trimmer origin adjustment screen.

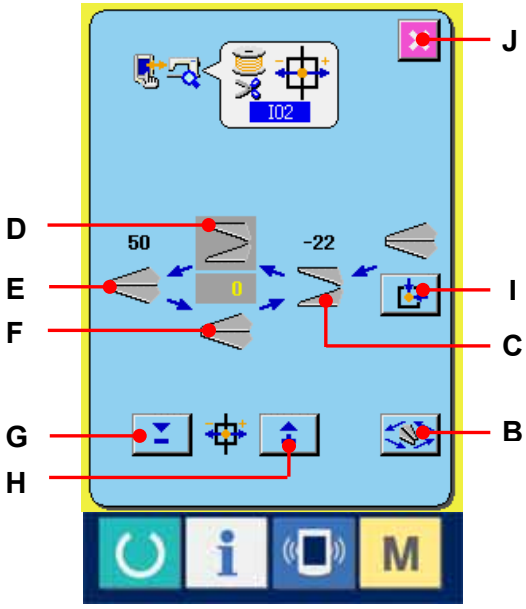
When BOBBIN THREAD TRIMMER ORIGIN ADJUSTMENT button  (A) is pressed, the bobbin thread trimmer origin adjustment screen is displayed.



② Perform the bobbin thread trimmer origin adjustment.

When OPERATION button  (B) is pressed, the bobbin thread trimmer is actuated to the positions below and the pictograph showing the position is displayed in gray.

C : Release position (Initial position : -22 pulses)
D : Waiting position (Initial position : 0 pulse)
E : Thread trimming position (Initial position : 50 pulses)
F : Thread holding position (Initial position : 0 pulse)



Data of the respective positions can be changed with - or + button  (G ・ H).

When ORIGIN RETRIEVAL button  (I) is pressed, origin retrieval can be performed from any position.

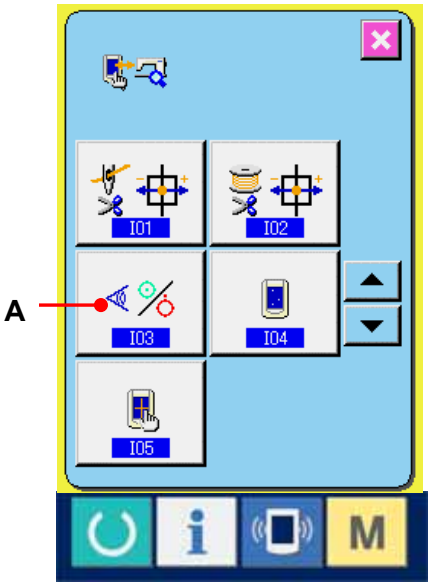
When CANCEL button  (J) is pressed, the contents of change can be memorized in EEPROM of the machine head and the screen returns to the check program screen.

* For the details of adjustment, refer to the Engineer's Manual for LBH-1790.

5-3-4. Performing sensor check

① Display the sensor check screen.

When SENSOR CHECK button  (A) on the check program screen is pressed, the sensor check screen is displayed.



② Perform the sensor check.

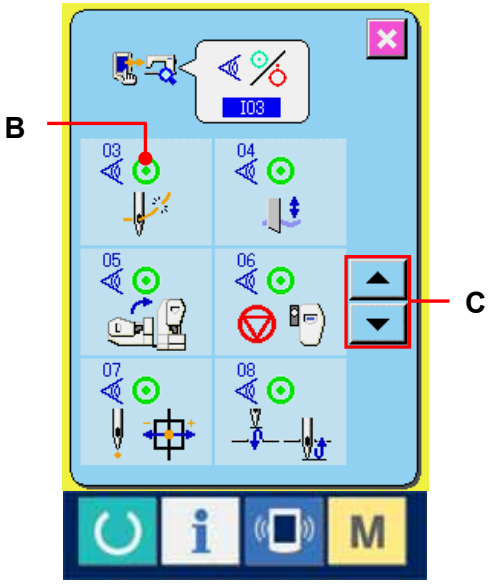
Input status of the various sensors can be checked on the sensor check screen.

Input status of each sensor is displayed as B. The display of ON status/OFF status is displayed as below.

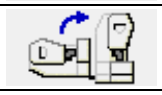
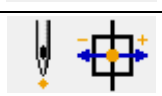
 : ON status

: OFF status

Press UP or DOWN SCROLL button  or  (C) and display the sensor which has been checked.



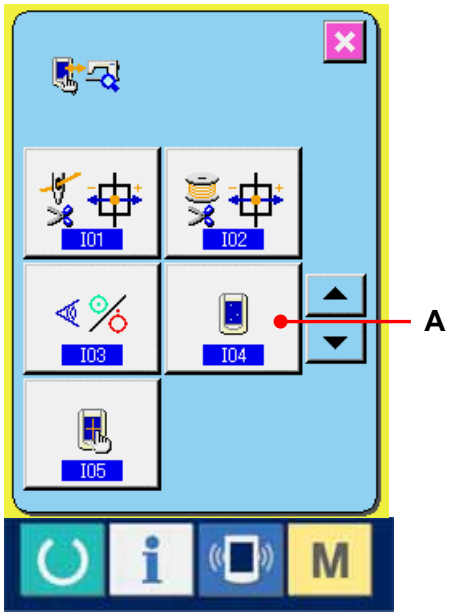
For the sensors, 18 kinds below are displayed.

No.	Pictograph	Description of sensor
03		Thread breakage detection
04		Cloth cutting knife sensor
05		Head tilt sensor
06		Stop switch (Head side switch)
07		Needle rocking sensor
08		Sewing machine woodruff plate sensor
09		Knee switch sensor
10		Hand switch sensor
11		Cloth detection sensor
12		Carriage origin sensor
13		Carriage retardation position sensor
14		Preset forward sensor
15		Preset backward sensor
16		Temporary stop switch sensor
17		Carriage tilt sensor
18		Cloth sweeping sensor
19		No. of pcs. of stacking sensor
20		Stop switch (ACF main body side switch)

5-3-5. Performing LCD check

① Display the LCD check screen.

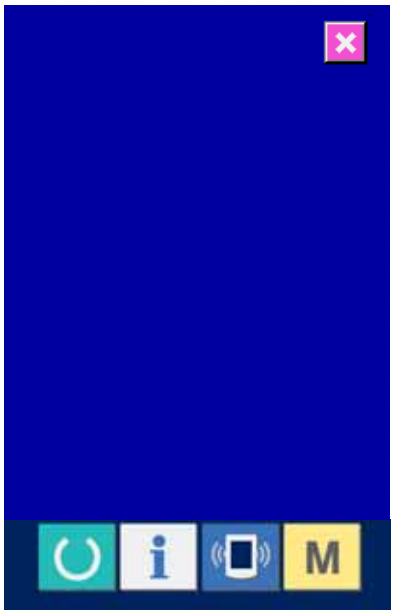
When LCD CHECK buton  (A) on the check program screen is pressed, the LCD check screen is displayed.



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.

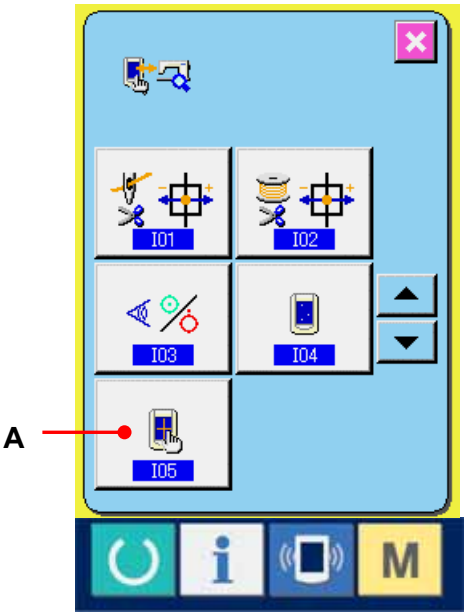
After checking, press a proper place on the screen. The LCD check screen is closed and the check program screen is displayed.



5-3-6. Performing touch panel compensation

① Display the touch panel compensation screen.

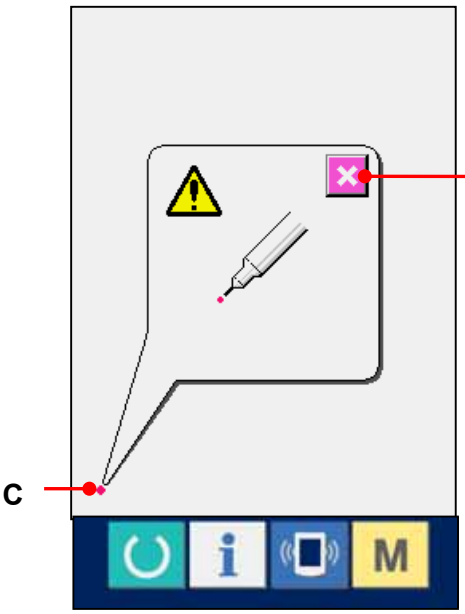
When TOUCH PANEL COMPENSATION button  (A) on the check program screen is pressed, the touch panel compensation screen is displayed.



② Press the lower left position.

Press red circle • (C) located at the lower left position on the screen.

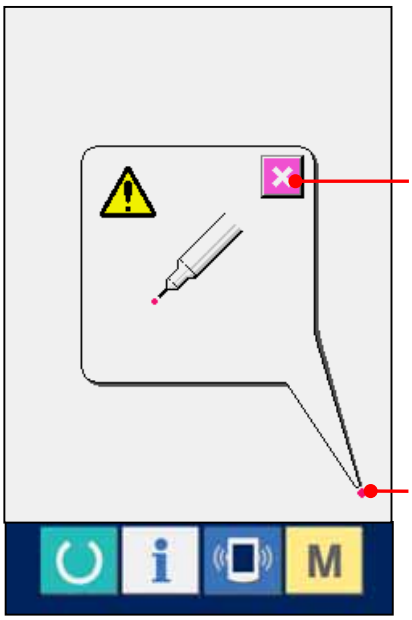
When finishing the compensation, press CANCEL button  (B).



③ Press the lower right position.

Press red circle • (D) located at the lower right position on the screen.

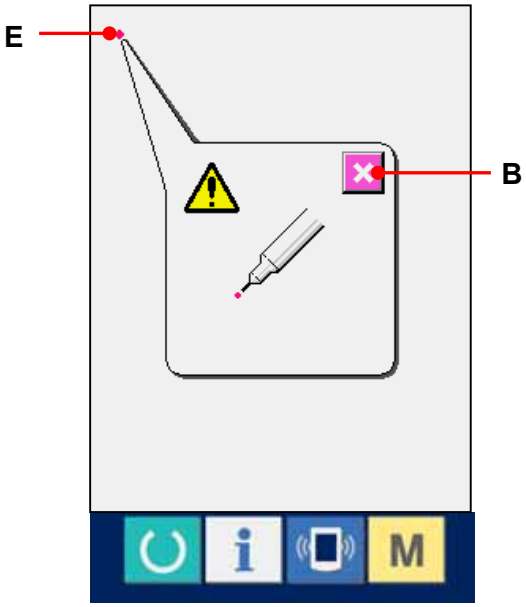
When finishing the compensation, press CANCEL button  (B).



④ **Press the upper left position**

Press red circle (E) located at the upper left position on the screen.

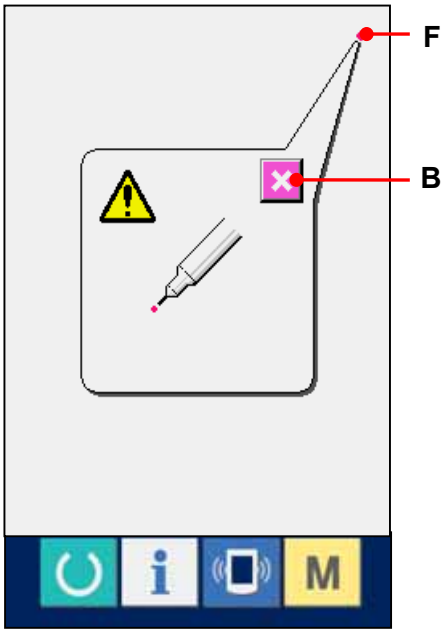
When finishing the compensation, press CANCEL button (B).



⑤ **Press the upper right position.**

Press red circle (F) located at the upper right position on the screen.

When finishing the compensation, press CANCEL button.



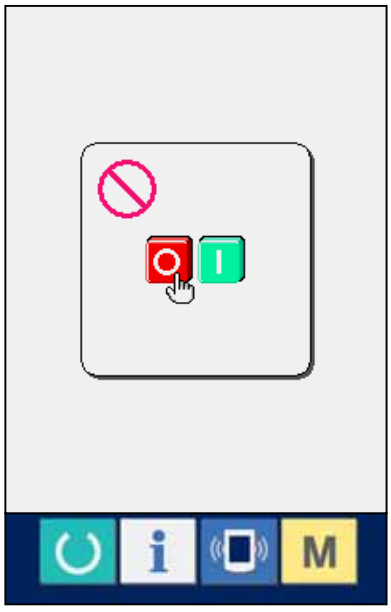
⑥ **Store the data**

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.



5-4. 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.

5-4-1. Data which are possible to be handled

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

Data name		Extension	Description of data
Adjustment data		Model name+00XXX.MSW Example) ACF00001.MSW	Data of memory switches 1 and 2
All sewing machine data		Model name+00XXX.MSP Example) ACF00001.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

XXX : File No.

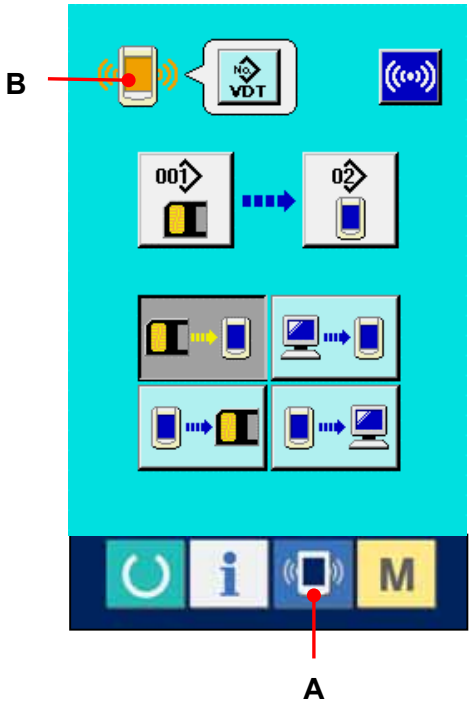
* For panel program data, main program data and servo program data, refer to the Set-up Manual for IP-200.

5-4-2. Displaying the maintenance personnel level

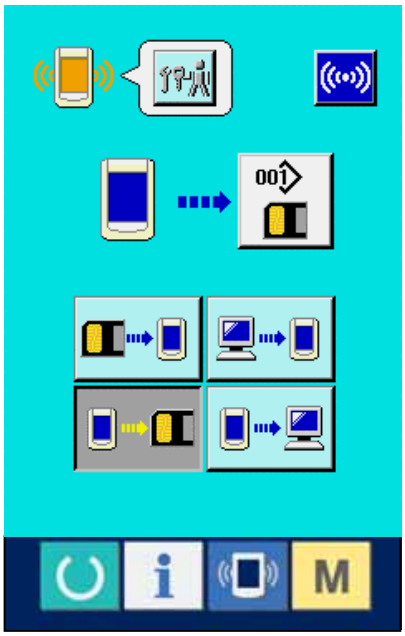
① Display the communication screen of the maintenance personnel level.

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

For the operating procedure, refer to 3-1-4. Take-in of the data,p.93.



* When the adjustment data or the all sewing data is selected, the display becomes as shown on the right-hand side and it is not necessary to specify No. on the panel side.

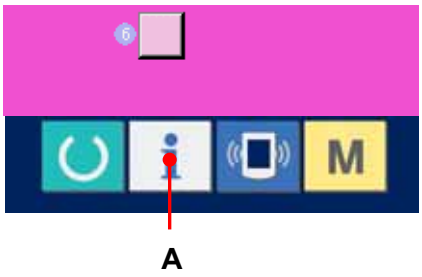


5-5. Information screen of the maintenance personnel level

5-5-1. Display of error record

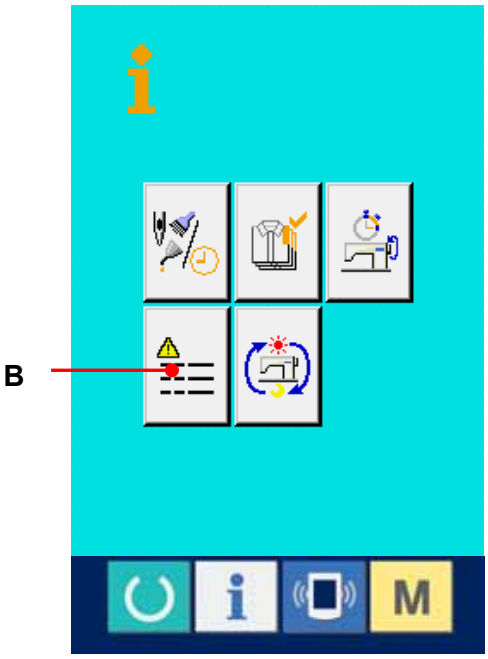
① Display the information screen of the maintenance personnel level.

When INFORMATION key (A) 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.

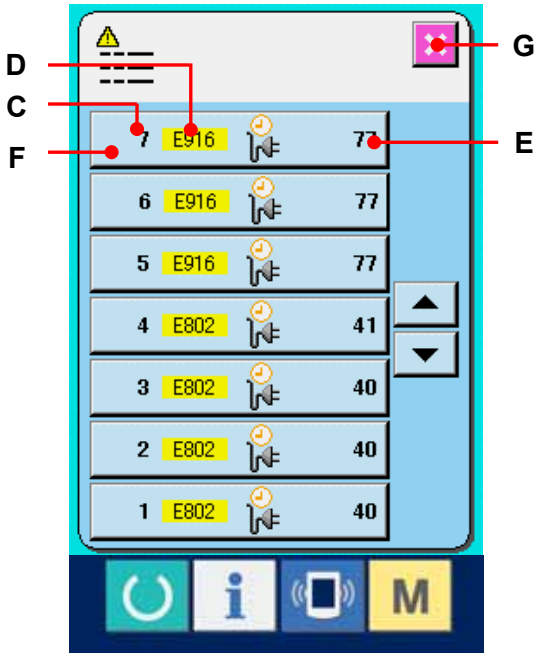
Press ERROR RECORD SCREEN DISPLAY button (B) in the information screen. The error record screen is displayed.



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

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

When CANCEL button (G) is pressed, the error record screen is closed and the information screen is displayed.

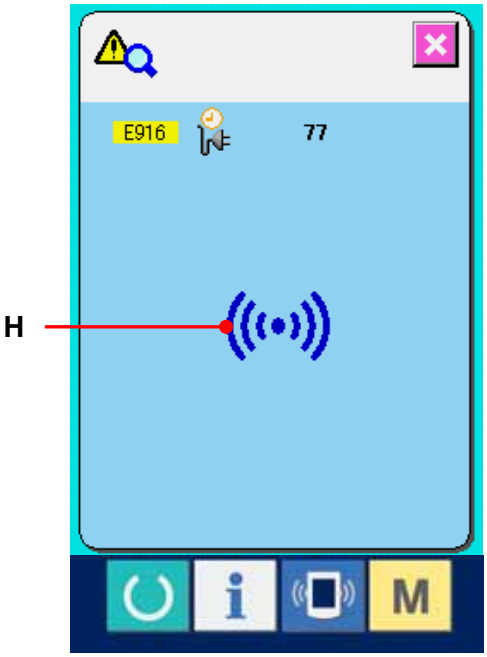


③ Display the details of error.

When you desire to know the details of error, press ERROR button (F) you desire to know. The error detail screen is displayed.

Pictograph (H) corresponding to the error code is displayed in the error detail screen.

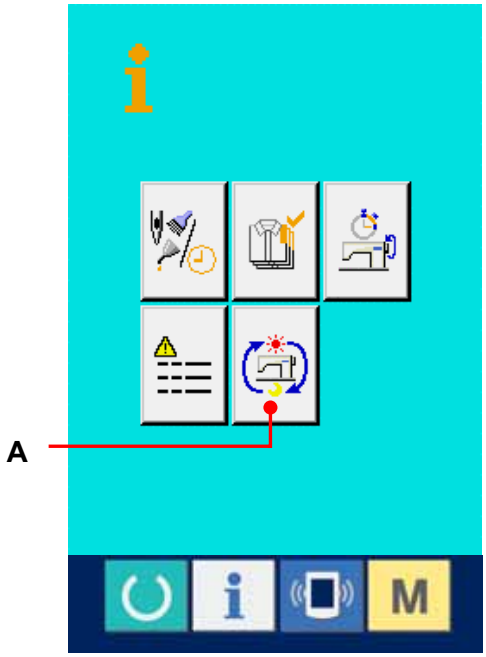
-> Refer to 4. ERROR CODE LIST,p.116. for the error code.



5-5-2. Display of the cumulative working information

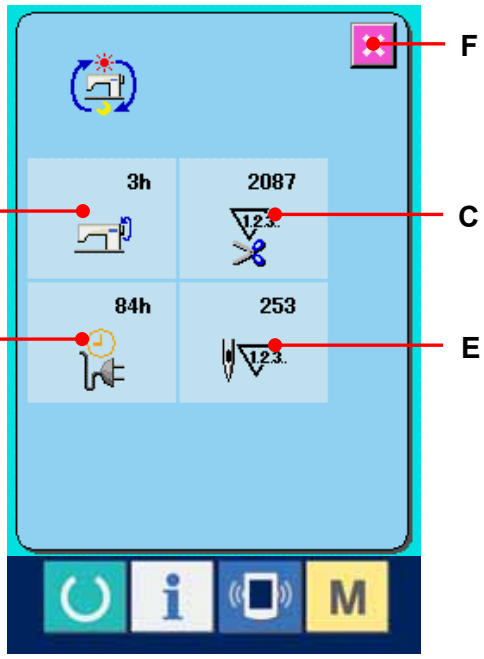
① Display the information screen of the maintenance personnel level.

When INFORMATION key 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 (A) 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.

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

When CANCEL button (F) is pressed, the cumulative working information screen is closed and the information screen is displayed.